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22 September 2021

Ms Tegan Cole
Senior Environmental Assessment Officer
Department of Planning, Industry and Environment
Energy Resources and Industry – Planning and Assessment

By email

**RE: MOUNT PLEASANT OPTIMISATION PROJECT – REQUEST FOR INFORMATION**

Dear Tegan,

Further to the Department of Planning, Infrastructure and Environment (DPIE) request for additional information regarding the Mount Pleasant Optimisation Project (the Project) (letter dated 27 August 2021), please find attached MACH Energy's (MACH's) responses enclosed in Attachment A.

Please feel free to contact me if you require further information.

Yours sincerely,

Chris Lauritzen
General Manager - Resource Development
Mount Pleasant Operation

**Enclosed: Attachment A – DPIE Advice and MACH's Responses**

**Attachment A**

**DPIE Advice and MACH's Responses**

## Noise and Blasting Assessment

Relevant Quotes:

1. *Please review the footnotes associated with each of the receivers listed in Table 6-12 of the Noise and Blasting Assessment against condition 1 and condition 2 of Schedule 3 of DA 92/97 to ensure the correct allocation of acquisition and/or mitigation rights for receivers under Development Consent DA 92/97. Should any changes be required, please revise Table 6-12 and any subsequent text in the assessment.*

Response:

On review, Table 6-12 of the Mount Pleasant Optimisation Project (the Project) Noise and Blasting Assessment (Wilkinson Murray, 2020)[1] (Appendix A of the Project Environmental Impact Statement [EIS]) does include some typographical errors in the footnotes denoting the current mitigation or acquisition upon request status under Development Consent DA 92/97 for some receivers.

MACH notes, however, that Table 7-5 of the Project EIS main text also summarises the predicted noise criteria exceedances described in Tables 6-12 and 6-13 of the Project Noise and Blasting Assessment. The footnotes denoting the current mitigation and acquisition upon request status under Development Consent DA 92/97 in Table 7-5 are correct for all receivers.

## Employment

Relevant Quotes:

2. *Please provide clarification regarding projected workforce numbers for the project throughout the EIS. Please clarify:*
    a. *the total average additional employment (full-time equivalent positions) for:*
        - *project construction over the life of the project; and*
        - *project operations over the life of the project.*
    b. *the maximum work force numbers (full-time equivalent positions) for:*
        - *project construction; and*
        - *project operations.*

Response:

The estimated annual average workforce on a full-time equivalent (FTE) basis for the currently approved Mount Pleasant Operation and the Project are included in Table 1 and Graph 1 below, reproduced from Appendix O of the Project EIS. The additional workforce to the approved Mount Pleasant Operation can be derived from Table 1 by comparing the two workforce profiles.

The Project annual average FTE construction (2026) and operational (2041) workforce peaks would be approximately 200 and 830 people, respectively (Graph 1).

[1] Wilkinson Murray (2020) *Mount Pleasant Optimisation Project Noise and Blasting Assessment.* Prepared for MACH Energy Australia Pty Ltd.

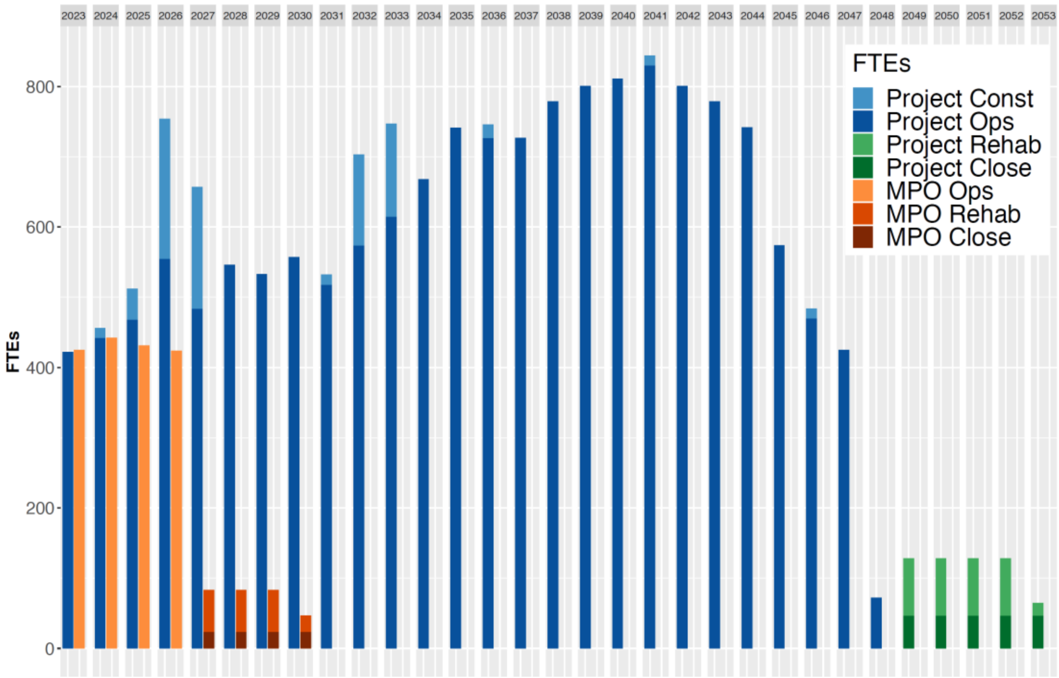
It should be noted that annual FTEs do not capture construction-related short-term peaks that may occur over periods of months or weeks. For this reason, the Project EIS (Table 3-1 and Section 3.16) also describes monthly peaks of approximately 400 people, with the potential for shorter-term peaks of up to approximately 500 people to occur.

**Table 1**
**Annual Average Workforce Profile**

| | Approved Mount Pleasant Operation | | Project | |
|---|---|---|---|---|
| | Applicable Years | Annual Average Workforce (FTEs) | Applicable Years | Annual Average Workforce (FTEs) |
| Operations | 2023 to 2026 | 431 | 2023 to 2048 | 602 |
| Construction | 2023 to 2026 | 0 | Construction years[1] | 75 |
| Final Rehabilitation | 2027 to 2030 | 50 | 2049 to 2053 | 68 |
| Closure | 2027 to 2030 | 24 | 2049 to 2053 | 47 |

[1] Construction is anticipated to occur in 2024 to 2027, 2031 to 2033, 2036, 2041 and 2046. The annual average construction workforce on an FTE basis is the average of the construction workforce in these 10 years (Graph 1).

Source: Table 3-1 of Appendix O of the Project EIS.




**Graph 1 – Workforce Profile for The Project and Currently Approved Mount Pleasant Operation.**

Note: 'Const' refers to the construction workforce. 'Ops' refers to the operational workforce. 'Rehab' refers to the rehabilitation workforce. 'Close' refers to the closure workforce.

MPO = Mount Pleasant Operation.

Source: Figure 2-6 of Appendix O of the Project EIS.

## Rossgole Communications Facilities

Relevant Quotes:

> 3. *Regarding the community and Muswellbrook Council's concerns with the Rossgole transmission facilities, please clarify if the increased elevation of the project's integrated waste rock emplacement would impact upon the ability of the tower to transmit radio, television and emergency broadcasts to Muswellbrook.*

Response:

As the approved Mount Pleasant Operation Eastern Out-of-Pit Emplacement landform rises in elevation, it would begin to obscure line of sight between some facilities on the Rossgole Transmission tower and lower residential areas of Muswellbrook. Figure 1 indicates that the approved mine landforms would be approximately 10 metres (m) above line of sight to Sydney Street at this location by 2026. As the Project integrated waste rock emplacement landform would increase in elevation relative to the approved Modification 3 final landform, any transmission signal effects that could arise from the approved Mount Pleasant Operation landform are likely to be exacerbated by the Project. For comparative purposes, Figure 1 illustrates the same cross-section in 2031 when the Project landforms would be approximately 23 m above line of sight.

Based on this analysis, MACH anticipates that some measurable terrain transmission effects could well arise over the life of the Mount Pleasant Operation for Rossgole Tower, depending on the transmission technology and location of alternative facilities being employed at the time. Therefore, as stated in the Submissions Report, MACH would not object to a condition requiring make-good provisions (e.g. such as raising an existing tower or construction of an additional transmission station), should such an adverse impact be demonstrated to occur.

## Traffic

Relevant Quotes:

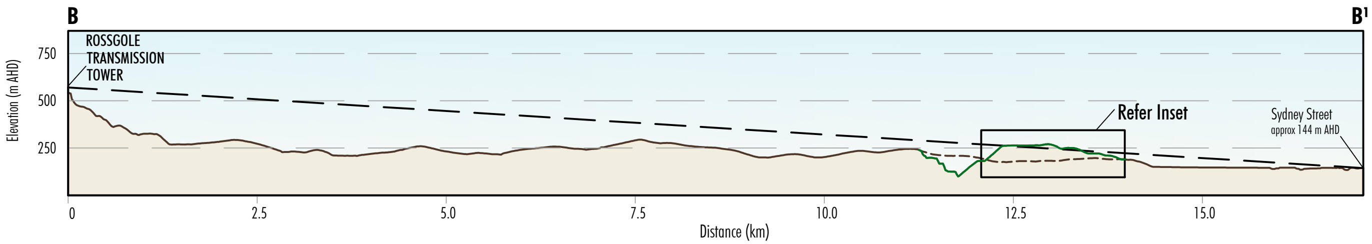
> 4. *The EIS indicated that two options are proposed for the Northern Link Road alignment, noting that only one of these options would be developed. Please provide an outline of the key milestones and dates for determining the final alignment and completion of the associated works for the Northern Link Road (i.e., detailed engineering design, private landowners consent, obtaining approval under section 138 consent under the Roads Act 1993, additional consultation with Council).*

Response:

Following a favourable determination of the Project's State Significant Development (SSD) application, the final alignment of Northern Link Road would be selected. Option 1 remains the preferred option subject to landholder access, however, Option 2 is equally viable. Assuming a similar approval timeline to the recently approved Mangoola Coal Continued Operations Project, notification of determination is expected in 2022. Detailed engineering design of the final option is therefore anticipated to commence in 2023.

