Metropolitan Coal Mine

Longwalls 317 & 318 Modification

Submissions Report

Peabody

EXECUTIVE SUMMARY

The Metropolitan Colliery (Metropolitan Coal Mine) is an existing underground mining operation located approximately 30 kilometres north of Wollongong, adjacent to the township of Helensburgh, New South Wales (NSW).

The Metropolitan Coal Mine is owned and operated by Metropolitan Collieries Pty Ltd (Metropolitan Coal), a wholly owned subsidiary of Peabody Energy Australia Pty Ltd.

The Metropolitan Coal Mine currently operates under Project Approval (08_0149), which was supported by a Preferred Project Report, including the continuation, upgrade and extension of underground coal mining operations (Longwalls 20-27 and Longwalls 301-317) and surface facilities at the Metropolitan Coal Mine.

In July 2025, Metropolitan Coal submitted a Modification Report (Metropolitan Coal, 2025a) to support a request to modify Project Approval (08_0149) under section 4.55(2) of the NSW *Environmental Planning and Assessment Act 1979* to seek approval for the continuation, upgrade and extension of underground coal mining operations and surface facilities at the Metropolitan Coal Mine (the Modification).

The Modification Report was placed on public exhibition by the Department of Planning, Housing, and Infrastructure (DPHI) from 29 July 2025 to 26 August 2025. During and following the public exhibition period, submissions on the Modification Report were received from NSW Government agencies and members of the public.

A total of 225 submissions on the Modification Report were received during the public exhibition period, comprising 13 submissions (6 percent [%]) from government agencies and local councils, 21 submissions (9%) from organisations and 191 submissions (85%) from members of the public. Of these submissions:

- 76 submissions (34%) were in support of the Modification, of which 66 were from members of the public, nine were from organisations, and one was from a Government agency.
- nine submissions (4%) were comments, all from government agencies and local councils; and
- 138 submissions (61%) objected to the Modification, of which 125 were from members of the public, 12 were from organisations, and one was from a Sydney council.

Key matters raised in submissions included Modification design and justification, documentation and reporting, groundwater, surface water, upland swamps, biodiversity, Aboriginal cultural heritage, greenhouse gas emissions and socio-economic.

On 28 August 2025, DPHI requested that Metropolitan Coal prepare and submit a Submissions Report for the Modification (this report). Accordingly, this Submissions Report provides Metropolitan Coal's responses to issues raised in submissions on the Modification.

Metropolitan Coal engaged Australasian Groundwater Consultants Pty Ltd, ATC Williams Pty Ltd and Niche Environment and Heritage Pty Ltd to provide supplementary information and responses to agency comments on water, ecology and cultural heritage.

In support of this Submissions Report, Metropolitan Coal has commissioned Zephyr Environmental Pty Ltd (2025) and SLR Consulting Pty Ltd (2025) to conduct further assessment of the potential environmental impacts associated with the proposed relocated Ventilation Shaft 4. These additional noise and dust assessments concluded a negligible impact would occur as a result of the Modification.

No amendments to the Modification have been required to address the submissions received.

Since lodgement of the Modification Report, Metropolitan Coal has reviewed the submissions on the Modification and has continued to consult with members of the community, NSW Government agencies, and has sought additional advice from technical specialists. Based on this further consideration and analysis, Metropolitan Coal has concluded that the key potential impacts and benefits of the Modification and the justification for the Modification remain consistent with the conclusions presented in Section 7 of the Modification Report (Metropolitan Coal, 2025a).

In weighing up the main environmental impacts (costs and benefits) associated with the proposal as assessed and described in the Modification Report and this Submissions Report, the Modification remains, on balance, in the public interest of the State of NSW.

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1 INTRODUCTION

1.1 BACKGROUND

The Metropolitan Colliery (Metropolitan Coal Mine) is an existing underground mining operation located approximately 30 kilometres (km) north of Wollongong, adjacent to the township of Helensburgh, New South Wales (NSW) (Figure 1-1).

The Metropolitan Coal Mine is owned and operated by Metropolitan Collieries Pty Ltd (Metropolitan Coal), a wholly owned subsidiary of Peabody Energy Australia Pty Ltd (Peabody).

The Metropolitan Coal Mine currently operates under Project Approval (08_0149), which was supported by a Preferred Project Report, including the continuation, upgrade and extension of underground coal mining operations (Longwalls 20-27 and Longwalls 301-317) and surface facilities at the Metropolitan Coal Mine.

As mining operations have progressed at the Metropolitan Coal Mine, ongoing exploration activities have identified geological and geotechnical constraints which affect the available coal resource. To maintain safe and efficient operations, a reduced underground mine layout has been implemented at the existing Metropolitan Coal Mine. In addition, longwalls have been shortened to reduce subsidence effects on watercourses.

It is anticipated that the Metropolitan Coal Mine would cease operations in 2029, approximately three years earlier than the approved mine life of 2032, due to a reduced underground mine layout compared to the approved underground mine layout presented in the Preferred Project Report. The current longwall layout incorporating the shortened longwalls is shown on Figure 1-2.

Metropolitan Coal proposes to optimise the approved underground mine layout to allow for the extraction of additional resources through the northern extension of Longwall 317 and addition of Longwall 318 to the west within existing mining and exploration tenements (hereafter referred to as the Modification) (Figure 1-3). The Modification would therefore provide for an additional two years of operations at the Metropolitan Coal Mine (i.e. coal extraction until approximately 30 June 2031). The Modification also includes the relocation of the approved (but not yet constructed) Ventilation Shaft 4 (Figure 1-4).

1.2 MODIFICATION REPORT

In July 2025, Metropolitan Coal submitted a Modification Report (Metropolitan Coal, 2025a) to support a request to modify Project Approval (08_0149) under section 4.55(2) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) to seek approval for the continuation, upgrade and extension of underground coal mining operations and surface facilities the Metropolitan Coal Mine (the Modification).

The Modification Report was placed on public exhibition by the Department of Planning, Housing, and Infrastructure (DPHI) from 29 July 2025 to 26 August 2025. During and following the public exhibition period, submissions on the Modification Report were received from NSW Government agencies and members of the public.

Metropolitan Coal has prepared this Submissions Report to directly address matters raised in the government, organisation and public submissions on the Modification Report.

Source: Geoscience Australia, 2006; NSW Saptial Services (2025)
Metropolitan Coal (2025)

LEGEND
- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Road
- Railway
- NPWS Managed Land
- Local Government Area
- Mining Operation

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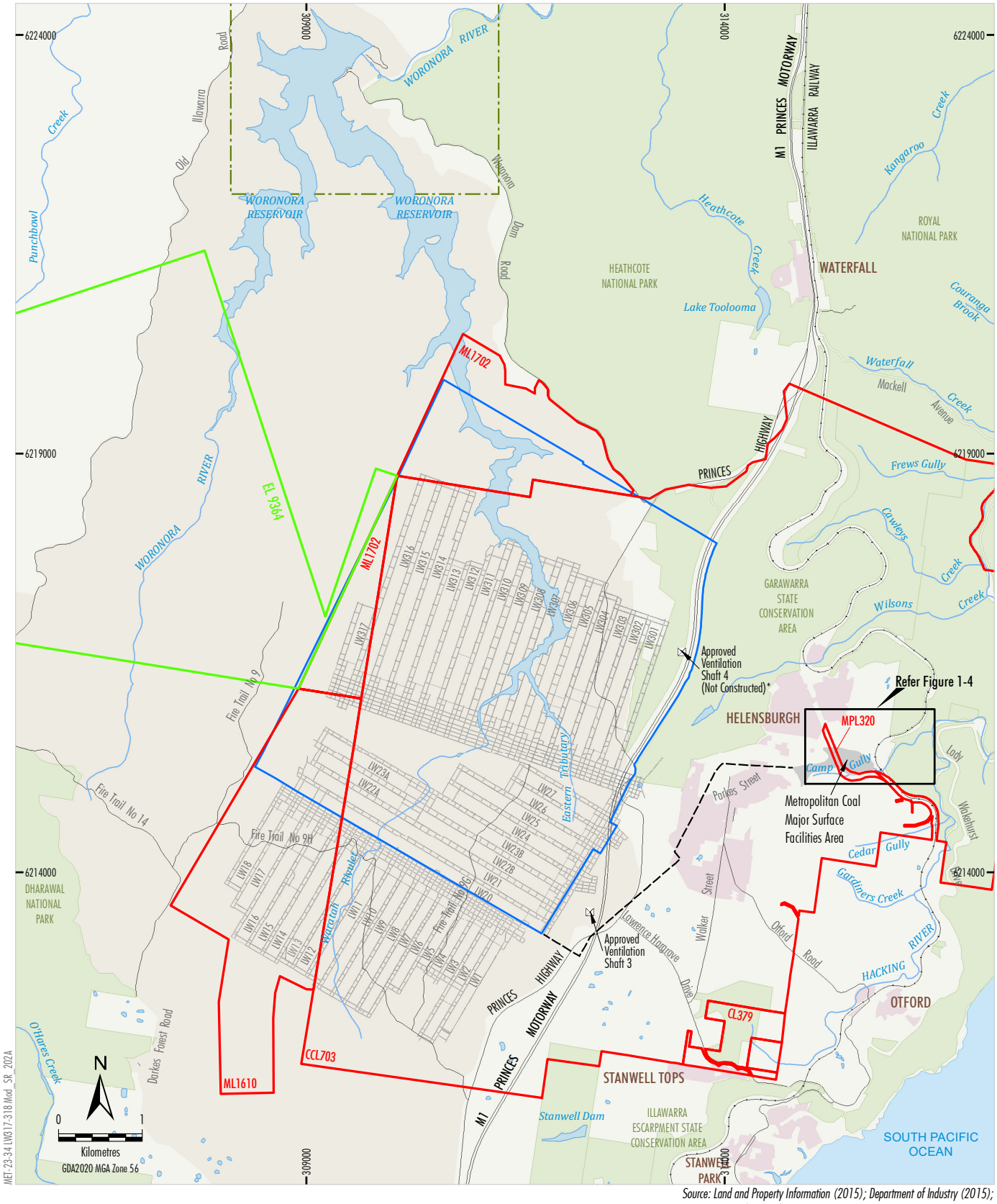
Regional Location

Figure 1-1



Source: Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025)

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Woronora Special Area
- NPWS Managed Land
- Railway
- Road
- Woronora Notification Area
- Current Metropolitan Coal Mine
  Longwall Layout

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.

* The approved location of Ventilation Shaft 4 following completion of construction is shown. The construction footprint would be of a similar size to the proposed Relocated Ventilation Shaft 4.

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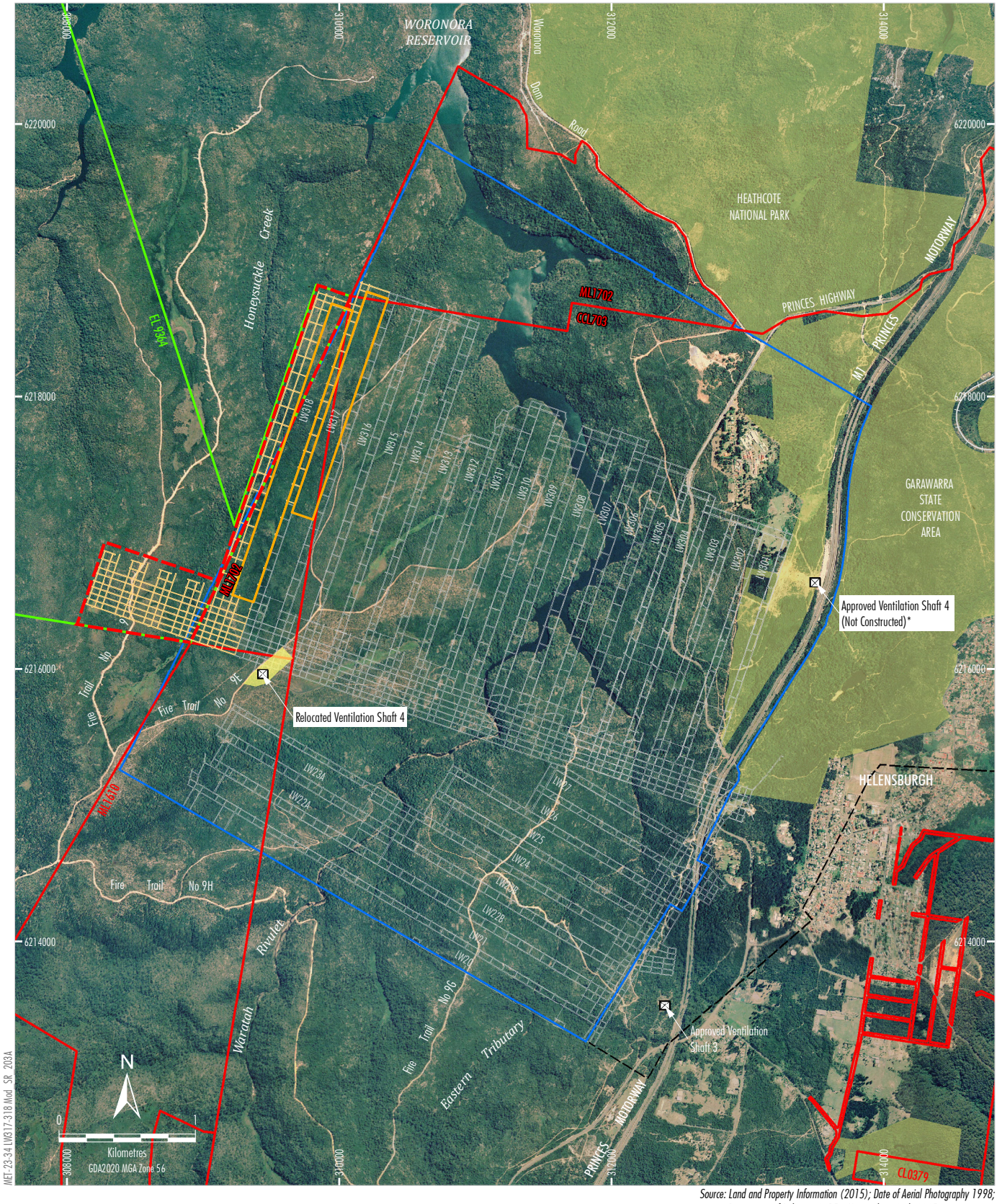
Current General Arrangement

Figure 1-2



Source: Land and Property Information (2015); Date of Aerial Photography 1998; Department of Industry (2015); Metropolitan Coal (2025)

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Indicative Mining Lease Application Area
- Railway
- NPWS Managed Land
- Shafts
- Project Underground Mining Area
- Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Existing Approved Underground Development
- Proposed First Workings
- Indicative Longwalls 317 and 318 Extraction Area
- Relocated Ventilation Shaft 4

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.
* The approved location of Ventilation Shaft 4 following completion of construction is shown. The construction footprint would be of a similar size to the proposed Relocated Ventilation Shaft 4.

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Modified General Arrangement

Figure 1-3

MET-23-34 LW317-318 Mod_SR_204A

LEGEND

- Mining Lease Boundary
- Existing /Approved Underground Development
- Proposed First Workings
- Shaft Infrastructure
- Collection Drain
- Culvert
- Road
- Sediment Dam Bund
- Sediment Fence Perimeter
- Ventilation Shaft 4 Construction Area
- Ventilation Shaft
- Liner Fabrication Area
- Liner Storage
- Spoil Stockpiles
- Construction Water Pond
- Sediment Basin
- Concrete Lined Sediment Receiving Basin
- Clean Water Tanks
- Concrete Pad
- Transformer, Switchroom and Boreholes
- Car Park
- Site Office
- Service and Return Water Boreholes

Source: ATC Williams (2025); Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025)

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Relocated Ventilation Shaft 4
General Arrangement

Figure 1-4

1.3 OVERVIEW OF THE MODIFICATION

The Modification would provide for the continued employment of the existing 400-strong operational workforce for a further two years and comprise the following key components:

- extension of the approved Longwall 317 to the north;
- addition of Longwall 318 to the west of the approved longwalls;
- extension of the approved 300-series Mains to the west;
- extraction of an additional 3.2 million tonnes (Mt) of run-of-mine (ROM) coal;
- relinquishment of 14 Mt of approved ROM coal;
- relocation of the approved (but not yet constructed) Ventilation Shaft 4;
- continued transportation of coal rejects off-site for the life of the mine via a combination of rail and road; and
- relinquishment of approved surface development and underground mining areas.

The Modification would also include the establishment of an access track within the approved disturbance area to reinstate rock-armouring along a section of the embarkment toe at the Surface Facilities area near Camp Gully Creek (Figure 1-5).

Consistent with the approved underground mine layout, Longwalls 317 and 318 have been designed using conservative longwall geometry to reduce subsidence effects and therefore potential environmental impacts. The design includes narrow panel voids of 163 metres (m) and wider chain pillars of 55 m (i.e. 10 m wider than the approved mine design) to reduce subsidence effects on upland swamps and watercourses. The design also incorporates shortening of Longwall 317 by approximately 67 m at the southern end to reduce subsidence effects on Swamp 106.

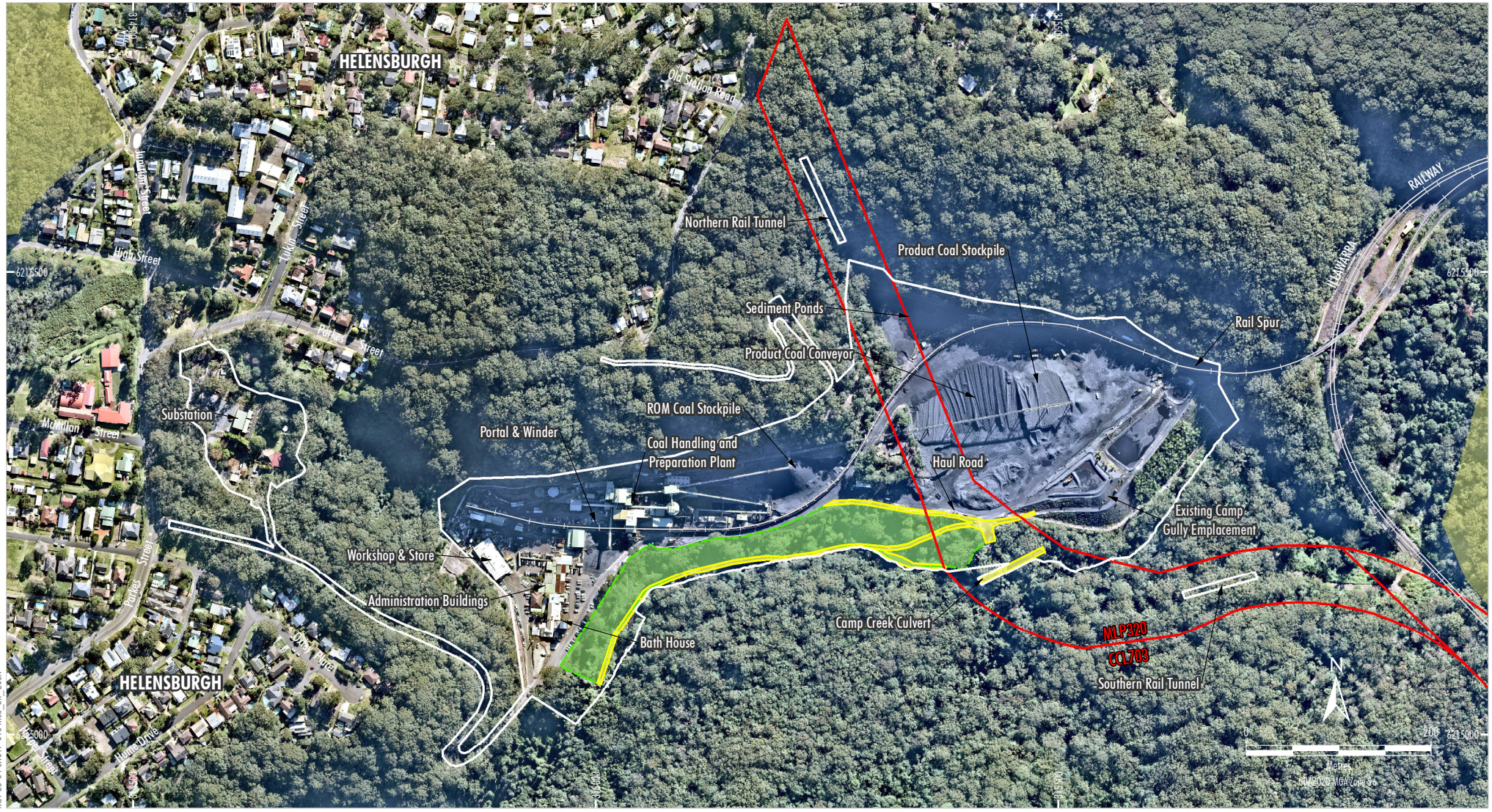
In consideration of the revision of the underground mine layout, as part of the Modification, Metropolitan Coal proposes to formally relinquish the unmined areas of the approved underground mine layout. This would result in a reduction of 253 hectares (ha) of longwall mining area (with a larger area no longer subject to subsidence effects) and a net reduction of 10.8 Mt of ROM coal mined. This results in an avoidance of residual biodiversity and environmental impacts from the approved layout. These relinquished areas are shown in Figure 1-6.

No other changes to the approved Metropolitan Coal Mine (including the existing surface facilities and infrastructure at the Surface Facilities area) would be required for the Modification.

Table 1-1 provides a comparative summary of the existing/approved and modified Metropolitan Coal Mine. The approved and modified Metropolitan Coal Mine arrangements are shown in Figures 1-2 and 1-3.

Based on a review of the proposed changes, Metropolitan Coal considers that the modified Metropolitan Coal Mine would be substantially the same as the existing/approved Metropolitan Coal Mine.

A description of the Modification is provided in Section 3 of the Modification Report (Metropolitan Coal, 2025a).



MET-23-34 LW317-318 Mod_SR_205A

LEGEND

- Mining Lease Boundary
- Railway
- Indicative Access Tracks
- Ongoing Revegetation and Stabilisation Works Area
- Extent of Approved Disturbance Area
- NPWS Managed Land

Source: NSW Spatial Services (2020)
Orthophoto: Nearmap (2021)

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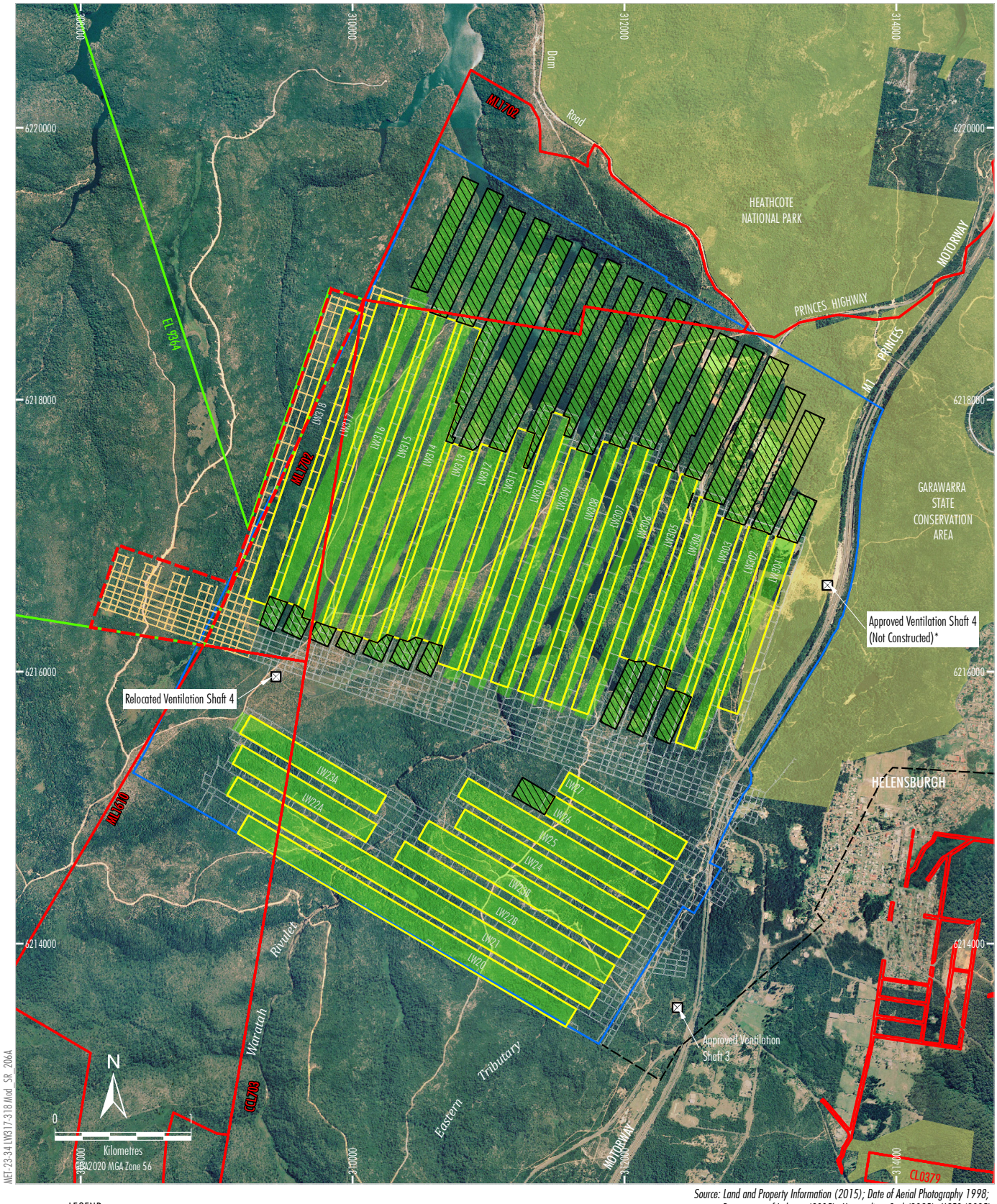
Indicative Access Track to Embankment
Revegetation and Stabilisation Area

Figure 1-5



MET-23-34 LW317-318 Mod SR 206A

Source: Land and Property Information (2015); Date of Aerial Photography 1998; Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025);

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Indicative Mining Lease Application Area
- Railway
- NPWS Managed Land
- Shafts
- Project Underground Mining Area
  Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Existing/Approved Underground Development
- Proposed First Workings
- Completed and Proposed Secondary Extraction
- Preferred Project Report Longwall Layout
- Approved Longwall Mining Areas to be Relinquished

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.

* The approved location of Ventilation Shaft 4 following completion of construction is shown. The construction footprint would be of a similar size to the proposed Relocated Ventilation Shaft 4.

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Approved Longwall Mining Areas to be Relinquished

Figure 1-6

Table 1-1
Summary Comparison of Approved and Modified Metropolitan Coal Mine

Project Component	Metropolitan Coal Mine Project Approval (08_0149) (as modified)	Metropolitan Coal Mine Project Approval (08_0149) (including this Modification)
Underground Mining Area	As per Appendix 3 of Project Approval (08_0149). Total secondary extraction area (i.e. longwall voids) of approximately 988 ha.	Extension of Longwall 317, addition of Longwall 318 and addition of the extended 300-series Mains to the west. Metropolitan Coal will formally relinquish the approved underground mining areas shown on Figure 1-6, resulting in a reduction in the total secondary extraction area of approximately 253 ha and in a revised total secondary extraction area of approximately 735 ha.
Hours of Operation	Mining operations can be carried out 24 hours per day, seven days per week.	No change.
Operational Mine Life	Underground mining operations may be carried out until 22 June 2032.	No change.
Coal Resource	Extraction of approximately 54.4 Mt of ROM coal from the 300-series longwalls.	Extraction of approximately 3.2 Mt of additional high quality metallurgical and thermal ROM coal associated with the extended Longwall 317, addition of Longwall 318 and the extended 300-series Mains. Due to the relinquishment of longwall areas (Figure 1-6), approximately 40.4 Mt of ROM coal would be extracted from the 300-series longwalls over the life of the Metropolitan Coal Mine.
ROM Coal Extraction Limits	Up to 3.2 Mt from the underground mining area in any calendar year.	No change.
Product Coal Transport Limits	Up to 2.8 Mt may be transported from the Metropolitan Coal Mine in any calendar year.	No change.
Coal Rejects Management	Transport of coal rejects off-site by train or road to 31 December 2026 as a contingency measure[1].	Continued transportation of coal rejects off-site to international customers via rail to Port Kembla Coal Terminal. Temporary transportation of coal rejects off-site by road to domestic customers as a contingency measure.
	No emplacement of coal rejects on the surface of the Metropolitan Coal Mine.	No change.
Longwall Layout and Panel Design[2]	As per Appendix 3 of Project Approval (08_0149) and correspondence from the Secretary of DPHI approving the re-orientation of the longwall panels. Longwall void width of between 138 m and 163 m for the 300-series[2]. Pillar widths between 45 m and 70 m for the 300-series.	Extension of Longwall 317 and addition of Longwall 318 (Figure 1-3). Shortened Longwall 317 finishing position. Longwall void width of 163 m for Longwalls 317 and 318. Increased pillar widths of 55 m for Longwalls 317 and 318 to reduce subsidence effects.
Underground Mine Target Seams	Extraction from the Bulli Seam.	No change.
Surface Facilities	As per Appendix 4 of Project Approval (08_0149).	No change.
Gas Management	Operation of ventilation shafts to manage gas emissions.	Relocation of the approved (but not yet constructed) Ventilation Shaft 4 (Figure 1-4). Relinquishment of the currently approved Ventilation Shaft 4 development footprint.
Mining Tenements	Coal Lease 379, Consolidated Coal Lease 703, Mining Lease (ML) 1610, ML 1702, Mining Purpose Lease 320, Exploration Licence (EL) 9364.	New ML to be sought over part of Longwall 318 and extension of the 300-series Mains.
Operational Workforce	Current workforce of approximately 400 personnel at the Metropolitan Coal Mine.	No change to the operational workforce. Continued employment for a further two years.

1 Condition 7, Schedule 2 of Project Approval (08_0149) prohibits the export of coal rejects from the site after 2021 without the written approval of the Director-General (now Secretary of DPHI). On 14 November 2023, the Secretary of the DPHI provided approval of the transport of coal rejects off-site by train or road to 31 December 2026 as a contingency measure.

2 Narrower longwalls and wider panels have been used within 500 m of the Woronora Reservoir. The Modification longwalls would be greater than 500 m from the Woronora Reservoir.

1.4 STRUCTURE OF THIS DOCUMENT

This Submissions Report has been prepared in consideration of the s*tate significant development guidelines – preparing a submissions report* (DPHI, 2024a). The remainder of this document is structured as follows:

Section 2	Provides an analysis of the submissions received during the public exhibition period.
Section 3	Summarises the actions taken since the commencement of the public exhibition period.
Section 4	Provides responses to the issues raised in the submissions.
Section 5	Provides an updated evaluation of the Modification.
Section 6	Lists the documents referenced in the Submissions Report.

Attachments 1 to 8 contain supporting information, including a register of the submissions received and specialist reports:

Attachment 1	Register of Submitters.
Attachment 2	Niche Response to CPHR Comments.
Attachment 3	Revised BDAR.
Attachment 4	Supplementary Groundwater Impact Assessment Information.
Attachment 5	Supplementary Surface Water Assessment Information.
Attachment 6	Construction Noise Assessment.
Attachment 7	Construction Air Quality Assessment.
Attachment 8	Stream Remediation Performance Analysis.

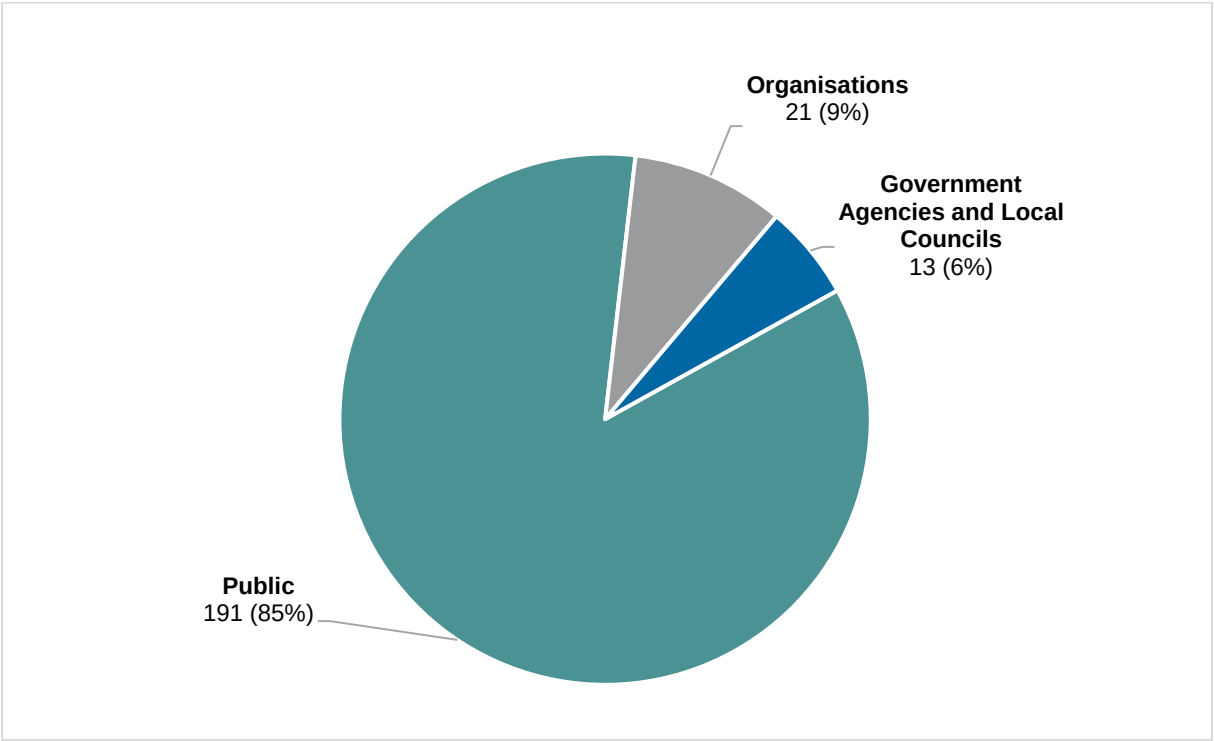
2 ANALYSIS OF SUBMISSIONS

2.1 NUMBER OF SUBMISSIONS

A total of 225 submissions on the Modification Report were received from NSW Government agencies and local councils, organisations and members of the public. The following provides a breakdown of the submissions by submitter category (Chart 2-1):

- 191 submissions (85 percent [%]) from members of the public;
- 21 submissions (9%) from organisations; and
- 13 submissions (6%) from government agencies and local councils.

Chart 2-1
Summary of All Submissions



A register of submitters is provided in Attachment 1.

Of these submissions:

- 76 submissions (34%) were in support of the Modification, of which 66 were from members of the public, nine were from organisations and one from a Government agency.
- nine submissions (4%) were comments, all from government agencies and local councils; and
- 138 submissions (61%) objected to the Modification, of which 125 were from members of the public, 12 were from organisations, and one was from a Sydney council.

2.2 GOVERNMENT AGENCY SUBMISSIONS

A total of 13 submissions were received from government agencies and local councils, including:

- Department of Primary Industries – Fisheries (DPI – Fisheries);
- NSW Resources;
- Subsidence Advisory;
- Transport for NSW;
- NSW Department of Climate Change, Energy, Environment and Water (DCCEEW) – Conservation Programs, Heritage and Regulation (CPHR);
- Heritage Council of NSW;
- Heritage NSW;
- NSW Department of Climate Change, Energy, Environment and Water – Water (DCCEEW – Water);
- NSW Environment Protection Authority (EPA);
- NSW National Parks and Wildlife Services (NPWS);
- WaterNSW;
- Wollongong City Council; and
- Sutherland Shire Council.

Of these 13 submissions, four had no assessment-related comments on the Modification, including:

- DPI – Fisheries;
- NSW Resources;
- Subsidence Advisory; and
- Transport for NSW.

2.3 PUBLIC AND ORGANISATION SUBMISSIONS

A total of 191 submissions were received from members of the public, of which 66 supported the Modification, and 125 objected to the Modification.

A total of 21 submissions were received from organisations, of which nine supported the Modification and 12 objected to the Modification.

Public submissions were received from a range of locations, including the Wollongong City Council LGA, Sutherland Shire Council LGA, Wollondilly LGA, other areas in NSW, and interstate locations.

Further analysis of the distribution of objecting and supporting public submissions between these LGAs, the rest of NSW and other states is provided in Chart 2-2 and Chart 2-3 below.

Figure 2-1 provides the locations of all public and organisation submissions received.

Chart 2-2
Summary of Public and Organisation Supporting Submissions by Location

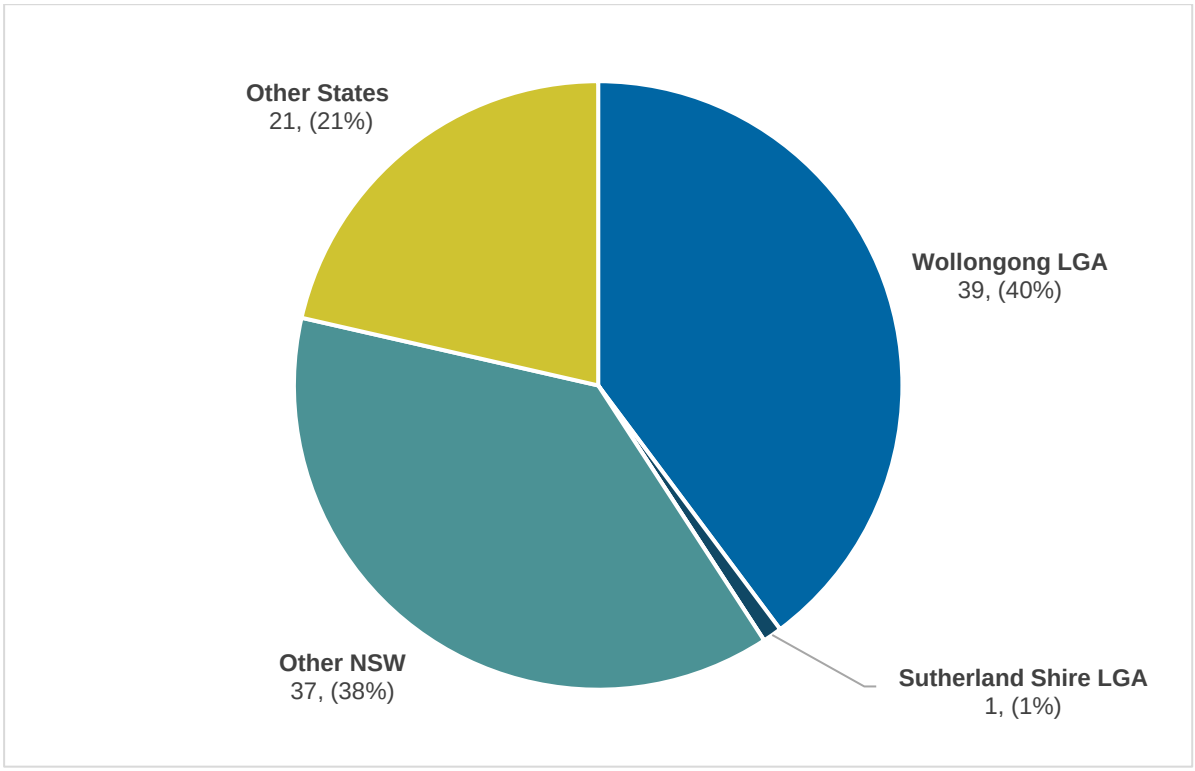
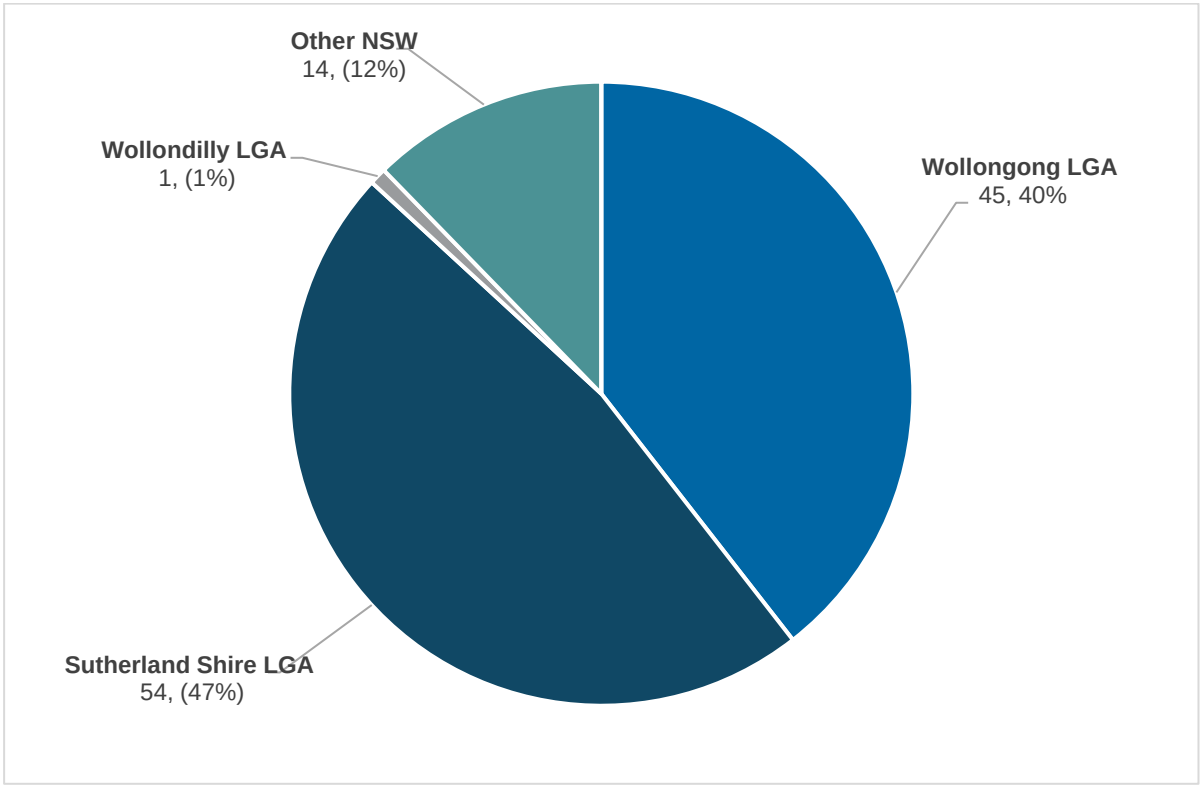
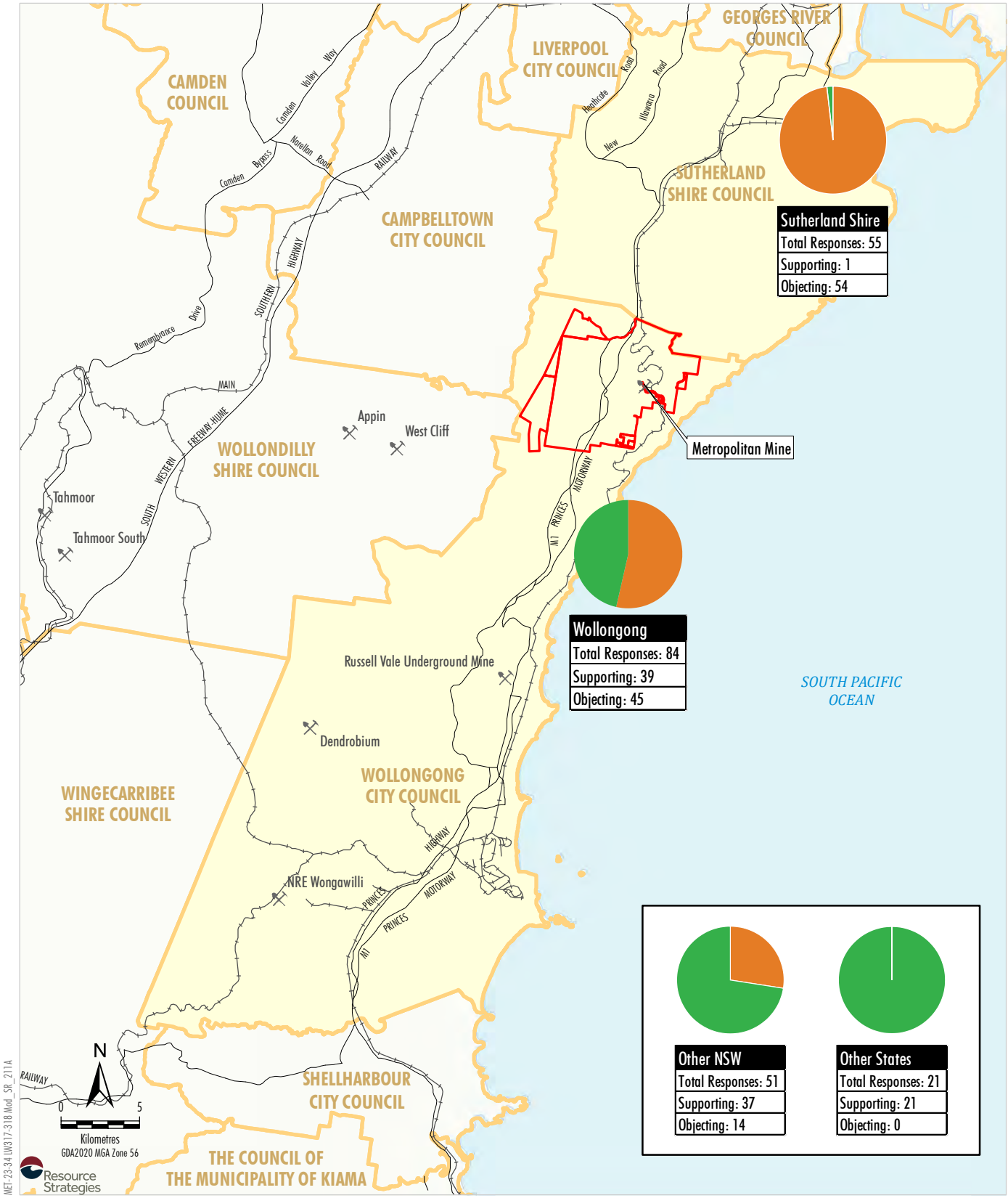


Chart 2-3
Summary of Public and Organisation Objecting Submissions by Location





Source: NSW Spatial Services (2025)

LEGEND

- Mining Lease Boundary
- Mining Operation
- Local Government Boundary

Nature of Public Submissions

- Supporting
- Objecting

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Public and Organisation Submissions by Location

Figure 2-1

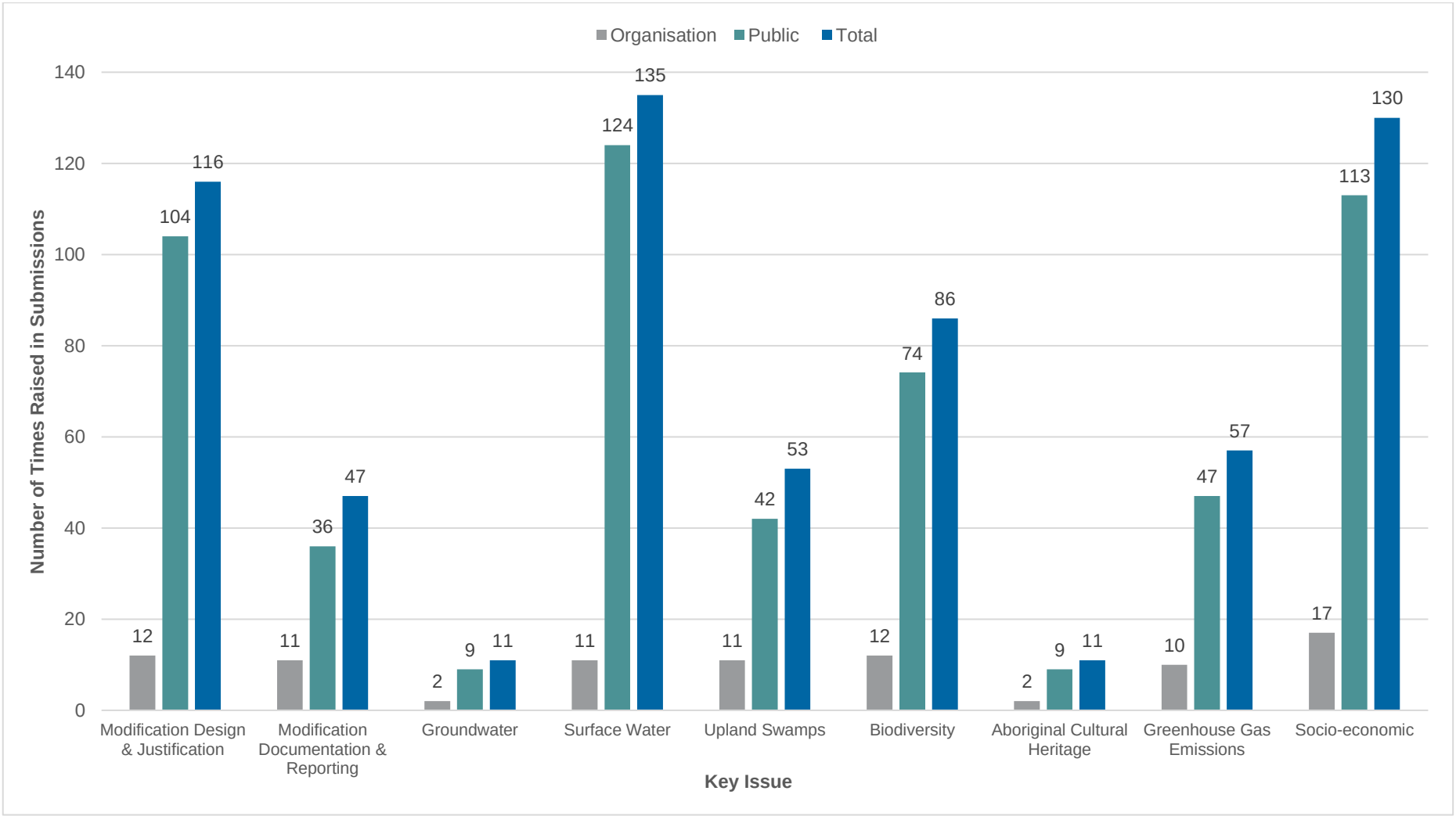
2.4 KEY MATTERS RAISED IN SUBMISSIONS

The most commonly raised matters in relation to the Modification are illustrated in Chart 2-4. The following key matters were raised in the submissions:

- Modification design and justification;
- Modification documentation and reporting;
- groundwater;
- surface water;
- upland swamps;
- biodiversity;
- Aboriginal cultural heritage;
- greenhouse gas emissions; and
- socio-economic.

A register of submissions, key issues raised in each submission and where each issue is addressed in this Submission Report is provided in Attachment 1.

Chart 2-4
Summary of the Most Commonly Raised Matters



3 ACTIONS TAKEN SINCE PUBLIC NOTIFICATION OF THE MODIFICATION

3.1 REFINEMENT OF THE MODIFICATION

No changes to the Modification or additional mitigation measures are proposed as a result of Metropolitan Coal's review of the various government agency, organisation and public submissions on the Modification.

The Adaptive Management Plan for the Modification has been updated in response to comments from CPHR.

3.2 ENGAGEMENT ACTIVITIES

Since lodgement of the Modification Report, Metropolitan Coal has consulted with the following stakeholders:

- The Metropolitan Community Consultative Committee on 15 July 2025.
- Provision of a Factsheet to the Metropolitan Coal Mine workforce on 11 August 2025.
- A Technical Working Group Meeting with WaterNSW on 24 October 2025.

3.3 FURTHER ENVIRONMENTAL ASSESSMENT

In response to Government agency comments received on the Modification, Metropolitan Coal has engaged Australasian Groundwater Consultants Pty Ltd (AGE), ATC Williams Pty Ltd (ATC Williams) and Niche Environment and Heritage Pty Ltd (Niche) to provide input in the responses to government agency submissions.

Metropolitan Coal has also engaged Zephyr Environmental Pty Ltd (Zephyr) and SLR Consulting Pty Ltd (SLR) to assess potential noise and air quality impacts associated with the construction of the relocated Ventilation Shaft 4.

Niche has revised the Biodiversity Development Assessment Report (BDAR) (Niche, 2025a) submitted with the Modification Report in response to CPHR comments, and is included in Attachment 3. Metropolitan Coal has revised the Adaptive Management Plan in the BDAR, which is provided in Attachment 3 of this Submissions Report.

Summaries of these findings are described in Section 4 of this Submissions Report.

The relevant assessments and reports are provided as attachments below:

- Niche Responses to CPHR Comments (Attachment 2).
- Revised BDAR (Attachment 3).
- Supplementary Groundwater Impact Assessment Information (Attachment 4).
- Supplementary Surface Water Assessment Information (Attachment 5).
- Construction Noise Assessment (Attachment 6).
- Construction Air Quality Assessment (Attachment 7).
- Stream Remediation Performance Analysis (Attachment 8).

4 RESPONSE TO SUBMISSIONS

4.1 GOVERNMENT AGENCY SUBMISSIONS

Responses to comments from Government agency and local council submissions are provided below for CPHR, Heritage Council of NSW, Heritage NSW, NSW DCCEEW – Water, EPA, NPWS, WaterNSW, Wollongong City Council and Sutherland Shire Council.

Some submissions received had no assessment-related comments on the Modification to respond to. On this basis, their comments are noted and a specific response has not been provided. Key comments from submissions received from DPI – Fisheries, NSW Resources, Subsidence Advisory, and Transport for NSW are provided below for reference.

Department of Primary Industries – Fisheries

The DPI – Fisheries submission noted that the Woronora Reservoir is the key fish habitat area in the vicinity of the proposed Modification and that as this waterway is situated well away from Longwalls 317 and 318, the key fish habitat values of this waterway should not be directly impacted by this proposal.

While Honeysuckle Creek is not considered to be key fish habitat, DPI – Fisheries recommends:

> *…the proposed water quality monitoring in accordance with the approved Water Management Plan, and aquatic ecology monitoring in accordance with the Biodiversity Monitoring Plan be included in any determination issued for this modification. This will ensure all potential ecological impacts from this proposal are monitored.*

Metropolitan Coal accepts this recommendation.

NSW Resources

The submission from NSW Resources stated:

> *NSW Resources considers the Project represents an efficient development of coal resources having regard to the constraints of the location and is projected to provide an appropriate return to the State.*
>
> *NSW Resources is satisfied that, should the operational outcomes be realised, the proposed mine design and mining method submissions adequately recover resources and is projected to provide an appropriate return to the state.*

Subsidence Advisory

The submission from Subsidence Advisory stated:

> *The attached documentation indicates that the proposal is located predominantly within bushland areas and will not affect residential dwellings or other surface improvements. Subsidence Advisory NSW raises no objection to the proposal and has no further comment.*

Transport for NSW

The submission from Transport for NSW (TfNSW) stated:

> *TfNSW has reviewed the information and notes, this matter has been resolved by the mine Subsidence Management Technical Committee. Therefore, TfNSW has* ***no objections*** *to the proposed modification…*
>
> *TfNSW notes that in determining the application under Part 4 of the* Environmental Planning & Assessment Act 1979 *it is the consent authority's responsibility to consider the environmental impacts of any road works that are ancillary to the development (such as removal of trees, relocation of utilities, stormwater management, etc).*

4.1.1 Conservation Programs, Heritage and Regulation

Responses to CPHR comments were prepared in consultation with Niche. Detailed responses to the relevant CPHR comments prepared by Niche are provided in Attachment 2 (Niche, 2025b) and a Revised BDAR is provided in Attachment 3.

Recommendation 1.1

> *The following impacts should be assessed in the BDAR:*
>
> - *potential impacts to groundwater aquifer due to the Ventilation shaft construction, particularly on swamp S92*
> - *cumulative impacts to Coastal Upland Swamps and streams in areas which are above already approved longwalls, including the large swamps S76, S77 and S92.*

Response

AGE has undertaken an assessment of potential groundwater impacts associated with the construction and operation of Relocated Ventilation Shaft 4 (AGE, 2025a) (Attachment 4 of this Submissions Report). It was assessed that the activity is not likely to result in the removal of water from a water source or movement from one aquifer to another, hence, no significant impacts on groundwater are expected. Further detail is provided in Section 4.1.4 and Attachment 4 of the Submissions Report.

ATC Williams undertook an assessment of Coastal Upland Swamps and streams in areas above already approved longwalls. This included large swamps; Swamps 76, 77 and 92. The maximum predicted total subsidence, upsidence and closure presented in Appendix A of the Modification Report is cumulative accounting for the actual or predicted subsidence, upsidence and closure associated with mining to date in the Metropolitan Coal Mine area. Minimal increases are expected at Swamp 76 only. Predictions are similar to those previously assessed for large swamps and as such, it is considered that predicted impacts to the large swamps as described in ATC Williams (2025a), are unlikely to change due to the modification.

Further detail is provided in Attachment 5 of the Submissions Report.

Recommendation 2.1

> *Where surveys have not been carried out in accordance with Guidelines, and suitable habitat exists, assume presence or obtain an expert report in accordance with Section 5.2.4 of the BAM.*

Response

The field survey approach for the Development Footprint was in accordance with the *Biodiversity Assessment Method* (Department of Planning, Industry and Environment, 2020) (BAM) with no deviation. All candidate threatened flora and fauna species were considered and surveyed in accordance with the appropriate guidelines (Niche, 2025c). The threatened flora and fauna survey approach for the Indirect Impact Footprint was developed in consideration of the terrain (and inability to safely access areas), extensive size (approximately 417 ha) and potential to impact upland swamps through excessive foot traffic (Niche, 2025c).

For candidate species that did not meet the survey requirements within the Development Footprint, the species was either conservatively assumed present or assessed as part of an expert report. As described in Section 5.3 of the Revised BDAR, and in accordance with the BAM (DPIE, 2020a), presence was assumed where survey effort was not met within the Indirect Impact Footprint (Niche, 2025c).

Further detail is provided in Attachment 2.

The Revised BDAR also considers CPHR's other comments on survey effort and assuming presence (Attachment 3).

Recommendation 2.2

> *Complete targeted surveys for Glossy Black Cockatoo and Gang-gang Cockatoo (breeding habitat) in the direct impact development footprint, assume presence or obtain an expert report in accordance with Section 5.2.4 of the BAM.*

Response

Habitat assessments were conducted in accordance with the *Hollow-dependent birds – Biodiversity Assessment Method survey guide* (Draft Guidelines for Hollow-dependent Birds) (NSW DCCEEW, 2025a), and all hollow-bearing trees within the Development Footprint were mapped and assessed against the criteria outlined in the BAM and relevant species-specific guidelines (Attachment 2).

Consistent with the Draft Guidelines for Hollow-dependent Birds (NSW DCCEEW, 2025a) only one of the 13 hollow-bearing trees within the Development Footprint meets the dimensional thresholds for diameter at breast height, hollow height and hollow entrance size suitable for the Gang-gang Cockatoo (*Callocephalon fimbriatum*). However, the broader habitat context does not support breeding for the Gang-gang Cockatoo as the Development Footprint lacks the structural features known to support breeding activities (e.g. canopy height considered lower than taller forest or woodland structures) and does not contain the structural context to support Gang-gang Cockatoo breeding aggregation (e.g. multiple nest sites closely located within several hundred metres of each other). It is also noted that intensive surveys were conducted within the Development Footprint during the breeding period of the Gang-gang Cockatoo and neither the species, nor any signs of breeding activity (e.g. calls, feathers, chew marks, nesting) were recorded (Attachment 2).

Consistent with the *Draft Guidelines for Hollow-dependent Birds* (NSW DCCEEW, 2025a), none of the 13 hollow-bearing trees within the Development Footprint meet the combined structural requirements of suitable breeding hollows for the Glossy Black Cockatoo (*Calyptorhyuchus lathami lathami*). Further, the absence of suitable feed trees (*Allocasuarina* and *Casuarina*) within or near the Development Footprint suggests insufficient food resources during breeding events and the absence of suitable breeding habitat (Attachment 2).

In consideration of the above, it is considered that the Development Footprint does not constitute breeding habitat for the Gang-gang Cockatoo or Glossy Black Cockatoo and no further survey were undertaken.

Further detail is provided in Attachment 2.

Recommendation 2.3

> *Complete further survey to determine if the indirect impact area contains breeding Large-eared Pied Bats to inform the SAII assessment. Otherwise, breeding must be assumed.*

Response

Mine Subsidence Engineering Consultants Pty Ltd (MSEC) (MSEC, 2025) identified one cliff area (COH19) within the eastern part of the Study Area, situated over Longwall 314. The characteristic cliffs in this landscape, including COH19, lack the deep, dry and thermally stable qualities required for the Large-eared Pied Bat (*Chalinolobus* dwyeri) maternity roosts. As such, the Study Area was deemed unsuitable for breeding. Further, there is no predicted increase in subsidence effects at COH19 due to the Modification (MSEC, 2025). The Modification is expected to have a negligible impact on Large-eared Pied Bat breeding or roosting refugia (Attachment 2).

Further detail is provided in Attachment 2.

Recommendation 2.4

> *Provide the BOAMS Case and BAM-C Case for indirect impacts to CPHR for review.*

Response

Niche (2025a) prepared BOAMS and BAM-C cases for indirect impacts; however, they have not been formally submitted for review as it is not a requirement of the BAM. These cases are consistent with the Prescribed/Indirect Impact Footprint and credit yields reported in Section 10.1.3 of the BDAR. Niche has provided some examples of BAM-C outputs for CPHR's consideration in Attachment 2.

Further detail is provided in Attachment 2.

Recommendation 2.5

> *Given the Green and Golden Bell Frog and Stuttering Frog are not vagrants and are known to occur in the Sydney Cataract IBRA Region, amend the BDAR to state these species are excluded based on the Expert Report, not based on vagrancy.*

Response

Metropolitan Coal accepts this recommendation. Section 5.4 of the Revised BDAR includes amended wording to align with the findings of the Expert Report prepared by Dr Ross Wellington, with species presence assessed and discounted on the Species Expert's evaluation.

Recommendation 3.1

> *Review Tables in Section 5 of the BDAR, and the BAM-C to check information is accurate and consistent.*

Response

Metropolitan Coal accepts this recommendation. A review of the tables in Section 5 of the BDAR has been undertaken by Niche. Amendments to relevant tables in Section 5 have been included in the Revised BDAR, where necessary.

Further detail is provided in Attachment 3.

Recommendation 3.2

> *Complete targeted survey, assume presence or provide an Expert Report for the Giant Burrowing Frog and Red-crowned Toadlet in the development footprint area, include the species in further assessment and update the BAM-C accordingly.*

Response

It is noted that the Giant Burrowing Frog (*Heleioporus australiacus australiacus*) and Red-crowned Toadlet (*Pseudophryue* australis) were initially excluded from the Development Footprint due to the absence of suitable aquatic breeding habitat identified during surveys. Further review undertaken by species expert, Dr Ross Wellington, determined suitable habitat was present within 150 m of the Development Footprint.

In consideration of the above, the species polygon for the Giant Burrowing Frog and Red-crowned Toadlet has been revised by Niche and included in the Revised BDAR (Attachment 3).

Further detail is provided in Attachment 3.

Recommendation 4.1

> *Consider further avoidance of impacts to Coastal Upland Swamps and associated streams, in accordance with the BAM.*

Response

Metropolitan Coal has continuously revised the mine design during the operation of the Metropolitan Coal Mine. Compared to the Preferred Project Report layout, the 300-series longwalls have been shortened to reduce subsidence effects on environmental features, for example, the southern ends of Longwalls 312 and 313 have been shorted by approximately 130 m and 80 m, respectively, due to the application of an environmental standoff to Swamp 92.

Metropolitan Coal has also ceased mining of Longwalls 303, 304, and 305 early as part of its adaptive management approach to protect the downstream rock bars of Eastern Tributary. This has resulted in reducing 300-series longwalls by a combined total of 1,620 m. This standoff resulted in the equivalent of 1.1 Mt of ROM production sterilised with an estimated revenue of $150 million forgone.

CPHR has noted the following:

> *It is noted that panels under the Woronora Reservoir have reduced longwall dimensions (133m longwall widths and 70m wide pillar widths) to protect the dam from subsidence impacts. The BDAR should equally consider these options to be relevant to avoid serious impacts to biodiversity (and water resources) in a sensitive water catchment area. Optimally, this would include a longwall layout which avoids undermining threatened swamps and other significant features including streams that provide threatened species habitat.*

A visual representation of the Modification longwall extraction area underneath Upland Swamps is provided in Figure 4-1. If Metropolitan Coal were to adopt an approach which avoids mining beneath Upland Swamps, the extraction would be uneconomic.

A key objective of the mine design was to reduce the predicted tensile strain on swamps within the Indirect Impact Footprint (i.e. the area within the 35° angle of draw and/or 20 millimetres [mm] subsidence contour) to 0.5 millimetres per metre (mm/m) or less, which represents the threshold associated with the onset of tensile cracking in subsidence engineering (Independent Advisory Panel for Underground Mining, 2020).

As discussed in Section 7 of the BDAR, this has been achieved by:

- increasing pillar widths for Modification longwalls (from approved 45 m to proposed 55 m) to reduce subsidence effects; and
- shortening of the southern end of Longwall 317 to minimise subsidence effects on the largest Coastal Upland Swamp within the Modification area, in particular Swamp 106.

In relation to considering similar geometries as was used to extract beneath Woronora Reservoir it should be noted that subsidence is a function of mined seam thickness and the ratio of panel width to height above the extracted seam (W/H ratio). As the Bulli Seam is remarkably consistent in thickness the main variable is the W/H ratio. Mills (1998) has summarised the relationship between depth of mining, extraction width and subsidence as follows:

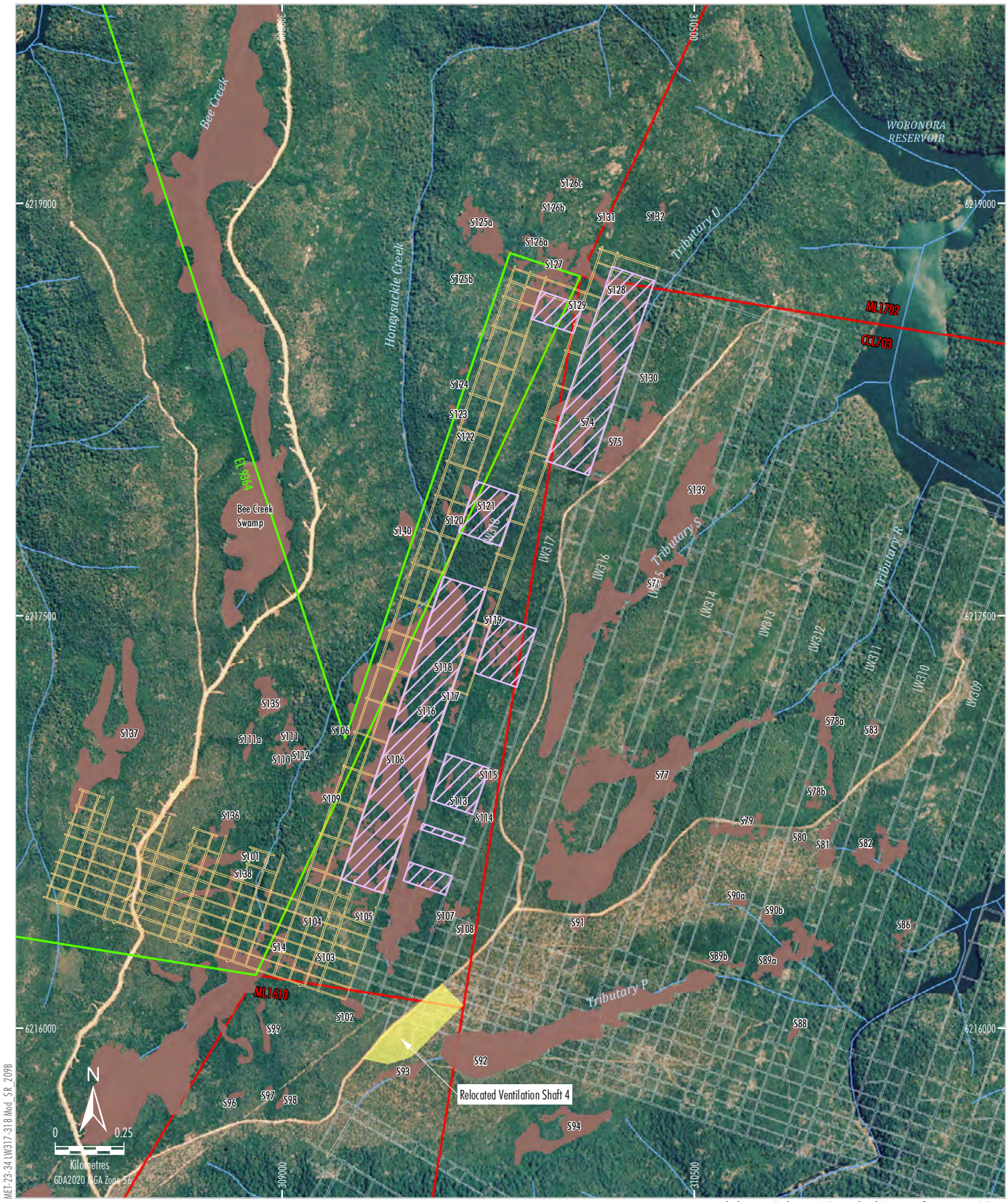
- at W/H ratio greater than about 1.6 (i.e. supercritical widths), the maximum subsidence is reached with Smax typically 55 to 65 per cent of the mined seam thickness;
- at W/H ratio between 0.6 and 1.6, the amount of subsidence is sensitive to variations in panel width, overburden depth and the composition and properties of the strata; and
- at W/H ratio less than 0.4 to 0.6 (depending on depth and geology where bridging occurs), the amount of surface subsidence is negligible.