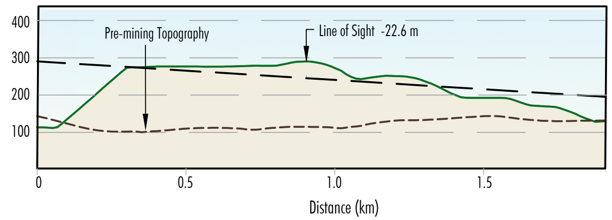
Following detailed engineering design, approval under Section 138 of the *Roads Act 1993* would be sought from the Muswellbrook Shire Council. Construction of Northern Link Road would begin shortly after approval under Section 138 of the *Roads Act 1993* is granted. It is anticipated that construction would take approximately 12 months.

Upon completion of Northern Link Road, Castlerock Road would be closed. As shown on Figure 3-11 of the Project EIS, closure of Castlerock Road is scheduled to be completed by the end of 2025.




SSD General Arrangement 2031 Cross Section B - B1

Scale 1 Horiz : 2.5 Vert

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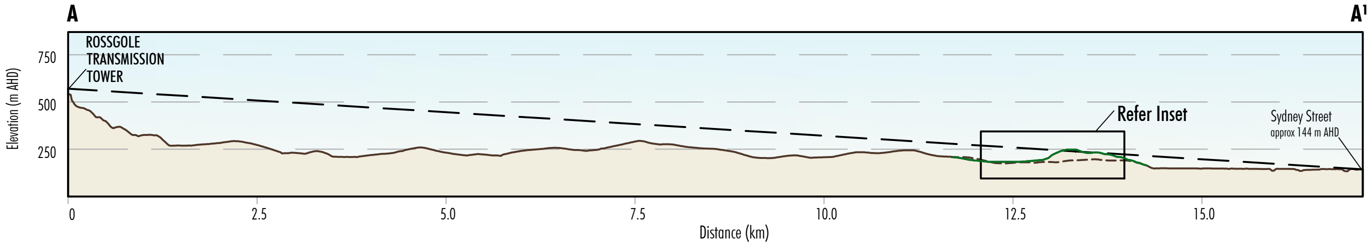
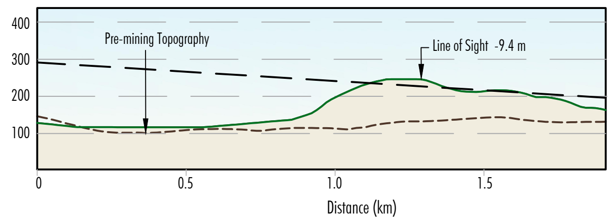
Scale 1 Horiz : 2.5 Vert



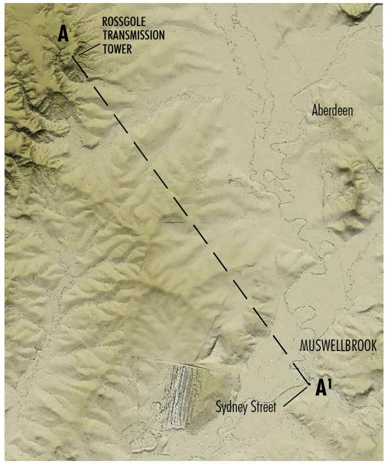

MOD3 Final Landform Cross Section A - A1

Scale 1 Horiz : 2.5 Vert

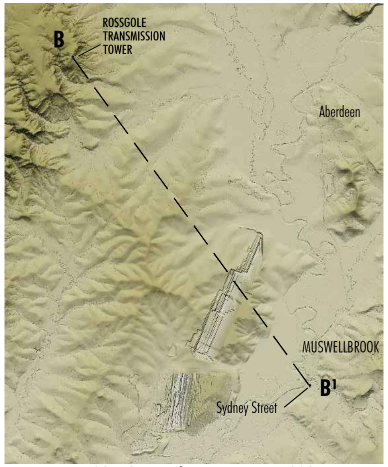



Inset

Scale 1 Horiz : 2.5 Vert




MOD3 Final Landform




SSD General Arrangement 2031

All measurements are approximate.

MAC-18-02 SSD RtS_103A

LEGEND

- Pre-mining Topography (2017)
- Project Landform Surface
- Line of Sight

*Source: MACH (2021)*

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MOUNT PLEASANT OPTIMISATION PROJECT

**Indicative Line of Sight Cross-sections**
**Rossgole Transmission Tower**
**at 30 m Above Ground Level**

**Figure 1**

Consultation with Muswellbrook Shire Council regarding the preferred alignment of the Northern Link Road has been ongoing since 2018.

## Heritage

Relevant Quotes:

5. *For the purposes of clarifying the area of land that would be subject to future Aboriginal Heritage surveys, please provide:*

   a. *a detailed figure showing the 13.8 hectares of unsurveyed land within the proposed Northern Link Road area. Please include the Development Consent approval boundary (DA 92/97), the mining lease boundaries (ML1645, ML1708, ML1808, ML1709, ML1750, ML1713) and the project disturbance area boundaries (SSD 10418); and*

   b. *a detailed figure showing the total land that remains unsurveyed within the Development Consent approval boundary (DA 92/97), the mining lease boundaries (ML1645, ML1708, ML1808, ML1709, ML1750, ML1713) and the project disturbance area boundaries (SSD 10418).*

6. *To clarify the location of the separate 'SSD Zones' referred to in the Aboriginal Cultural Heritage Assessment, please provide a detailed figure (or series of figures) showing each of the 15 zones discussed in the Aboriginal Cultural Heritage Assessment (i.e. zones A-A4, A1R-A4R, B-B4 and C). Please include the Development Consent approval boundary (DA 92/97), the mining lease boundaries (ML1645, ML1708, ML1808, ML1709, ML1750, ML1713) and the project disturbance area boundaries (SSD 10418) for each figure.*

Response:

Figure 2 shows the small residual unsurveyed area within the revised Northern Link Road Options 1 and 2 alignments (up to approximately 15 hectares [ha] inclusive of Option 1). The unsurveyed area within the revised Northern Link Road alignment has been updated to reflect the minor amendments made to the Project footprint subsequent to completion of the Project Aboriginal Cultural Heritage Assessment (ACHA) report (Kuskie, 2020a)[2] (Appendix G of the Project EIS). The potential Aboriginal cultural heritage implications of these minor amendments were assessed in the Addendum Report (Kuskie, 2020b)[3] (Appendix G of the Project EIS).

Figure 3 shows the area within the Project Development Consent Application Area (SSD 10418) where no evidence of previous Aboriginal heritage survey is available. Figures 4a and 4b show the 15 'SSD Zones' discussed in the ACHA within the Development Consent Application Area (SSD 10418).

Zone C shown on Figures 4a and 4b comprises the Project area outside of the primary Project disturbance footprint and Bengalla Mine's Approved Disturbance Boundary (SSD-5170), where potential minor future Project disturbance may occur subject to detailed engineering design and the ultimately selected alignment of the Northern Link Road. Zone C also includes Zones A1R, A2R, A3R and A4R[4], which would become Zone C as they would no longer form part of the Mount Pleasant Operation primary disturbance area.

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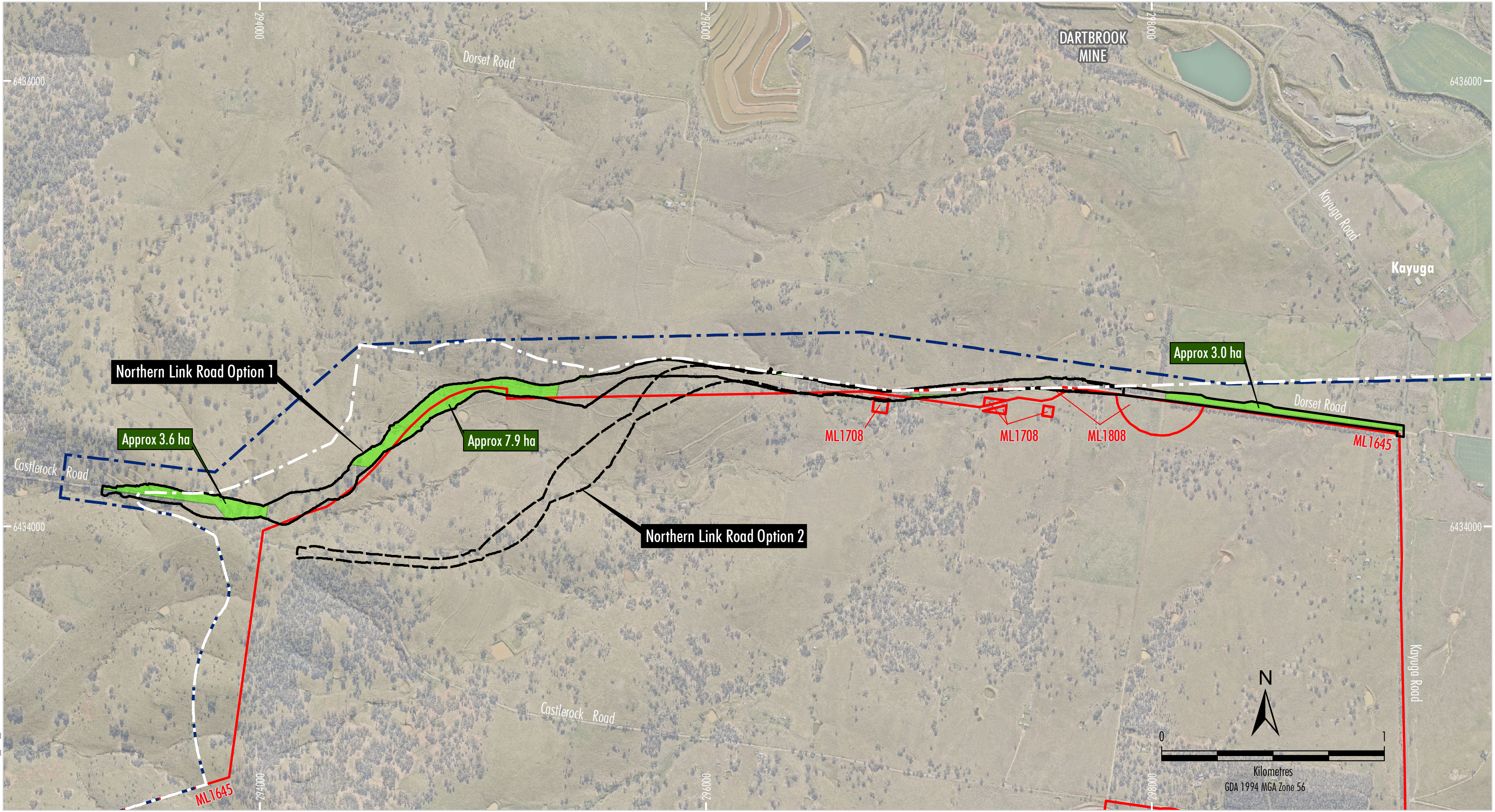
2 Kuskie (2020a) *Mount Pleasant Optimisation Project, Hunter Valley, New South Wales: State Significant Development Application – Aboriginal Cultural Heritage Assessment.* Prepared for MACH Energy Australia Pty Ltd.