In this regard, Galvin (2017) also states:

> *"Consideration of panel width, in isolation of consideration of the depth of the panel, and vice-versa, is important but it is also essential that the two parameters are considered together when evaluating rock mass response to mining and its impacts on the subsurface and surface."*
> *…*
> *"Hence, for a given set of site-specific conditions (geology, stress field etc.), the mode of failure and the extent of disturbance of the overlying strata extent caused by forming an excavation is strongly controlled by the ratio of panel width-to-mining depth, W/H"*

As the Bulli Seam is remarkably consistent in thickness, the main variable is the W/H ratio. The W/H ratio at Metropolitan Coal Mine during extraction beneath the Woronora Reservoir was approximately 0.31 to 0.35 (Table 4-1), significantly more conservative than other mines in the southern coal fields. The design for Longwalls 317 and 318 is at 0.30 to 0.32 W/H ratio. Longwalls 317 and 318 will use what is arguably a more conservative geometry to pass beneath the swamps than was utilised for mining beneath the Woronora Reservoir. (Table 4-1).

In comparison to other underground coal mines in the Southern Coalfield, Metropolitan Coal has significantly more conservative longwall geometry (Table 4-1).



MET-23-34 LW317-318 Mod_SR_209B

Source: Applied Aquatic Ecology (2025); Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025);

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Approved Metropolitan Coal Mine Longwall Layout
- Proposed First Workings
- Indicative Longwalls 317 and 318
- Extraction Area beneath Upland Swamp
- Relocated Ventilation Shaft 4
- Upland Swamp

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.

Longwall sections not beneath swamps and greater than 90 m long are shown.

Peabody

METROPOLITAN COAL

Area of Modification Longwalls beneath Upland Swamps

Figure 4-1

Table 4-1
Longwall Geometry Comparison of Underground Mines in the Southern Coalfield

Southern Coalfield Mine	Panel Void (m)	Chain Pillar Width (m)	Minimum Extraction Height (m)	Minimum Depth (m)	Maximum Depth (m)	Panel Void to Depth Ratio (W/H)	
Metropolitan Coal Mine Longwalls 317-318	163	55	2.8	510	545	0.30	0.32
Metropolitan Coal Mine beneath Woronora Reservoir	138	70	2.8	400	450	0.31	0.35
Dendrobium Mine[1]	305	45	4.6	310	450	0.68	0.98
Appin Mine[2]	324	45	2.8	530	750	0.43	0.61
Tahmoor Mine[3]	285	36	2.1	365	405	0.70	0.78

Note: The abovementioned values are approximations only based on available information, and it is acknowledged several mines adopt varying geometries for their longwall layouts.

Source:
[1] BHP Billiton Illawarra Coal (2012).
[2] South32 (2024).
[3] Tahmoor Coal Pty Ltd (2025).

It is considered that the proposed geometry of the Modification which incorporates a conservative layout, a setback from Swamp 106, and reduced tensile strain balances economic coal extraction and environmental impacts.

In addition, an adaptive management and Trigger Action Response Plan (TARP) system, designed to reduce risks would be implemented during the extraction of Longwalls 317 and 318. This is a system that has been successfully implemented at the Metropolitan Coal Mine. Consistent with the Eastern Tributary Valley Closure TARP, the decision to cease mining of Longwall 303, 304 and 305 was made at a very low magnitude of valley closure. High accuracy of closure measurements taken directly on the rock bar or valley floor demonstrated that total rock bar closure was less than 2 mm throughout the mining process and strains on the rock bar were less than 0.5 mm/m (i.e. in the order of survey accuracy). The Eastern Tributary Valley Closure TARP has been successfully implemented by Metropolitan Coal for Longwalls 303, 304 and 305.

Metropolitan Coal proposes to relinquish the right to develop the approved location of the Ventilation Shaft 4 and the proposed Relocated Ventilation Shaft 4 will be subject to offsetting and compensatory measures under the *Biodiversity Conservation Act 2016*. The BDAR has assessed the potential impacts from the Relocated Ventilation Shaft 4 in accordance with the BAM (DPIE, 2020a).

The BDAR has adequately assessed the avoidance of impacts to Coastal Upland Swamps and associated streams in accordance with Section 7 (Avoiding or minimising impacts on biodiversity values) of the BAM (DPIE, 2020a) and does not require further consideration. Further avoidance of potential impacts would not be reasonable or feasible, and would likely result in significant adverse economic impacts, including employment impacts and reduced royalties to NSW.

Recommendation 4.2

Identify subsidence thresholds and use these to adjust the mine layout so that impacts to significant biodiversity are avoided and a better balance between coal extraction and environmental protection is achieved.

Response

A differentiating factor of the Metropolitan Coal Mine to other underground mines is its conservative mining geometry. The mine adopts narrower panels (void) and wider pillars, and the target seam is located at a significant depth (510 to 545 m below the surface). This conservative geometry has resulted in no connective surface to seam cracking. The Modification continues this conservative longwall design to avoid and minimise impacts to biodiversity.

Metropolitan Coal has identified and considered the subsidence threshold of the onset of tensile cracking, which has commonly been associated with a tensile strain of 0.5 mm/m (Independent Expert Advisory Panel for Underground Mining [IEAPUM], 2020). As described in the response to Recommendation 4.3, this has been implemented in the Modification longwall design through the shortening of Longwall 317 and wider panel design that reduces the tensile strain of all swamps in the subsidence contour to 0.5 mm/m or less (Appendix A of the Modification Report).

Metropolitan Coal has considered alternative underground mining layout designs in Section 1.3 (Analysis of Feasible Alternatives) of the Modification Report (Metropolitan Coal, 2025a). If the Modification was to adopt a traditional longwall geometry (i.e. wider panels and narrower pillars) there would be a substantial improvement in operating costs, however, there would also be significantly greater subsidence effects on surface water features including watercourses and upland swamps.

It is considered that Metropolitan Coal has appropriately considered the balance between economic coal extraction and preservation of environmental features.

Recommendation 4.3

Assess options to adjust mine layouts to reduce environmental consequences including:

- *remove LW318 from the proposal altogether (or retain only the northern section) to protect Honeysuckle Creek, S106, and cumulative impacts from multiple longwalls in other swamps (e.g. S119)*
- *shorten LW317 so that it does not go directly beneath S74 and reduce cumulative impacts in other swamps (e.g. S76)*
- *narrow the width of the longwall panels to reduce risk*
- *further increase the width of the longwall pillars to reduce risk*
- *lower the height of extraction to reduce risk.*

Response

The response to this recommendation is provided in Table 4-2 below.

Table 4-2
Response to CPHR Recommendation 4.3

CPHR Recommendation	Metropolitan Coal Response
Assess options to adjust mine layouts to reduce environmental consequences including: • *remove LW318 from the proposal altogether (or retain only the northern section) to protect Honeysuckle Creek, S106, and cumulative impacts from multiple longwalls in other swamps (e.g. S119)*	As described in the response to Recommendation 4.2, Metropolitan Coal has considered and implemented measures to reduce environmental impacts. The Surface Water Assessment prepared for the Modification (refer Appendix C of the Modification Report) considers the cumulative impacts from the preceding longwalls. Therefore, the 'low potential risk of greater than negligible environmental consequence' for Swamps 106 and 119 remain applicable. A Modification without Longwall 318 would significantly reduce economic benefits.
• *shorten LW317 so that it does not go directly beneath S74 and reduce cumulative impacts in other swamps (e.g. S76)*	Longwall 317 has already been shortened to minimise impacts to Swamp 106. Swamp 74 has a 'low potential risk of greater than negligible environmental consequence'. Through the implementation of adaptive management and a TARP system, potential impacts can be mitigated. It was assessed that the Modification is unlikely to increase the risk of fracturing on Swamp 76, therefore it is not considered necessary to consider mine layout adjustments to reduce predicted impacts.
• *narrow the width of the longwall panels to reduce risk* • *further increase the width of the longwall pillars to reduce risk*	Since commencement of longwall operations in 1995 Metropolitan Coal Mine has implemented conservative longwall geometries, with narrow panels and wider pillars compared to traditional longwall mining designs. The further narrowing of longwall panels would likely result in an uneconomic mine. As noted in Recommendation 4.1, Metropolitan Coal is proposing to increase the width of pillars by 22% as part of this modification to reduce the surface tensile strain to 0.5 mm/m or less (i.e. below the threshold associated with the onset of tensile cracking). It is not clear that a further pillar increase would achieve any meaningful environmental benefit.
• *lower the height of extraction to reduce risk.*	The height of extraction (approximately a minimum of 2.8 m) is based on the thickness of the targeted Bulli Seam (to extract the full seam thickness) and longwall equipment specifications. It would not be reasonable or feasible to reduce the height of extraction.

Recommendation 5.1

> *Include Glossy Black Cockatoo and Gang-gang Cockatoo in further assessment (they are excluded in Table 5.3 of the BDAR and the BAM-C), as suitable tree hollows are present within the direct impact footprint.*

Response

As described in the response to Recommendation 2.2, Niche (2025a) identified only one of the 13 hollow-bearing trees within the Development Footprint that meets the dimensional thresholds for diameter at breast height, hollow height and hollow entrance size for the Gang-gang Cockatoo. However, the broader habitat context does not support breeding for the Gang-gang Cockatoo due to the lack of structural features known to support breeding activities and absence of structural context to support breeding aggregation. It is also noted intensive surveys were conducted during the breeding period of the Gang-gang Cockatoo and neither the species, nor any signs of breeding activity (e.g. calls, feathers, chew marks, nesting) was recorded.

Consistent with the *Draft Guidelines for Hollow-dependent Birds* (NSW DCCEEW, 2025), none of the 13 hollow-bearing trees within the Development Footprint meet the combined structural requirements of suitable breeding hollows for the Glossy Black Cockatoo. Further, the absence of suitable feed trees (*Allocasuarina* and *Casuarina*) within or near the Development Footprint suggests insufficient food resources during breeding events and absence of breeding habitat (Attachment 2).

In consideration of the above, the Gang-gang Cockatoo and Glossy Black Cockatoo were not considered to require further assessment.

Further detail is provided in Attachment 2.

Recommendation 5.2

> *Determine if species polygons for these cockatoos are required.*

Response

As described in the responses to Recommendation 2.2 and 5.1, due to the limited hollow-bearing trees, absence of breeding stands and lack of key food resources within the Development Footprint, species polygons of the Glossy Black Cockatoo and Gang-gang Cockatoo within the Development Footprint were not required (Attachment 2).

Further detail is provided in Attachment 2.

Recommendation 5.3

> *Clarify timeframes for noise and light spill impacts for construction and operation of the Ventilation Shaft.*

Response

Construction activities for the proposed Ventilation Shaft 4 would occur 24 hours a day, up to seven days per week and for a period of up to approximately 18 months. Heavy vehicle movements to and from the construction site would be restricted to daytime hours (7:00 am to 6:00pm) up to seven days per week.

Further detail of the noise impacts associated with the construction of Ventilation Shaft 4 is detailed in Attachment 6.

Any lighting required for the construction activities would be installed and used to prevent light spill impacts. Mitigation methods include, but are not limited to:

- only using the minimum lighting required to maintain safe working conditions;
- wherever possible, artificial lighting would be directed away from remnant vegetation; and
- incorporating shielding and directing light away from sensitive areas.

Further detail of the mitigation measures would be provided in the Construction Management Plan that would be prepared for the Ventilation Shaft 4.

Recommendation 6.1

> *Provide evidence supporting the statement "*there will be minor reductions to habitat connectivity for threatened amphibians*".*

Response

Evidence from desktop research, field assessments, and the Amphibian Species Expert Report (Appendix E of Attachment 3) supports the conclusion that any reductions in habitat connectivity for threatened amphibians within the Indirect Impact Footprint would be minor and localised (Niche, 2025a).

Field mapping and habitat polygon delineation confirm that suitable breeding and foraging habitats for the three target species (Giant Burrowing Frog, Littlejohn's Tree Frog [*Litoria littlejohni*], and Red-crowned Toadlet), occur as discrete and spatially confined riparian and swamp networks, rather than as continuous landscape corridors and the predicted subsidence effects, including valley closure and strain magnitudes across upper Tributaries R, S, and U, are low (MSEC, 2025), with modelling indicating limited potential for surface cracking or significant alteration to swamp hydrology (ATC Williams, 2025).

In consideration of the above, available evidence indicates that only small, localised reductions in hydrological connectivity may occur within limited sections of upland swamps or minor tributaries intersected by longwalls. The changes associated with the Modification are not expected to disrupt population exchange or gene flow within the local amphibian metapopulations.

Further detail is provided in Attachment 3.

Recommendation 7.1

> *Provide a revised mining layout that further avoids impacts to Coastal Upland Swamps.*

Response

Refer to the response to Recommendation 4.2.

CPHR provided comment on the subsidence predictions for the swamps:

> *While an increase in pillar width will have some effect in reducing total subsidence, the change is insufficient to prevent adverse impacts and consequences to Coastal Upland Swamps above and to the sides of the longwalls. Based on predicted subsidence, tensile and compressive stress, upsidence and closure, many swamps are still predicted to suffer adverse consequences (i.e. fracture and drainage), including all 4 large swamps S92, S76, S77 and S106.*

The Surface Water Assessment assessed potential risk of greater than negligible environmental consequence. It was concluded that no swamps were predicted to suffer adverse consequences. It was assessed that potential impacts to Swamps 76 and 77 are considered unlikely to materially increase as a result of the Modification due to predicted conventional tensile strain being equal to or less than 0.5 mm/m. As such there is unlikely to be fracturing in the upper Hawkesbury Sandstone (ATC Williams, 2025).

Swamp 106 was assessed as having a low potential risk of greater than negligible environmental consequence with a moderate risk of fracturing in the upper Hawkesbury Sandstone, however, based on upsidence and valley closure predictions for Swamp 20 (which has historically experienced mining-related effects), it is unlikely that effects to the substrate and sandstone would be of the same magnitude (ATC Williams, 2025). Further, the shortening of Longwall 317 by 67 m at the southern end has reduced tensile strain at Swamp 106 to less than 0.5 mm/m.

Swamp 92 is located outside of the Study Area and therefore, is not subject to any subsidence effects associated with the Modification.

CPHR commented the following regarding Swamp 106:

> *Swamp S106 is predicted to experience 750 mm of subsidence (MSEC 2025), a significant (15-fold) increase on the predicted subsidence in the revised LW311-316 EP (of 50mm). Tilt is now predicted to be 3.5 mm after LW317 & LW318 are extracted, although S106 will potentially experience much higher transitive tilts and tensile and compressive strains as the mining progresses. Upsidence predictions for S106 after the proposed LW317 & LW318 is 50mm. Closure predictions for S106 after the proposed LW317 & LW318 is 20 mm.*

The claim that Swamp 106 'will potentially experience much higher transitive tilts and tensile and compressive strains as mining progresses' is not a conclusion of the Subsidence Assessment. MSEC (2025) concluded the following with regards to Swamp 106:

> *…The predicted maximum subsidence at Swamp S106 increases from 350 mm based on the Approved Layout to 750 mm based on the Modified Layout. The maximum predicted tilt and strains do not change. The maximum predicted conventional tensile strain for this swamp is less than 0.5 mm/m and as a result the risk of tensile cracking is reduced. Predictions of valley closure are provided for this swamp, however, they are applicable to only a small section of the swamp that is located within the alignment of Honeysuckle Creek. The predicted valley closure is small and is not expected to result in an impact to the swamp.*

CPHR further commented the below regarding Honeysuckle Creek and Swamp 106:

> *These upsidence and closure levels appear unrealistically low given the upsidence and closure estimates for other directly undermined swamps and the incision of the drainage line in S106. It is noted that MSEC (2025) did not provide any subsidence estimates for the Honeysuckle Creek tributary that contains/drains from S106. It therefore appears that potential upsidence and closure levels for Swamp S106 have been significantly underestimated.*

In response to submissions on the effects to the unnamed tributary of Swamp 106, MSEC has provided subsidence predictions for this tributary. The maximum predicted subsidence is 650 mm, maximum predicted upsidence is 30 mm, and maximum predicted closure is 20 mm. These predictions are less than that predicted for Swamp 106. Predicted parameters are low due to the shallow valley profile within Swamp 106 and the location of the swamp near the extremities of the longwall series. ATC Williams has assessed potential impacts to this tributary, which is provided in Attachment 5 of this Submissions Report (ATC Williams, 2025b).

MSEC (2025) used the Incremental Profile Method to produce the subsidence predictions for the Modification. This empirical model uses a large database of observed monitoring data from previous mining across NSW and Queensland, including relevant data from the Southern Coalfield. The model was calibrated to the local conditions of the Metropolitan Coal Mine and used observed monitoring data above previously extracted longwalls. MSEC regularly assesses the reliability of this method, which has found in most cases it provides reasonable, if not conservative predictions.

CPHR provided the following comment on Swamps 76, 77 and 92:

> *Swamps S76 & S77 are likely to be impacted by both the approved LW311-316 Extraction Plan (EP) and cumulative subsidence effects from the proposed LW317-318 EP (if approved). There remains a potential for S92 to also be impacted (fractured and drained), particularly at its downstream end[3]. If this occurs, water is likely to eventually drain downwards into the fracture network leading to desiccation in Swamp S92.*

As described above, potential impacts to Swamps 76 and 77 as a result of the Modification are considered unlikely to materially increase due to the predicted conventional tensile strain being equal to or less than 0.5 mm/m with fracturing in the upper Hawkesbury Sandstone unlikely (ATC Williams, 2025).

The Longwall 311-316 Extraction Plan described that subsidence impacts were expected to be consistent with the impacts identified in the Project Environmental Assessment (Helensburgh Coal Pty Ltd, 2008) and Preferred Project Report (Helensburgh Coal Pty Ltd, 2009), however, the reports do not conclude Swamps 76 and 77 would be impacted.

Swamp 92 is located outside of the Study Area, therefore potential impacts of the Modification were not assessed by specialists.

CPHR has provided the following comments on the predicted impacts to swamps:

> *Based on predicted subsidence, tensile and compressive stress, upsidence and closure, swamps likely to suffer adverse consequences include: S74, S75, S76, S77, S91, S92, S106, S113, S114, S115, S119, S130 & S139.*
>
> *Swamps S74, S75, S117, S118, S119, are particularly at risk and were identified as likely impacted swamps by ATC Williams (2025) based on subsidence predictions.*
>
> *The following swamps also have sufficiently high subsidence, tilt and stresses to result in adverse consequences: S116, S117, S118, S121, S128.*
>
> *Given S120, S127, and S129 lie directly above either the edges or corners (where stresses are likely to be high) of longwalls 317 & 318, they too are at risk of adverse consequences.*
>
> *If the Modification is approved, Metropolitan Mine operations could potentially see cumulative impacts on Coastal Upland Swamps up to 40-45 ha. This number excludes the areas of Flatrock Swamp, to the south of the current mine operation, S92 and S106.*

The conclusions from MSEC (2025) and ATC Williams (2025a) do not align with CPHR's statement above, and it is unclear how this conclusion was reached. The swamp assessment component of the Surface Water Assessment was peer reviewed by an Independent Expert, Dr Stuart Brown of HGEO Pty Ltd whereby the findings of the review were as follows:

> *… the modelling methodology is appropriate for assessment of impacts to swamp hydrological regime and is well supported by hydrogeological data. The resulting predictions of potential changes in swamp shallow groundwater level are considered plausible in terms of magnitude.*

Recommendation 7.2

> *Refer the proposal to the Independent Expert Advisory Panel for Mining (IEAPM) to advise on adequacy of the impact assessment in relation to:*
>
> - *impacts to Swamp 92 due to the Ventilation Shaft*
> - *potential impacts on S106*
> - *cumulative impacts to Coastal Upland Swamps across Metropolitan mine approval area.*

Response

Referral of the Modification to the IEAPM is a matter for DPHI. Metropolitan Coal would prepare a response to the IEAPM should the Modification be referred.

Recommendation 7.3

> *Assess the cumulative impacts to swamps occurring above previously approved longwalls, particularly swamps S76 and S77, as prescribed impacts in the BDAR, in accordance with Section 8 of the BAM.*

Response

The subsidence predictions provided by MSEC (2025) include incremental and cumulative effects (i.e. including previously mined longwalls).

Recommendation 7.4

> *Update mapping of swamps to be offset (Figure 12 of the BDAR) to include all swamps that are likely to have a greater than negligible impact, including those swamps which occur above already approved longwalls.*

Response

The swamps shown on Figure 12 of the BDAR (including those above already approved longwalls) were assessed by ATC Williams (Appendix C of the Modification Report) to have a 'low potential risk of greater than negligible environmental consequence'. Accordingly, no swamps are likely to have a greater than negligible impact.

The 20 mm subsidence contour, of which the BDAR considers, represents the predicted extent of subsidence with consideration of the approved longwalls. Thus, the swamps occurring over approved longwalls (i.e. Longwalls 311-316) have been accounted for. This includes Swamp 75 overlying Longwall 316 which has been assessed by ATC Williams (2025a) to have a 'low potential risk of greater than negligible consequence'. MSEC (2025) provides the incremental (the Modification) and cumulative profiles (extraction of previous longwalls including the Modification) for the Study Area, Honeysuckle Creek, and Tributaries R, S and U in Appendix C of the Subsidence Assessment (Appendix A of the Modification Report).

The swamps over the approved longwalls (Longwalls 311-316) are monitored and managed under the Longwalls 311-316 Biodiversity Management Plan (Longwalls 311-316 BMP). If an exceedance of a performance indicator for the swamps in the Longwalls 311-316 BMP were to occur, the appropriate responses would be actioned in accordance with the relevant TARP.

The assessment of potential impacts to the swamps has not been revised as there is the sufficient incorporation of cumulative impacts in the Surface Water Assessment (Appendix C of the Modification Report). Accordingly, Figure 12 of the BDAR remains representative of the potential impacts of the Modification on biodiversity values.

Recommendation 8.1

> *Recalculate the Coastal Upland Swamps offset liability in BAM-C in accordance with the BAM and the Upland Swamps Offsets Policy; that is, assuming full loss of the ecological community.*

Response

The *Addendum to NSW Biodiversity Offsets Policy for Major Projects: Upland swamps impacted by longwall mining subsidence* (NSW Office of Environment and Heritage [OEH], 2016) (Upland Swamp Policy) provides that an Extraction Plan must calculate the *maximum predicted offset liability* for the swamps to be undermined in that Extraction Plan where it is predicted that mining will cause greater than *negligible environmental consequences*. As identified in the Surface Water Assessment (Appendix C of the Modification Report), six swamps within the Modification Study Area (Swamps 74, 75, 106, 117, 119 and 130) are assessed to have a low potential risk of greater than negligible environmental consequences. If required, it is anticipated that, the calculated *maximum predicted offset liability* will be included within the Extraction Plan prepared for Longwalls 317 and 318, consistent with the Upland Swamp Policy.

As described in Appendix K of the BDAR, given that the BAM provides the ability to amend 'site values' scores to reflect an impact, Metropolitan Coal proposes to amend the default 'site value' scores in the BAM-C to reflect a transition to a vegetation type, rather than assuming the area of Coastal Upland Swamp would be completely cleared and devoid of fauna habitat, as would be the case for an open cut mine in the same location. The amendment of scoring in the BAM-C is permissible and generally occurs when clearing 'partially' impacts a Plant Community Type (PCT) (e.g. an Asset Protection Zone may only remove trees, but not a shrub and ground cover) (Appendix D of the Modification Report).

The Modification may result in alterations to groundwater-surface water interactions through a potential reduction in baseflow contribution and increase in seepage to some upland swamps. However, this is predicted to be transient and within range of historical variations in baseflow, thus effects to the Coastal Upland Swamps within the Modification Area are expected to be negligible to low (Appendix C of the Modification Report).

Further detail of the application of the partial loss scenario is provided in Appendix K 'Predicting Impacts of Longwall Mining on Coastal Upland Swamps' of the Modification Report (Metropolitan Coal, 2025a).

Recommendation 8.2

> *Review and discuss the relatively low Vegetation Integrity (VI) score for Plant Community Type (PCT) 3924 in the BDAR.*

Response

PCT 3924 was assessed by Niche (2025a) as being in high condition, supported by the absence of weeds and lack of visible disturbance indicators. The composition results of PCT 3924 were generally close to benchmark values, with the exception of forbs, which were lower. The structure values also displayed a similar pattern to the composition results, where forb and grass strata recorded lower than benchmark values. The shrub structures of PCT 3924 were elevated and tree structures exceeded benchmark values (Niche, 2025a).

In summary, despite some structural imbalances and reduced forb representation within PCT 3924, the vegetation zone retains high ecological integrity, with intact native structure, composition, and minimal disturbance, supporting its classification as being in good to high condition across the BDAR Study Area.

Further detail is provided in Attachment 2.

Recommendation 9.1

> *Provide more detail in the BDAR on rocky areas and relevant threatened species which use this habitat within the indirect impact area.*

Response

Relevant sections of the Revised BDAR have been amended to provide further detail on the rocky habitats, including caves, crevices, cliffs and sandstone outcrops, which occur throughout the Indirect Impact Footprint (Attachment 3 of this Submissions Report).

The Revised BDAR (Attachment 3) acknowledges that rocky habitats extend beyond COH19 and occur intermittently throughout the Indirect Impact Footprint. While these areas are subject to minor predicted subsidence effects (e.g. strain, tilt, and localised rock fracturing), no increase in the magnitude or extent of potential instability is predicted under the Modification layout relative to the approved layout (MSEC, 2025).

As no direct disturbance or vegetation clearance is proposed within 100 m these rocky areas, and subsidence parameters remain within previously assessed limits, impacts to rocky habitats and associated threatened species are expected to be low. However, the Revised BDAR includes a commitment to ongoing monitoring of representative cliff and ledge habitats to validate subsidence predictions (Attachment 3).

Further detail is provided in Attachment 2.

Recommendation 9.2

> *Include an assessment of "likelihood and consequences" for the Large Bent-wing Bat in the indirect impact area in Table 8.8 of the BDAR.*

Response

Metropolitan Coal accepts this recommendation. Table 8.8 within Section 8.3.7 of the Revised BDAR has been amended to explicitly assess the likelihood and consequences of potential impacts to Large Bent-winged Bat (*Miniopterus orianae oceanensis*) habitat within the Indirect Impact Footprint (Niche, 2025a).

Recommendation 10.1

> *Consider further avoidance of impacts to threatened amphibian habitat in an amended mining layout.*

Response

Refer to response to Recommendation 4.1 regarding the mining layout.

Recommendation 10.2

> *Refer the proposal to the IEAPM to advise on adequacy of the impact assessment in relation to:*
>
> - *potential impacts on S106 and Honeysuckle Creek*
> - *cumulative impacts to threatened amphibians across Metropolitan mine approval area*
> - *the seepage model and water losses estimated for the Modification application.*

Response

Referral of the Modification to the IEAPM is a matter for DPHI. Metropolitan Coal would prepare a response to the IEAPM should the Modification be referred.

Recommendation 10.3

> *Refer to the work of Klop-Toker (2025) regarding impacts of iron flocculant on threatened amphibians.*

Response

Section 8.3.4.3.1 of the Revised BDAR has been amended to reflect potential indirect impacts to waterbodies that would affect Littlejohn's Tree Frog and references the recent findings by Klop-Toker (2025) and other potentially relevant work, including that undertaken at the Dendrobium Mine, regarding the effects of iron flocculant on threatened amphibians. However, it is noted that the Dendrobium Mine longwall geometry and depth are significantly different to the Modification (refer to Table 4-1 above).

Further detail is provided in Attachment 2.

Recommendation 11.1

Integrate existing monitoring required for S76, 77 and S92 as part of the LW 312-316 Extraction Plan approval with proposed swamp monitoring for this Modification to assess cumulative impacts to Coastal Upland Swamps.

Response

Metropolitan Coal accepts this recommendation and will integrate the existing monitoring at Swamps 76, 77 and 92 into the swamp monitoring for the Modification. Further detail of the monitoring program and management plans for Longwalls 317 and 318 would be provided during the Extraction Plan stage. The preparation of the Extraction Plan would also consider data obtained since project approval including data from mining near to and/or beneath Swamps 76, 77 and 92.

Recommendation 11.2

Review swamp monitoring locations to ensure piezometers have been installed in appropriate locations to monitor impacts to swamps.

Response

Since the receipt of CPHR's correspondence dated 14 April 2025, Metropolitan Coal has installed a shallow substrate and soil moisture monitoring piezometer south of the existing S106B location where vegetation is strongly dominated by swamp-related species. The location of this new site is provided on Figure 4-2. The new site, S106b R commenced monitoring on 19 June 2025. The data obtained will be used for future reporting of the existing monitoring associated with the Longwalls 311-316 management plans, as well as monitoring and management for Longwalls 317 and 318.

Recommendation 12.1

Provide further assessment of SAII as follows:

- *Undertake further survey to rule out the presence of breeding individuals of Large-eared Pied Bat, assume presence or obtain an expert report, in accordance with Section 5.2.4 of the BAM.*
- *Revise the BDAR to include a SAII assessment of the Large Bent-wing Bat, as required by Section 9 of the BAM.*
- *Provide further information to assess the Littlejohn's Treefrog against SAII Principle 3 (limited geographic distribution) and SAII Principle 4 (species unlikely to respond to measures to improve its habitat and therefore its members are not replaceable).*

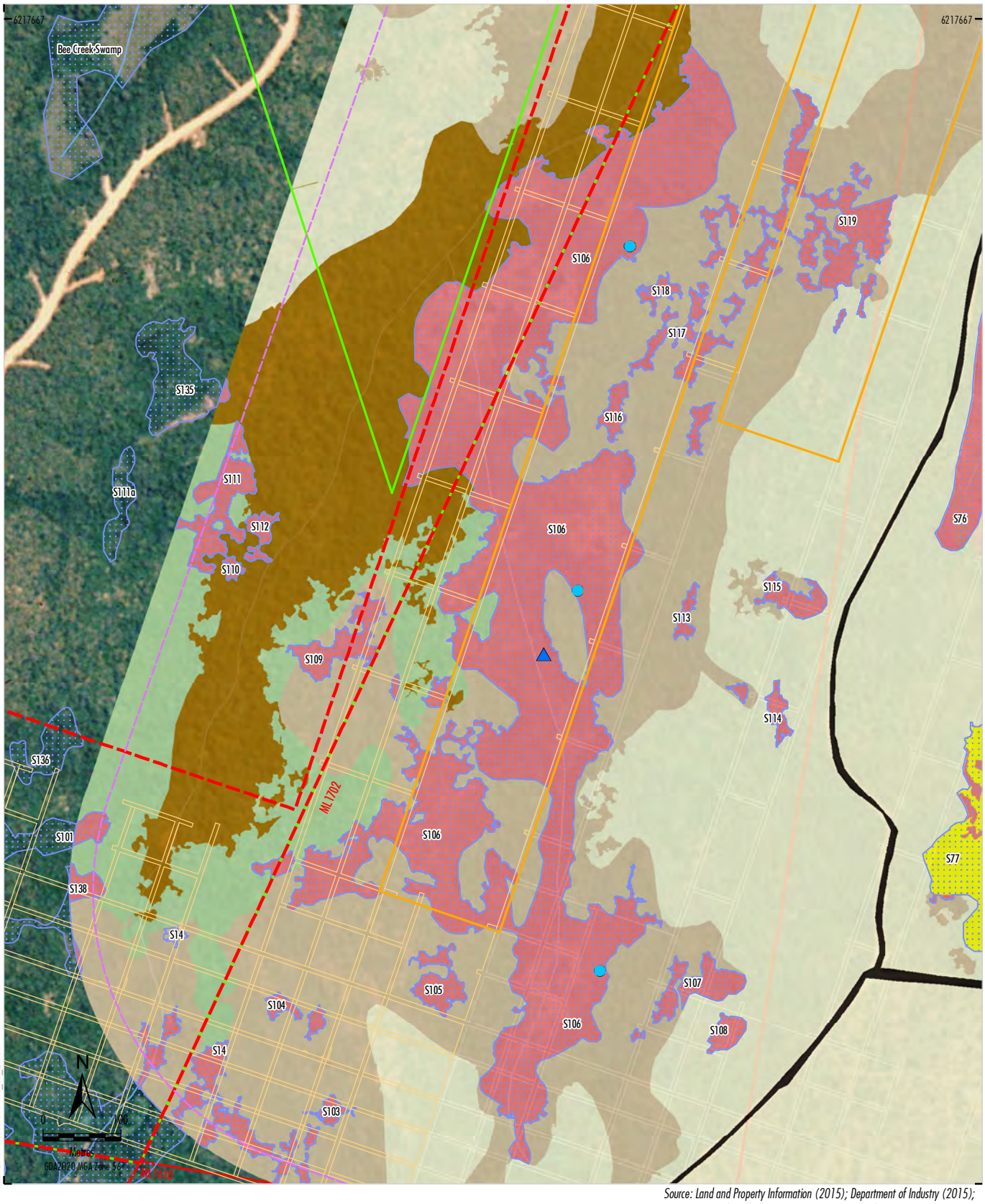
Response

Large-eared Pied Bat

While the presence of the Large-eared Pied Bat in the Study Area has been conservatively assumed for precautionary assessment, the absence of suitable breeding habitat and lack of local breeding records indicate that the Modification is expected to have negligible impact on Large-eared Pied Bat breeding or roosting refugia. No further survey is required to confirm the absence of breeding individuals, consistent with Section 5.2.4 of the BAM (Attachment 2).

Large Bent-wing Bat

The Revised BDAR includes a SAII assessment for the Large Bent-wing Bat, in accordance with Section 9 of the BAM (DPIE, 2020a), including evaluation of potential breeding and foraging habitat within the Indirect Impact Footprint (Attachment 3 of this Submissions Report).



MET-23-34 LW317-318 Mod_SR_207B

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Indicative Mining Lease Application Area
- Existing Approved Underground Development
- Proposed First Workings
- Indicative Longwalls 317 and 318
- 35 Degree Angle of Draw and/or 20 mm Subsidence Contour (Subsidence Extent)
- Swamp 106 Substrate and Shallow Groundwater Piezometer
- Swamp 106 S106b R Substrate Piezometer
- Upland Swamp

Vegetation Mapping

- PCT 3590 - Southern Sydney Scribbly Gum Woodland
- PCT 3595 - Sydney Coastal Sandstone Gully Forest
- PCT 3598 - Woronora Plateau Scribbly Gum Woodland
- PCT 3814 - Woronora Plateau Heath-Mallee
- PCT 3923 - Sydney Coastal Sandstone Creekline Swamp Heath
- PCT 3924 - Sydney Coastal Upland Swamp Heath
- Road and Track

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.