3 Kuskie (2020b) *Mount Pleasant Optimisation Project, Hunter Valley, New South Wales: State Significant Development Application – Aboriginal Cultural Heritage Assessment – Addendum Report to Assess Minor Amendments.* Prepared for MACH Energy Australia Pty Ltd.

4 Existing approved disturbance areas proposed to be relinquished as part of the Project.




MAC-18-02 SSD_RtS_219C

LEGEND
- Development Consent Approval Boundary (DA92/97)
- Development Consent Application Boundary (SSD 10418)
- Mining Lease Boundary (Mount Pleasant Operation)
- Northern Link Road Option 1
- Northern Link Road Option 2
- Northern Link Road Not Subject to Previous Aboriginal Heritage Survey

*Source: MACH (2021); NSW Spatial Services (2021)*
*Orthophoto: MACH (2020)*

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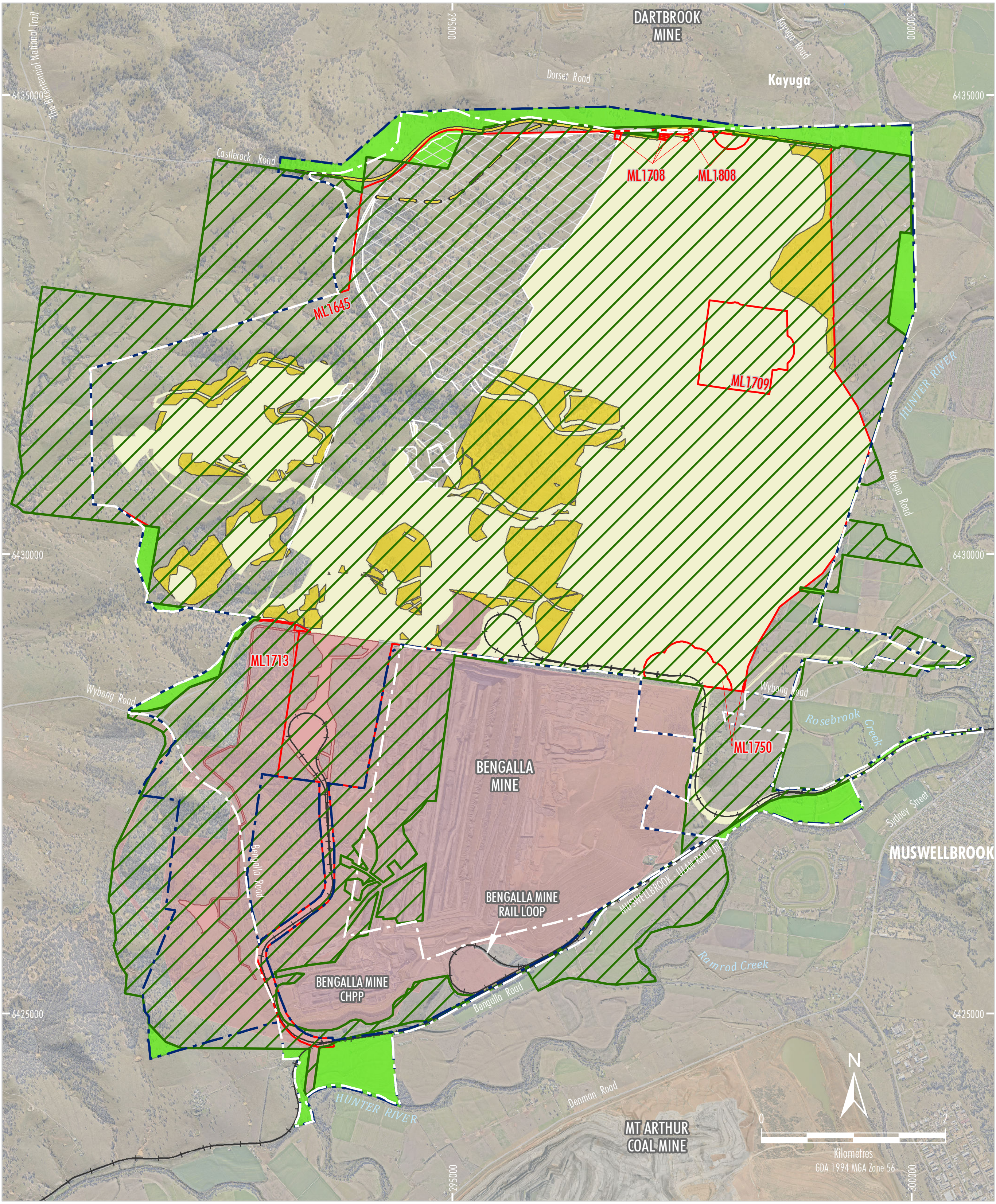
MOUNT PLEASANT OPTIMISATION PROJECT

**Aboriginal Cultural Heritage Survey Areas**
**Northern Link Road**

**Figure 2**




LEGEND

Existing Mine Elements
- Development Consent Approval Boundary (DA92/97)
- Mining Lease Boundary (Mount Pleasant Operation)
- Project Continuation of Existing/Approved Surface Development (DA92/97) [1]
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Existing/Approved Mount Pleasant Operation Infrastructure within Bengalla Mine Approved Disturbance Boundary (SSD-5170) [1]

Additional/Revised Project Elements
- Development Consent Application Boundary (SSD 10418)
- Approved Disturbance Area to be Relinquished [2]
- Approximate Additional Disturbance of Project Extensions [1]
- Northern Link Road Option 1 Centreline [3]
- Northern Link Road Option 2 Centreline

- Previous Aboriginal Heritage Survey Coverage (1995 - 2020)
- Development Consent Application Area (SSD 10418) Not Subject to Previous Aboriginal Heritage Survey

1 Excludes some incidental Project components such as water management infrastructure, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.
2 Subject to detailed design of Northern Link Road alignment.
3 Preferred alignment subject to landholder access.

*Source: MACH (2021); NSW Spatial Services (2021); Department of Planning and Environment (2016)*
*Orthophoto: MACH (July 2020)*

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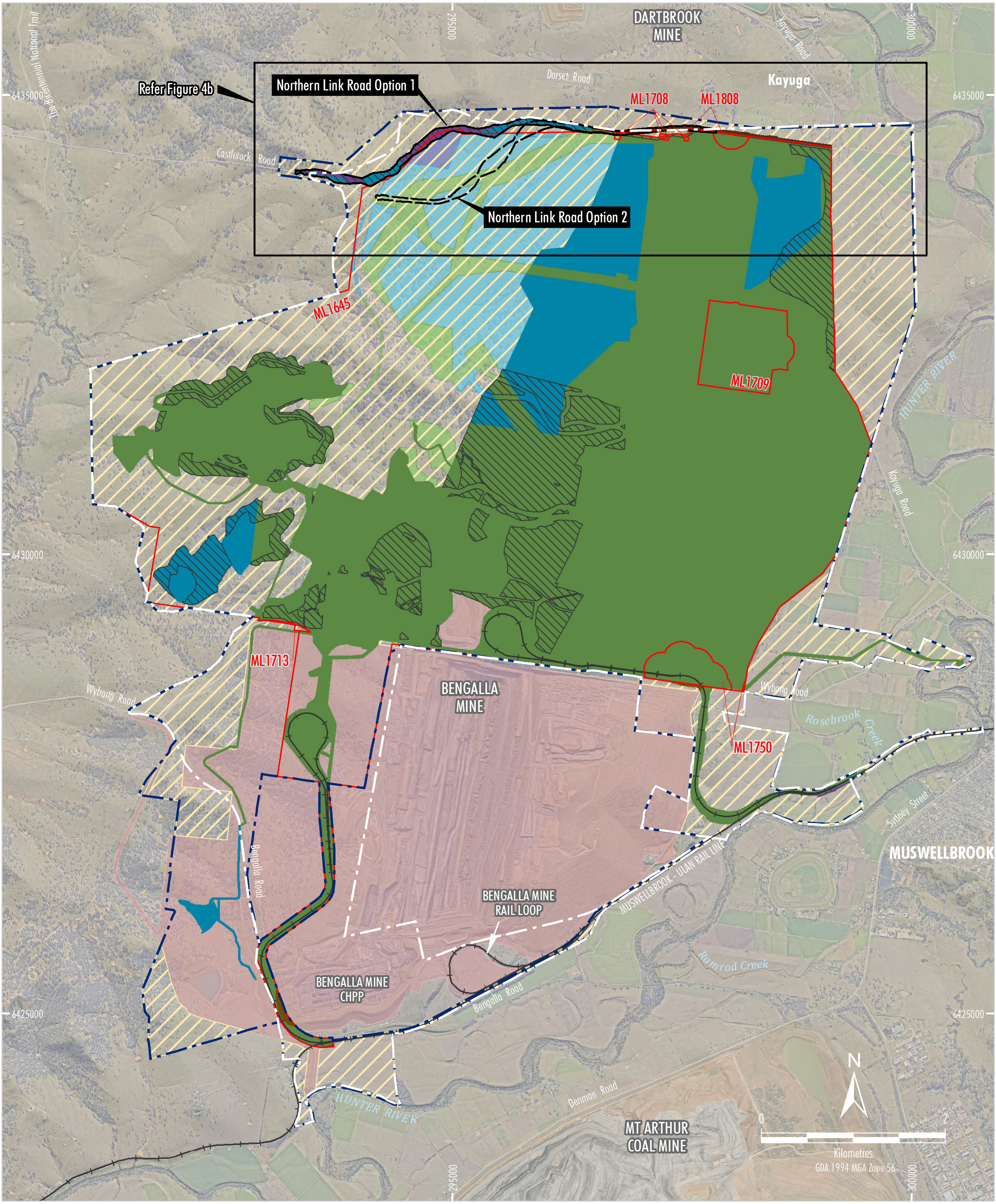
MOUNT PLEASANT OPTIMISATION PROJECT

Previous Aboriginal Heritage Survey Coverage

**Figure 3**




MAC-18-02 SSD_RtS_221C

LEGEND

Development Consent Approval Boundary (DA92/97)

Development Consent Application Boundary (SSD 10418)

Mining Lease Boundary (Mount Pleasant Operation)

Bengalla Mine Approved Disturbance Boundary (SSD-5170)

ZONE A Existing/Approved Areas where the SSD Disturbance would not comprise Additional Primary Disturbance

- Zone A1
- Zone A2
- Zone A3
- Zone A4

Zone A Areas to be Relinquished

- Zone A1R
- Zone A2R
- Zone A3R
- Zone A4R

ZONE B Areas in which Additional SSD Primary Disturbance is Proposed

- Zone B1
- Zone B2
- Zone B3
- Zone B4

ZONE C Potential Minor Future Disturbance Area Subject to Detailed Infrastruture Engineering Design

- Zone C

SSD Aboriginal Cultural Heritage Zones

ZONE 1 - Subject to previous heritage survey and covered by an AHIP

ZONE 2 - Subject to previous heritage survey, but not covered by an AHIP

ZONE 3 - Not subject to previous heritage survey, but covered by an AHIP

ZONE 4 - Not subject to previous heritage survey and not covered by an AHIP

*Source: MACH (2021); NSW Spatial Services (2021); Department of Planning and Environment (2016)*
*Orthophoto: MACH (July 2020)*

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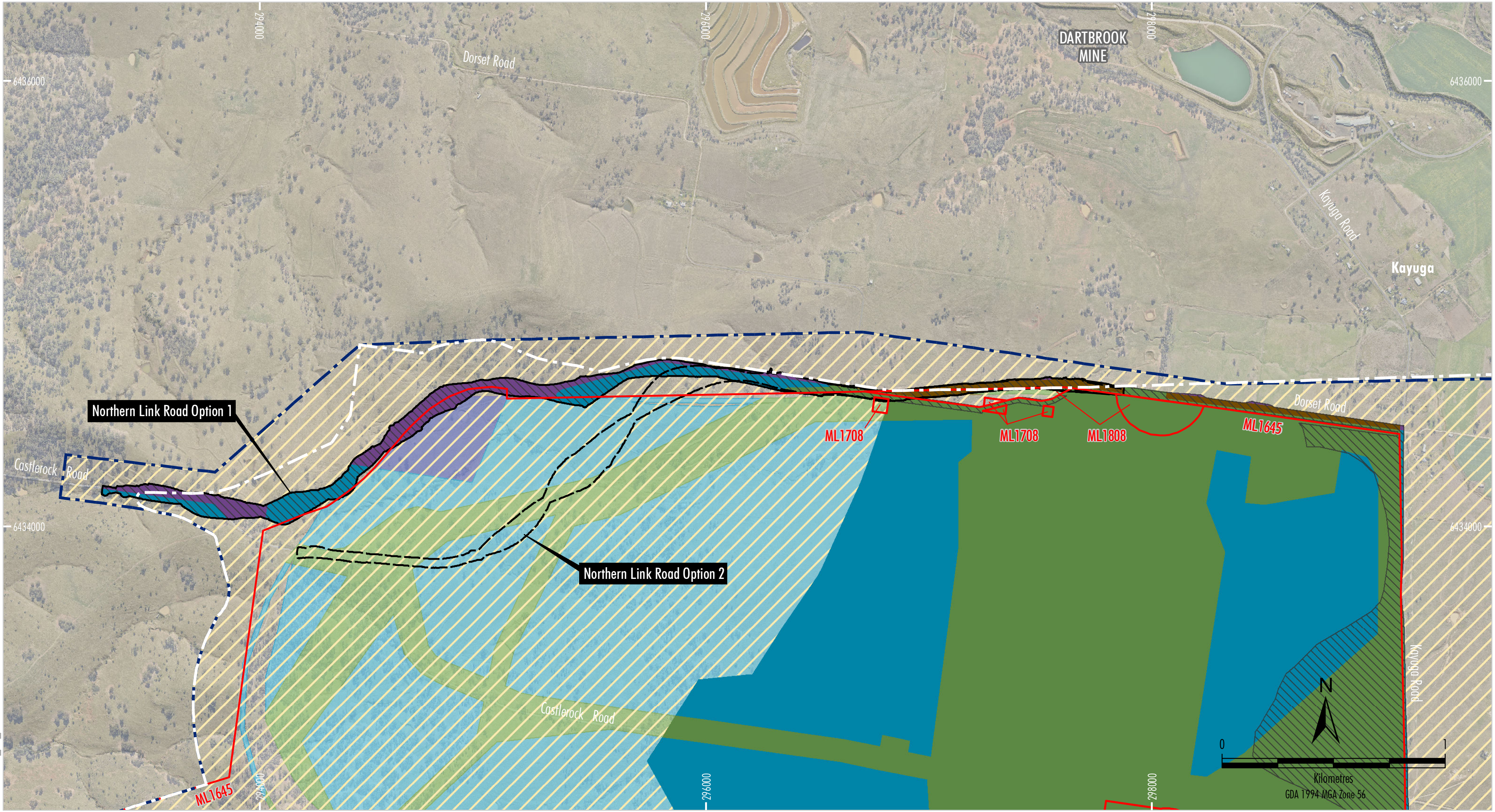
MOUNT PLEASANT OPTIMISATION PROJECT

**Aboriginal Cultural Heritage Survey Zones SSD Project**

**Figure 4a**






LEGEND

- Development Consent Approval Boundary (DA92/97)
- Development Consent Application Boundary (SSD 10418)
- Mining Lease Boundary (ML)

ZONE A — Existing/Approved Areas where the SSD Disturbance would not comprise Additional Primary Disturbance

- Zone A1
- Zone A2
- Zone A3
- Zone A4

Zone A Areas to be Relinquished

- Zone A1R
- Zone A2R
- Zone A3R
- Zone A4R

ZONE B — Areas in which Additional SSD Primary Disturbance is Proposed

- Zone B1
- Zone B2
- Zone B3
- Zone B4

ZONE C — Potential Minor Future Disturbance Area Subject to Detailed Infrastruture Engineering Design

- Zone C

SSD Aboriginal Cultural Heritage Zones

ZONE 1 - Subject to previous heritage survey and covered by an AHIP
ZONE 2 - Subject to previous heritage survey, but not covered by an AHIP
ZONE 3 - Not subject to previous heritage survey, but covered by an AHIP
ZONE 4 - Not subject to previous heritage survey and not covered by an AHIP

*Source: MACH (2021); NSW Spatial Services (2021)*
*Orthophoto: MACH (2020)*

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MOUNT PLEASANT OPTIMISATION PROJECT

**Aboriginal Cultural Heritage Survey Zones**
**Northern Link Road**

**Figure 4b**

The total unsurveyed area and the zones shown on Figure 3, 4a and 4b reflect the revised Northern Link Road Options 1 and 2 alignments, and incorporate the Aboriginal heritage surveys undertaken as part of the Bengalla Mine Continuation Project (AECOM, 2013)[5] and the Project ACHA (Appendix G of the Project EIS).

Also within the Development Consent Application Area (SSD 10418) are a number of areas within the approved Bengalla Mine Disturbance Boundary (SSD-5170) which have not been subject to additional Aboriginal heritage surveys by the Mount Pleasant Operation, as no additional Project development is proposed.