Source: Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025); Niche (2025); NPWS (2003), Bangalay Botanical Surveys (2008); Eco Logical Australia (2015; 2016; 2018) and Ecoplanning (2021; 2023)

Peabody

METROPOLITAN COAL

Location of S106b R Monitoring Piezometer

Figure 4-2

Littlejohn's Tree Frog

While Littlejohn's Tree Frog is currently subject to a SAII nomination, Niche (Attachment 2) has completed an SAII assessment in line with the recommendations of CHPR, against Principle 3 and Principle 4. Additional information, including further habitat analysis and assessment of geographic distribution and species replaceability, has been provided in the Revised BDAR to address these principles (Attachment 3).

Further detail is provided in Attachment 2.

Recommendation 12.2

> *Search for the Slaty Leek Orchid in the indirect impact area. If it is located it needs to be included in the monitoring program within the Adaptive Management Plan (AMP)/Biodiversity Management Plan (BMP).*

Response

The Slaty Leek Orchid was assumed present in the Modification BDAR due to association with PCT 3598, PCT 3923 and PCT 3924 within the Indirect Impact Footprint.

The Biodiversity Management Plan that would be prepared for Longwalls 317 and 318 would include a commitment to incorporate any Slaty Leek Orchid individuals into the ongoing monitoring and management, if recorded during regular flora surveys.

Recommendation 13.1

> *Undertake surveys/assessment for additional threatened species mentioned in Issues 2 and 3 in Attachment B, and if required, update the BAM-C to determine any additional offsets that may be required as a result of additional assessment.*

Response

Responses to survey and assessment considerations for threatened species mentioned in Issues 2 and 3 are provided in Recommendations 2.2, 2.3 and 3.2. Where relevant, the Revised BDAR has been amended to reflect the responses.

Further detail is provided in Attachment 2.

Recommendation 16.1

> *Review the BAM-C case and confirm Gang-gang Cockatoo and Glossy Black Cockatoo as confirmed candidate species, and document in an updated BDAR/BAM-C case.*

Response

As previously described, the Glossy Black Cockatoo and Gang-gang Cockatoo have not been considered in further assessment of the BDAR and BAM-C due to the limited hollow-bearing trees, absence of breeding stands and lack of key food resources within the Development Footprint. As such, the Glossy Black Cockatoo and Gang-gang Cockatoo have been discounted as candidate species within the BDAR.

Further detail is provided in Attachment 2.

Recommendation 16.2

> *Submit the BOAMS/BAM-C case for indirect impacts to CPHR.*

Response

Refer to response to Recommendation 2.4.

Recommendation 17.1

> *Refer to recommendations in our previous letter dated 14 April 2025 (Attachment D) regarding suggested locations for swamp groundwater monitoring.*

Response

Refer to response to Recommendation 11.2.

Recommendation 17.2

> *Clarify that surveys for the Giant Dragonfly have not been completed in swamps within the Modification Area and presence assumed. Should approval be granted, ensure baseline surveys for Giant Dragonfly are undertaken for a minimum of two years prior to mining.*

Response

The Adaptive Management Plan currently commits to monitoring and assessment of performance in Swamps 76, 77 and 106. It is noted that CPHR make reference to the lack of baseline surveys or monitoring in other swamps where there is a low potential risk of greater than negligible environmental consequence (I.e. Swamps 74, 75, 117, 119 and 130). Metropolitan Coal, with the assistance of suitably qualified ecologists, would undertake baseline investigations of these swamps to confirm if they provide suitable Giant Dragonfly habitat, and if so, include these swamps in the Adaptive Management Plan and Biodiversity Management Plan to be prepared for the Modification. Metropolitan Coal also has or proposes to install groundwater substrate monitoring bores at these swamps.

Recommendation 17.3

> *Incorporate evidence from previous research at Dendrobium mine on water quality impacts to threatened amphibians.*

Response

Refer to response to Recommendation 10.3.

Recommendation 17.4

> *Incorporate advice from the IEAPM on amphibian monitoring and TARPS, and update TARPS to reflect this advice.*

Response

The Amphibian TARP presented in the Adaptive Management Plan is adapted from the latest version of the Longwalls 311-316 BMP which has incorporated IEAPM comments. This includes the following updates:

- Revision of monitoring to align with *NSW Survey Guide for Threatened Frogs* (DPIE, 2020b). (i.e. use of transects, appropriate survey methods and time frames).
- Update of performance indicator to encompass amphibian abundance rather than 'amphibian assemblage' and be specific to threatened amphibian species.

Section 4.4 of the Adaptive Management Plan describes that the methodology of the amphibian monitoring would include the identification of potential breeding locations. Further, the Amphibian TARP (Table 7 of the Adaptive Management Plan) incorporates the assessment of visual monitoring in potential breeding pools identified during surveys.

Recommendation 17.5

> *Include a section on addressing limitations and uncertainties within the monitoring program. This should include, but not be limited to, adequacy of monitoring data, inconclusive outcomes and application of the precautionary principle in determining impacts.*

Response

A section including details of the limitations and uncertainties have been added to the revised Adaptive Management Plan as a new section (**Section 10: Limitations**) (Attachment 3 of this Submissions Report).

Recommendation 17.6

Clarify if water level monitoring is to be undertaken at Honeysuckle Creek, and if not, provide a justification.

Response

Water level monitoring at Honeysuckle Creek is currently undertaken as part of the Longwalls 311-316 BMP and would continue to be implemented for Longwalls 317 and 318. It is noted the Adaptive Management Plan has described the monitoring sites as general 'Impact' and 'Control' sites as the details of the specific monitoring will be further investigated.

Additionally, as part of the Modification Surface Water Assessment (Appendix C of the Modification Report), ATC Williams prepared a Proposed Surface Water Monitoring Program for the Modification and provided recommended monitoring sites which Metropolitan Coal will consider. This program includes pool water level and water quality monitoring at 10 pools along Honeysuckle Creek (Appendix H of the Surface Water Assessment).

The details of the monitoring that would occur for Longwalls 317 and 318 would be provided during the Extraction Plan stage. Metropolitan Coal would use its best endeavours to establish monitoring with a view of gathering at least 2 years of data prior to longwall extraction within the angle of draw.

Recommendation 17.7

Include all swamps to be impacted in TARP Performance Indicators, including S74, S75, S106, S117, S119, S130, as well as S76, S77, S91, S113, S114, S115, S139.

Response

The Biodiversity Management Plan (and Adaptive Management Plan for swamps subject to low potential risk of greater than negligible consequence) that would be prepared for the Longwalls 317 and 318 Extraction Plan will consider this recommendation.

Recommendation 17.8

Clarify if the Giant Dragonfly measurement parameter of "relative abundance" is necessary, or whether "abundance" is more appropriate, and update if required.

Response

The Giant Dragonfly TARP in the Adaptive Management Plan has been revised to state "abundance" instead of "relative abundance" (Attachment 3).

Recommendation 17.9

Undertake further assessment to determine if the Ventilation Shaft construction will impact S92.

Response

Metropolitan Coal has engaged AGE to conduct additional assessment of the impacts of the Ventilation Shaft to the groundwater aquifer connected to Swamp 92. Further, ATC has considered the impacts of the Ventilation Shaft on Swamp 92.

The results of these assessments are provided in Section 4.1.4 and Attachments 4 and 5.

Recommendation 17.9

Should approval be granted we recommend that conditions of consent require that changes to listing status of threatened entities be considered when assessing Performance Measures and offsetting.

Response

This recommendation is addressed to the Consent Authority, however, this recommendation would provide little certainty to proponents seeking to undertake development in NSW.

Recommendation 18.1

Provide information that determines the first workings/gate roads enabling a new mine area to the west is "substantially the same development" as that approved.

Response

The proposed first workings and gate roads associated with Modification 4 are considered to constitute "substantially the same development" as that already approved under the existing Project Approval (08_0149) (as modified by Modification 3).

Modification 4 involves only a modest set of additional underground works within the context of an existing, large-scale mining operation. The proposed changes, including the extension of the 300-series mains to the west and associated first workings, represent incremental and operationally necessary adjustments within the scope of the existing mine.

The overall scale, footprint and intensity of the Metropolitan Coal Mine incorporating the Modification remain consistent with the current approval. In fact, the Modification would slightly reduce the approved surface and underground mining areas, as well as the total ROM coal extracted over the life of the Mine. The Modification would be adjacent to the existing longwalls at the Metropolitan Coal Mine, would predominantly be located within approved ML 1610 and ML1702; and would reuse existing surface infrastructure and the associated approved development footprint, where practicable.

The essential features of the approved mine remain unchanged, including its purpose as an underground coal mine, the Bulli Seam as the target seam, extraction and transport limits, surface facilities, life of the mine and operating hours. Accordingly, the Modification does not result in any radical or material transformation of the approved development.

Environmental impacts are expected to be comparable to those already approved. The Modification Report confirms that potential impacts are consistent with those predicted and observed for the approved layout. The proposed changes are therefore not of a scale or nature that would alter the mine such that it is no longer "substantially the same development".

The Modification Report does not propose, nor seek approval for, a new mining area or access to a new coal resource to the west of ML 1702. It simply notes that Metropolitan Coal may, in the future, seek a separate consent to continue operations further within EL 9364 beyond 2032. The current Modification does not authorise access to or development of any new mining area outside the existing approved boundary.

On this basis, the proposed first workings and gate roads are properly characterised as a continuation of the approved underground mining operations, not the establishment of a new or distinct mining project. They allow for the efficient progression of existing approved activities within the current operational framework, and therefore clearly satisfy the requirement that the Modification remains "substantially the same development" as the consented Metropolitan Coal Mine.

It is a matter for the consent authority to determine whether the Metropolitan Coal Mine, as modified, would remain "substantially the same development" as that last modified under section 75W of the EP&A Act (i.e. Modification 3). It is noted that the test does not require the "quantitative features or the qualitative features of the two developments to be substantially the same" (identical), as confirmed in *Arrange v Inner West Council* [2019] NSWLEC 85; *Feldkirchen Pty Ltd v Development Implementation Pty Ltd* (2022) 254 LGERA 114; and *Canterbury-Bankstown Council v Realize Architecture Pty Ltd* [2024] NSWLEC 31.

Recommendation 18.2

Clarify the legality of mining activity in an Exploration Lease in the absence of an approved development application.

Response

As part of the Modification, Metropolitan Coal has identified a Mining Lease Application area (refer Figure 1-2), which would cover the entirety of the proposed longwalls and first workings outside of the existing Mining Leases held by Metropolitan Coal. If the mining lease is granted, this would allow all the proposed activities associated with the Modification to be conducted.

Recommendation 19.1

> *Update the Groundwater Report (and the BDAR) to address potential groundwater aquifer effects of the Ventilation Shaft 4 on Coastal Upland Swamps S92, S93 and S101.*

Response

Refer to the response to Recommendation 1.1.

Recommendation 19.2

> *If impacts are possible, and there is a risk that the Performance Measure could be exceeded for S92, relocate the Ventilation Shaft to avoid S92.*

Response

As concluded in AGE's assessment, it is considered unlikely there would be groundwater impacts from Ventilation Shaft 4 adopting the proposed blind sink construction methodology (Attachment 4).

Notwithstanding, Swamp 92 is currently monitored under the Longwalls 311-316 management plans. If the Performance Measures for Swamp 92 were exceeded, the appropriate actions would be taken in accordance with the respective management plan.

Recommendation 20.1

> *Identify subsidence thresholds for impact consequences and use these to adjust mine layouts so that impacts to significant biodiversity are avoided and a better balance between coal extraction and environmental impact is achieved.*

Response

Refer to the response to Recommendation 4.1.

Recommendation 20.2

> *Clarify subsidence exceedances and refer matter to the IEAPM if necessary.*

Response

This CPHR comment refers to Figure 3.9 'Comparisons between Maximum Observed Incremental Subsidence and Maximum Predicted Incremental Subsidence for the Previously Extracted Longwalls in the Southern Coalfield' within the Subsidence Assessment (Appendix A of the Modification Report). CPHR has claimed that this figure '*specifically excludes highly relevant subsidence exceedances at Metropolitan Mine and therefore could understate the true level of subsidence likely to be experienced for LW317 and 318 in their Subsidence Impact Assessment*'.

MSEC (2025) has not excluded any subsidence data in this graph. The graph provides a comparison of observed versus predicted subsidence and is based on the calibrated subsidence prediction model which is discussed in Sections 3.6 and 3.7 of MSEC (2025). The comparison demonstrates that in the majority of cases, the observed subsidence was typically less than that predicted. In the few instances where the observed subsidence was greater than that predicted, this was typically less than +15% or +50 mm of the prediction (MSEC, 2025).

This CPHR comment also refers to the consistency of MSEC's comparisons between maximum observed incremental subsidence and maximum predicted incremental subsidence for the previously extracted longwalls in the Southern Coalfield.

CPHR specifically refers to Section 3.7 *Reliability of the Predicted Conventional Subsidence Parameters* of the Subsidence Assessment (Appendix A of the Modification Report) and notes its discrepancies with the *Metropolitan Coal 2020 Annual Review* (Metropolitan Coal, 2021) and *Metropolitan Coal 2021 Annual Review* (Metropolitan Coal, 2022).

The data and graph provided in Section 3.7 (i.e. Figure 3.9) has included all the previous data recorded at the Metropolitan Coal Mine. It is noted that Figure 3.9 of the Subsidence Assessment includes data from the Metropolitan Coal Mine as well as other mines in the Southern Coalfield, whereas the analysis included in Annual Reviews only includes data observed at the Metropolitan Coal Mine. The predicted subsidence for Metropolitan Coal Mine in Figure 3.9 is based on the calibrated prediction model as outlined in Sections 3.6 and 3.7 of MSEC (2025).

4.1.2 Heritage Council of NSW

Heritage Council of NSW Comment #1

1. *The Modification Report notes that a Non-Aboriginal Heritage Assessment was prepared in 2008 to support the original project approval, and that the assessment did not identify any non-Aboriginal heritage sites within the Modification area. Given that the Modification area extends outside of the original project footprint, please:*

    a. *Provide an outline of the scope of the 2008 Non-Aboriginal Heritage Assessment and confirm whether the entirety of the Modification area was included in this assessment.*

    b. *Provide an assessment which addresses the proposed modification if the Modification area was not captured as a part of the 2008 assessment.*

Response

The Non-Aboriginal Heritage Assessment undertaken for the Metropolitan Coal Project EA (Heritage Management Consultants Pty Ltd, 2008) assessed potential non-Aboriginal heritage items and values within what is now referred to as the 'Project Underground Mining Area Longwalls 20-27 and 301-317' (refer to Figure 1-2).

The majority of the Modification area is located within the extent of the Project Underground Mining Area, with only a small portion of the proposed Longwall 318 and associated first workings extending outside this boundary.

The Non-Aboriginal Heritage Assessment (Heritage Management Consultants Pty Ltd, 2008) did not identify any sites within the section of the approved Project Underground Mining Area relevant to the Modification.

In addition, updated searches of relevant heritage registers did not identify any additional known non-Aboriginal heritage sites within or in the vicinity of the Modification area (including the portion of Longwall 318 which extends outside the Project Underground Mining Area).

Historic and current land use in the Project Underground Mining Area is largely restricted to conservation as a water catchment area for the Woronora Special Area, which limits the potential for presence of non-Aboriginal heritage items or sites.

Heritage Council of NSW Comment #2

2. *It is noted that the Proposed Action Area identified in Figure A5-1 of the Modification Report is in close proximity to the SHR curtilage of Woronora Dam (SHR no. 01378). Please provide an assessment of potential direct and indirect impacts to the heritage values of Woronora Dam with reference to the Guidelines for preparing a statement of heritage impact (Heritage NSW 2023).*

Response

The State Heritage Register (SHR) listing of the Woronora Dam (SHR no. 01378) is largely associated with the dam wall and spillway, as well as associated pipeline infrastructure. Notwithstanding, it is noted that the curtilage associated with the SHR listing also includes the entirety of the full supply level of the Woronora Dam.

In relation to the Modification, it is noted that underground operations proposed for the Modification would be further away from the Woronora Dam SHR curtilage than existing and approved operations at the Metropolitan Coal Mine and the Modification area is approximately 4 km from the dam wall and spillway. Therefore, negligible subsidence impacts are anticipated (MSEC, 2025). As part of the Modification, Metropolitan Coal proposes to formally relinquish unmined areas of the approved mine layout adjacent to the Woronora Dam, including areas associated with the curtilage.

On this basis, the Modification would reduce the potential for any interaction between the Metropolitan Coal Mine and the heritage values associated with the Woronora Dam and a statement of heritage impact is not considered to be required.

Heritage Council of NSW Comment #3

> 3. *It is noted that works are proposed in the Surface Facilities Area, which is in close proximity to or overlapping with the curtilages of a number of heritage items, including:*
>
> a. *Royal National Park and Garawarra State Conservation Area (NHL Place ID 105893).*
>
> b. *Lilyvale Railway Tunnels (SHR no. 01179).*
>
> c. *Metropolitan Colliery (Wollongong Local Environmental Plan 2009 15921).*
>
> d. *Railway Tunnels (Wollongong Local Environmental Plan 2009 16482).*
>
> *Please provide an assessment of potential direct and indirect impacts to the heritage values of these items with reference to the Guidelines for preparing a statement of heritage impact (Heritage NSW 2023).*

Response

The potential impacts from the Modification on the Royal National Park are assessed in Attachment 5 of the Modification Report in the context of the proposed Action (EPBC 2025/10103), which was referred to the Commonwealth Minister in January 2025. The components of the proposed Action include the extraction of coal within Longwalls 317 and 318 using longwall extraction methods (underground mining) and the establishment and use of the Relocated Ventilation Shaft 4.

As detailed in Section A5.3.2 of Attachment 5 of the Modification Report, if the Modification proceeds, the Surface Facilities Area would continue to be used. Works proposed as part of the Modification include the installation of an access track in an already disturbed fill zone and replacement of rock armouring at the base of the disturbed fill. These works do not interact with heritage items and there is no proposed change to the disturbance, scale or method of activities of the Surface Facilities Area. The Metropolitan Coal Mine Rehabilitation Management Plan and Forward Programs will be updated to detail these proposed works including the reinstallation of sandstone boulders to further stabilise the embankment and the establishment of native vegetation. In addition, Metropolitan Coal would update its existing Conservation Management Plan for the Metropolitan Coal Mine.

The purpose of preparing Attachment 5 of the Modification Report was in the interest of assessing the matters protected by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) deemed likely to have a significant impact as a result of the proposed Action.

Considering the Surface Facilities Area was not included in the proposed Action given the ongoing use of this facility is covered by EPBC 2008/4519, Metropolitan Coal deems an assessment of heritage impact is not applicable.

Heritage Council of NSW Comment #4

> *As the site contains a local heritage item, and other local items are in the vicinity, advice should be sought from the relevant local council. We also recommend that advice be sought from relevant agencies with expertise on biodiversity, and the National Parks and Wildlife Service as the manager of the Royal National Park and Garawarra State Conservation Area.*

Response

This comment is directed at DPHI, however Metropolitan Coal notes that comments from CPHR, NPWS, WaterNSW, Sutherland Shire Council and Wollongong City Council on the Modification have been addressed in this Submissions Report.

4.1.3 Heritage NSW

Subsidence impact performance measures to Aboriginal cultural heritage sites

Heritage NSW Comment #1

> *Heritage NSW's major concern is the potential for the proposed Modification to breach the current Conditions of Consent. Performance Measure 1 of Schedule 3 for the MP 08_0149 approval explicitly states 'Less than 10% of Aboriginal heritage sites within the mining area are affected by subsidence impacts'. Niche has previously provided Heritage NSW with a detailed summary of the subsidence related impacts to ACH across the southern coalfields, outlining that 11.5% of sites have been impacted by subsidence related impacts and only 3% through environmental changes. These numbers include any subsidence related impacts, not only those that have directly impacted art panels and/or grinding grooves. Despite this, the ACHAR (Section 7.2.2) restricts classification of impacted sites to those that have experienced overhang collapse, cracking of sandstone that coincides with art or grinding grooves, and/or rock fall that damages Aboriginal art. It is unclear how these definitions have been determined as other impacts, such as impacts to rockshelter walls, cracking of potential archaeological deposit, and so on as a recent assessment conducted by Niche in the southern coalfields considered all subsidence related impacts.*
>
> *By restricting the definition of harm, the ACHAR outlines that only 2% of sites within Metropolitan Coal Mine have been adversely impacted by subsidence, despite 13 of 144 sites (-9%) of ACH sites across the approved Metropolitan coal operations. As 9% of ACH sites within Metropolitan Coal have been impacted by subsidence, if three to four additional sites are impacted then Metropolitan Coal may potentially be in breach of their Conditions of Consent which may impact the mine's ability to continue operations. Heritage NSW recommends that Metropolitan Coal and/or DPHI seek legal clarification on the definition of subsidence related impacts to ACH as this may impact the mine's ability to comply with their ACH performance measure.*
>
> *The ACHAR outlines that of the 29 sites in the project area, 25 have potential for subsidence related harm. While these 25 sites are noted as unlikely to highly unlikely to experience harm, subsidence is expected to range from <20 mm to 1250 mm with valley related movements expected at 14 sites, of which three are most likely to experience greater movement. The Subsidence Report notes that the 'the maximum tilt and curvatures are similar to or less than the maxima predicted for other Aboriginal heritage sites located above the previously extracted longwalls at Metropolitan Coal Mine' with the 'potential impacts for these sites... similar to or less than those assessed based on the Approved Layout'. Table 25 of the ACHAR also states that while impacts unlikely or highly unlikely it notes potential for indirect partial harm to all sites and partial loss of value. Therefore, if a similar proportion (-9%) of sites are impacted in the Modification area, then Metropolitan Coal may breach their Conditions of Consent. Heritage NSW recommends that DPHI consider this when determining the Modification approval.*
>
> *To aid in Heritage NSW providing advice to DPHI, please provide a thorough assessment of the predicted subsidence to all ACH sites within Metropolitan Coal and more broadly across the Southern coalfields prior to mining operations (original expectation) and the actual post-mining subsidence impacts (actual subsidence) to further quantify the probability of ACH sites to be impacted.*

Response

Metropolitan Coal does not agree with Heritage NSW's comment that the Modification has the potential to "breach the Conditions of Consent" via an exceedance of the relevant subsidence impact performance measure for Aboriginal cultural heritage sites.

The basis of this comment (i.e. Heritage NSW's inference that 11.5% of sites across the Southern Coalfield and 9% of sites across the Metropolitan Coal Mine have been affected by subsidence impacts) is not correct and does not reflect approved performance indicators, definitions of adverse impacts and observed monitoring results which were developed in consultation with DPHI, Heritage NSW and Registered Aboriginal Parties (RAPs), and have been consistent throughout the life of the Metropolitan Coal Mine.

The impact assessment undertaken in the Modification Aboriginal Cultural Heritage Assessment (ACHA) considered the predicted subsidence impacts for the Modification as well as observed impacts from approved mining to date. On this basis, Niche (2025d) (Appendix F of the Modification Report) has concluded that the approved Metropolitan Coal Mine incorporating the Modification is expected to comply with the subsidence impact performance measure under Project Approval (08_0149).

Further clarification of the subsidence impact performance measure, definition of subsidence impacts, observed impacts to date, predicted impacts for the Modification and the proposed monitoring program and TARP is provided below.

Subsidence Impact Performance Measure

Condition 1, Schedule 3 of the Metropolitan Coal Mine Project Approval (08_0149) provides a subsidence impact performance measure relevant to Aboriginal cultural heritage sites of:

> *Less than 10% of Aboriginal heritage sites within the mining area affected by subsidence impacts.*

Aboriginal cultural heritage monitoring and management at the existing Metropolitan Coal Mine is undertaken in accordance with the approved Heritage Management Plan. The approved Heritage Management Plan includes a performance indicator to allow early identification of mining impacts which are greater than predictions:

> *Less than 7% of Aboriginal heritage sites within the mining area are affected by subsidence impacts.*

The approved Heritage Management Plan (prepared in consultation with DPHI, Heritage NSW and RAPs) provides that Aboriginal cultural heritage sites are considered to be "affected by subsidence impacts" if they exhibit one or more of the following consequences that cannot be attributed to natural weathering or deterioration:

- overhang collapse;
- cracking of sandstone that coincides with Aboriginal art or grinding grooves; and/or
- rock fall that damages art.

Therefore, while an Aboriginal heritage site may be determined to have changes due to mining induced subsidence, these changes do not necessarily constitute an adverse impact under the approved Heritage Management Plan unless coincident with Aboriginal cultural heritage features (e.g. art, grinding grooves) and/or result in a material physical impact.

Observed Subsidence Impacts from the Existing Metropolitan Coal Mine

There are 144 known Aboriginal cultural heritage sites within the Project Underground Mining Area for the existing Metropolitan Coal Mine, of which 13 have been determined to have experienced changes due to mining induced subsidence (Appendix F of the Modification Report).

Of these sites with observed changes, only two sites, FRC 34 and FRC 281 (both shelters with art, artefacts and PAD of low scientific significance), have been affected by subsidence impacts as a result of cracking of sandstone that coincides with Aboriginal art. This means that less than 2% of sites within the Project Underground Mining Area have been affected by subsidence impacts to date (refer to Section 4.2 of the approved Heritage Management Plan for further information).

These observed impacts are recorded in the Subsidence Impact Register provided in Appendix 3 of the approved Heritage Management Plan.

Predicted Subsidence Impacts from the Modification

The assessment of potential subsidence-related impacts to Aboriginal cultural heritage sites from the Modification has been undertaken by Niche (2025d) in accordance with the *guide to investigating, assessing and reporting on aboriginal cultural heritage in NSW* (OEH, 2011).

A portion of the Subject Area for the Modification overlaps the approved Metropolitan Coal Mine underground mining area, and as a result 10 of the 25 Aboriginal cultural heritage sites within the predicted subsidence extent for the Modification are already approved to experience subsidence impacts under Project Approval (08_0419). The impact assessments for these sites do not change as a result of the Modification (Niche, 2025d)

For the remaining 15 Aboriginal cultural heritage site within the predicted subsidence extent, the predicted subsidence parameters are similar to or less than those predicted for the approved Metropolitan Coal Mine and therefore the potential impacts to Aboriginal heritage sites would be similar or less (MSEC, 2025).

The likelihood of surface fracturing impacting the Aboriginal cultural heritage sites located above the Modification layout is considered to be low (MSEC, 2025). While surface fracturing of the bedrock can occur outside the longwall layouts, such fracturing is minor and isolated and the likelihood of fracturing impacting the Aboriginal cultural heritage sites outside the longwall layouts is also considered to be low (MSEC, 2025).

The longwall panel geometry adopted at the Metropolitan Coal Mine (i.e. using narrower panel voids and wider chain pillars), which would also be used for the Modification, significantly reduces subsidence impacts and reduces the potential for harm to the Aboriginal heritage sites. This is the key measure that has been successfully used during historical mining at the Metropolitan Coal Mine to reduce subsidence impacts on Aboriginal cultural heritage sites.

On this basis, Niche (2025d) conclude that the approved Metropolitan Coal Mine incorporating the Modification is expected to comply with the subsidence impact performance measure under Project Approval (08_0149).

Discussion on the potential cumulative impacts to Aboriginal cultural heritage in the Southern Coalfield is provided in the response to Heritage NSW Comment #11.

Proposed Monitoring Program and TARP

As recommended in the Modification ACHA, baseline recording of Aboriginal cultural heritage sites associated with the Modification would be undertaken prior to longwall mining in accordance with the protocol outlined in the approved Heritage Management Plan and in consultation with RAPs. Refer to the response to Heritage NSW Comment #15 for further information.

In addition, the Modification ACHA also recommended implementation of a monitoring program to monitor subsidence impacts and environmental consequences of Modification-related subsidence on Aboriginal cultural heritage sites in accordance with the protocol outlined in the approved Heritage Management Plan.

Monitoring would be undertaken a suitably qualified archaeologist (with experience in rock art recording and management) and representatives of RAPs (where available). Specific details that will be recorded during the monitoring program include (but are not limited to):

- the date of monitoring;
- the location of longwall extraction (i.e. the longwall chainage) at the time of monitoring;
- comparison of the physical characteristics of the site at the time of monitoring against the previous monitoring and the baseline record (detail/quantify any changes observed);
- inspections of rock surfaces for cracking and/or exfoliation and/or blockfall since the previous monitoring and against the baseline record;
- inspection of art motifs for damage or deterioration since the previous monitoring and against the baseline record;
- identification of any natural weathering processes that may result in deterioration (e.g. fire, vegetation growth and water seepage);
- detailed description and quantification of any changes noted during the completion of the above tasks;
- a photographic record of any changes noted during monitoring (taken at the same position and distance as baseline record to allow comparison over time);
- whether any follow-up actions are required to be considered (e.g. implementation of management or initiation of the Contingency Plan, etc.); and
- any other relevant information.

A summary of the information collected during monitoring will be recorded in the Subsidence Impact Register attached to the approved Heritage Management Plan. Further detail regarding the Aboriginal cultural heritage monitoring program is provided in Section 9 of the approved Heritage Management Plan.

The monitoring results will be used to assess the Project against the performance indicator and subsidence impact performance measure in accordance with the detailed TARP (refer to Table 8 of the approved Heritage Management Plan). It is noted that the approved Heritage Management Plan was most recently reviewed by Heritage NSW in July 2024.

The approved Heritage Management Plan would be reviewed and updated to incorporate the Modification (e.g. to include additional sites identified during the survey undertaken for the ACHA) in consultation with the RAPs and any requirements of Project Approval (08_0149), as modified.

Consultation

Heritage NSW Comment #2

> *Please provide a new copy of Appendix B Part 1 as the document could not be opened and may be corrupted. Additionally, Appendix B Part 2 may be incomplete as the response to Glenda Chalker's letter is not included nor is the letter received from Illawarra Local Aboriginal Land Council (ILALC) letter and Niche's response.*

Response

The Proposed Methodology for the Modification ACHA (Appendix F of the Modification Report) was provided to all RAPs on 25 September 2023 for review. Comments received from RAPs during the review period (both in writing and verbally at an information session) were considered and incorporated in a final version of the Proposed Methodology.

Glenda Chalker (RAP representing Cubbitch Barta Native Title Claimants Aboriginal Corporation) did not provide any feedback on the Proposed Methodology during the review period (only requested a hard copy of the document). A copy of the final Proposed Methodology was provided to all RAPs on 22 December 2023.

Following distribution of the final Proposed Methodology, Glenda Chalker provided feedback on 8 January 2024.

Notwithstanding that this feedback was provided outside of the review period, Niche considered the response and identified that comments regarding survey timing and participants were already addressed in the final Proposed Methodology as similar comments were raised by other RAPs. On this basis no further updates to the Methodology were required.

During the review period for the Draft ACHA, comments were received from the Illawarra Local Aboriginal Land Council (ILALC) on 27 May 2025. The letter is included in Appendix B of the ACHA (specifically on page 1002 of the PDF provided to Heritage NSW). Responses to the comments from ILALC are presented in Table 8 of the Modification ACHA (Appendix F of the Modification Report).

Niche notified all RAPs when the Modification Report (which included a copy of the final ACHA) was placed on public exhibition by DPHI. All RAPs had the opportunity to provide further feedback via the public consultation process or directly to Niche and/or Metropolitan Coal as part of ongoing consultation with RAPs.

An additional copy of Appendix B of the Modification ACHA was provided to Heritage NSW separately to this Submissions Report on 18 September 2025.

Heritage NSW Comment #3

> *Heritage NSW notes that ILALC strongly opposes the proposed modification to Metropolitan Coal Mine on several grounds including cultural and heritage protections, the current nomination for the region to be part of the National Heritage List, and desire for a more detailed Aboriginal-led cultural values assessment (CVA) of the Woronora Plateau. Heritage NSW concurs with several of these points, outlined below, and considers the request for a CVA prudent. Further, while Niche and Peabody have answered each of the points raised by ILALC, many of the issues raised were not resolved, including:*
>
> a. *Extent of survey coverage.*
> b. *Lack of systematic survey in steepest sections of the project area.*
> c. *Report downplays the existing impacts to Aboriginal cultural heritage (ACH).*
> d. *Recognition and inclusion of comments by the Registered Aboriginal Parties (RAPs) in the significance assessment, among others.*
> e. *Consideration of the landscape as a whole and the importance of the region in grading sites.*
>
> *Heritage NSW recommends that greater consideration is given to the comments raised by the RAPs during consultation as well as the comments below to ensure that the ACHAR adequately addresses any and all concerns raised the RAPs.*

Response

All comments received from RAPs throughout the consultation process for the Modification ACHA were considered and incorporated in the final ACHA.

Responses to the comments from ILALC on the draft ACHA are presented in Table 8 of the Modification ACHA. Further clarification of how these comments were considered in the Modification ACHA is provided below, as well as references to additional relevant information provided in response to Heritage NSW's comments in this Submissions Report.

"*Extent of survey coverage*" and "*Lack of systematic survey in steepest sections of the project area*":

- Response with further justification of the survey methodology, survey effort, access restrictions and coverage provided by Niche (2025d) in Table 8 of the Modification ACHA.
  - No further change to the Modification ACHA considered to be required to address this comment.
- Additional information regarding survey coverage and access restrictions is provided in response to Heritage NSW Comments #7 and #8.

"*Report downplays the existing impacts to Aboriginal cultural heritage*":

- Response provided by Niche in Table 8 of the ACHA (2025d) to clarify observed impacts to Aboriginal cultural heritage sites from approved mining, as reported in the approved Heritage Management Plan (prepared in consultation with RAPs).
  - No further change to the Modification ACHA considered to be required to address this comment.
- Additional information regarding potential impacts of the Modification is provided in response to Heritage NSW Comment #1.

"*Recognition and inclusion of comments by the Registered Aboriginal Parties (RAPs) in the significance assessment, among others*":

- Response provided by Niche in Table 8 of the ACHA (2025d) to clarify the method of assessment of scientific significance for the Modification in accordance with relevant guidelines.
  - Niche (2025d) also acknowledged that grading of heritage values, scientific or otherwise, is a process which does not have support from the RAPs as it can emphasise the values of individual components of a landscape rather than the cultural landscape as a whole.
  - It is noted that the nomination of the Sydney Cultural Crescent Rock Art on the National Heritage List is under consideration by the Australian Heritage Council and is yet to be determined. As a result, there is limited available information regarding values, extent and significance to inform any assessment in relation to the Modification. Notwithstanding, Section 4.2.2 of the Modification ACHA was revised to incorporate a description of the potential listing. Any outcome of the nomination will be considered in any future updates to the approved Heritage Management Plan.
  - No further change to the Modification ACHA considered to be required to address this comment.
- A Cultural Values Assessment was not considered to be required to inform the Modification ACHA.
  - Metropolitan Coal would consider undertaking a Cultural Values Assessment as a component of future assessments if (to be determined with input from a suitably qualified archaeologist and in consultation with RAPs) separately documenting cultural values would be considered to benefit the understanding of cultural values associated with the region.
- Additional information regarding the assessment of scientific significance is provided in response to Heritage NSW Comments #11 and #12.

"*Consideration of the landscape as a whole and the importance of the region in grading sites*":

- Response provided by Niche (2025d) in Table 8 of the ACHA.
  - No further change to the Modification ACHA considered to be required to address this comment.
- Additional information regarding consideration of potential cumulative impacts of the Modification is provided in response to Heritage NSW Comments #13 and #14.