## Final Landform

<u>Relevant Quotes:</u>

> 7. *Further analysis and justification is required with respect to the proposed final landform. In particular:*
>
>    a. *The EIS does not provide sufficient information and justification for the size and depth of the final void. Please clarify the size and depth of the proposed final void and the proposed slope (%) of the internal batters;*
>
>    b. *Further options analysis should be provided to refine and improve the design of the proposed final void. For example, reducing the total depth, total size, and slope of the internal batters (currently up to 18 degrees); and*
>
>    c. *Please provide a comparison of the proposed final void for the project relative to the currently approved final voids, including size and depth of the voids and a figure showing their relative locations.*

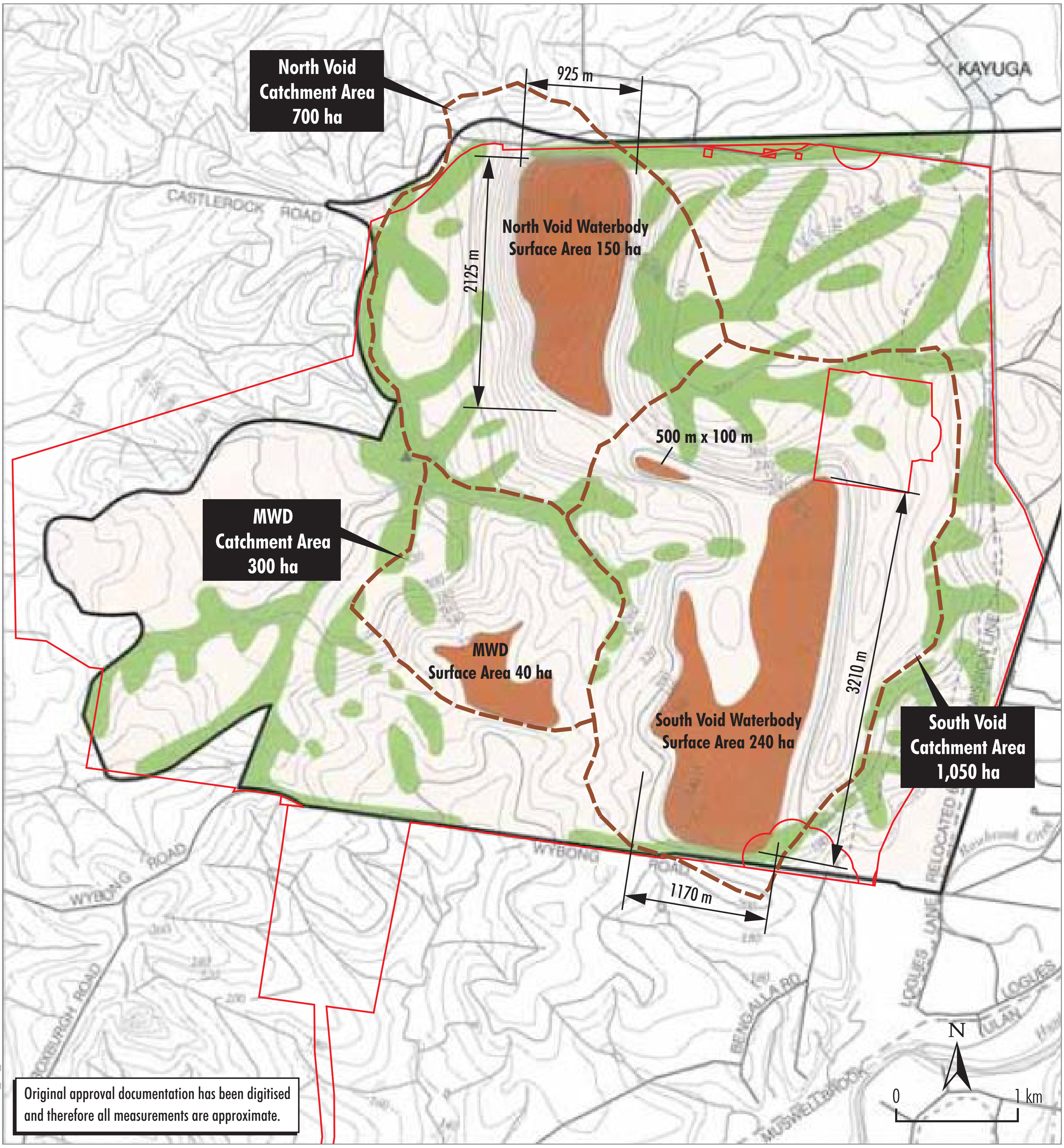
<u>Response:</u>

Figures 5 and 6 illustrate in plan view the approximate area and dimensions of the multiple final voids shown in the landform presented in the original approval documentation for the Mount Pleasant Operation, and the single final void proposed in the Project EIS. Figures 7 and 8 illustrate how these features differ in physical location, depth and extent in both plan and cross-sectional views.

Figure 7 also provides a comparison of the final void catchment and waterbody areas of the Project relative to the original approval documentation for the Mount Pleasant Operation under Development Consent DA 92/97. As is evident from Figure 7 and Figure 8:

1. The Project would result in fewer final voids (i.e. one).
2. The Project would result in a material reduction in the total catchment area of final voids, relative to the originally approved final landform.
3. The Project final void would be materially deeper, relative to the natural land surface, which is a function of the coal seams dipping to the west, and the Project more efficiently extracting all coal seams to the Edderton Seam floor in North Pit.
4. The projected Project final void waterbody would be materially smaller than the combined extent of the multiple “final void” areas approved under Development Consent DA 92/97 in 1999, which is logical as the total catchment area excised from the Hunter River catchment is much smaller.

[5] AECOM Australia Pty Ltd (2013) *Bengalla Continuation of Mining Projects Aboriginal Archaeology and Cultural Heritage Impact Assessment.* Prepared for Hansen Bailey Environmental Consultants.




MAC-18-02 SSD_RtS_004C

Source: Coal & Allied (1997)

LEGEND

- Mining Lease Boundary
- Final Void Waterbody [1]
- Final Void Catchment Boundary
- Native Vegetation
- Pasture

[1] While it is difficult to determine categorically from the earlier approval documentation what the extents of the long-term equilibrium waterbodies for the Original EIS landforms would be, for the purposes of this comparison MACH has taken the extents of the "final void" areas shown in the Original EIS as an indicative equilibrium waterbody extent.

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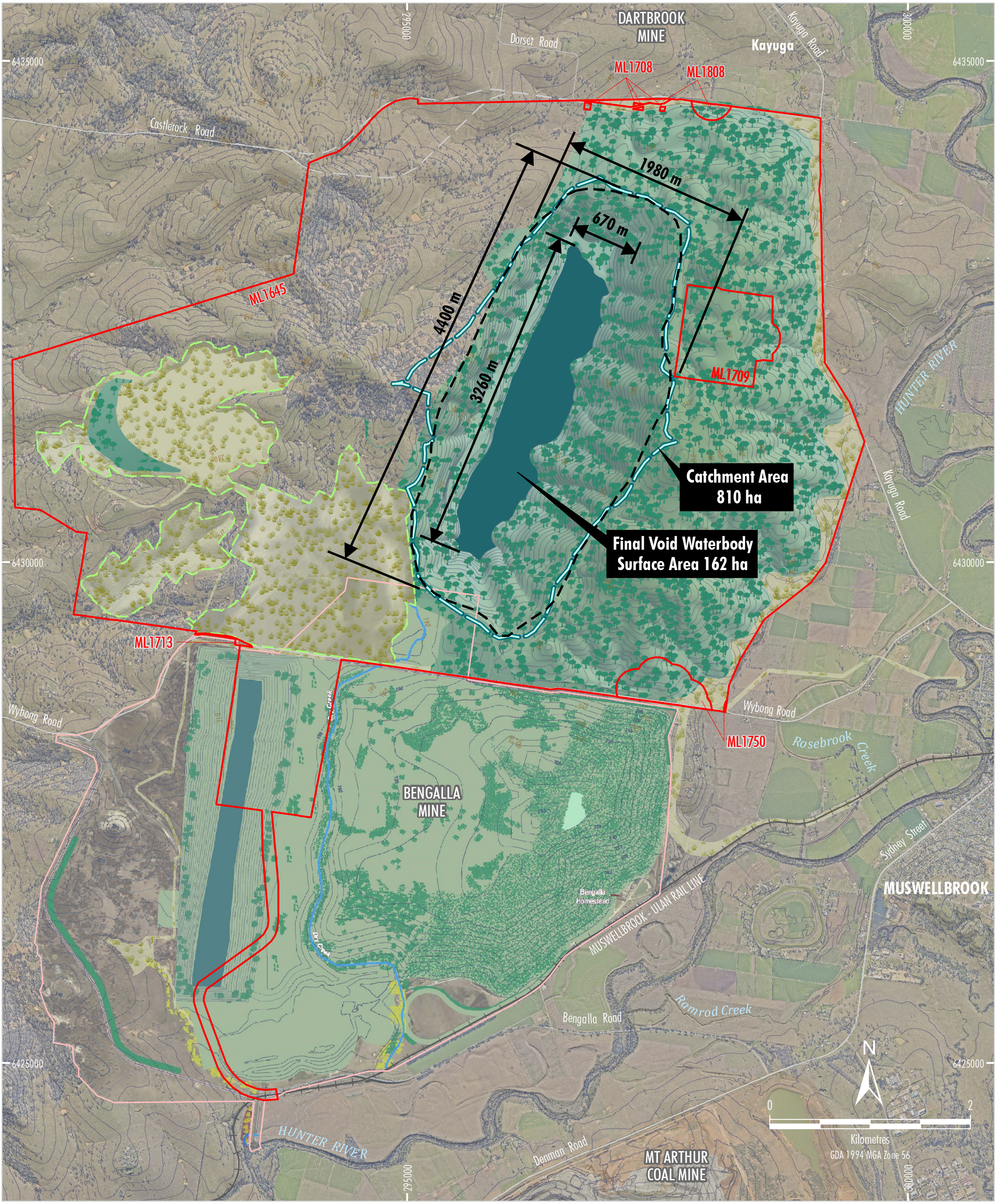
MOUNT PLEASANT OPTIMISATION PROJECT

Original EIS Indicative Final Void Metrics

**Figure 5**




MAC-18-02 SSD_R1S_225B

LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Final Landform Contour (10 m interval)
- Project Final Void Waterbody
- Project Final Void Indicative Extent
- Project Final Void Catchment Area

Secondary/Post-mining Land Use Domains

- Domain A - Final Void
- Domain C - Agricultural Land
- Domain D - Native Woodland/Grassland
- Potential High Intensity Agriculture Area

Bengalla Mine Conceptual Final Landform *

- Project Boundary (Appendix 2 of Development Consent SSD-5170) (Dated 23 December 2016)

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

Note: Light vehicle access roads and upslope diversions associated with minimising the catchment of the final void and Fines Emplacement Area are not shown.

*Source: MACH (2021); Bengalla Mine (2016); NSW Spatial Services (2021); Department of Planning and Environment (2016)*
*Orthophoto: MACH (2020)*

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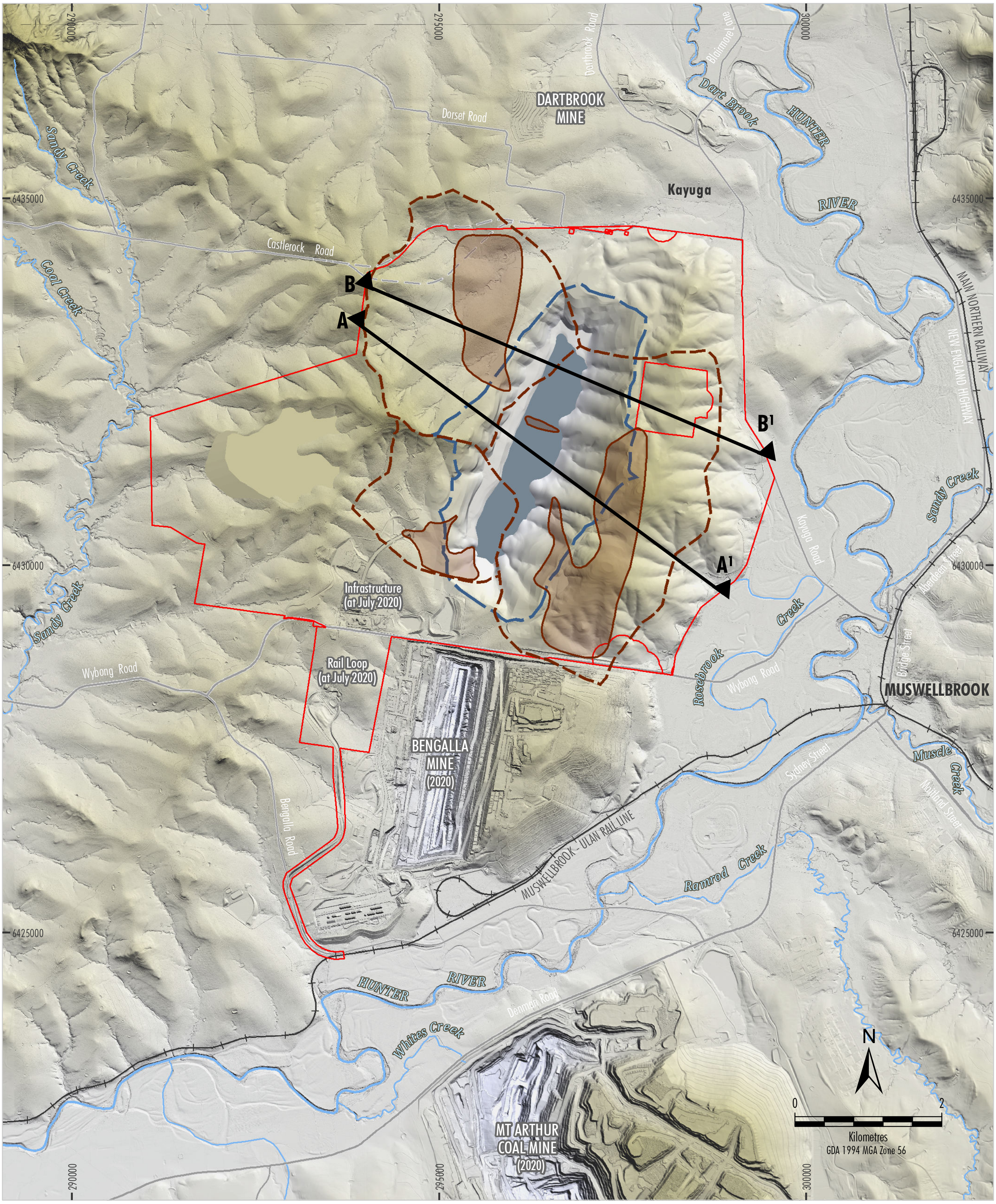
MOUNT PLEASANT OPTIMISATION PROJECT

Conceptual Final Land Use Areas Metrics

**Figure 6**




LEGEND

- Mining Lease Boundary (Mount Pleasant Operation)
- Original EIS Final Void Waterbody [1]
- Original EIS Void Catchment Area
- Project Final Void Waterbody
- Project Final Void Catchment Area

Refer Figure 8 for Cross-sections.

[1] While it is difficult to determine categorically from the earlier approval documentation what the extents of the long term equilibrium waterbodies for the Original EIS landforms would be, for the purposes of this comparison MACH has taken the extents of the "final void" areas shown in the Original EIS as an indicative equilibrium waterbody extent.

Source: MACH (2021); NSW Spatial Services (2021)

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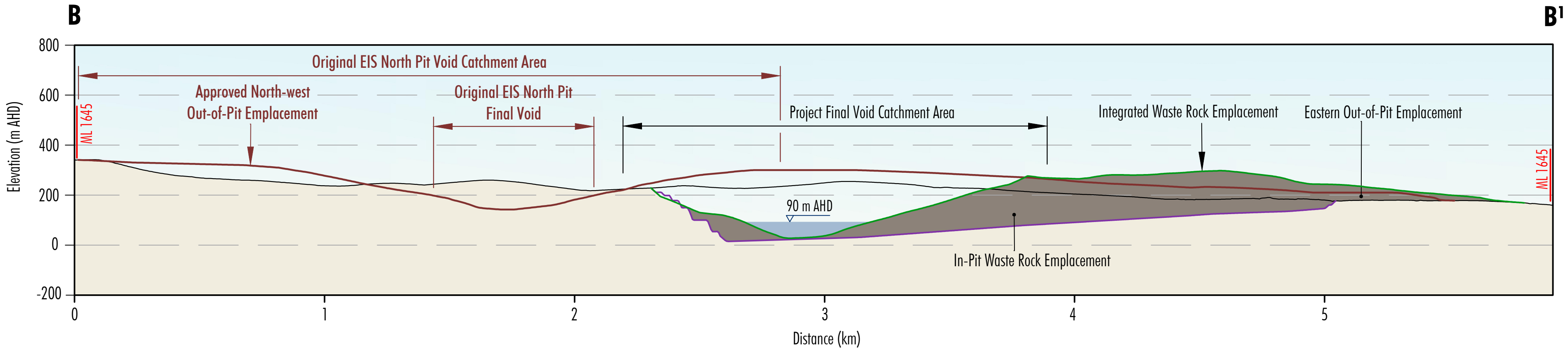
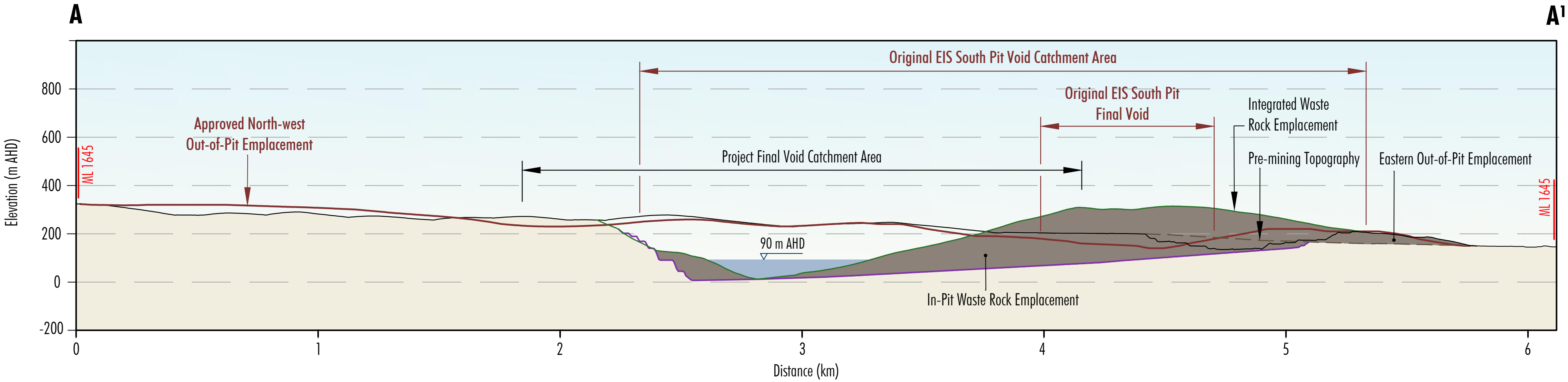
MOUNT PLEASANT OPTIMISATION PROJECT

**Comparative Final Void Plan**

**Figure 7**




NORTH PIT
CROSS-SECTION B - B1
Scale 1 Vertical : 1 Horizontal




SOUTH PIT
CROSS-SECTION A - A1
Scale 1 Vertical : 1 Horizontal

MAC-18-02 SSD RtS_101C

LEGEND
- Existing Natural Surface (July 2020)
- Original EIS Final Landform Surface
- Conceptual Project Final Landform Surface
- Project Open Cut
- Project Waste Rock Emplacement
- Project Final Void Waterbody

Refer Figure 7 for cross-section locations.