It is noted that no further comments from ILALC were provided during the Modification public consultation period.

Modification Area

Heritage NSW Comment #4

> *Please clarify whether the Early Workings have potential to cause any subsidence related impacts and how their approval and layout relates to the Modification project area.*

Response

The Modification includes the continued development of the 300-series Mains to the west to allow for access to potential future coal resources (within EL 9364) subject to separate mine planning, environmental assessment and approval processes (Figure 1-3).

These first workings would be stable and non-subsiding in the long-term (except insofar as they may be impacted by any future approved secondary workings) and would not cause subsidence related impacts to heritage. On this basis, the Modification Subject Area did not include the portion of the proposed first workings which are located outside the extent of potential subsidence impacts.

Any future environmental assessment and approval processes for secondary workings associated with the extension of the 300-series Mains would include comprehensive ACHA in accordance with the relevant guidelines and in consultation with RAPs.

Heritage NSW Comment #5

> *Please clarify whether the additional access road, stockpile, and intermodal have been assessed for any potential impact to ACH.*

Response

The relocated Ventilation Shaft 4 area was considered in the Modification ACHA and is included in the Subject Area.

As the relocated Ventilation Shaft 4 area is the only component of the Modification which involves direct surface disturbance, the entirety of the maximum potential extent of construction disturbance was subject to systematic survey as a component of the Modification ACHA. No Aboriginal cultural heritage sites were identified within the relocated Ventilation Shaft 4 disturbance footprint during these surveys.

There would be no changes to the approved extent of surface disturbance associated with the existing Metropolitan Coal Mine Surface Facilities area. The proposed access track would be established within the approved disturbance extent and therefore will not result in any impacts requiring assessment in the Modification ACHA.

On this basis, Niche (2025d) conclude that no Aboriginal cultural heritage sites would experience direct impacts as a result of the Modification.

The approved Heritage Management Plan for the Metropolitan Coal Mine (Peabody, 2024) details a protocol for the management of previously unrecorded Aboriginal heritage sites identified during ongoing fieldwork (e.g. baseline recording, supplementary fieldwork, preclearance surveys, monitoring, follow-up inspections to assess the effectiveness of mitigation/management/remediation measures, etc.). Any previously unrecorded Aboriginal cultural heritage sites would be recorded and subject to archaeological and cultural significance assessment, in consultation with RAPs.

Heritage NSW Comment #6

> *The Modification Report and ACHAR state that sections of the approved mine will be relinquished (Figure ES-3 Modification Report). However, it is not clear from the ACHAR whether this relinquishment is the result of mine operational changes and/or active consideration of conservation of ACH and ecology. If, as Section 8.2 of the ACHAR states, these relinquished areas will act as conservation for ACH, Heritage NSW recommends that a thorough archaeological and cultural assessment are undertaken in these areas (if not done) so that consideration can be given to those sites that will be conserved and their significance to justify any potential offsetting of harm to ACH.*

Response

It is not proposed that Aboriginal cultural heritage sites located within the proposed relinquishment areas would 'offset' the potential impacts of the Modification.

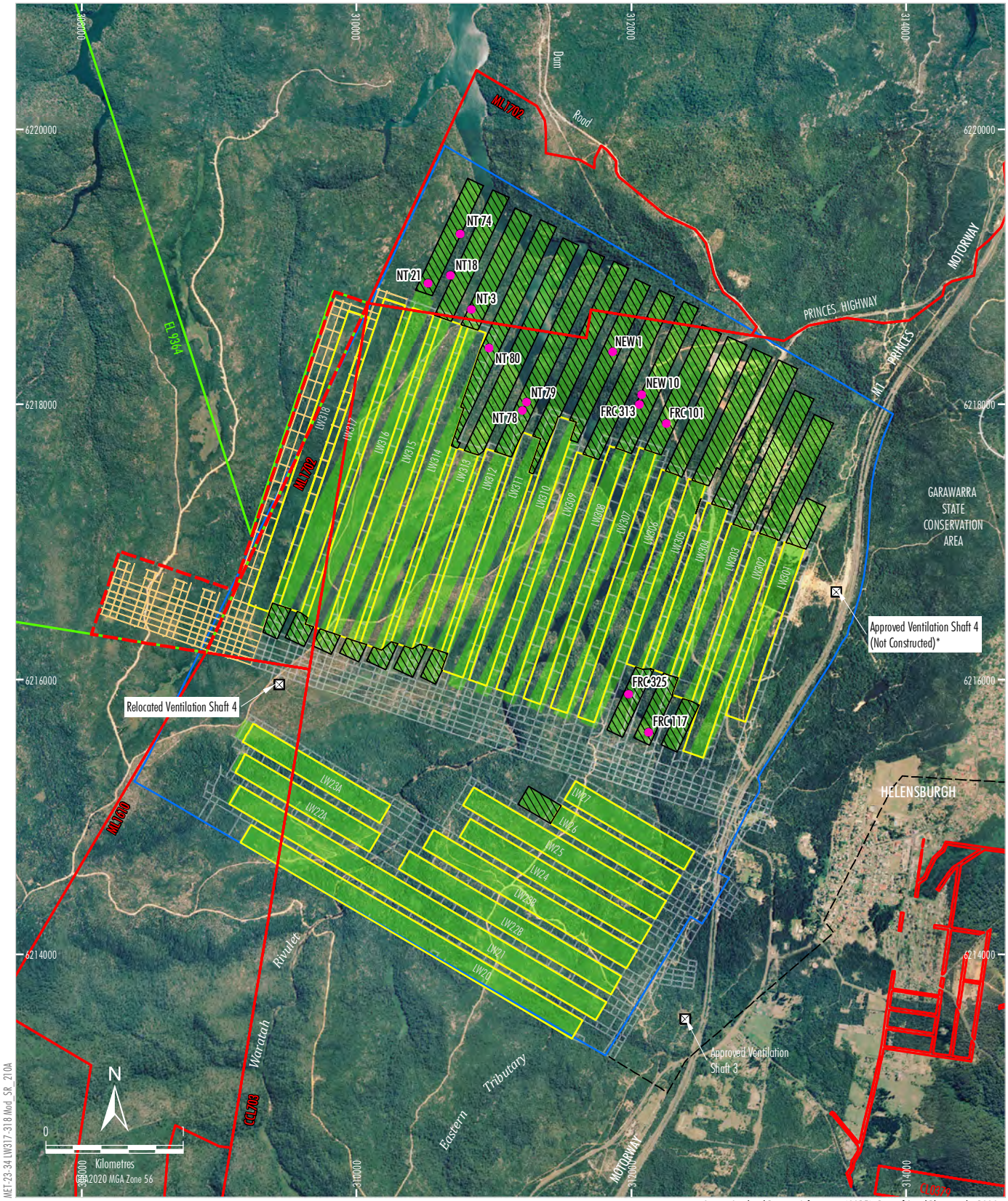
Section 8.2 of the Modification ACHA describes that, as a component of the Modification, Metropolitan Coal would formally relinquish approximately 253 ha of approved underground mining area (i.e. outside of the Modification Subject Area). The proposed relinquishment areas are associated with a reduced underground mining layout and shortening of longwalls to:

- maintain safe and efficient operations considering geological and geotechnical constraints identified during ongoing exploration activities; and
- reduce subsidence effects on watercourses.

Due to the reduction in the underground mining area, in the absence of the Modification, longwall mining at the Metropolitan Coal Mine would finish in 2029. Therefore, the Modification would allow Metropolitan Coal to continue mining for a further two years, providing continuity of employment of the existing workforce.

The proposed relinquishment areas provide relevant context for the requirement of the Modification from an operational perspective, however also indirectly result in a reduction of environmental impacts in these areas, including to known Aboriginal cultural heritage sites.

There are 13 known Aboriginal cultural heritage sites located within the proposed relinquishment areas which would experience a reduction or complete avoidance of subsidence impacts approved for the Metropolitan Coal Mine (Figure 4-3).



Source: Land and Property Information (2015); Date of Aerial Photography 1998; Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025);

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Indicative Mining Lease Application Area
- Railway
- Shafts
- Project Underground Mining Area Longwalls 20-27 and 301-317
- Existing Underground Access Drive (Main Drift)
- Approved Metropolitan Coal Mine Longwall Layout
- Proposed First Workings
- Completed and Proposed Secondary Extraction
- Preferred Project Report Longwall Layout
- Approved Longwall Mining Areas to be Relinquished
- Aboriginal Cultural Heritage Site

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.
* The approved location of Ventilation Shaft 4 following completion of construction is shown. The construction footprint would be of a similar size to the proposed Relocated Ventilation Shaft 4.

Peabody

METROPOLITAN COAL

Aboriginal Cultural Heritage Sites within Approved Longwall Mining Areas to be Relinquished

Figure 4-3

Archaeological Assessment

Heritage NSW Comment #7

> *The ACHAR states that the survey coverage across the modification area is approximately 9%. Heritage NSW acknowledges that the survey was a targeted survey effort and designed around the expected impacts by the proposed underground mining operations and visiting known sites (14 of 29 visited). However, the survey coverage remains quite low and there are several areas that the predictive model and current surveys indicate have a higher probability of containing ACH that have not been covered. These include several areas along the western and northern boundaries of the project area as well as Survey Unit 5. Similar concerns were raised by the RAPs during consultation, with no additional survey completed despite the request.*
>
> *The ACHAR notes that some areas were deemed inaccessible for safety reasons, but these have not been outlined in the mapping. Additionally, survey track logs are required for the red hatched area in Figure 8 to determine if the existing survey coverage adequately assessed these areas. Where areas are accessible, Heritage NSW recommends a more thorough survey to assess those areas that the predictive modelling and current surveys indicate have a higher probability of retaining ACH sites.*

Response

Survey Limitations

As described in Section 5.3.2 of the Modification ACHA, very low visibility conditions were encountered during surveys within the Subject Area due to the dense woodland vegetation (Plate 4-1). In addition, steep terrain and rough topography also limited the extent of survey efforts as these areas could not be safely accessed (refer Appendix F of the Modification Report). The safety of visitors, personnel and contractors to Metropolitan Coal is a key consideration for all works undertaken onsite, which also applies to RAPs and archaeologists undertaking field surveys.

It is noted that these access restrictions would have also affected past Aboriginal land use, which limits the archaeological potential of the areas that were not able to be surveyed for the Modification ACHA.

Plate 4-1: Dense Vegetation Within the Subject Area

Survey Methodology

The *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (NSW Department of Environment, Climate Change and Water [DECCW], 2010a) (Code of Practice) provides that the purpose of archaeological survey is to "record all (or a representative sample of all) the material traces and evidence of Aboriginal land use" to inform the archaeological assessment.

Consistent with Requirement 5a of the Code of Practice, a targeted survey strategy was developed in consideration of the Predictive Model to focus survey effort on landforms within the Subject Area with higher archaeological potential, including open depressions, drainage lines, steep slopes and ridges, in addition to other landform features such as drainage lines and swamps (Niche, 2025d). The focus of the survey undertaken for the Modification ACHA was to inspect previously recorded sites and survey targeted landforms and areas of exposure where highly obtrusive and typical of the sandstone environment Aboriginal sites were located.

The Predictive Model for the Modification Subject Area was informed by previous archaeological surveys and assessments undertaken for the Metropolitan Coal Mine and across the wider region. The Predictive Model details the expected distribution and patterning of archaeological sites within the Subject Area considering the landform units, landscape context, and previous known land uses (Niche, 2025d).

Niche (2025d) also completed a slope analysis of the Modification Subject Area to inform the survey methodology and Predictive Model. The outcomes of the slope analysis identified that the majority of previously recorded Aboriginal cultural heritage sites are located on slopes between 5.45 to 30 degrees. Following surveys, the slope analysis was reviewed to confirm that any newly identified Aboriginal cultural heritage sites were within expected range of slopes to confirm the model.

Previously Surveyed Area

Approximately 13.4 ha (i.e. 3%) of the Subject Area has previously been subject to comprehensive archaeological survey as part of investigations and baseline recording programs undertaken for the approved Metropolitan Coal Mine.

The archaeological potential of the entire extent of the 'Previously Surveyed Area' (i.e. red hatched area shown on figures in the Modification ACHA) is considered to be well understood on account of these previous survey efforts and baseline recording programs. On this basis, further survey within the 'Previously Surveyed Area' for the Modification was not considered to be required as it has been sufficiently assessed for the potential presence of Aboriginal objects.

Survey Coverage

The targeted and systematic survey undertaken for the Modification ACHA added an additional 26.7 ha (i.e. 6%) of survey coverage within the Subject Area. Therefore, a total of 40.2 ha (i.e. approximately 9%) of the Subject Area has been surveyed to date.

It is relevant to note that survey coverage from previous archaeological assessments undertaken in the area more than 15 years ago is unknown and therefore has not been considered in calculations of survey coverage for the Modification Subject Area.

During the consultation period for the draft ACHA, RAPs provided comments regarding portions of the Subject Area which were not surveyed for the Modification ACHA. The areas identified (i.e. western and northern portions of the Subject Area) comprise very steep slopes between 18 and 45 degrees which contain cliffs and steep escarpments deemed unsafe to access for surveys. In addition, the slope analysis confirms that steep areas have a lower archaeological potential.

The surveys undertaken to inform the Modification ACHA were considered to provide an adequate characterisation of the archaeological potential of the Subject Area and confirmed the Predictive Model (Niche, 2025d).

In accordance with the approved Heritage Management Plan, any previously unrecorded Aboriginal heritage sites identified during ongoing fieldwork would be recorded and subject to archaeological and cultural significance assessment, in consultation with RAPs.

Heritage NSW Comment #8

> *Several sites are noted as in the vicinity of upland swamps. Please provide further information on whether these swamps were also subject to survey, the possibility for these swamps to contain archaeological materials, and whether there is potential for these important resource areas to be impacted by subsidence.*

Response

As noted by Heritage NSW, Aboriginal cultural heritage sites have been identified within the vicinity of upland swamps in the Modification Subject Area.

Previous surveys and assessments at the Metropolitan Coal Mine and across the wider region, including the *Dendrobium Area 3 Archaeological and Cultural Heritage Assessment* (Biosis Research Pty Ltd [Biosis], 2007), the *Metropolitan Coal Project Aboriginal Cultural Heritage Assessment* (Kayandel Archaeological Services, 2008) and the *Bulli Seam Operations Aboriginal Cultural Heritage Assessment* (Biosis, 2009), have identified that Aboriginal cultural heritage sites, particularly grinding grooves, are most often found in association with water sources. Water sources are considered 'high potential resource areas' in the context of previous Aboriginal land use due to presence of faunal resources and sandstone material.

Grinding groove sites are most likely to occur on the sandstone outcrops which are found adjacent to drainage lines, swamps, creeks and riverbeds (Niche, 2025d). On this basis, the Predictive Model for the Modification Subject Area provides that areas adjacent to water sources, including swamps, are landform features which are considered to have higher archaeological potential due to these sandstone outcrops.

As described in the Modification ACHA, field surveys focused on areas of higher archaeological potential in the Subject Area, including inspection of sandstone outcrops associated with upland swamps and drainage lines as well as other relevant landform features such as steep slopes and ridgelines.

The potential impacts to known Aboriginal cultural heritage sites identified adjacent to upland swamps have been assessed in the Modification ACHA. The location of an Aboriginal cultural heritage site adjacent to an upland swamp does not affect the potential risk of impacts to the site as a result of subsidence.

Heritage NSW Comment #9

> *Comparisons between mapping on Aboriginal Heritage Information Management System (AHIMS) and that provided in report shows several discrepancies in site locations. Please clarify if these discrepancies relate to updated coordinates of sites that have not been registered with AHIMS.*

Response

As described in the Longwalls 311-316 Aboriginal Heritage Baseline Recording Report (Niche, 2024), it was identified that the AHIMS data contained errors in site coordinates. The site coordinates were validated by Niche as a component of the baseline field surveys and during surveys undertaken for the Modification ACHA.

Niche is in the process of reviewing and updating any relevant site cards with the outcomes of baseline recordings and surveys undertaken for the Modification ACHA. Any updates to site cards will be submitted to AHIMS and provided to Heritage NSW.

Heritage NSW Comment #10

> *Further information is required on the survey efforts to relocate AHIMS sites #52-2-0749 and #52-2-0752, and whether these sites are still considered to be located within the project area and have the potential to be harmed by subsidence related impacts.*

Response

AHIMS ID# 52-2-0749 (Woronora Reservoir; Northern Trail 20) and AHIMS ID# 52-2-0752 (Woronora Reservoir; Northern Trail 14) are listed as 'not a site' in AHIMS.

Notwithstanding the listed status, Niche has attempted to relocate these sites during fieldwork for the approved Metropolitan Coal Mine as well as surveys undertaken to inform the Modification ACHA.

Both sites were not able to be relocated during either of these campaigns and on this basis the Modification ACHA did not consider them further as there is no potential for any impact due to the Modification (i.e. they are not considered to remain *in-situ*).

Further detail regarding previous efforts to relocate the sites is provided in the Longwalls 311-316 Baseline Recording Report prepared by Niche (2024) (refer to Appendix 2 of the approved Longwalls 311-316 Heritage Management Plan for the Metropolitan Coal Mine).

No updates are required to the site cards as they are already listed as 'not a site'.

Significance Assessment

Heritage NSW Comment #11[1]

> *Niche has previously undertaken an assessment of grinding groove sites across the southern coalfields for assessments undertaken at Dendrobium Coal Mine. The assessment identified that there approximately 182 grinding groove sites were located within the southern coalfields with a range of grooves at each site. This assessment and its outcomes should be included in current assessment as several of the grinding grooves sites (e.g., 52-2-0623, 52-2-0629, 52-2-0662 and so on) exhibit a number of grooves and additional features (e.g., petroglyphs and modified water wells) that would place the sites in the upper quartile of grooves at each site sites and include a suite of features that the ACHAR acknowledges is rare for a region. Further explication is required on the significance assessment of the grinding grooves sites, how they relate to other similar sites in the region, and how the combination of rare features may influence their significance assessment.*

Response

As noted by Heritage NSW, grinding grooves are a common site type across the Southern Coalfield, including the approved Metropolitan Coal Mine and the Modification area.

The AHIMS search undertaken to inform the Modification ACHA confirms this, as 44 of the 105 sites identified (i.e. approximately 42%) are listed as containing grinding grooves. Of the 29 Aboriginal cultural heritage sites identified within the Subject Area for the Modification ACHA, 15 contain grinding grooves (i.e. approximately 52%) (Niche, 2025d). As described in the Predictive Model, it is expected that the majority of grinding groove sites will contain less than 50 grinding grooves.

The significance assessment in the Modification ACHA was undertaken in accordance with the criteria provided in the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011), and considered results of surveys and assessments undertaken for the Metropolitan Coal Mine and across the Southern Coalfield, the archaeological context of the region and current site condition.

Of the 15 Aboriginal cultural heritage sites within the Modification Subject Area which contain grinding grooves, 12 were assessed as having low scientific significance and three were assessed as having moderate scientific significance (Niche, 2025d). A summary of the grinding groove sites identified within the Modification Subject Area and the assessed scientific significance is provided in Table 4-3.

[1] Note, the AHIMS site referenced in this comment (i.e. 52-2-0662) should be AHIMS ID 52-2-0652 discussed in Table 4-3.

Table 4-3
Summary of Grinding Groove Sites within the Modification Subject Area

AHIMS No.	Site Name	Site Type	Site Features	Scientific (archaeological) Significance
52-2-0368	Blue Gum Forest Northern Trail (R) 49	Grinding Groove(s)	The site is located on an exposed rock platform along the Honeysuckle Creek. The site contains 10 visible grinding grooves.	Low
52-2-0369	Blue Gum Forest Northern Trail (R) 50	Grinding Groove	The site is located on an exposed rock platform along the Honeysuckle Creek. The site measures 4 m long x 4.3 m wide and consists of a group of one grinding groove. The groove was found in a wet and good condition.	Low
52-2-0370	Blue Gum Forest Northern Trail (R) 51	Grinding Groove(s)	Two grinding grooves were found on a rock platform beside a pool of water along Honeysuckle Creek, in a good condition.	Low
52-2-0371	Blue Gum Forest; NT(R) 53	Grinding Groove(s)	Site consists of an axe-grinding groove located on a flat rock outcrop. The groove was found in a wet and eroding condition and in close proximity to a very small waterfall.	Low
52-2-0622	Woronora Reservoir Northern Trail 7	Grinding Groove	Open site with approximately 33 grinding grooves located on a large continuous rock platform	Low
52-2-0623	Woronora Reservoir Northern Trail 8	Grinding Groove(s), Rock Engraving	Site consists of two rock platforms with six petroglyphs and 52 grinding grooves which are in stable condition.	Moderate
52-2-0629	Woronora Reservoir Northern Trail 17	Grinding Groove(s), Water Hole/Well	Site consists of approximately 53 axe-grinding grooves and a water channel around the upstream side of a pothole created to divert water from the pothole.	Moderate
52-2-0630	Woronora Reservoir Northern Trail 21	Grinding Groove(s)	Site recording notes 10 axe grinding grooves on a sandstone outcrop approximately 15 m above a pool, however only six were able to be re-identified.	Low
52-2-0637	Woronora Reservoir; Northern Trail 30	Grinding Groove(s)	Open site with two axe-grinding grooves on a flat sandstone outcrop in the creek bed just below a swamp.	Low
52-2-0652	Northern Trail;52	Grinding Groove(s), Water Hole/Well	Site consists of 34 well-defined axe-grinding grooves in groups around potholes on a sandstone outcrop.	Moderate
52-2-0753	Woronora Reservoir; Northern Trail 12	Grinding Groove(s)	Eroded sandstone outcrop landform containing approximately 44 grinding grooves in a singular groove dish formation indicating its potential use for water storage. Most grooves are in good condition.	Low
52-2-0755	Woronora Reservoir; Northern Trail 46	Grinding Groove(s)	Site located in a swamp area on a sandstone ridge consisting of 16 grinding grooves, some subject to erosion and weathering.	Low
52-2-5116	MET9	Grinding Groove(s)	Grinding groove found on top of rock platform adjacent to Honeysuckle Creek consisting of three grinding grooves in dry and good condition.	Low
52-2-5118	MET10	Shelter with Art, Grinding Groove(s)	This shelter is located at least 20 m east of Honeysuckle Creek. This shelter had a small floor space but was found to have a rock engraving on its roof. No artefacts or deposits were found on this site. The art is in poor condition.	Low
52-2-5117	MET11	Grinding Groove(s)	Grinding groove found at a large rock platform north-west of a small waterfall along Honeysuckle Creek consisting of eight grinding grooves in a wet and eroded condition.	Low

Source: After Niche (Niche, 2025d).

Grinding groove sites assessed as having low scientific significance in the Modification ACHA are considered to be common examples of this site type in the region and not representative of a site that should be conserved to contribute to an understanding or the local and regional archaeological context (i.e. less than 50 grinding grooves and not associated with any other site types or features of significance).

The three grinding grooves sites assessed as having moderate scientific significance in the Modification ACHA (Table 4-3) contain other site features (e.g. petroglyphs and water holes/wells) which, in combination with grinding grooves, increase the rarity of the site compared to other examples in the region.

Generally, grinding groove sites identified in the Southern Coalfield region are only considered examples of rare site types and therefore assessed as having high scientific significance if they contain a significant number of grooves and/or occur in combination with multiple other site features such as rock shelters and/or extensive art motifs. An example of a site with grinding grooves assessed as having high significance is FRC 62 (AHIMS ID# 52-2-0168) located south of Longwall 311, which comprises a sandstone overhang with art, artefacts, deposit and grinding grooves. FRC 62 was assessed as having high significance as it is a 'multicomponent' site and the associated art covers an area of 11 m by 3 m and includes a number of motifs greater than 1 m in scale.

This is consistent with assessments undertaken for the Metropolitan Coal Mine and across the broader Southern Coalfield region to date, which reflect the large number of grinding groove sites identified and the relative scientific significance of these sites considering specific site features, condition and representativeness, as well as the archaeological context of the site.

No revisions to the significance assessments presented in the Modification ACHA are required.

It is noted that all sites hold spiritual and cultural significance to the Aboriginal community.

Heritage NSW Comment #12

> *There are a number of sites that Heritage NSW queries their determined significance based on the information provided in the ACHAR. Sites such as 52-2-0619, 52-2-0620, 52-2-0625, 52-2-0631, the aforementioned sites, and others are noted as having varying combinations of relatively high number of motifs, artefacts, and/or grooves. The relatively high number of features (i.e., large number of motifs) and the mixture of objects (e.g., art, petroglyphs, artefacts, and so on) has not been adequately discussed in the ACHAR. Further explication is required on the features of each site and how they relate to similar sites, including their significance, across the region.*

Response

The extensive archaeological field survey and assessment and consultation process with RAPs undertaken to inform the Modification ACHA substantially reduces the risk of a lack of scientific certainty for the Modification Subject Area and Aboriginal cultural heritages sites identified within.

The significance assessment for the Modification ACHA (Niche, 2025d) was undertaken in accordance with the criteria provided in the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011a), and considered current site condition and features compared to results of surveys and assessments undertaken for the Metropolitan Coal Mine as well as the archaeological context of the region.

A summary of the shelter sites with art identified within the Modification Subject Area and the assessed scientific significance is provided in Table 4-4.

The shelter sites with art assessed as having moderate scientific significance in the Modification ACHA (Table 4-4) contain art features which are in relatively good condition and/or include a type/combination of motifs considered to be higher in rarity compared to other examples in the region (Niche, 2025d).

In the Southern Coalfield, shelter sites with art are typically considered as having high significance if the site covers an extensive area (e.g. spans several metres), contains large motifs with art that is a rarity in the area and is a multicomponent site. An example of a site with art assessed as having high significance is NEW 2 located on a sandstone outcrop north of Longwall 10 on the far side of the Woronora Reservoir (approximately 1.5 km from the Modification longwall area). NEW 2 was assessed as having high significance as it is an art shelter that is 40 m long, 7.2 m wide and 5.5 m high comprising 156 motifs, with several unique motifs. The site also contains three artefacts and nine grinding grooves.

It is noted that Niche (2025d) has revised the assessed scientific significance of AHIMS ID# 52-2-0619 (Woronora Reservoir Northern Trail 4), a Shelter with Art and PAD, to moderate in consideration of additional information available since the site was originally recorded.

Further clarification of the assessment of scientific significance of grinding grooves sites in the Modification ACHA is provided in response to Heritage NSW Comment #11 above.

No revisions to the significance assessments presented in the Modification ACHA are required.

It is noted that all sites hold spiritual and cultural significance to the Aboriginal community.

Table 4-4
Summary of Scientific Significance Assessments of Relevant Aboriginal Cultural Heritage Sites

AHIMS No.	Site Name	Site Type	Site Features	Scientific (Archaeological) Significance
52-2-0619	Woronora Reservoir Northern Trail 4	Shelter with Art and PAD	The site is in poor condition and the art panels, consisting of charcoal scratching and white ochre art, are barely visible. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in shelter with art site types in the region, being of charcoal animal and human figures and is not representative of this site type that should be conserved in order to retain a representative sample of the archaeological record as a whole.	Moderate *Note: previously assessed as having low scientific significance (Niche, 2024).*
52-2-0620	Woronora Reservoir Northern Trail 5	Shelter with Art	The original recording identified 16 panels with some art in excellent condition and others in poor/obliterated condition. This recording identified six panels with 41 motifs. The art is mostly in excellent condition. The mix of motifs represent a type/combination of motif/s considered to be high in rarity and is representative of a shelter with art site that should be conserved to retain a representative sample of the archaeological record.	Moderate
52-2-0625	Northern Trail 10	Shelter with Art, Artefact(s) and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. The site is in poor condition with evidence of rock fall and weathering. Of the shelter with art sites located across within the landscape, this site is an example of a common type of motif in shelter with art site types in the region, being of charcoal lines and is not representative of this site type that should be conserved to retain a representative sample of the archaeological record.	Low
52-2-0631	Woronora Reservoir Northern Trail 23	Shelter with Art, Artefact(s) and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region but does contain some motifs less common, such as ochre hand stencils; however, the condition of the art is weathered and spalling. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in shelter with art site types in the region, being of charcoal animals and ochre handprints and is not representative of a site that should be conserved to retain a representative sample of the archaeological record.	Low
52-2-5118	MET10	Shelter with Art, Grinding Groove(s)	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter sites located within the landscape, this site is not representative of a site that should be conserved to ensure that we retain a representative sample of the archaeological record.	Low
52-2-0374	Blue Gum Forest; NT(R) 54	Shelter with Art and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in Shelter with art site types in the region. The site's poor condition detracts from its representativeness of a shelter with art site.	Low

Table 4-4 (Continued)
Summary of Scientific Significance Assessments of Relevant Aboriginal Cultural Heritage Sites

AHIMS No.	Site Name	Site Type	Site Features	Scientific (Archaeological) Significance
52-2-0618	Woronora Reservoir Northern Trail 3	Shelter with Art and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in shelter with art site types in the region, being of charcoal animal and human figures and is not representative of a grinding groove site that should be conserved in order to ensure that we retain a representative sample of the archaeological record as a whole.	Low
52-2-0621	Woronora Reservoir Northern Trail 6	Shelter with Art and Artefact(s)	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in shelter with art site types in the region. The sites poor condition detracts from its representativeness of an art site.	Low
52-2-0624	Woronora Reservoir Northern Trail 9	Shelter with Art and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter with art sites located across within the landscape, this site is an example of a common type of motif in Shelter with art site types in the region, being of a charcoal animal and is not representative of an art site that should be conserved to ensure that we retain a representative sample of the archaeological record as a whole.	Low
52-2-0633	Woronora Reservoir Northern Trail 25	Shelter with Art, Artefact(s) and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region but does contain some motifs less common, such as charcoal indeterminate motifs; however, the condition of the art is case-hardened, flaking and water damaged. Of the shelter with art sites located across within the landscape, this site is an example of a common type of motif in shelter with art site types in the region, being of charcoal animals, human figures and is not representative of a site that should be conserved in order to ensure that we retain a representative sample of the archaeological record as a whole.	Low
52-2-0751	Woronora Reservoir; Northern Trail 18	Shelter with Art	This site is representative of a typical class of Aboriginal site in the local area and wider region; however, the types of animals represented may differ from other sites. This site is representative of a typical class of Aboriginal site in the local area and wider region The original recording of 8 art motifs across 4 panels are in poor condition, showing evidence of weathering and water wash.	Low
52-2-0754	Woronora Reservoir; Northern Trail 13	Shelter with Art and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in shelter with art site types in the region. The sites' poor condition detracts from its representativeness of a shelter with art site that should be conserved to ensure that we retain a representative sample of the archaeological record.	Low

Table 4-4 (Continued)
Summary of Scientific Significance Assessments of Relevant Aboriginal Cultural Heritage Sites

AHIMS No.	Site Name	Site Type	Site Features	Scientific (Archaeological) Significance
52-2-0758	Woronora Reservoir; Northern Trail 22	Shelter with Art, Artefact(s) and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. The site consists of one charcoal indeterminate in fair condition. Of the shelter with art sites located within the landscape, this site is an example of a common type of motif in Shelter with art site types in the region, being of charcoal indeterminate and is not representative of an art site that should be conserved to ensure that we retain a representative sample of the archaeological record.	Low
52-2-3442	Northern Trail 80	Shelter with Art, Artefact(s), and PAD	This site is representative of a typical class of Aboriginal site in the local area and wider region. Of the shelter with art sites located within the landscape, this site is an example of a common type of shelter with art site types in the region. The site is not representative of a shelter with artefacts site that should be conserved to ensure that we retain a representative sample of the archaeological record.	Low

Source: After Niche (2025d).

Heritage NSW Comment #13

> *Section 8.4.1 should be updated to better integrate the comments provided by ILALC. This section of the ACHAR makes little to no mention of the concerns of ILALC and the cultural importance of the landscape and cultural sites spread across it.*

Response

Sections 6.7 and 6.8 of the Modification ACHA provide an assessment of archaeological and cultural significance of the Subject Area with respect to the archaeological context of the broader environment and cultural landscape of the Woronora Plateau and Illawarra Escarpment (Niche, 2025d).

These assessments were prepared in consideration of comments received from RAPs during the consultation process, including the comments provided by ILALC during the draft ACHA consultation period.

The assessment of the archaeological and cultural significance of the Subject Area informed consideration of potential intangible and tangible cumulative impacts of the Modification in the ACHA (refer to Section 8.4 of the Modification ACHA).

Heritage NSW Comment #14

> *Greater consideration should be given to how the modification may increase the cumulative to ACH sites across the southern coalfields.*

Response

Section 8.4 of the Modification ACHA details the assessment of potential tangible and intangible cumulative impacts of the Modification, including consideration of the principles of Ecologically Sustainable Development.

The Aboriginal cultural heritage sites within the Modification Subject Area are representative of common features of known sites across the Metropolitan Coal Mine underground mining area and in the wider region (Niche, 2025d).

Niche (2025d) considers that, while 25 of the 29 Aboriginal heritage sites identified could be impacted by subsidence due to their location relative to the Modification, consistent with mining to date, impacts are expected to be unlikely and the anticipated risk of impacts to these Aboriginal cultural heritage sites based on the subsidence predictions is low or negligible.

In addition, relevant to consideration of cumulative impacts, it is noted that the Modification would relinquish approximately 253 ha of longwall mining areas associated with the approved Metropolitan Coal Mine. There are 13 known Aboriginal cultural heritage sites located within the proposed relinquishment areas which would experience a reduction or complete avoidance of subsidence impacts approved for the Metropolitan Coal Mine.

On this basis, Niche (2025d) concludes that the Modification would not result in a significant increase in cumulative impacts to Aboriginal cultural heritage in the region.

Additional comments

Baseline recording of Aboriginal cultural heritage sites

Heritage NSW Comment #15

> *Please provide further information on how baseline recordings have been conducted. Heritage NSW advocates that baseline recordings of rockshelters, art, and grinding grooves meet current standards (e.g., 3D mapping, D-stretch recordings, and so on). Please update recordings where required and modify any proposed methodology for the Modification.*

Response

In accordance with the approved Longwalls 311-316 Heritage Management Plan for the Metropolitan Coal Mine, baseline recording of Aboriginal cultural heritage sites is undertaken prior to commencement of longwall mining of the relevant domain. Baseline records include:

- a photographic record of each Aboriginal heritage site;
- detailed scaled plans of each site including physical characteristics and features; and
- detailed information regarding the dimensions, composition and features of the site.

As recommended in the Modification ACHA, baseline recording of Aboriginal cultural heritage sites associated with the Modification would also be undertaken prior to longwall mining in accordance with the protocol outlined in the approved Heritage Management Plan and in consultation with RAPs.

Baseline recording of Aboriginal cultural heritage sites for Longwalls 20-27, 301-303, 304-306 and 310-316 at the Metropolitan Coal Mine has been conducted by Kayandel Archaeological Services or Niche and been provided to DPHI, Heritage NSW and Aboriginal stakeholders (refer to Section 7 of the approved Heritage Management Plan for further detail).