*Source: MACH (2021); AGE (2020); ENRS (2019)*

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MOUNT PLEASANT OPTIMISATION PROJECT

**Comparative Final Void Cross-sections**

**Figure 8**

In considering the above, the Department should also consider:

- The Project would recover approximately 247 million tonnes of additional run-of-mine (ROM) coal relative to the Mount Pleasant Operation as approved under Development Consent DA 92/97. In total, the Mount Pleasant Operation incorporating the Project would extract some 444 million tonnes of ROM coal.
- The additional Project ROM coal would be recovered from effectively the same total area as the original project by extracting deeper coal to the Edderton Seam floor in North Pit, and hence it follows that the depth of the Project final void would need to correspondingly increase.
- The Project final void would excise much less catchment from the Hunter River than the originally approved final landform.

With respect to slopes, MACH suggests that the Department should also benchmark the final landforms in other recent major open cut coal mining determinations by the Independent Planning Commission (IPC), as multiple recent projects have been approved with residual final void highwalls that are much steeper than the residual slopes that are proposed at the Project.

For example, Mangoola Continuation Project was approved earlier this year with proposed highwall slopes of up to 27 degrees (°) *from vertical* (i.e. 63° from horizontal) in the Northern Void.

As described in the Project EIS and the Submissions Report, the initial Project final void was also initially rectangular in shape and ran the full strike length of the three pits, and had steep unmodified residual highwalls. However, in response to feedback from regulatory and community stakeholders, MACH has re-designed the Project final void to:

- backfill approximately 1.5 kilometre (km) of the northern part of the final void;
- reduce the depth of the final void in the North and Central Pit areas and decrease the slope of the internal batters;
- apply geomorphic design concepts to parts of the Project landform that drain to the final void; and
- push down the western highwall to an overall angle of approximately 18° (from horizontal).

As a result of the above, the Project final void is considered safe, geotechnically stable and minimises the catchment reporting to the void whilst maintaining geomorphic design concepts (i.e. providing sufficient slope length to improve post-mining stability and reduce long-term erosion risk).

MACH has gone to some length to design a landform that is an optimum compromise between a range of competing priorities, including the size of void, landform slopes, mining costs, and land disturbance area and associated mine rehabilitation outcomes (Figure 9). The assertion of some submitters that the Project final landform has not been optimised from a societal perspective is simplistic, and fails to understand the complex nature of final void optimisation.

The residual Project final landform slopes would be consistent with the range of slopes that are present in the natural environment in the Project locality, including natural slopes in the valley to the west of the Project. This is graphically illustrated on Figures 10, 11 and 12. Any further lowering of the Project residual slopes on the western highwall would result in an increase in the Project final void extent, would increase the Project land disturbance area, and would increase associated impacts on biodiversity, heritage resources and surface water catchment excision.

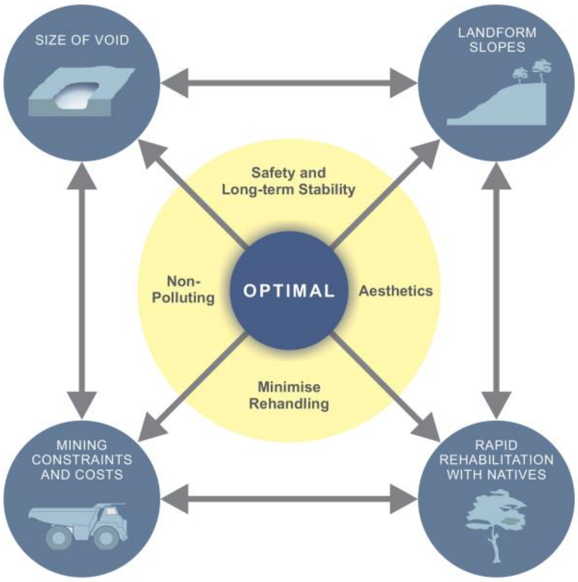



**Figure 9 – Final Void Optimisation Context**

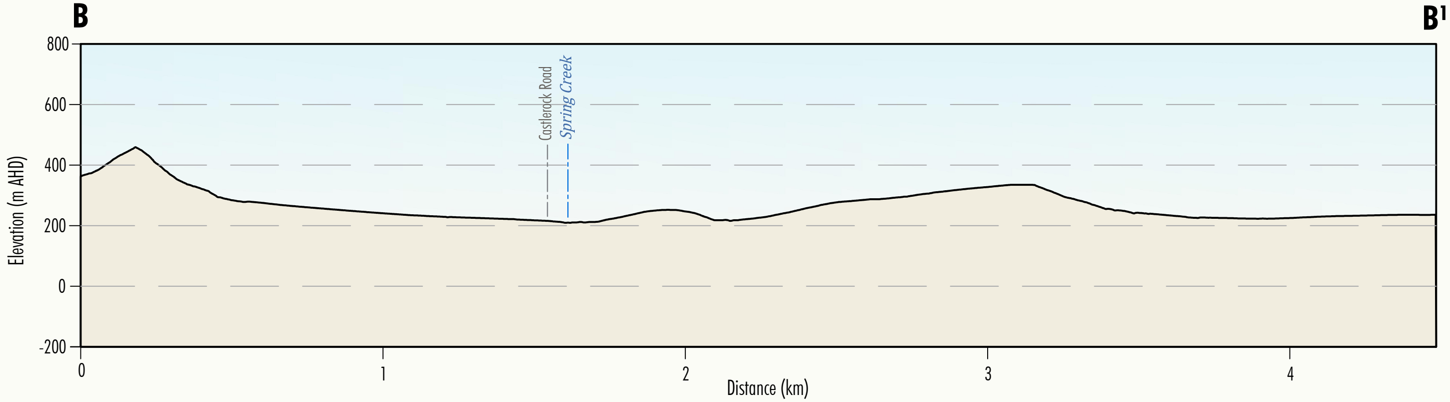
Further, the Project final void location, size and depth reflects the size and geometry of the coal deposit, and the significantly improved efficiency of ROM coal extraction relative to total land disturbance area that the Project would provide in comparison to the originally approved Mount Pleasant Operation.

It is also noted that the NSW Department of Mining, Exploration and Geoscience (MEG) stated the following with respect to the landform design and final void:

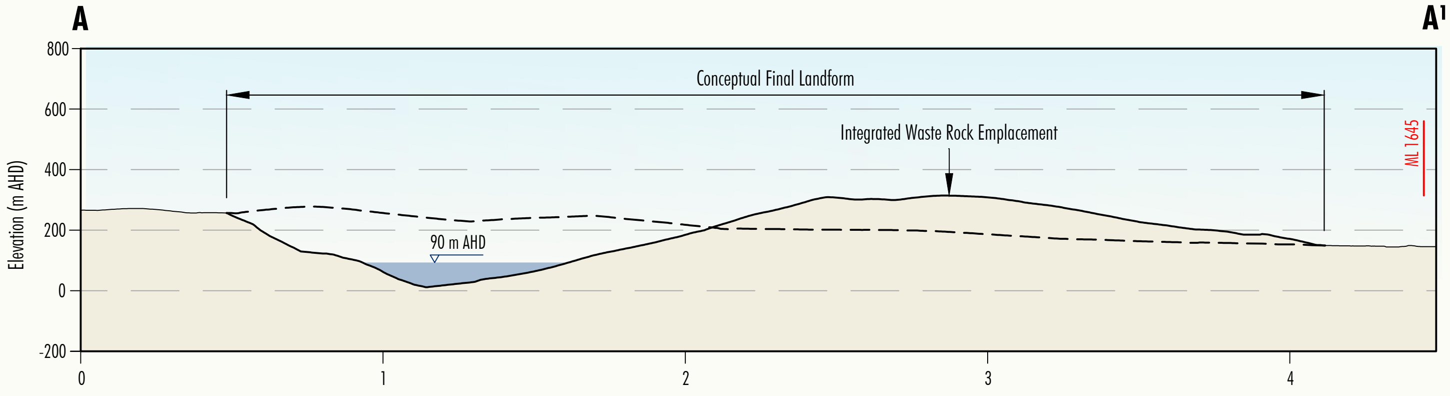
> *The Proponent is very conscious of the visual aspects of the mine due to the proximity of the mine to Muswellbrook. This in part has affected the mining design and order of operations to date. The final landform has been designed to look natural through the implementation of geomorphic landform design and the final void will be hidden behind from view.*

MACH would continue to consider final void land use options over the life of the Project, including potential beneficial uses of the final void (e.g. for off-river storage of supplementary water flows in the Hunter River).

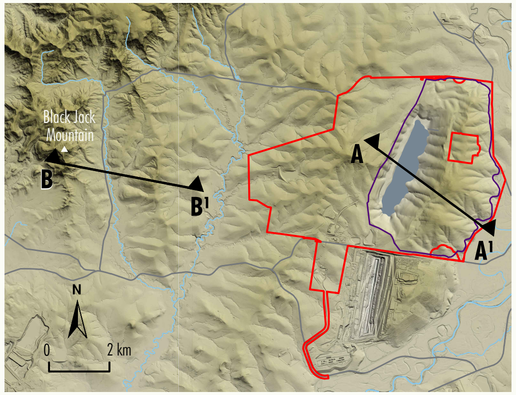
MACH therefore respectfully submits to the Department that the Project final landform design and slopes benchmark favourably with both existing natural landforms in the vicinity of the Project and other recently approved major coal projects in the region. The single Project final void would also result in a material improvement in environmental outcomes relative to the originally approved Mount Pleasant Operation.