Metropolitan Coal would consider other available methods of baseline recording of Aboriginal cultural heritage sites (e.g. 3D mapping) in consultation with RAPs.

AHIMS Site Cards

Heritage NSW Comment #16

> *Heritage NSW notes that several AHIMS site cards have not been updated with baseline recordings. Please ensure that all AHIMS site cards have been updated with the most recent recordings.*

Heritage NSW Comment #17

> *Please ensure that all site recordings and AHIMS site cards comply with Requirements 18-24 of the Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales (DECCW 2010). Where required, please update the ACHAR and AHIMS site cards.*

Response

As described in the Longwalls 311-316 Aboriginal Heritage Baseline Recording Report (Niche, 2024), it was identified that the AHIMS data contained errors in site coordinates. The site coordinates were validated by Niche as a component of the baseline field surveys and during surveys undertaken for the Modification ACHA.

All site recordings and AHIMS site cards for the Modification ACHA have been prepared by Niche in accordance with the relevant guidance documents, including Requirements 18-24 of the Code of Practice (DECCW, 2010a).

Niche is in the process of reviewing and updating any relevant site cards with the outcomes of baseline recordings and surveys undertaken for the Modification ACHA. Any updates to site cards will be submitted to AHIMS.

4.1.4 NSW DCCEEW – Water

Issue

Groundwater and surface water impact assessment and management.

Recommendation 1.1

> *Department of Planning, Housing and Infrastructure (DPHI) requests the proponent to provide further justification and/or adjust the mining layout to demonstrate the impacts of the proposed modification will not:*
>
> *Result in more than negligible impacts to the hydrological, ecological or geomorphological functioning of watercourses.*
>
> *Prevent the long-term viability of Swamp 106, a high priority groundwater dependent ecosystem listed under the Water Sharing Plan for the Greater Metropolitan Groundwater Sources 2023.*

Response

DCCEEW – Water provides an explanation to support the above recommendation and refers to groundwater drawdown modelling predictions at Swamp 106 reported in the Modification Groundwater Impact Assessment (AGE, 2025b) (refer Appendix B of the Modification Report). In particular, DCCEEW – Water report that:

> *… The groundwater modelling predictions state an additional 1.8 m of drawdown in S106 and the uncertainty analysis indicates >2m drawdown is very likely in the area of S106 overlying LW318…*

It should be noted that:

- the 1.8 m of predicted additional drawdown reported in the Modification Groundwater Impact Assessment (AGE, 2025b) refers to the maximum predicted drawdown in a localised area of the regolith unit beneath part of Swamp 106, not within Swamp 106 itself; and
- the area where more than 1 m of additional drawdown is predicted in the regolith unit beneath Swamp 106 represents only about 3% of the total area of Swamp 106, as shown in Figure 7.22 of the Modification Groundwater Impact Assessment (refer Appendix B of the Modification Report).

Furthermore, in the second part of the above quotation it appears that DCCEEW – Water has incorrectly referenced uncertainty analysis results for the Hawkesbury Sandstone upper layer shown in Figure A 6.15 of the Modification Groundwater Impact Assessment (AGE, 2025b). Results for the overlying regolith layer are shown in Table A6.2 of the Modification Groundwater Impact Assessment (AGE 2025b) and suggest that maximum predicted drawdowns in the regolith beneath part of Swamp 106 of between 1 and 2 m are likely, rather than drawdowns of more than 2 m being very likely as reported by DCCEEW – Water.

Further detail is provided in Attachment 4.

Recommendation 1.2

> *That DPHI requests the proponent to provide subsidence predictions and an ecological and hydrological assessment of mining impacts on the tributary that flows from Swamp 106. The assessment needs to address the requirements of the NSW Aquifer Interference Policy.*

Response

As shown in Diagram 1 of ATC Williams' Response to Submissions (Attachment 5), maximum predicted total subsidence after mining of Longwall 317 and Longwall 318 is 650 mm at the mid reach of the inferred Swamp 106 main drainage line. The maximum predicted upsidence is 30 mm and the maximum predicted closure is 20 mm.

The total length of the inferred main drainage line through Swamp 106 is 1,285 m, 1,255 m of which is within the extent of Swamp 106. The extent of the inferred main drainage line downstream of Swamp 106 to the thalweg of Honeysuckle Creek is approximately 30 m (Attachment 5).

The assessments of potential impact to the hydrology and hydrogeology of Swamp 106 presented in Appendix B and Appendix C of the Modification Report were based on the maximum predicted subsidence, upsidence and closure for Swamp 106 presented in Appendix A of the Modification Report. Additionally, these assessments considered the full extent of Swamp 106 and its catchment, which largely encompasses the full extent of the inferred main drainage line through Swamp 106 to Honeysuckle Creek.

Accordingly, it is considered that the potential impacts to the hydrology and hydrogeology of Swamp 106, including the inferred Swamp 106 main drainage line, associated with mining of Longwall 317 and Longwall 318, have been assessed as presented in Appendix B and Appendix C of the Modification Report. The requirements of the *NSW Aquifer Interference Policy* (NSW Department of Primary Industries, 2012) are addressed in Appendix B and Appendix C of the Modification Report.

Further detail is provided in Attachment 5.

Recommendation 1.3

> *That DPHI requests the proponent to provide further assessment of the groundwater take and impacts from construction and operation of the new location of ventilation shaft 4. The assessment needs to address the requirements of the NSW Aquifer Interference Policy.*

Response

Ventilation Shaft 4 would be initially advanced using surface casing to prevent groundwater ingress and collapse in the near surface zone. Following the installation of the surface casing, the 6 m external diameter steel lined shaft would be advanced within the surface casing using reverse circulation mud-based drilling techniques to prevent groundwater ingress and provide hydrostatic support of the consolidated strata during drilling. Steel shaft lining sections will be welded together and installed once drilling is complete. Once terminal depth is achieved and the steel casing is installed, the annular space between the outer surface of the steel shaft liner and the drill hole would be fully grouted back to surface to prevent any water migration into the annular space or shaft (AGE, 2025b).

Following mine closure, as outlined in Section 3.4 of the Modification Report (Metropolitan Coal, 2025), the shaft would be backfilled using spoil material and with bentonite plugs installed at critical horizons. As such, no significant groundwater inflow into or around the shaft is predicted either during construction or operation. Furthermore, sealing and backfilling of the shaft post-closure is also expected to prevent any discharge from the shaft following long term recovery of water levels in the mine (AGE, 2025b). As such the proposed shaft construction and decommissioning design are considered to be equivalent to the *Minimum Construction Requirements for Water Bores in Australia* (National Uniform Licensing Committee, 2020) and from a *NSW Aquifer Interference Policy* (AIP) (NSW Department of Primary Industries, 2012) point of view the proposed shaft can be considered to be a large diameter well. Appropriately constructed and decommissioned wells are listed in Section 3.3 of the AIP as one of a number of activities which are considered to have minimal impact on water dependent assets (Department of Primary Industries, 2012).

Hence, since the activity has already been approved in another nearby location and is not likely to result in the removal of any additional water from a water source or the movement of water from one aquifer or source to another, then a water licence is not thought to be required and no material impacts on groundwater resources are anticipated (AGE, 2025a).

Further detail is provided in Attachment 4.

Recommendation 1.4

> *That DPHI requests the proponent to update the Water Management Plan to:*
>
> - *Include maps of the predicted and observed subsidence levels to define areal extent of subsidence impact to inform management and mitigation.*
> - *Include an enhanced monitoring program comprising installation nested bore pairs to monitor high priority GDEs (upland swamps, swamp alluvium, and immediately adjacent shallow groundwater systems) within the LW317-LW318 area and a 600 m buffer zone.*
> - *Revise the trigger levels to define maximum allowable water level declines based on seasonally adjusted baseline levels, in line with aquifer types specified in the NSW AIP (2012).*

- *Extend the monitoring and Trigger Action Response Plan (TARP) implementation period for 10 years after mining ends.*
- *Require validation and update of the groundwater model two years after approval and every three years thereafter for a total of five updates.*

Response

Metropolitan Coal will consider the above recommendations during the preparation of the Water Management Plan for the Longwalls 317 and 318 Extraction Plan. The monitoring program would be prepared in consideration of environmental and access constraints.

Issue

Water Licensing

Recommendation 2.1

That DPHI requests the proponent to:

- *Review the maximum annual water take from water sources based on Figure 7 in the Guidelines for Groundwater Documentation for SSD/SSI Projects (DPE 2022) (Groundwater Guidelines) accessible at the following link: Guidelines for Groundwater Documentation for SSD/SSI Projects*
- *Clarify how the net reduction in discharge to surface water sources is calculated and confirm the maximum annual water take, noting there is no provision for return flows to offset or negate the original water take volume.*

Response

Tables 7.6 and 7.7 of the Modification Groundwater Impact Assessment (AGE, 2025a) have been revised, and are shown in AGE's response to recommendations (Attachment 4).

When treating baseflow reduction as a groundwater reduction, there is no requirement for additional licences for take from surface water courses. However, since Metropolitan Coal currently hold a WAL of 182.5 units from the Sydney Basin Central Groundwater Sources, then the revised predictions indicate that this WAL would need to be increased to 222 units before the end of the Modification. Metropolitan Coal would comply with water licensing requirements under the NSW *Water Management Act 2000* over the life of the Modification and would obtain and hold licenses for licensable take.

Predicted reductions in groundwater discharge (or baseflow) to surface water courses have been estimated by AGE by comparing time series of groundwater discharge and evaporation losses in creekside riparian areas. Methodology and results are presented in AGE's response to recommendations (AGE, 2025b). Maximum annual water takes were determined from impact time series plots, which in the case of the Honeysuckle Creek, suggests Modification only impacts of 30 ML/year at the end of the mine life. Reported impacts do not include return flows of any kind (AGE, 2025a).

Further detail is provided in Attachment 4.

Recommendation 2.2

That DPHI requests the proponent to clarify the water sources and water take from the "other river water sources" referred to in Tables 7.6 and 7.7 of the Groundwater Impact Assessment.

Response

AGE responded to this recommendation in Attachment 4 of this Submissions Report (AGE, 2025b) in consideration of DCCEEW – Water's advice and indirect water take. See the response to Recommendation 2.1.

Recommendation 2.3

That DPHI requests the proponent to demonstrate sufficient entitlement is held or can be obtained prior to water take occurring to account for the maximum potential water take in all impacted water sources.

Response

Metropolitan Coal currently holds a WAL of 182.5 units from the Sydney Basin Central Groundwater Sources. The revised predictions indicate that this WAL would need to be increased to 222 units before the end of the Modification. Metropolitan Coal would comply with water licensing requirements under the NSW *Water Management Act 2000* over the life of the Modification and would obtain and hold licenses for licensable take.

Issue

Works on Waterfront Land.

Recommendation 3.1

> *That DPHI requests the proponent to ensure works on waterfront land are undertaken in accordance with the Guidelines for Controlled Activities on Waterfront Land (2022).*

Response

Metropolitan Coal anticipates that the consent authority would include a condition of consent related to the conduct of works on waterfront land in accordance with the relevant version of *Guidelines for Controlled Activities on Waterfront Land* (NSW DCCEEW, 2025b).

4.1.5 NSW Environment Protection Authority

Recommendation 1

Noise and Dust Assessment

> *For the construction of ventilation shaft 4 the EPA requires an assessment of expected noise and dust impacts from the construction site and associated traffic movements. Given the construction is proposed for a 24/7 schedule over an 18-month period this assessment will assist the EPA in identifying any potential environmental impacts throughout construction. The site is remote and as such it is unlikely to be in the vicinity of sensitive receivers. However, a preliminary assessment of noise and dust impact is expected to justify the assumption. The EPA recommends a preliminary assessment of noise and dust impacts for the construction of ventilation shaft 4, is provided for review.*

Response

Noise Assessment

Metropolitan Coal engaged SLR to undertake a preliminary assessment of the potential noise associated with the construction of the relocated Ventilation Shaft 4 in consideration of the EPA's recommendation outlined above. The Construction Noise Assessment is provided in Attachment 6 of this Submissions Report and a summary of the findings is provided below.

Given the locality of the relocated Ventilation Shaft 4 (within the Woronora Special Area), the nearest receiver is located more than 3 km from the construction works. Consistent with the NSW *Noise Policy for Industry* (NPfI) (EPA, 2017), the relocated Ventilation Shaft 4 Construction Noise Assessment utilised the minimum Rating Background Levels (RBLs) of 35 dBA for the daytime, and 30 dBA for the evening and night-time for the Construction Noise Assessment at the nearest receiver**.**

Construction activities expected to result in the highest increase in daytime noise would be site clearing and pad preparation of the Ventilation Shaft 4 (Scenario 11) while construction activities expected to result in the highest increase in night-time noise would be shaft sinking activities (Scenario 2).

The CONCAWE algorithm was utilised to predict noise at the nearest receiver for both daytime and night-time activities associated with the construction of the relocated Ventilation Shaft 4. The Category F conditions were assumed for the evening and night-time (SLR, 2025).

The predicted noise impacts of the construction of the relocated Ventilation Shaft 4 are presented in Table 4-5 and Table 4-6 for Scenario 1 and Scenario 2.

Table 4-5
Scenario 1 – Predicted Noise Levels Shaft Site Clearing and Pad Preparation

Residential Receiver [1]	Project Specific NMLs (dBA) Daytime	Predicted $LA_{eq(15min)}$ Noise Level (dBA)	Complies?
Acacia Cottage ; 43-49 Princes Hwy, Helensburgh	45	24	Y

[1] Daytime: 7:00 am to 6:00 pm; Evening: 6:00 pm to 10:00 pm; Night: 10:00 pm to 7:00 am.

Table 4-6
Scenario 2 – Predicted Noise Levels Shaft Sinking

Residential Receiver [1]	Project Specific NMLs (dBA) Evening and Night-time	Predicted $L_{Aeq(15min)}$ Noise Level (dBA)	Complies?
Acacia Cottage ; 43-49 Princes Hwy, Helensburgh	30	20	Y

[1] Daytime: 7:00 am to 6:00 pm; Evening: 6:00 pm to 10:00 pm; Night: 10:00 pm to 7:00 am.

In summary, the predicted noise levels assessed indicate that during both daytime and nigh-time, construction noise levels of the relocated Ventilation Shaft 4 are expected to comply with the relevant noise criteria at the nearest receiver (SLR, 2025).

Further, analysis of the L_{Amax} noise levels indicate sleep disturbance criterion would be met during construction of the relocated Ventilation Shaft 4 as the noise levels are expected to be up to 8 dB above the $LA_{eq(15minute)}$ noise levels.

Review of the road transport noise associated with the relocated Ventilation Shaft 4 construction works was conducted in consideration of the NSW *Road Noise Policy* (RNP) (DECCW, 2011) to assess and manage impacts from construction noise traffic at residences and 'other sensitive' land uses. The local road traffic noise assessment criteria for residential land uses are 55 dBA during daytime and 50 dBA during night-time (SLR, 2025).

The existing traffic volumes on Darkes Forest Road are unknown, however will be low as the road is not a through road, and provides access for properties to the Old Pacific Highway.

Proposed construction heavy vehicle movements during sinking operations would include 36 water truck deliveries, 18 concrete deliveries, one steel and one mud delivery per week, being a total of 56 movements per week. Assuming five days operations, with movements during RNP defined daytime (7 am to 10 pm), there will be up to 12 deliveries per day, or 24 movements per day. As a worst case scenario, six heavy movements are assumed within a one hour window. It is assumed there would be four light vehicle movements in the same hour as a worst case.

Predicted noise levels at the nearest residence relevant to traffic associated with the relocation Ventilation Shaft 4 is $L_{Aeq(1hour)}$ 54 dBA, which complies with the 55 dBA criteria of the RNP. It is noted that the RNP criterion applies to the total noise level, however in this case existing traffic will be low, and not expected to significantly increase the predicted noise level.

Further detail is provided in Attachment 6 of this Submissions Report.

Air Quality Assessment

Metropolitan Coal engaged Zephyr to undertake a preliminary assessment of the potential risks to local air quality associated with the construction of the relocated Ventilation Shaft 4 in consideration of the EPA's recommendation outlined above. The Construction Noise Assessment is provided in Attachment 7 of this Submissions Report and a summary of the findings is provided below.

The Construction Air Quality Assessment undertaken by Zephyr (2025) (Attachment 7 of this Submissions Report) focused on identifying and managing risks associated with the construction of the relocated Ventilation Shaft 4 following guidance developed by the UK Institute of Air Quality Management (IAQM) (IAQM, 2024) as dust emissions associated with the level of construction activities undertaken, operations being undertaken and local weather conditions can vary substantially from day-to-day this does not allow for accurate quantification of dust emissions using modelling (Zephyr, 2025).

Step 1 of the IAQM's *Steps in the assessment of construction dust* is designed to determine whether a detailed assessment is required. The IAQM (2024) notes that a detailed construction dust assessment will be required where: *There are human receptors within 250 m of the development footprint OR within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).*

Zephyr (2025) concludes that given the nearest residence/sensitive receiver is located more than 3 km from the relocation Ventilation Shaft 4 construction site, it is expected that dust resulting from track-out on to public roads would be minimal.

In consideration of the *Guidance on the assessment of dust from demolition and construction* (IAQM, 2024), Zephyr (2025) has confirmed the risk of impact from the construction of the Ventilation Shaft 4 in the relocated site is very low and there is no need to proceed with a detailed assessment.

Notwithstanding the above, Zephyr (2025) proposed mitigation measures to reduce potential air quality impacts associated with the construction of the relocated Ventilation Shaft 4, which would be incorporated into the approved Air Quality and Greenhouse Gas Management Plan, should the Modification be approved.

Further detail of the Construction Air Quality Assessment is provided in Attachment 7 of this Submissions Report.

Recommendation 2

Spoil Management

> *Additional information is required on how the applicant will manage spoil that is generated from the construction of ventilation shaft 4. It is unclear to the EPA how the spoil will be managed throughout the construction period and if all potential environmental impacts from the spoil have been assessed.*
>
> *The EPA recommends the following information is provided for review:*
>
> - *The estimated volume of spoil to be excavated.*
> - *Confirmation that the proposed site area is sufficient for spoil storage.*
> - *Assessment of the spoil's geochemical properties to determine its potential for Acid Mine Drainage (AMD) or other forms of leaching.*
> - *An assessment of the spoil's suitability for use in on-site rehabilitation and whether successful revegetation of stockpiles is likely to be feasible.*

Response

Estimated Volume of Spoil to be Excavated

The expected volume of spoil to be excavated from the Ventilation Shaft is approximately 20,600 cubic metres (m^3) (inclusive of allowance for 25% swelled volume).

Spoil Storage Adequacy

The proposed site area is expected to have 26,000 m^3 of storage space through dedicated spoil zones. As noted above, 20,600 m^3 of spoil is anticipated to be generated, thus the site area is sufficient for spoil storage.

Geochemical Properties

Previous geochemical testwork investigations undertaken in the Southern Coalfield from the washing of coal in the Bulli Seam indicate the material is generally inert as summarised by the following:

- The Bulli Seam consists of coal and carbonaceous clays, claystone and usually contains few, if any, non-coal bands or splits (DMR, 2000).
- Sinclair Knight and Partners (1990) investigations concluded the coal wash material was inherently inert and unreactive and the potential for acid discharges to be produced over time was minimal.
- EGi (2008) concluded the Bulli Seam coal wash had relatively low total sulfur content, varying acid neutralizing capacity, and the materials were low risk.
- International Environmental Consultants Pty Ltd (2006) investigations concluded for the Glenlee Washery indicated the coal wash produced from the Bulli Seam was known to be nonhazardous and chemically inert.

Further, monitoring data from underdrainage at the West Cliff Coal Wash Emplacement, which had been in place for some 30 years at the time, did not show direct evidence for the potential of acid generation from coal wash (Illawarra Coal Holdings Pty Ltd, 2010).

Metropolitan Coal's discharges to Camp Creek through LDP 7 are usually in the range of 8.0 to 8.5 pH (i.e. not acidic).

Accordingly, specific geochemical assessment of potential for Acid Mine Drainage or other forms of leaching not considered necessary. Notwithstanding, Metropolitan Coal would be required to rehabilitate the ventilation shaft site under the Rehabilitation Management Plan and Forward Programs.

Suitability for On-site Rehabilitation

The stockpiles would be seeded and maintained during mining operations to reduce potential water quality impacts from runoff. At the completion of mining, all of the stored spoil would be used as backfill, to fill and seal the ventilation shaft. Topsoil would also be placed over disturbed areas, as required. Then, the entire area would be rehabilitated with native species generally consistent with the surrounding vegetation.

Recommendation 3

Water Management and Wastewater Management

> *Additional information is required for the EPA to assess the management of water associated with the construction works for ventilation shaft 4 to ensure all potential environmental risks are being managed.*
>
> *The EPA recommends the following information is provided for review:*
>
> - *Estimates of groundwater ingress during shaft construction and a comparison against the available storage capacity in the proposed holding basin.*
> - *Outline the capacity to transfer construction water and stormwater to underground workings.*
> - *A clear plan for the collection, storage, and off-site disposal of all sewage and greywater from construction amenities.*

Response

Regarding groundwater ingress, the Relocated Ventilation Shaft 4 is situated on the crest of a ridgeline and the natural hydrostatic gradient rests at zero pressure 27 m below ground level (mbgl), as indicated by approximately 16 years of 9EGW1 monitoring data. The groundwater table at -27 mbgl combined with the construction method employed, blind bore sinking, calls for the shaft to be full of water based drilling muds for the duration of the excavation. This means that there is no positive pressure gradient to cause water to flow from the surrounding ground towards the shaft.

To reinforce the above point Metropolitan Coal is not expecting any water ingress of note during construction based on considerable experience drilling surface to seam holes through the same formations. Since the 2009 Project Approval, Metropolitan Coal has drilled 17 surface to seam holes and not one of these has noted making water, including borehole 9EGW1A, located 130 m from the proposed vent shaft. Metropolitan Coal is budgeting considerable expense for trucking potable water to site to continuously top up the construction effort.

Regarding the capacity to transfer construction water to underground, Metropolitan Coal intends to construct twin 96 mm diameter lined boreholes for the purpose of transferring construction water to the underground workings. These holes are typically rated for at least 40 l/s or approximately 3.5 ML per hole per day. The intent is for the two construction ponds to be completely emptied in approximately one day, if required. Stormwater is intended to be diverted to the site sedimentation pond for settlement and release (i.e. Metropolitan Coal does not anticipate intercepting stormwater in any meaningful quantity).

Sewage would be removed from site Portaloo's holding tanks via an accredited pump truck to take all waste to an EPA licensed wastewater processing facility.

Recommendation 4

> *Consequently, the EPA recommends DPHI requires additional information that includes:*
>
> - *Details of ROM extraction rates and clarification if the Applicant is seeking to decrease their current approved maximum annual coal extraction rate of 3.2 million tonnes (Mt).*
> - *Details and analysis of the expected change/s in fugitive emissions resulting from the proposed modification.*
> - *Detailed discussion on site-specific feasibility evaluation for pre-draining and gas flaring as GHG mitigation measures.*
> - *Information to demonstrate that mitigation measures available for underground mining activities have been comprehensively evaluated.*

Response

Details of ROM Coal Extraction Rates

Indicative ROM coal extraction rates for the originally approved mine plan (as presented in the Modification Report), the proposed mine plan (i.e. including the Modification), and the current mine plan (i.e. without the Modification) are shown in Chart 4-1.

To summarise, the Modification involves the:

- recovery of an additional 3.2 Mt of ROM coal from Longwalls 317 and 318; and
- relinquishment of approximately 14 Mt of previously approved ROM coal.

This equates to a net reduction of approximately 10.8 Mt of ROM coal compared to the originally approved mine plan.

It is noted that ROM coal production under both the current and proposed mine plans would remain below Metropolitan Coal Mine's approved maximum annual coal extraction rate of 3.2 million tonnes per annum under Project Approval (08_0149), however, Metropolitan Coal confirms the Modification does not seek to reduce the approved extraction limit (despite it not being fully utilised) or extend the approved mine life.

Fugitive Emissions

The anticipated fugitive emissions for the Modification Scenario (i.e. from the commencement of the Modification) are presented in Chart 4-2, alongside reported FY21 to FY24 National Greenhouse Gas and Energy Reporting Scheme (NGERS) fugitive emissions for comparison. On a net basis, fugitive emissions are expected to remain broadly consistent between the current and proposed mining areas.

Chart 4-1
Indicative ROM Coal Schedules

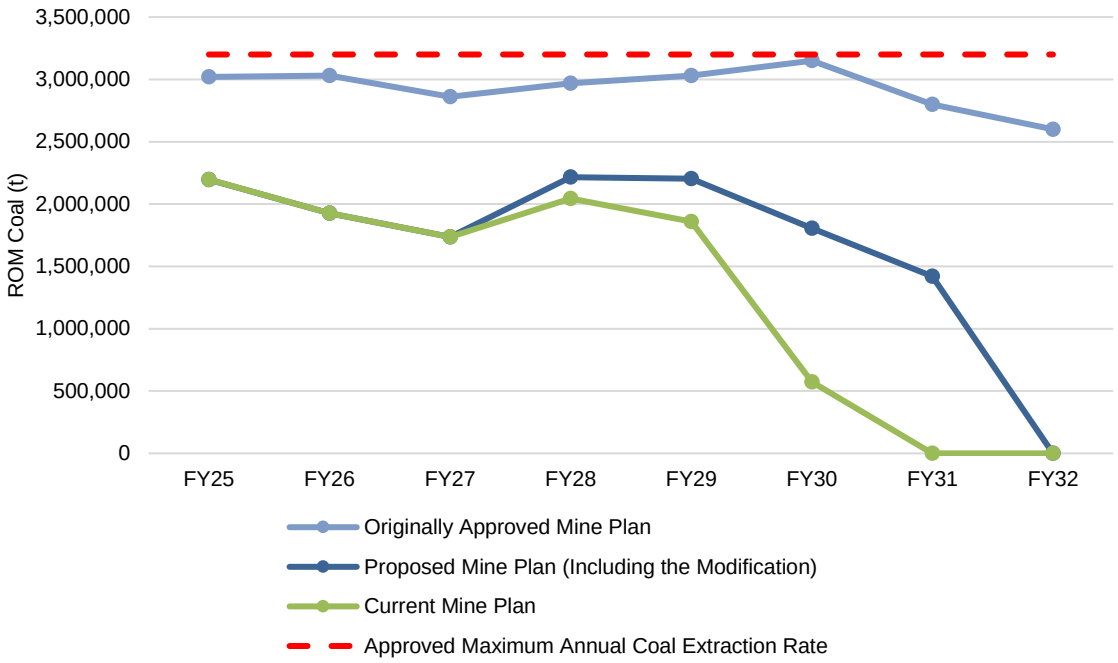
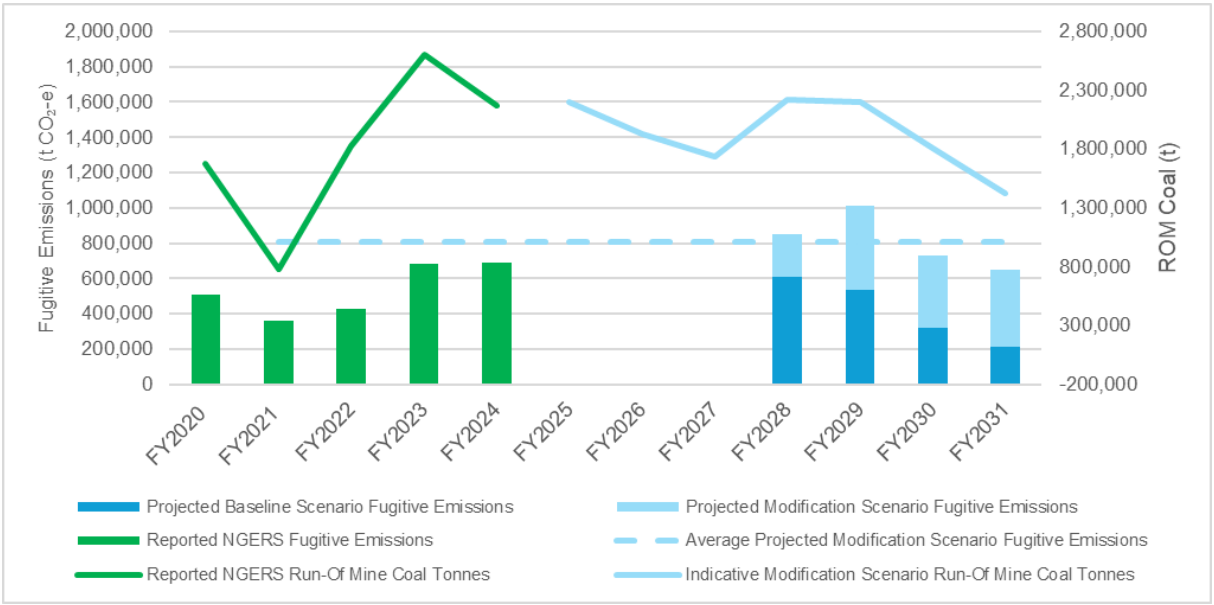


Chart 4-2
Anticipated and Reported Fugitive Emissions



However, as illustrated in Chart 4-3, fugitive emissions transition from a mixed composition (approximately 60-80% methane) to being almost entirely methane as the Metropolitan Coal Mine advances. This shift to higher methane concentration is accompanied by a decrease in the overall gas volume, resulting in net fugitive emissions that remain broadly consistent with those from the current mining area (Chart 4-2). This transition to higher methane concentrations is the primary driver for Metropolitan Coal's planned flaring of pre-drainage gas from the Bulli Seam. A flare system to enable this is already approved under Project Approval (08_0149) and is scheduled for construction in 2026 and therefore flaring would occur for the duration of the Modification.

Emission Reduction Measures

Potential mitigation measures for the Modification are summarised in Table 4-7 and reflect current best practice in the Australian underground coal mining sector, consistent with the *Greenhouse Gas Mitigation at NSW Coal Mines Literature Review and Industry Scan* prepared for the EPA (EMM Consulting, 2025). The summary demonstrates that Metropolitan Coal has considered all relevant mitigation technologies and is implementing those that are reasonable and feasible within the operational context of the mine and the Modification (i.e. methane [CH_4] drainage, flaring, equipment electrification).

Chart 4-3
Carbon Dioxide and Methane Percentage in Fugitive Emissions

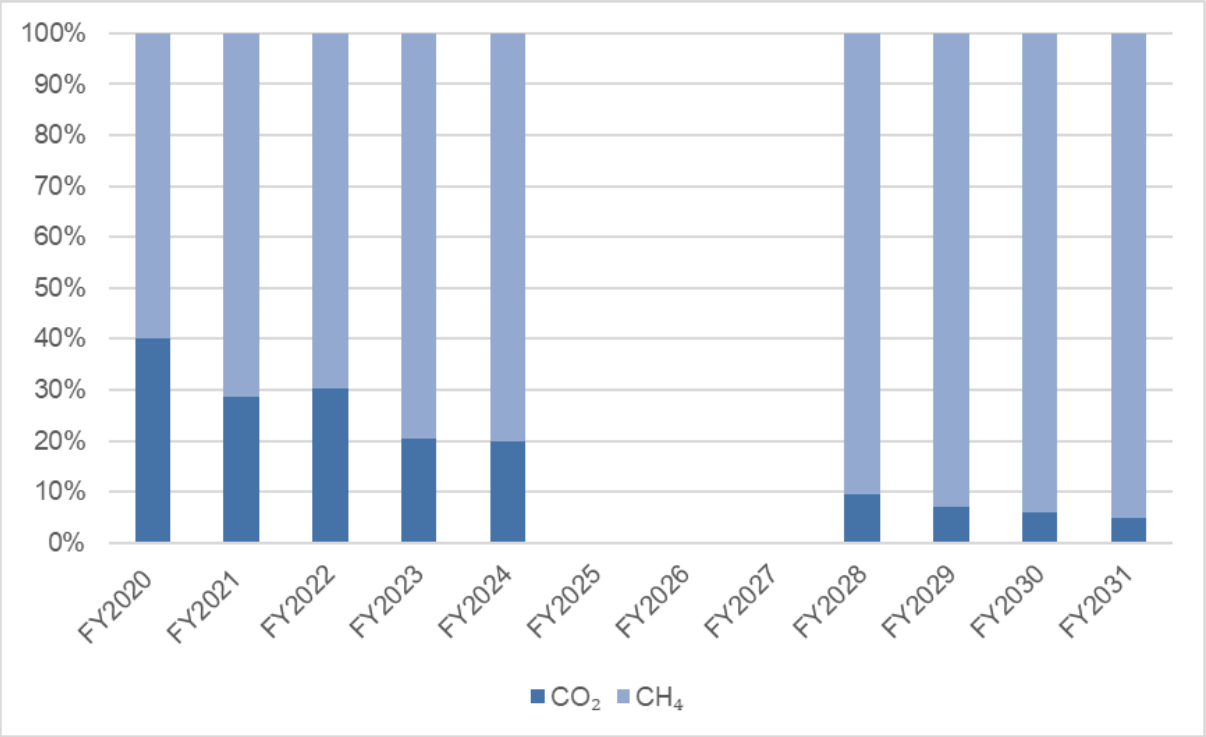


Table 4-7
Summary of Identified Scope 1 and 2 Mitigation Measures

Mitigation Measure	Description of Mitigation Measure	Effectiveness of Mitigation Measure at the Metropolitan Coal Mine	Implemented for the Modification
Scope 1 – Methane Management			
CH_4 Drainage	Extraction of methane from coal seams or surrounding strata through pre-drainage or post-drainage boreholes. Methane drainage reduces in-situ gas content and pressure prior to mining, thereby lowering fugitive emissions during coal extraction.	Metropolitan Coal currently undertakes pre-drainage of methane from the Bulli Seam ahead of coal extraction to reduce in-seam gas content and maintain safe mining conditions. Under the Modification, pre-drainage activities would continue, with drainage extended to include the Balgownie Seam (situated below the Bulli Seam) from 2026 to improve pre-drainage effectiveness. This approach would divert gas from the mine's ventilation system to a gas pipeline for flaring. Drainage lead times may also be increased to allow additional gas capture prior to mining, pending further feasibility assessment.	Yes
Drainage Gas Flaring	Combustion of captured methane gas within an open or enclosed flare system to convert CH_4 to CO_2 and water vapour, thereby significantly reducing the overall greenhouse gas emissions released. Flaring to be used when methane concentrations exceed 30% at a minimum consistent with best practice guidance (United Nations Economic Commission for Europe, 2024).	As shown in Chart 4-2, the Modification is expected to extend mining into areas with higher methane concentrations, making flaring a more economically viable mitigation option. A flare system to facilitate this has already been approved under Project Approval (08_0149) and is scheduled for construction in 2026. As outlined in the Greenhouse Gas Assessment, the proposed flaring of pre-drainage gas is expected to reduce Scope 1 greenhouse gas emissions of the Modification by approximately 700,000 t CO_2-e (or 17%) (Metropolitan Coal, 2025b).	Yes
Regenerative Thermal Oxidiser (RTO)	RTOs oxidise methane in ventilation air (i.e. methane reacts with O_2) at high temperatures (e.g. 850 to 1,200^{o}C) in a flow-reverse reactor (EMM Consulting Pty Ltd, 2025). This mitigation measure is used when ventilation air methane has a concentration between 0.2-0.7% (EMM Consulting Pty Ltd, 2025).	While RTOs can achieve high destruction efficiencies (93-100%), they involve substantial capital expenditure, complex safety and regulatory requirements, and are challenging to integrate into existing mine infrastructure, with limited commercial examples in Australia (EMM Consulting Pty Ltd, 2025). RTO systems typically have an operational lifespan of around 20 years; however, given that the Modification would conclude prior to 2032, the technology would not be economically viable within the remaining life of the mine and is not considered a reasonable and feasible mitigation measure for the Modification (EMM Consulting Pty Ltd, 2025).	No
Regenerative Catalytic Oxidiser (RCO)	While RCOs principally operate the same as RTOs, the emerging mitigation measure has the potential to operate at lower temperatures, higher air flow rates and lower VAM concentrations than RTO (EMM Consulting Pty Ltd, 2025).	As above	No

Table 4-7 (Continued)
Summary of Identified Scope 1 and 2 Mitigation Measures

Mitigation Measure	Description of Mitigation Measure	Effectiveness of Mitigation Measure at the Metropolitan Coal Mine	Implemented for the Modification
Scope 1 – Methane Management			
Capture and Use for Electricity Generation	Recovery of drained or captured methane for use as a fuel in gas engines or turbines to generate electricity.	Given the limited remaining mine life, with approved operations ceasing in 2032, investment in gas utilisation infrastructure (e.g. power generation engines, turbines, and associated gas treatment systems) would not be economically viable and is not considered a reasonable and feasible mitigation measure.	No
Scope 1 – Mining Fleet			
Electrified mining fleet	Electrified mining equipment are fully electric vehicles that operate without a diesel engine, relying instead on onboard batteries recharged via mobile or static charging systems. By replacing diesel engines with electric motors, these trucks eliminate diesel exhaust emissions and particulates, offer higher energy efficiency and reduced maintenance requirements due to fewer moving parts. Emissions can be effectively reduced to zero where renewable electricity is used.	Diesel combustion contributes less than 0.5% of the total estimated Scope 1 greenhouse gas emissions associated with the Modification. As coal is transported via conveyor rather than diesel-powered equipment, opportunities for further diesel emission reductions at the Metropolitan Coal Mine are limited. Notwithstanding, Metropolitan Coal has invested in electric vehicle solutions such as DRIFTEX to replace conventional diesel-powered vehicles. Charging infrastructure has been installed on site, and DRIFTEX vehicles have been acquired. This would continue for the Modification.	Yes
Renewable Fuel	Renewable fuels (such as renewable diesel, biofuels or synthetic fuels) are produced from biomass, waste, or hydrogen/CO_2 feedstocks rather than fossil sources. They can serve as drop-in replacements for conventional diesel, reducing the lifecycle greenhouse gas intensity relative to fossil diesel.	Diesel contributes a very small share (approximately less than 0.5%) of total Scope 1 emissions. Coal transport relies on conveyors rather than diesel-driven machinery. As a result, switching to renewable fuels would yield marginal emission reductions, and is not viewed as a reasonable or feasible mitigation measure given current supply limitations and low baseline emissions contribution.	No, but would be subject to investigation by Peabody/Metropolitan Coal
Scope 2 – Renewable Electricity			
Renewable Electricity Supply	Augment current electrical supply systems with a renewable energy source (e.g. solar farm, wind farm) to provide a proportion of electricity demand.	Electricity consumption accounts for approximately 1.3% of the estimated Scope 1 and 2 emissions and establishment of on-site renewable electricity supply is not considered reasonable and feasible for the Modification.	No, but would be subject to investigation by Peabody/Metropolitan Coal
Carbon-Neutral Electricity Contract	The purchase of carbon-neutral electricity supply is typically an offset measure, in that the carbon emissions associated with supply of power to the Metropolitan Coal Mine could be offset by a Climate Active certified electricity supplier.	Electricity consumption accounts for 1.3% of the Scope 1 and 2 emissions at the Metropolitan Coal Mine. It should be noted that Cth DCCEEW (2024) projects ongoing decarbonisation of the NSW electricity grid, with emission factors expected to be 0.51, 0.15, and 0.03 t $CO_{2\text{-e}}$ per megawatt-hour by 2025, 2030, and 2040 respectively (i.e. the benefits of establishing a carbon-neutral electricity supply contract will decline over time as the grid itself progressively decarbonises). This measure is not considered reasonable and feasible for the Modification.	No

4.1.6 NSW National Parks and Wildlife Service

Recommendation 1

> *Confirming if, subject to the EP&A Act, the proposed modification requires landowners' consent from the NSW Minister for the Environment, administering the NPW Act, as the MP08-0149 approval applies to land reserved under the NPW Act. If so, a formal request for landowners' consent must be submitted via the NPWS Manager, Royal Area - npws.royal@environment.nsw.gov.au.*

Response

Metropolitan Coal proposes to seek the NSW Minister for the Environment's landowner consent under section 98(1) of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) to make the Modification 4 application, insofar as it relates to land reserved as a State Conservation Area, specifically any land reserved as the Garawarra State Conservation Area or Illawarra Escarpment State Conservation Area.

To the extent that the Modification 4 application relates to land reserved under the *National Parks and Wildlife Act 1974* that is not designated as a State Conservation Area, landowner consent from the Minister is not required under section 98 of the EP&A Regulation as Metropolitan Coal has complied with the relevant public notification requirements in subsections (4) and (5).

Recommendation 2

> *Ensuring the changes to NPWS estate tenure boundaries are recognised in the modification consistently and the implications to the Metropolitan Coal Mine operations and its revised proximity are addressed and form part of the Modification Report. NPWS advises on the use of the* NSW National Parks and Wildlife Service (NPWS) All Managed Land – NSW SEED dataset *via https://datasets.seed.nsw.gov.au/dataset/npws-all-managed-land to identify our estate and its reserve classification.*

Response

The figures in the Modification Report display the latest available dataset (*NSW National Parks and Wildlife Service [NPWS] Estate*) showing NPWS estate tenure boundaries (noting the Dissolved Internal Boundaries package was used), at the time of submission in July 2025. Since submission, Metropolitan Coal notes this dataset was updated in September 2025.

All relevant figures included in this Submissions Report use the latest available version of the *NSW National Parks and Wildlife Service All Managed Land* dataset referenced by NPWS.

Recommendation 3

> *Considering the implications for water security, the management of the Woronora Special Area around the mine's operational and long-term environmental risks associated with the expansion of the mine into the water catchment. This can affect the connected Heathcote National Park and the ongoing ability to protect the water quality in the Woronora Reservoir. Refer to the Special Areas Strategic Plan of Management (Water NSW & OEH, 2015) - https://www.environment.nsw.gov.au/publications/special-areas-strategic-plan-management-2015, as the plan highlights the known impacts of coal extraction on local water quality.*

Response

Heathcote National Park is located outside the 20 mm subsidence contour for the Modification. The Modification Report has assessed water quality and other environmental impacts that are expected to occur due to the Modification. It is not expected that there would be greater than negligible impacts to the Heathcote National Park.

Metropolitan Coal is aware of the known water quality impacts, such as increased iron and manganese concentrations, subsurface fracturing of bedrock and impacts to surface water flow as described in the *Special Areas Strategic Plan of Management* (Water NSW and OEH, 2015) and has specifically assessed these in the Surface Water Assessment (ATC Williams, 2025a) and Groundwater Impact Assessment (AGE, 2025b). Metropolitan Coal currently implements stream remediation using polyurethane (PUR) grouting. The long-term success of the rehabilitation of stream beds has been assessed, and is provided in Attachment 8.

Appropriate mitigation and management would be described in the management plans during the Extraction Plan stage for Longwalls 317 and 318.

Recommendation 4

> *Recognising that as part of the proposed modification, the ongoing and problematic use of the Metropolitan Coal Surface Facilities Area at Camp Gully. The modification should recognise the issues associated with the ongoing use of the surface facility operations < 250 m from the gazetted boundary of Royal National Park. As the modification seeks to establish an access trail and to reinstate rock-armouring along a section of the embankment toe at the Surface Facilities area near Camp Gully Creek, potential impacts to the national park need to be considered. The extension of the operating life of the Surface facilities through this modification will also extend the period of risk and impact to Camp Gully Creek and the Hacking catchment.*

Response

The Modification does not require an extension of the approved operating life or change to approved activities at the Surface Facilities. The Metropolitan Coal Mine Project Approval 08_0149 (as modified) permits the undertaking of mining operations until 22 June 2032, which is inclusive of the use of the Surface Facilities Area.

The Camp Creek access track will be established at the surface facilities area and within existing disturbed areas that are not yet remediated. The rock armouring is designed to replace a historical and much smaller scale hand-built armouring evident at the toe of the slope. Modern geotechnical and hydrological design principles will be employed, with substantially larger sandstone boulders emplaced for both longevity and a beneficial outcome for Camp Creek reducing the potential for future creek scouring events. All proposed works would be described in the relevant Forward Programs to be submitted to the NSW Resources Regulator.

The proposed access track and rock-armouring is expected to have a neutral to beneficial impact on Camp Gully Creek and the Hacking catchment as it would allow for improved stability of the emplacement and better environmental monitoring and management.

Recommendation 5

> *Revising the proposed modification's impacts associated with Metropolitan Coal Surface Facilities Area at Camp Gully operation as it affects the Royal National Park, its connected waterways and 'National Heritage place values" as part of the assessment undertaken in* Attachment 5: Consideration of National Heritage*. Considering adverse impacts against the assessment criteria set out in the* Matters of National Environmental Significance: Significant Impact Guidelines 1.1 *(Department of the Environment, Water, Heritage and the Arts [DEWA], 2013) - https://www.dcceew.gov.au/environment/epbc/publications/significant-impactguidelines-11-matters-national-environmental-significance*

Response

The potential impacts from the Modification on the Royal National Park are assessed in Attachment 5 of the Modification Report in the context of the proposed Action (EPBC 2025/10103), which was referred to the Commonwealth Minister in January 2025. The components of the proposed Action include the extraction of coal within Longwalls 317 and 318 using longwall extraction methods (underground mining) and the establishment and use of the Relocated Ventilation Shaft 4.

As detailed in Section A5.3.2 of Attachment 5 to the Modification Report, if the proposed Action proceeds, the Surface Facilities Area would continue to be used, however, there is no proposed change to the disturbance, scale or method of activities of this feature and it does not form part of the proposed Action.

The purpose of preparing Attachment 5 of the Modification Report was in the interest of assessing the matters protected by the EPBC Act deemed likely to have a significant impact as a result of the proposed Action.

Considering the Surface Facilities Area was not included in the proposed Action given the ongoing use of this facility is covered by EPBC 2008/4519, Metropolitan Coal considers its inclusion in Attachment 5 of the Modification Report not applicable.

The response to Recommendation 2 details the responses and refined management conducted at the Surface Facilities Area to prevent potential impacts to the watercourses that connect to the Royal National Park.

Recommendation 6

> *Seeking ongoing revision and refinement of the water management plan for the Metropolitan Coal Surface Facilities Area at Camp Gully, to work towards improved site operations, and protection of the Royal National Park. This should include broadening the real-time publicly accessible water monitoring. Current issues affecting the national park include increased acidic water discharge well below freshwater guidelines. This is evident during periods of low rainfall, due to high concentrations of salts (and mineral/metal) associated with the facilities' discharge, increased turbidity due to sediment-laden runoff, declining dissolved oxygen saturation levels and the current detention basin function. The focus of the supporting reports has been the underground extension, with little discussion or consideration of the impacts of the surface facilities. NPWS has concerns for the aquatic ecosystems in Royal National Park.*

Response

Metropolitan Coal's real time Camp Creek Water Monitoring page provides a comprehensive dataset of water upstream and downstream of Metropolitan Coal's Surface Facilities Area, as well as inputs from Metropolitan Coal in the form of discharges from Licenced Discharge Points 7 and 8, which typically occur only during and after heavy rainfall events.

It is unclear what specific issues the remainder of NPWS's comments are referring to. Metropolitan Coal's discharges to Camp Creek through Licenced Discharge Point 7 are usually in the pH range of 8.0 to 8.5 (i.e., not acidic), have a total suspended solids content of <30mg/L (i.e., low turbidity) and Metropolitan Coal does not typically discharge water to Camp Creek during periods of low rainfall as any water onsite is required for site production purposes.

4.1.7 WaterNSW

Recommendation 1

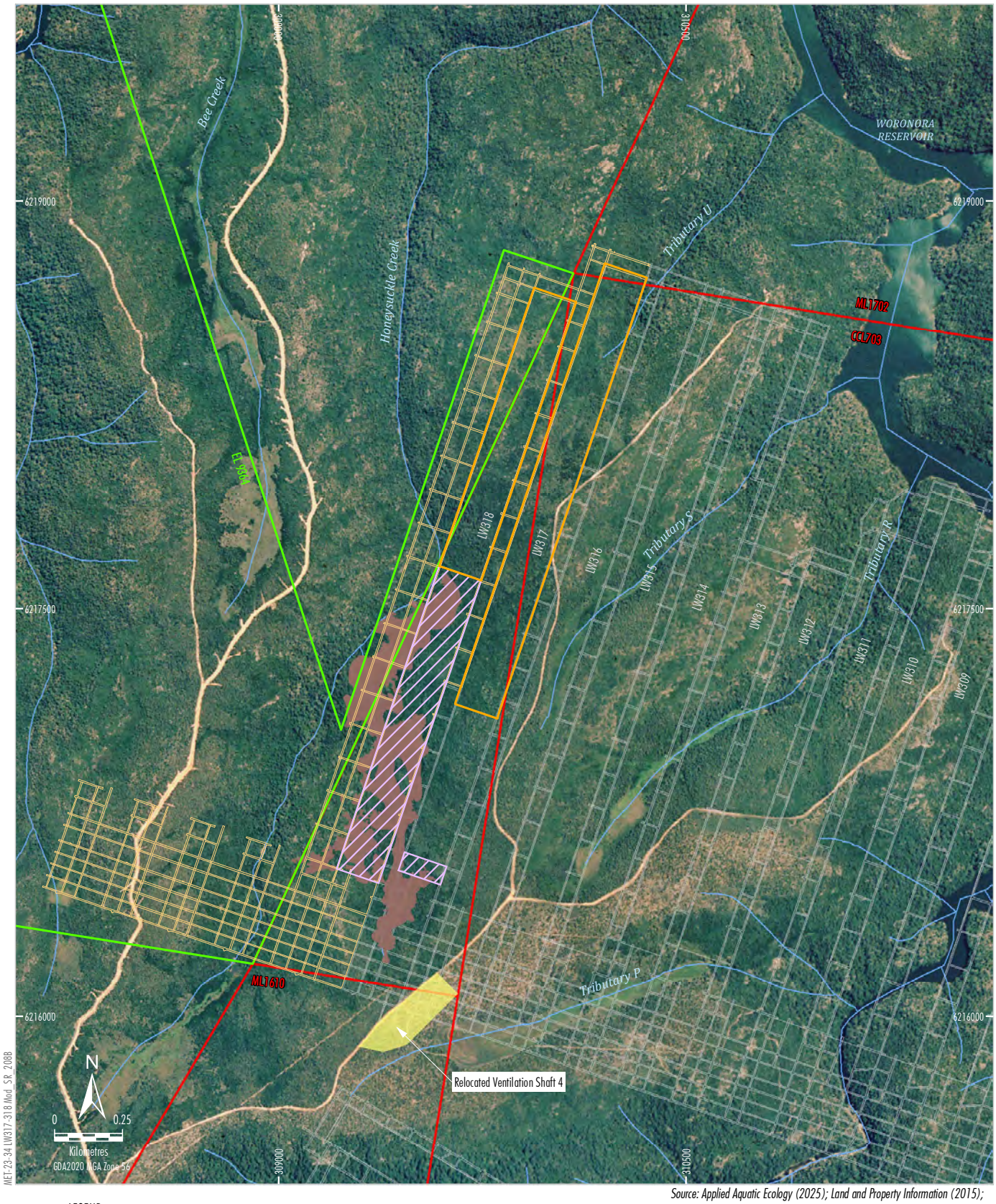
> *Complete avoidance of mining beneath Swamp S106 is the only effective protection of the swamp, given the size and sensitivity of Swamp S106, and the difficulty of reversing potential impacts. As such, WaterNSW recommends redesign of mine layout to avoid impact prior to approval of this proposed Modification. Relying on an Adaptive Management Plan (AMP) would not provide adequate safeguards for such a significant and vulnerable swamp, especially when impacts might materialise after it is too late to mitigate them.*

Response

If the mine layout incorporated the complete avoidance of mining beneath Swamp 106, the secondary extraction area would reduce from approximately 36 ha to 17 ha resulting in less than half of the proposed Modification layout (Figure 4-4).

This mine layout with complete avoidance of undermining Swamp 106 would be uneconomic due to the significantly reduced coal extraction and discontinuity of mining. The costs to recover the remaining northern portion of Longwall 318 would remain essentially the same whilst the revenue would be more than halved. Maingate 318 would be installed to full length under this scenario comprising some 8,988 m of tunnelling and supporting infrastructure. However, the first 4,488 m would have no corresponding economic return (i.e. the more than halved revenue must now support the additional impost of the first 4,488 metres of tunnels). There would also need to be a shortening of the finishing end of Longwall 317. Accordingly, this layout is uneconomic.

The proposed mine layout has been designed to reduce subsidence to 0.5 mm/m tensile strain for Swamp 106, and tensile cracking is not expected. Consistent with previous management at the Metropolitan Coal Mine, Metropolitan Coal would engage specialists to provide technical input on the TARP system and adaptive management. Further, consistent with the current water management TARPs, the TARPs would continue to be implemented for up to a period of 10 years following the completion of extraction at suitable locations to account for potential time-lags.



Source: Applied Aquatic Ecology (2025); Land and Property Information (2015); Department of Industry (2015); Metropolitan Coal (2025); MSEC (2025);

LEGEND

- Mining Lease Boundary
- Exploration Licence (EL 9364)
- Approved Metropolitan Coal Mine Longwall Layout
- Proposed First Workings
- Indicative Longwalls 317 and 318 Extraction Area
- Indicative Longwall 317 and 318 Extraction Area beneath Swamp 106
- Relocated Ventilation Shaft 4
- Swamp 106

Peabody

METROPOLITAN COAL

Area of Modification Longwalls beneath Swamp 106

Note:
The Longwalls 301 to 316 layout shown reflects the layouts in the approved Extraction Plans.

Figure 4-4

Recommendation 2

> *Relocation of the proposed shaft site should consider to increase setback from Swamp 92 and other sensitive receptors prior to approval of this proposed Modification. An assessment of potential impact of the proposed construction site should include the risk of water quality impacts, sediment load leaving site and vibration impacts on sensitive receivers.*

Response

As stated in ATC Williams' response to submissions (Attachment 5), prior to commencement of disturbance activities at the Ventilation Shaft 4 area, collection drains would be constructed around the perimeter of the Ventilation Shaft 4 area to direct sediment laden runoff to a sediment basin. The sediment basin is proposed to be constructed at the northern, downgradient portion of the Ventilation Shaft 4 area.

During construction activities, additional sediment and erosion control measures would be utilised as necessary, such as sediment fencing, sediment traps, matting or other suitable measures. The required sediment and erosion control measures would be identified during detailed design, and documented in an updated Erosion and Sediment Control Plan and Construction Management Plan.

The sediment basin would be designed, constructed, managed and maintained in accordance with the Landcom (2004) and the NSW Department of Environment and Climate Change (DECC, 2008) guidelines. It is anticipated that water quality limits for discharge from the sediment basin would be defined by the NSW EPA and documented in a revised version of Environment Protection Licence (EPL) 767. During the detailed design stage, soil type classification would be undertaken to assess whether flocculating agents are required to achieve the required water quality criteria prior to overflow from the sediment basin. Should flocculating agents be required, only those suitable for use in the Sydney drinking water catchment would be applied (Attachment 5).

A steel lined bore would be constructed from the surface to the underground workings. Water collected in the sediment basin would be pumped to the underground workings in order to reinstate the settling zone capacity of the sediment basin. Water recovered from the underground workings would be directed to the existing water treatment plant located at the Metropolitan Coal Mine Surface Facilities area. As such, overflow from the sediment basin would only occur during a rainfall event in excess of the design capacity of the sediment basin (Attachment 5).

It is anticipated that EPL 767 would be amended to include a licensed discharge point immediately downstream of the proposed sediment basin, with water quality discharge limits stipulated in EPL 767 by the EPA. Metropolitan Coal would manage and maintain the proposed sediment basin to meet the discharge requirements to be specified in EPL 767. Monitoring of overflow from the sediment basin would be undertaken in accordance with the amended EPL 767 (Attachment 5).

Given the proposed water management system for the Ventilation Shaft 4 area and proposed design, construction, management and maintenance of the sediment basin in accordance with the Landcom (2004) and the DECC (2008) guidelines, it is considered that there is negligible potential for effects to the water quality of the downstream receiving environment (Attachment 5).

Further detail relating to the surface water component of this recommendation is provided in Attachment 5 of this Submissions Report.

Section 8.2 of the BDAR assessed potential vibration impacts on fauna associated with the construction of the Relocation Ventilation Shaft 4. Niche (2025a) assessed that fauna may favour quieter areas and shift their ranges away from noisier areas. The habitat surrounding the Development Footprint would remain well connected allowing for the continuity of fauna movement around the construction area.

Vibration impacts would be managed through the preparation of a Construction Management Plan (CMP) detailing the measures to mitigate vibration impacts. All feasible and reasonable measures would be applied to reduce vibration impacts from the Modification (Attachment 3).

Recommendation 3

> *WaterNSW recommends that the advice of the Independent Expert Advisory Panel for Mining (IEAPM) be adopted for water quality, groundwater, and ecological monitoring in relation to new mining areas, particularly the Woronora Water Quality advice (2023) and the subsequent advice on the Extraction Plan for Longwalls 311–316 (2024 and 2025).*

Response

Relevant IEAPM advice has been considered during the preparation of the Modification Report.

On 29 July 2025, Metropolitan Coal provided a letter to the DPHI detailing the timing of implementing the recommendations of the IEAPM's Advice Report '*Water Quality Performance Measures for the Metropolitan Coal Mine (IEAPM 202310-1(R1))'.* Metropolitan Coal has committed to providing an update in the 2025 Annual Review.

The subsequent advice on the Longwalls 311-316 Extraction Plan has been addressed accordingly and resolved through consultation with DPHI.

Recommendation 4

> *WaterNSW recommends that the aquatic ecology assessment should be revised using standard survey methods for fish, frogs, and rare/threatened species, with improved baseline sampling repeated across seasons at all relevant sites, explicit assessment of impacts on Littlejohn's Tree Frog, platypus, and rare dragonflies, and monitoring of pool water levels and iron staining in all suitable breeding pools within the project area.*

Response

The Aquatic Ecology Assessment was undertaken in accordance with the relevant guidelines and best practice methods and informed by the results of extensive aquatic ecology monitoring conducted at the Metropolitan Coal Mine since 2007. The platypus (*Ornithorhynchus anatinus*) is currently not listed as a threatened species under the *Fisheries Management Act 1994*, and was therefore not considered in the assessment.

As described in Section 4.5.2 of the Aquatic Ecology Assessment, the Sydney Hawk Dragonfly (*Austocordulia* Leonardi) and Adam's Emerald Dragonfly (*Archaeophya* adamsi) were assessed in the Desktop Study stage of the assessment. These two species were considered unlikely to occur within the Modification Study area, and was therefore excluded from further assessment for the following reasons:

- These two species have not been recorded during the numerous aquatic macroinvertebrate surveys carried out in the watercourses in the local area of the Metropolitan Coal Mine (i.e. since 2003).
- The Adam's Emerald Dragonfly is one of the rarest dragonflies in Australia with only five adults ever being recorded in the greater Sydney region.
- Specific habitat requirements of the species are absent in the Modification Area (i.e. Adam's Emerald: narrow, shaded riffle zones with moss and rich riparian vegetation, Sydney Hawk Dragonfly).

The potential impacts to the Littlejohn's Tree Frog [*Litoria littlejohni*] and Giant Burrowing Frog [*Heleioperacus australiacus australiacus*] were assessed in the BDAR prepared for the Modification (Appendix D of the Modification Report).

The approved Longwalls 311-316 Biodiversity Management Plan commits to monitoring suitable breeding pools for threatened amphibians (including Littlejohn's Tree Frog and Giant Burrowing Frog). With input from ecology specialists, Metropolitan Coal would consider the recommendation to monitor the pool water levels and iron staining in the suitable breeding pools across the Modification area.

Recommendation 5

> *WaterNSW recommends that a risk assessment should be conducted to consider if Aboriginal Cultural Heritage performance measures will be breached incorporating current approvals and this proposed Modification. Based on this assessment, a contingency plan (or similar) should be prepared to outline proposed steps if a breach was to occur.*

Response

Refer to response to the Heritage NSW Comment #1 in Section 4.1.3.

Recommendation 6

> *WaterNSW recommends that Metropolitan Coal should engage Registered Aboriginal Parties in genuine and meaningful consultation. Actions as part of this engagement could include reviewing documents, leading cultural assessments, assisting in developing relevant management plans and input into a risk assessment of breaches to ACH performance criteria.*

Response

Consultation was undertaken with RAPs for the Modification ACHA in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010b).

Metropolitan Coal is committed to maintaining ongoing consultation with Aboriginal stakeholders throughout the life of the Modification. Section 5 of the approved Longwalls 311-316 Heritage Management Plan describes the protocol for ongoing consultation with Aboriginal stakeholders, including involvement in fieldwork, invitation to comment on draft documentation regarding management of Aboriginal cultural heritage and consultation regarding any changes/updates to the approved HMP.

Metropolitan Coal would continue to engage with RAPs in relation to relevant activities associated with the Modification in accordance with the protocol outlined in Section 5 of the approved HMP and the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010b).

4.1.8 Wollongong City Council

Recommendation 1

> *The proposal suggests that this is a 'low risk' and is therefore not subject to the Policy outlined above. However, the BDAR repeatedly states that Swamps 74, 75, 106, 117, 119 and 130 have a* greater than negligible environmental consequence*. Council's interpretation of the Policy is that even a 'low risk' is still greater than negligible, and further, that the Policy requires the offset liability is based on a worst-case scenario given the uncertainties. This is further supported by the EPBC Act Assessment of Significance confirming that a significant impact on Coastal Upland Swamps is 'Likely' (Appendix B of the BDAR).*
>
> *Council considers the proposal should not be approved without an Offset Strategy being prepared that demonstrates how it can fully meet the requirements of its maximum predicted offset liability for the required ecosystem and species credits, and commitments made as such.*

Response

The BDAR does not state that Swamps 74, 75, 106, 117, 119 and 130 have a greater than negligible environmental consequence, rather it states these swamps have a '*low potential risk of greater than negligible consequence*' (Niche, 2025a). This conclusion is informed by ATC Williams' conclusion in the Surface Water Assessment (ATC Williams, 2025a) which applied the definition of environmental consequences in the *Addendum to NSW Biodiversity Offsets Policy for Major Projects: Upland swamps impacted by longwall mining subsidence* (Upland Swamp Policy) provided below (OEH, 2016):

> *Greater than negligible environmental consequences includes one or more of the following:*
>
> - *a shallow groundwater level within swamp sediments lower than the baseline level at any monitoring site within a swamp (in comparison to control swamps)*

- *a rate of shallow groundwater level reduction post-mining that exceeds the rate of shallow groundwater level reduction during the baseline period at any monitoring site (measured as average millimetres per day during the recession curve).*

It is not stated or implied in the BDAR that the Modification is not subject to the Upland Swamp Policy. As stated in Section 1.1.3 of the Modification BDAR, the Upland Swamp Policy is applied and considered during assessment. Metropolitan Coal has also committed to calculating the offset liability of the six swamps with a low potential risk of greater than negligible consequence as part of the Extraction Plan in accordance with the Upland Swamp Policy (if required by the Consent Authority).

Appendix B of the BDAR – *Matters of National Environmental Significance – Significant Impact Criteria* conservatively assessed that the Modification is 'likely' to have a significant impact on the Coastal Upland Swamp Ecological Community. As described in Appendix K of the BDAR, the complete loss of the community is not expected, however, predicted indirect/prescribed impacts including groundwater drawdown, peat oxidation and moderate tensile strain may result in the gradual decline of habitat quality. This was considered during the assessment against the Significant Impact Criteria. Due to the uncertainty of the impacts, it was conservatively assumed the Modification would be likely to have a significant impact. Further, the remaining 38.7 ha of Coastal Upland Swamp within the Indirect Impact Footprint is predicted to experience negligible environmental consequence (Niche, 2025a).

The Upland Swamp Policy (OEH, 2016) provides that the Biodiversity Offset Strategy must be prepared alongside the Extraction Plan for the Modification. As such, neither the Offset Strategy nor the calculation of *maximum predicted offset liability* are required in the assessment stage. Notwithstanding, Metropolitan Coal detailed a preliminary strategy to meet the requirements of any *maximum predicted offset liability* as calculated in the Extraction Plan. These options are provided below and described in Section 8.2 of the Adaptive Management Plan appended to the BDAR.

- The funding of a biodiversity conservation action(s).
- Establishment of a Biodiversity Stewardship Site(s) with the required biodiversity values and formally retire the credits.
- Purchase biodiversity credits from the credit market and formally retire the credits.
- Payment of the biodiversity offset obligation into the Biodiversity Conservation Fund.

Recommendation 2

Thirteen entities at risk of a Serious and Irreversible Impacts (SAII) are considered relevant to the Modification:

- *Coastal Upland Swamp TEC*
- *Broad-headed Snake*
- *Large-eared Pied Bat*
- *Giant Dragonfly*
- *Bauer's Midge Orchid*
- *Deane's Paperbark*
- *Eastern Australian Ground Orchid*
- *Gyrostemon theisoides*
- *Hairy Geebung*
- *Scrub Turpentine*
- *Slaty Leek Orchid*
- *Sublime Point Pomaderris*
- *Thick-leaf Star-hair*

For major projects, the consent authority must consider how impacts on SAII values are being avoided, minimised, and mitigated. Refusal is not mandatory for major projects, but the potential for impacts on SAII values is a significant factor in the assessment.

Council would consider that additional credit requirements and conservation measures should be applied given the potential for Serious and Irreversible Impacts.

Response

The calculation of credit requirements and offset measures for the threatened ecological communities and threatened species was conducted in accordance with the requirements presented in Section 10 of the BAM (DPIE, 2020a). Credits are calculated using the BAM-C. The report produced from the BAM-C provides the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site.

As described in Section 1.2 of the *Biodiversity Assessment Method Calculator – User Guide* (NSW DCCEEW, 2024), the vegetation integrity and habitat suitability assessments are used to calculate the number and class of biodiversity credits to offset impacts at the development site. The status of SAII entities does not inform the calculation of biodiversity credits and is an independent assessment.

The SAII assessment was conducted in accordance with the BAM (DPIE, 2020a), the principles set out in Section 6.7 of the *Biodiversity Conservation Regulation 2017* (BC Regulation) and Appendix B of the '*Guidance to assist a decision-maker to determine a serious and irreversible impact*' (DPIE, 2019) with the purpose of assisting the consent authority with evaluating the extent and severity of the impact on SAII entities.

Section 10 of the BDAR provides proposed additional conservation measures (above the baseline credit requirement generated by the BAM-C for direct impacts) for residual indirect and prescribed impacts that could be considered by the consent authority as a result of the SAII assessment.

Recommendation 3

The Aboriginal Cultural Heritage Assessment Report (ACHAR) identifies 29 known Aboriginal Sites located within the Mining area that are expected to be affected by the proposal including 3 new sites identified as part of the study. These sites include 14 rock shelter sites containing rock art and one rock engraving.

The Report, however, only assesses 4 of the 29 sites as having "moderate" significance, with 25 sites assessed as having low significance (86% of recorded sites). The ranking of 13 separate rock art sites located within close vicinity as being of "Low" scientific significance appears quite a remarkable conclusion.

Response

Refer to response to Heritage NSW Comment #12 in Section 4.1.3.

Recommendation 4

It is noted that the field survey that informed the report involved only inspecting 6% of the affected study area, with an additional 3% having been surveyed as part of a prior assessment. It is also noted that with only 9% of the impacted study area being surveyed and 29 sites having been identified, it is very reasonable to assume that a substantial number of additional unrecorded sites are likely to be present within the affected area. In fact, with less than 10% of the site surveyed and 29 sites already identified, it would appear likely that as many as 200 or more sites could reasonably be present in the affected area.

By deduction, it is also reasonable to assume that additional sites, including potential additional cave sites with rock art, and rock engraving sites, may be located within the area expected to be affected by mine subsidence and other impacts and that the potential impacts of mine activity on these unidentified sites has not been considered or assessed in the application. It is noted that 25 of the 29 identified sites have been indicated as being at risk from subsidence impacts. This equates to 86% of known/recorded sites.

Response

Refer to response to Heritage NSW Comment #3 in Section 4.1.3.

Recommendation 5

The report suggests that the mine has demonstrated a rate of impact from previous operations of only 2% of Aboriginal sites within the mine area. This is based on two identified sites having suffered direct damage through cracking of Aboriginal Art or grinding grooves. However, the data provided actually appears to support a percentage impact of around 9% from previous operations. For example, the report notes that "Monitoring programs have documented subsidence changes at 13 of the 144 sites within the mining area". Whilst direct damage to only two sites has so far been observed, it would appear likely that the long-term impacts of the subsidence are yet to be fully observed.

Response

Refer to response to Heritage NSW Comment #1 in Section 4.1.3.

Recommendation 6

It is also of concern that of the 29 sites within the study area for this application, only 14 of these were actually located and visited during the preparation of the ACHAR (see section 5.3.2). This draws into question the proponent's ability to accurately measure, monitor and review subsidence impacts. If not all of the potentially affected Aboriginal sites could be re-located and visited in the pre-development study process, it is unclear as to how these sites can be recorded and monitored during the mining process.

Response

Refer to response to Heritage NSW Comment #7 in Section 4.1.3

Recommendation 7

It is of further concern that the report includes within Table 1 a summary of the known sites within the impact area and yet, this table only provides a "Scientific" significance rating. The report elsewhere acknowledges that all of these sites are regarded as having "High" Cultural significance to the local community, yet this has not been acknowledged or considered as relevant within the summary assessment within the executive summary. This is concerning given that the scientific and cultural significance ratings should be given equal weight in considering appropriate management and suggests that the significance of the sites is being deliberately downplayed.

Response

Refer to responses to Heritage NSW Comment #11, Comment #12 and Comment #13 in Section 4.1.3.