CROSS SECTION B - B1
Scale 1 Vertical : 1 Horizontal




CROSS SECTION A - A1
Scale 1 Vertical : 1 Horizontal




PLAN
Conceptual Final Landform

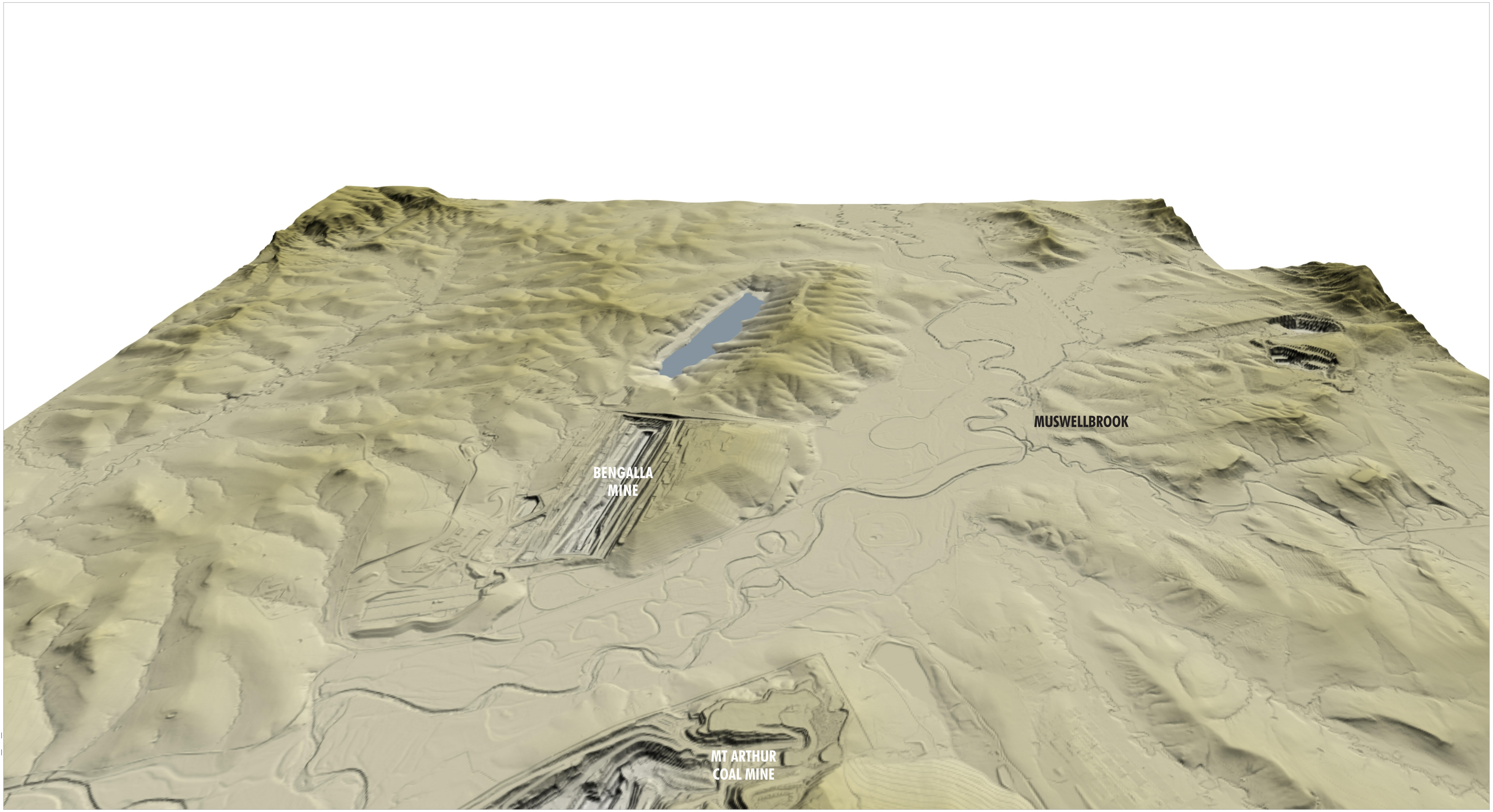
MAC-18-02 SSD RtS_102A 24/11/2020

LEGEND
Mining Lease Boundary (Mount Pleasant Operation)
Pre-mining Topography
Approximate Extent of Project Open Cut and Waste Rock Emplacement Landforms
Project Final Void Waterbody

*Source: MACH (2021); NSW Spatial Services (2021)*

MACHEnergy
MOUNT PLEASANT OPTIMISATION PROJECT
Conceptual Final Landform and Natural Landform Slope Comparison

**Figure 10**




MAC-18-02 SSD_RtS_005B

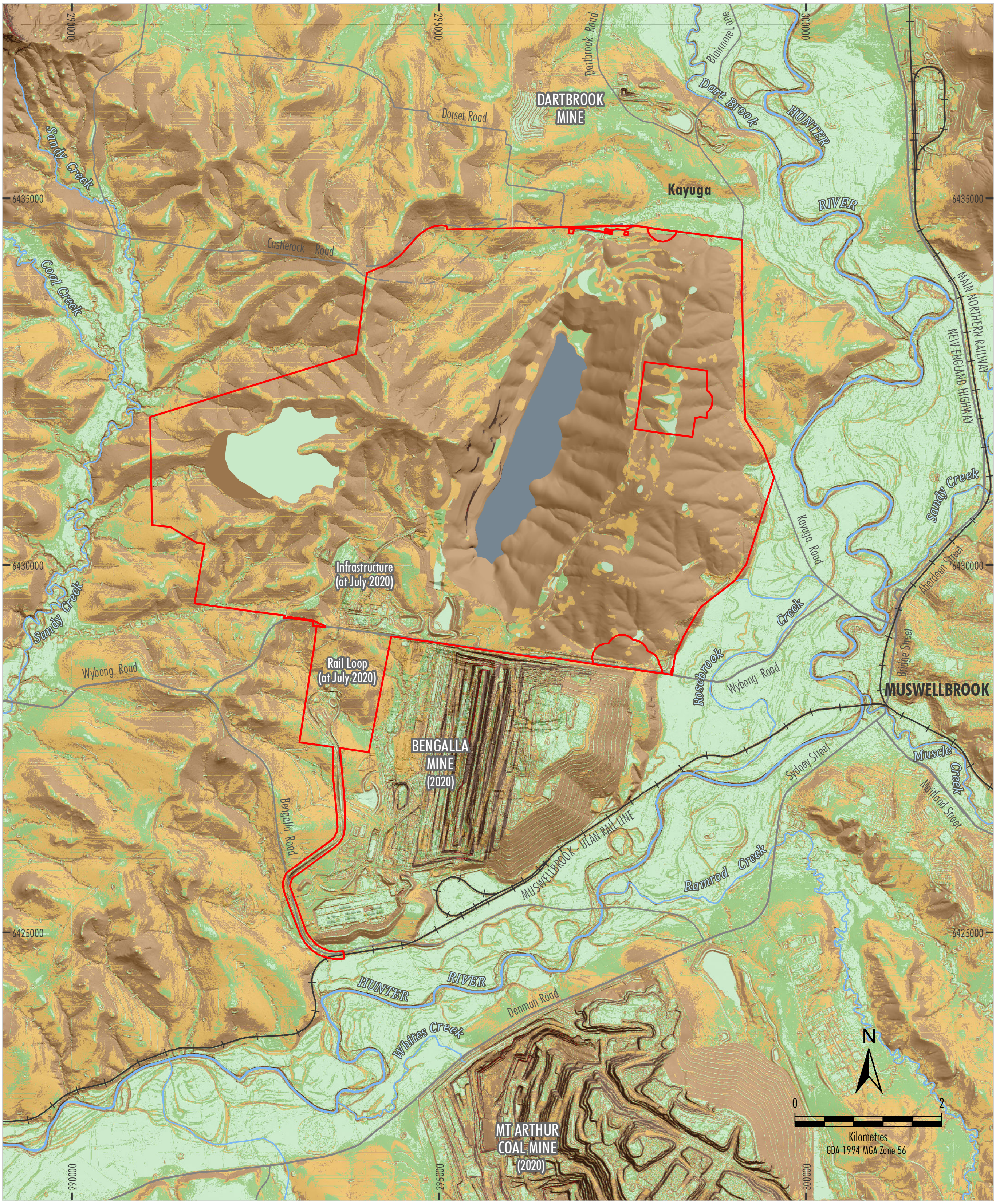
*Source: MACH (2021)*

**MACHEnergy**

MOUNT PLEASANT OPTIMISATION PROJECT

Project Conceptual Final Landform
Integrated with Existing Landforms

**Figure 11**




MAC-18-02 SSD_RTS_228B

Source: MACH (2021); NSW Spatial Services (2021)

LEGEND

Mining Lease Boundary (Mount Pleasant Operation)

Project Final Void Waterbody

| Slope Percent (%) | Slope Classification (degrees) |
|---|---|
| 0.0 - 1.018 | Level (<= 0°35') |
| 1.018 - 3.055 | Very gently inclined (0°35' - 1°45') |
| 3.055 - 5.678 | Gently inclined (1°45' - 3°15') |
| 5.678 - 32.49 | Moderately inclined (3°15' - 18°) |
| 32.49 - 57.74 | Steeply inclined (18° - 30°) |
| 57.74 - 100 | Very steeply inclined (30° - 45°) |

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MOUNT PLEASANT OPTIMISATION PROJECT

Project Final Landform
Indicative Slope Map

Figure 12