Recommendation 8

The Illawarra Local Aboriginal Land Council (ILALC) provided as part of the ACHAR assessment process a lengthy and detailed submission which provided critique of the methodology, assessment, and conclusions of the ACHAR report. In Council's view these comments should be given significant weight in the assessment of the application. The response to this submission provided within the ACHAR report fails to instil confidence that the issues raised have been carefully considered.

Importantly, the ILALC submission notes the need for the impacts of the proposal to all of Country, and not just individual sites must be considered. Concern is also raised about the broader cultural landscape values and the cultural landscape significance of the site, including its vital role as part of the Sydney Water Catchment.

The submission further notes that the site forms part of a National Heritage Nomination for the Sydney Cultural Crescent Rock Art which is yet to be finalised and fails to consider the cultural significance of the many artworks within the study area and their contribution to these broader values. The 15 art sites in the study area represent a gallery of significant age and antiquity that does not appear to have been dated or subjected to any rigorous assessment.

Response

Refer to response to Heritage NSW Comment #3 in Section 4.1.3.

Recommendation 9

The study provides little evidence that the cultural values of the identified sites have been meaningfully assessed or considered in drawing conclusions about the significance of the various sites. No attempt appears to have been made to work with the community to explore and consider the cultural value of the sites and to explore and understand the potential cultural meanings within the artworks.

Response

Refer to response to Heritage NSW Comment #9 in Section 4.1.3.

Recommendation 10

Claims are made in many instances that sites are typical of their type and not outstanding. However, no detail has been provided in terms of comparative analysis.

Response

Refer to response to Heritage NSW Comment #12 in Section 4.1.3.

Recommendation 11

The ILALC have also noted concerns about the lack of rigor provided in relation to the conclusions that the impacts of mining are expected to be of minor impact on the significance of the identified (or unidentified) sites. The mitigation measures proposed within the ACHAR also appear to essentially involve monitoring of impacts over the life of the mining operation. As indicated by ILALC, this is not a mitigation response, rather, it is management of destruction only.

In light of the above commentary, and the concerns of the ILALC about the proposal, Council strongly suggests that additional consideration should be given to the ILALC's submission, and the additional cultural values assessment and conservation considerations suggested within their recommendations.

Response

Refer to response to Heritage NSW Comment #3 in Section 4.1.3.

Recommendation 12

In summary, the current ACHAR does not appear to provide a comprehensive assessment. It is dismissive of the significance of sites, fails to adequately assess the broader cultural and scientific values of the grouping of items, and the broader cultural landscape, it appears to deliberately ignore the identified high cultural significance value of the sites (in not including these in the summary table provided within the executive summary of the report), and does not provide a thorough and meaningful assessment of expected impacts, or any meaningful mitigation measures for these potential impacts.

The finding of a conglomerate of 15 Aboriginal Art sites (14 in shelters and one engraving), combined with numerous grinding grooves and unexplored artefact sites, all located within such close proximity of each other suggests a highly significant cultural landscape. The significance of the sites identified within the report appear to be being significantly downplayed and undervalued within the assessment.

Response

Refer to responses to Heritage NSW in Section 4.1.3.

4.1.9 Sutherland Shire Council

Recommendation 1

> *The Woronora Dam and catchment provide drinking water to residents of the Sutherland Shire. A healthy, ecologically and hydrologically sound catchment is central to ensuring this drinking water source remains suitable and available. Council is not satisfied that the proposed modifications will safeguard the long-term security of resident's water supply.*
>
> *Accordingly, Council objects to Modification 4 – Longwalls 317 and 318 at Peabody's Metropolitan Colliery, on the basis that the proposal presents unacceptable risks to the Woronora Special Area water catchment, the Royal National Park, and associated threatened ecological communities (BWN009-25; Minute No. 276).*

Response

Under the NSW *State Environmental Planning Policy (Biodiversity and Conservation) 2021* and EP&A Act, all development in the Sydney drinking water catchment is required to demonstrate a neutral or beneficial effect (NorBE) on water quality. The Surface Water Assessment included discussion of the NorBE on water quality resulting from the Modification.

ATC Williams concluded the following in their assessment (ATC Williams, 2025a):

> *The effect of the Modification on the water quality of Honeysuckle Creek and local tributaries in the Study Area is expected to be similar to that previously recorded (refer **Section 8.1.3**) – transient pulses of iron, manganese and aluminium. However, based on historical effects associated with the Project, it is considered unlikely that the Modification would result in a persistent change in water quality or a material effect to the water quality of the Woronora Reservoir. It is noted that dissolved aluminium and iron concentrations are naturally elevated at times at watercourses within and adjacent to the Study Area (refer **Section 5.2**).*
>
> *In accordance with clause 6.62(2) of the State Environmental Planning Policy (Biodiversity and Conservation) 2021, it is considered that the Project as modified would have the same adverse impact on water quality when compared to the approved Project and, as such, would have a neutral effect on water quality.*

Further, the construction and operation of Ventilation Shaft 4, in consideration of the proposed mitigation measures (e.g. sealing of access route) would have a neutral to beneficial effect on water quality (ATC Williams, 2025a).

Potential impacts to the Royal National Park are assessed in Attachment 5 of the Modification Report. The conclusions of the assessment of the Modification on National Heritage Places in accordance with the Significant Impact Guidelines concluded there would be no adverse impacts.

The relevant threatened ecological community within the Modification area (i.e. Coastal Upland Swamp) has been adequately assessed in the BDAR. Metropolitan Coal has revised the mine layout for the Modification to incorporate a setback from Swamp 106 through the shortening of Longwall 317 and implemented a wider pillar design. This reduces the tensile strain on all swamps within the Modification area to 0.5 mm/m or less, as commonly determined to be the onset of tensile cracking (IAPUM, 2020).

As concluded in the BDAR, potential impacts to this TEC include a low potential risk of greater than negligible environmental consequence to six swamps. Further detail is provided in Appendix K of the BDAR (Attachment 3).

Recommendation 2

> *Furthermore, Council disagrees with Metropolitan Colliery's assertion that, even with the modification, the mine will remain "substantially" the same as the development originally approved under Project Approval (08_0149) (Modification Report, p. 117). The modification will contribute new impacts and expand the development's footprint.*

Response

Refer to response to CPHR Recommendation 18 in Section 4.1.1 of this Submissions Report.

Issue 1: Remediation Measures

Recommendation 3

Peabody's Metropolitan Coal Mine has failed to meet environmental performance standards set in its 2009 approval. Key issues include the following:

Streambed cracking in Waratah Rivulet and Eastern Tributary.

Groundwater impacts affecting threatened ecological communities.

A recent overflow incident involving coal fines and sediment contaminating Camp Gully Creek and the Royal National Park.

The mine has had a reactive remediation approach, which has historically failed to prevent environmental degradation. Council's concerns are heightened by:

Climate change pressures, as highlighted by Cairns et al. (2025).

Doubts about the durability of polyurethane (PUR) grouting, the primary remediation method, especially in light of past expert assessments noting shrinkage and ineffectiveness.

Despite adaptive management plans with monitoring and contingency measures, these do not adequately address irreversible ecosystem damage. The Woronora Special Area, home to highly localized and vulnerable species, remains at risk due to the limited effectiveness of current remediation strategies.

Response

The subsidence impact performance for the Eastern Tributary watercourse as outlined in Project Approval 08_0149 is:

Negligible environmental consequences over at least 70% of the stream length (that is no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining and minimal gas releases)

Monitoring conducted in accordance with the Metropolitan Coal Longwalls 23-27 Water Management Plan in 2016 identified that the Eastern Tributary watercourse performance measure for the Eastern Tributary between the full supply level of the Woronora Reservoir and the maingate of Longwall 26 was exceeded in relation to *minimal iron staining* in October 2016. The exceedance was reported to the Secretary of the then Department of Planning and Environment (now DPHI) and other relevant agencies on 14 October 2016 in accordance with Condition 6, Schedule 7 of the Project Approval and the Metropolitan Coal Longwalls 23-27 Water Management Plan Contingency Plan.

The *no diversion of flows, no change in the natural drainage behaviour of pools* component of the Eastern Tributary subsidence impact performance measure was exceeded in January 2017 and reported to the Department of Planning and Environment and other relevant agencies.

Since 2020, Metropolitan Coal has conducted stream remediation works in accordance with the Metropolitan Coal Stream Remediation Plan. PUR grout curtains to a depth of up to 10 m have been installed at pools ETAH, ETAK, ETAL, ETAM and ETAO with additional shallow pattern grouting to a depth of approximately 1 m also undertaken at Pools ETAQ and ETAR. Significant improvements in stream bed permeability and pool drainage behaviour have been noted, however an extended period of dry climatic conditions is needed to properly assess the efficacy of the remediation activities taken to date (Metropolitan Coal, 2025a).

Operations at the Metropolitan Coal Mine have not resulted in groundwater impacts that have resulted in greater than negligible impact to threatened ecological communities under Project Approval 08_0189, therefore, the performance measure has continued to be met.

Refer to response to NPWS Recommendation 4 (Section 4.1.6), regarding water management at the Surface Facilities Area.

ATC Williams has undertaken an assessment of the effectiveness of stream remediation along Waratah Rivulet and Eastern Tributary (Attachment 8). ATC Williams (2025c) considers that the performance indicators have been met at the assessed Waratah Rivulet pools, indicating post-remediation water level recession behaviour is consistent with pre-impact behaviour or water levels of similar, unimpacted pools. Although the performance measures have not been met at some pools on Eastern Tributary, there has been a significant improvement in water level recessionary behaviour following remediation works in comparison to impact conditions (Attachment 8).

ATC Williams (2025c) recommends reassessing water level recessionary behaviour following an additional prolonged period of below average rainfall pools that have not met the performance indicator.

Issue 2: Water Quality

Recommendation 4

> *There are significant water quality impacts from mining, including subsidence and chemical changes due to bedrock cracking in the Waratah Rivulet. The proposed modification to the Metropolitan Coal Mine will lead to:*
>
> - *Valley closure and upsidence, increasing the risk of bedrock cracking.*
> - *Indirect impacts such as:*
>   - *Cracking and fracturing of bedrock and underlying strata.*
>   - *Pool leakage and diversion of surface water into subsurface fractures.*
>   - *Changes in water quality (e.g., iron flocculant, dissolved oxygen, pH, turbidity, conductivity).*
>
> *These changes threaten surface water availability, macroinvertebrate communities, and local hydrology, with downstream ecological consequences. Additionally, upland coastal swamps, vital for water filtration and biodiversity, are at risk of altered hydrology and groundwater regimes, and peat oxidation and degradation of swamp-dependent vegetation and fauna.*
>
> *These impacts compound existing environmental pressures and pose a threat to drinking water security, especially under climate change conditions. It is also considered that continued mining may compromise WaterNSW's ability to meet its legal obligations, with ongoing risks to Woronora Reservoir water quality.*

Response

The Modification Report appropriately assessed impacts to water, aquatic ecology and biodiversity in accordance with the relevant guidelines and requirements of the BAM (DPIE, 2020a).

As described in the response to Recommendation 1, the Surface Water Assessment assessed the NorBE on drinking water and it was concluded that the Modification would have a neutral or beneficial effect (including the proposed access road sealing) on the water quality in the Study Area.

ATC Williams (2025a) assessed that adverse impacts to the broader catchment hydrology, including the Woronora Reservoir, is not expected to occur as a result of the Modification. It was deemed there would be no impact to the water quality of the Woronora Reservoir. The Modification would result in negligible net reduction in streamflow to the Woronora Reservoir (ATC Williams, 2025a).

Impacts to swamps were assessed in the context of the Upland Swamp Policy (OEH, 2016) and BAM (DPIE, 2020a). There is a low potential risk of 'greater than negligible environmental consequence to six swamps within the Study Area.

Metropolitan Coal continues to conduct ongoing monitoring in accordance with the relevant management plans prepared under Project Approval 08_0149.

Issue 3: Subsidence and Offsets

Recommendation 5

Subsidence from longwall mining poses a more immediate and severe threat to upland swamp function than climate change, with impacts likely irreversible and no proven remediation methods available. Subsidence-induced fracturing beneath swamps leads to groundwater loss, reduced surface water discharge, and degradation of swamp ecosystems. It is considered that the proposed modification will cause:

- *Valley closure and upsidence*
- *Bedrock cracking and pool leakage*
- *Loss of surface water flow*

Six swamps (≈30 hectares) of the threatened Coastal Upland Swamps are expected to experience significant impacts, including, altered hydrology and groundwater regimes, peat oxidation and degradation of vegetation and fauna habitats. Offsetting these impacts has challenges - including:

- *Like-for-like offsets are impractical due to the swamps' restricted distribution and ecological specificity*
- *Traditional offsets are limited, and alternative measures (e.g., hydrological monitoring) may not be sufficient*
- *The NSW Biodiversity Assessment Method (BAM) 2020 requires prescribed impacts like subsidence to be addressed through additional biodiversity credits or alternative measures*

As a consequence, 13 entities, including Coastal Upland Swamps, Eastern Australian Underground Orchid, and Large-eared Pied Bat, are flagged as potentially subject to serious and Irreversible Impacts (SAII). Council recommends further consideration of these entities under SAII guidelines. Additional offsets or measures may be required to address residual impacts, where maximum available offsets should be considered as minimum requirements.

Response

The 13 relevant SAII entities were assessed in accordance with the relevant guidelines including the BAM (DPIE 2020a), the principles set out in Section 6.7 of the BC Regulation and Appendix B of the '*Guidance to assist a decisionmaker to determine a serious and irreversible impact*' (DPIE, 2019).

The BDAR was prepared in accordance with the BAM (DPIE, 2020a) and Appendix B of the *Guidance to assist a decision-maker to determine a serious and irreversible impact* (DPIE, 2019). The conclusion that 13 entities at risk of SAII are considered relevant to the Modification was as a result of a conservative assessment.

The six Coastal Upland Swamps were assessed to have a 'low potential risk of greater than negligible environmental consequence' in the Surface Water Assessment (ATC Williams, 2025a). The BDAR included a review of the potential impacts to Coastal Upland Swamps using technical reports, survey results and literature reviews in Appendix K, of which it was assessed that significant ecological consequences are not expected (Attachment 3).

The determination of SAII is a matter for the consent authority.

Issue 4: Ventilation Shaft 4

Recommendation 6

Council requests a comparative impact study between the original and proposed sites for Ventilation Shaft 4, if both are confirmed suitable for the new downcast ventilation system. Introducing new surface facilities in the Woronora Special Area, given past impacts in the Royal National Park, including facilities such as sediment ponds, stockpiles, and hardstands, may cause:

- *Edge effects on adjacent habitats*
- *Noise, vibration, light spill, dust*
- *Vehicle strike risks and weed/pathogen introduction*

Aerial imagery suggests the original site is already more impacted than the proposed site, making a comparative study essential to determine the least impactful option.

Response

While it is acknowledged that there has been some degradation of the currently approved Ventilation Shaft 4 area, it is noted that this location is now within the Heathcote National Park, which was expanded following the original Project Approval in 2009.

The proposed location of the relocated Ventilation Shaft 4 would support safe and efficient operations and allow for targeted gas management as longwall mining of the 300-series longwalls progresses.

Metropolitan Coal would relinquish the right to develop the currently approved Ventilation Shaft 4, and would provide additional offsetting and compensatory measures for the Relocated Ventilation Shaft 4. Section 8 of the BDAR has assessed the potential impacts associated with edge effects, noise, vibration, light spill, dust, vehicle strikes and weed/pathogen impacts associated with the Relocated Ventilation Shaft 4 in accordance with the BAM (DPIE, 2020a).

Further assessment of potential noise and dust impacts were assessed and are provided in Attachments 6 and 7.

Potential impact to the surrounding environment resulting from light spill are described in the response to CPHR's Recommendation 5.3.

4.2 PUBLIC AND ORGANISATION SUBMISSIONS

Responses to comments from organisations and the public are provided below. 75 public submissions supported the Modification on the basis of continued employment and potential benefits for the local community and the State of NSW. These submissions have not been responded to below.

4.2.1 Modification Design and Justification

Comments made in public and organisation submissions relevant to the Modification design include clarification of or concerns relating to:

1. Modification location.
2. Surface infrastructure.
3. Reporting mechanisms.

Responses to these comments are provided below.

1. Modification Location

Issue

Some public submissions requested that there be no further mining within the Sydney Drinking Water Catchment and Woronora Special Area and raised concerns regarding the coexistence of mining within these areas.

Response

The Modification would represent the continuation of mining in the Woronora Special Area. Mining within the Woronora Special Area has occurred for more than 100 years. The coexistence between underground mining and the provision of drinking water supplies in the Woronora Special Area is expected to continue should the Modification be approved.

As noted by the Independent Expert Panel for Mining in the Catchment (2019a), there has been no observed material impacts to drinking water supplies due to mining in these catchments:

> • ***Reservoir leakage rates*** *– there is no measured evidence of significant long-term leakage from reservoirs due to mining in the Special Areas.*

> • ***Watercourse bed leakage (at catchment scale)*** *– from material presented to the Panel, there remains no strong evidence that cracking of watercourse beds leads to significant losses of water at catchment scales relevant for water supplies.*

Mining operations and State Conservation Areas have historically co-existed and this would continue for the Modification (e.g. no evidence of significant loss of water, or changes in water quality from mining, or concern to water supply). The Modification would also be developed in a manner that is responsible and considers the benefits and consequences of the development for other land uses, including coexistence with the Woronora Special Area.

Metropolitan Coal has considered the potential impact of the Modification on the water supply of the Sydney Drinking Water Catchment and Woronora Special Area (see Section 6 and Appendix C of the Modification Report).

The Modification longwalls would not result in any measurable subsidence effects at WaterNSW supply infrastructure. The Modification adopts a precautionary approach by incorporating conservative longwall geometry and a setback from Swamp 106 to minimise subsidence effects on watercourses and upland swamps. Using this geometry, there would be no surface to seam cracking at the Metropolitan Coal Mine including the Modification which could result in loss of surface water to underground workings.

A Surface Water Assessment conducted by ATC Williams concludes that the subsidence performance measures "negligible reduction to the quality or quantity of water resources reaching the Woronora Reservoir" would continue to be met for the Modification (Appendix C of the Modification Report). The Modification would therefore not impact the continued use of the land for water supply purposes. Mining activities co-exist with catchment management in this area, and the Modification is not expected to change this existing land use compatibility.

The Metropolitan Coal Mine Project Approval (08_0149) requires that there is no greater than negligible reduction in the quality or quantity of water in the Woronora Reservoir. The Metropolitan Coal Mine, incorporating the Modification would continue to comply with this requirement.

2. Surface Infrastructure

Issue

Public submissions raised concerns regarding the adequacy of the Surface Facilities Area and stated there are no management plans that cover potential spills associated with the current infrastructure.

Response

The Surface Facilities Area is managed in accordance with the Project Approval (08_0149), Environment Protection Licence 767 and a suite of management plans prepared and implemented by Metropolitan Coal. These management plans outline the management and reporting requirements for any incidents. Metropolitan Coal also has a Pollution Incident Response Management Plan that is implemented in the event of a pollution incident.

3. Reporting Mechanisms

Issue

Two public submissions quoted a report prepared by the Independent Expert Advisory Panel for Mining (IEAPM) for the Metropolitan Coal Mine regarding reporting mechanisms and queried the ability of ongoing reporting to sufficiently evaluate environmental performance.

Response

Metropolitan Coal acknowledges the quotes provided from the Water Quality Performance Measures for Metropolitan Coal Mine (IEAPM, 2023) and notes that these recommendations have been largely addressed by Metropolitan Coal. Where relevant, advice reports prepared by the IEAPM and associated recommendations have been considered in the Modification Report.

Consultation undertaken, and feedback received, for the Metropolitan Coal Project EA and the Extraction Plans and component management plans prepared for Longwalls 20-22, 23-27, 301-303, 304, 305-307, 308-310, and 311-316 (including advice received from the IEAPM), have informed the development of the Modification.

Project Approval (08_0149) includes conditions relevant to the regular monitoring and reporting requirements of Metropolitan Coal. Condition 3, Schedule 7 of the Project Approval (08_0149), Metropolitan Coal must prepare and submit an Annual Review by the end of March, each year. The Annual Review would review the performance of the Project to the satisfaction of the Secretary of the DPHI and would:

- describe the works that were carried out in the past calendar year, and the works that are proposed to be carried out over the current calendar year;
- include a comprehensive review of the monitoring results and complaints records of the Project over the past calendar year, which includes a comparison of these results against:
  - the relevant statutory requirements, limits or performance measures/criteria;
  - the monitoring results of previous years; and
  - the relevant predictions in the Project EA, Preferred Project Report and Extraction Plan.
- identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the monitoring data over the life of the Project;
- identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the Project.

Metropolitan Coal further develops the reporting framework for the relevant Extraction Plan based on the nature of the predicted subsidence impacts, consequences, and streamlining of reporting requirements. The developed reporting framework is detailed in the Extraction Plan, including which stakeholders will receive copies of each report and the distribution method. The Extraction Plan is reviewed by relevant Government Agencies and DPHI prior to approval of secondary extraction.

4.2.2 Modification Documentation and Reporting

Comments made in public and organisation submissions relevant to the Modification documentation and reporting include clarification of concerns relating to:

1. Adequacy of assessment standards.
2. Consideration of the Wollongong Local Environmental Plan.
3. Consideration of the EP&A Act.
4. Independence of assessment consultants.
5. Government agency consultation process.

Responses to these comments are provided below.

1. Adequacy of Assessment Standards

Issue

Some public submissions questioned the adequacy of the assessment standards given the date of the original Metropolitan Coal Project Approval (08_0149).

Response

Project Approval (08_0149) for the Metropolitan Coal Mine was granted on 22 June 2009 by the Minister for Planning under former section 75J of the EP&A Act.

Metropolitan Coal is seeking to modify Project Approval (08-0149) under section 4.55(2) of the EP&A Act, which was the relevant legislation at the time of submission.

The Modification Report was prepared to support the Modification application in consideration of *the State Significant Development Guidelines* (DPHI, 2024b), in particular, the *State Significant development guidelines – preparing a modification report* (Department of Planning and Environment, 2022). Numerous guidelines have been followed in the preparation of the technical studies appended to the Modification Report.

It is noted that Condition 6, Schedule 3 of Project Approval (08_0149) requires Metropolitan Coal to prepare an Extraction Plan for second workings prior to extraction. The most recently submitted Extraction Plan, for Longwalls 311-316, was initially submitted in March 2024 and approved on 3 October 2025. The Extraction Plans prepared by Metropolitan Coal consider the most contemporary guideline requirements at the time of preparation.

Should the Modification be approved, Metropolitan Coal anticipates that Project Approval (08_0149) as modified would be updated to reflect contemporary EPA guidance on the content of a Climate Change Mitigation and Adaptation Plan.

2. Consideration of the Wollongong Local Environmental Plan and Ecologically Sustainable Development

Issue

One submitter stated the *Wollongong Local Environmental Plan 2009* prohibits underground mining and the Modification is inconsistent with ecologically sustainable development.

Response

Consideration of the permissibility in the Wollongong LEP is discussed in Section 4.5.2 of the Modification Report:

> *Within Zones RU1 (Primary Production) and C2 (Environmental Conservation), the Wollongong LEP provides that development for the purpose of underground mining is prohibited.*
> *…*
>
> *However, clause 2.5 of the Resources and Energy SEPP provides that the policy applies to the State of NSW, and clause 2.6(1) of the Resources and Energy SEPP relevantly gives it primacy where there is any inconsistency between the provisions in the SEPP and the provisions in the Wollongong LEP. Clause 2.9(1) of the Resources and Energy SEPP provides that certain mining development is permissible with development consent. Clause 2.9(1)(b) states:*
>
> ***(1) Mining** Development for any of the following purposes may be carried out only with development consent –*
>
> *(a) underground mining carried out on any land,*
>
> *(b) mining carried out—*
>
> *(i) on land where development for the purposes of agriculture or industry may be carried out (with or without development consent), or*
>
> *(ii) on land that is, immediately before the commencement of this section, the subject of a mining lease under the Mining Act 1992 or a mining licence under the Offshore Minerals Act 1999,*
>
> *…*
>
> *(d) facilities for the processing or transportation of minerals or mineral bearing ores on land on which mining may be carried out (with or without development consent), but only if they were mined from that land or adjoining land,*
>
> *The practical effect of clause 2.6(1) of the Resources and Energy SEPP is that where there is any inconsistency between the provisions of the Resources and Energy SEPP and those contained in the Wollongong LEP, the provisions of the Resources and Energy SEPP will prevail. To the extent that the provisions in the Wollongong LEP and Resources and Energy SEPP relating to the permissibility of proposed development are relevant to determining this proposed modification of development which is already authorised by the Project Approval (08_0149), Metropolitan Coal considers that the consent authority can be satisfied that the Modification is consistent with these provisions.*

Section 7.4.3 of the Modification Report describes how the Modification would meet the principles of ecologically sustainable development.

3. Consideration of the EP&A Act

Issue

Some submitters suggested there has been inconsistent consideration of the Modification against the EP&A Act in particular, that the Modification would not satisfy the neutral or beneficial effect test with respect to water quantity and quality.

Response

Assessment of the neutral or beneficial effect of the Modification on water quality, as required by clause 6.62(2) of the NSW *State Environmental Planning Policy (Biodiversity and Conservation) 2021*, has been undertaken with consideration to *the Neutral or Beneficial Effect on Water Quality Assessment Guideline* (WaterNSW, 2022).

Subsidence effects from longwall mining can, in isolated instances, impact surface water quality in watercourses and streams. These subsidence-related impacts to water quality can include temporary increases in dissolved iron, manganese and other metal concentrations, impacts can also include increases in pH and localised iron staining in creek beds at locations immediately downstream of where subsidence impacts have occurred.

A review of WaterNSW Woronora Sediment Monitoring data undertaken by Dr Barry Noller, noted similar spikes in concentrations of iron and manganese have been observed to occur naturally along the Woronora River and not close to the mining area (i.e. in areas that are outside the influence of historic mining) (The University of Queensland, 2025).

Localised and short-term subsidence-related impacts to water quality in watercourses have not resulted in discernible changes in water quality downstream at the reservoirs in the Special Catchment Areas that would significantly affect treatment requirements for drinking water.

This conclusion was supported by Part 2 of the Independent Expert Panel (IEP) report on coal mining impacts in the Special Areas of the Greater Sydney Water Catchment (the IEP Report) IEP Part 2 Report (2019b) (emphasis added):

> *Although surface fracturing elevates metal loads in watercourses, **there is no evidence** that mining in the Special Areas is currently compromising the ability of WaterNSW to meet raw water supply agreement standards.*

Similarly, this conclusion was supported by Advisian as part of a literature review undertaken into the effects of underground mining beneath the catchment areas for WaterNSW (emphasis added) (Advisian, 2016):

> *… although some consequences on water quality within the watercourses in the study are documented in the literature, these consequences are likely to be **short term, sporadic and localised**… Any consequences on water quality at the reservoirs **would be treatable** by the existing Sydney Water treatment plants.*

The conclusions of Advisian are also reflected by previous analysis from Professor Chris Fell AM, in the discussion paper regarding water treatment and the Sydney Drinking Water Catchment for the Office of the NSW Chief Scientist and Engineer (Fell, 2014) (emphasis added):

> *Although the impact of underground long-wall mining in the catchment could lead to small changes in the levels of impurities in water entering SCA's dams, these changes can be coped with by SW's [Sydney Water's] treatment plants as evidence to date **does not suggest** a sufficiently large change in soluble organic concentrations to be of concern.*

Surface water runoff from rainfall within the Relocated Ventilation Shaft 4 construction area would be directed to a stormwater basin in keeping with Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008), and where water quality satisfies the neutral or beneficial water quality effects requirements, could be released (Appendix C of the Modification Report). Alternatively, water within the stormwater basin may also be transferred to the underground workings via the return water borehole to maintain suitable freeboard.

An assessment of neutral or beneficial effect on water quality has been undertaken for the Modification by ATC Williams and concludes the Modification would have a neutral effect on water quality with respect to underground mining and neutral to beneficial effect on water quality with respect to the construction of the relocated Ventilation Shaft 4 (Appendix C of the Modification Report), for the following reasons:

- the potential localised effects to surface water quality as a result of Modification-related subsidence can themselves be considered environmentally neutral, given spikes in metal concentrations occur naturally in the catchment, and the lack of evidence that localised effects to date have resulted in adverse impacts to drinking water supplies;
- water quality parameters that would potentially be impacted by Modification-related subsidence (e.g. iron and manganese) are not identified as priority parameters when considering the potential impacts to the quality of drinking water supplies;
- surface water runoff from rainfall within the Relocated Ventilation Shaft 4 construction area would be directed to the stormwater basin or may also be transferred to the underground workings;
- the proposed sealing of the access route from Darkes Forest Road to the construction site would result in beneficial outcomes to water quality as it would significantly reduce potential sediment mobilisation and dust generation associated with vehicle movements (including non-Metropolitan Coal vehicle movements); and
- sealing of the track would reduce potential sediment laden runoff to the receiving environment of which this benefit would continue beyond the life of the Modification (i.e. for the period that the sealing is maintained).

4. Independence of Assessment Consultants

Issue

A submitter raised concerns regarding the Modification assessment consultant selection method stating that consultants funded by the Applicant are not considered to be independent.

Response

The consultants for the Modification Report, comprising industry and technical representatives, are engaged by Metropolitan Coal. The consultants were selected based on their knowledge of the area and technical expertise to assess environmental impacts relevant to the Modification.

Metropolitan Coal engaged independent expert, Dr Stuart Brown of HGEO Pty Ltd to peer review the Groundwater Impact Assessment and swamp assessment component of the Surface Water Assessment. The independent reviews were carried out to evaluate the adequacy of the Groundwater Impact Assessment and Surface Water Assessment and ensure the modelling methodologies used generally conform to current best practice and are well supported by relevant available data. The independent review also confirms the modelling is fit for purpose in assessing relevant impacts associated with the Modification, with predictions considered plausible in terms of both magnitude and extent and that the modelling report meets regulatory and industry standards, and no significant issues were identified that would affect the reliability of the assessment.

Dr Stuart Brown noted the following in his review of the Groundwater Impact Assessment (Attachment 4 of the Modification Report):

> *…the groundwater modelling methodology is in keeping with current best practice, is well supported by hydrogeological observations and is fit for the purpose of hydrological impact assessment. The resulting predictions of potential groundwater and surface water impacts are considered to be plausible in terms of magnitude and extent, based on the information provided and monitoring of previous mining effects.*

The conclusion of Dr Stuart Brown's review of the swamp assessment component of the Surface Water Assessment is as follows (Attachment 4 of the Modification Report):

> *…that the modelling methodology is appropriate for assessment of impacts to swamp hydrological regime and is well supported by hydrogeological data. The resulting predictions of potential changes in swamp shallow groundwater level are considered plausible in terms of magnitude.*

5. Government Agency Consultation Process

Issue

A submission requested the Government Agency consultation process with regards to biodiversity matters (e.g. entities of SAII and MNES) be extended to the NSW DCCEEW and NPWS.

Response

NSW DCCEEW and NPWS provided comments on the Modification during the exhibition period, several of which related to biodiversity matters. These comments have been addressed in Sections 4.1.4 and 4.1.6.

Metropolitan Coal consulted with the following NSW DCCEEW agencies during the preparation of the Modification:

- NSW DCCEEW Environment and Heritage – Conservation Programs, Heritage and Regulation (CPHR; formerly Biodiversity, Conservation and Science);
- NSW DCCEEW Water – Water Group;
- NSW DCCEEW Environment and Heritage – Heritage NSW (Heritage NSW); and
- NSW DCCEEW Environment and Heritage Group – Soils Group.

Metropolitan Coal also provided a Modification briefing letter to NPWS providing an overview of the Modification and proposed scope of environmental assessment relevant to groundwater and surface water. NPWS did not raise any issues with regards to the Modification at the time of this engagement.
Feedback received from the NSW DCCEEW agencies during engagement was considered within the Modification Report and this Submissions Report, where relevant.

The Modification Report, including its attachments and appendices, is provided to the DPHI for distribution to relevant Government Agencies during the exhibition process. The matters to which each Government Agency provides comments is relevant to their respective areas of interest and is not dictated by Metropolitan Coal.

Matters relating to biodiversity, including SAII and MNES are relevant to the CPHR group of NSW DCCEEW. CPHR were consulted during the preparation of the Modification Report and provided comments on biodiversity related matters during the exhibition process for the Modification.

The Modification BDAR was prepared by a BAM Accredited Assessor in accordance with the BAM (DPIE 2020a) and required guidelines.

4.2.3 Groundwater

Comments made in public and organisation submissions relevant to groundwater include requests for clarification of reduction in baseflow of aquifers.

Responses to these comments are provided below.

1. Reduction in Baseflow of Aquifers

Issue

Organisation and public submissions raised concerns regarding the potential drawdowns in alluvial aquifers and baseflow impacts as a result of the Modification.

Response

AGE (2025b) evaluated the potential impacts of the Modification on groundwater resources using a numerical regional groundwater model. The Groundwater Impact Assessment has been peer reviewed by Dr Stuart Brown of HGEO Pty Ltd and the review report is presented in Attachment 4 of the Modification Report.

The two main aquifers in the area, namely the Hawkesbury Sandstone and the Bulgo Sandstone, are defined as “less productive” aquifers based on NSW Aquifer Interference Policy (AIP) criteria. Minor alluvium/colluvium deposits are likely present along most of the mapped creeks and also in the upland swamp areas (AGE, 2025b).

Numerical modelling conducted as part of the Groundwater Impact Assessment predicts a reduction in potentiometric head in the deeper groundwater system in the vicinity of the Modification area (AGE, 2025b).

The majority of the drawdown associated with the Metropolitan Coal Mine incorporating the Modification is due to the approved mining operations. The maximum predicted drawdowns due to the Modification only in the Bulgo Sandstone (lower and upper) and in the Hawkesbury Sandstone are at least one order of magnitude less than the Metropolitan Coal Mine including the Modification. Both cumulative and Modification-only predicted groundwater levels in the Hawkesbury Sandstone 10 years after the completion of mining, recover relatively quickly, reducing to less than 6 m, compared to the predicted maximum drawdowns of up to 20 m (Appendix B of the Modification Report).

Although a short-term reduction in baseflow contribution to Honeysuckle Creek is predicted due to the Modification (see Section 6.4.3 of the Modification Report), this is considered to represent a re-distribution of shallow groundwater flows due to predicted near surface subsidence and associated changes in hydraulic properties, as opposed to loss of baseflow to the deeper groundwater system or underground workings. In the longer term once the groundwater system re-adjusts post subsidence, then predicted impacts fall to less than 1 megalitres per year (ML/year) within a few years. As such, the predicted long-term impacts of the Modification on groundwater flux to Honeysuckle Creek, the Woronora Reservoir, the Woronora River, and Waratah Rivulet are all negligible (i.e. less than 1 ML/year) (AGE, 2025b).

Metropolitan Coal holds sufficient licences in the Sydney Basin Central Groundwater Source for the Metropolitan Coal Mine incorporating the Modification.

4.2.4 Surface Water

Comments made in public and organisation submissions relevant to surface water include requests for clarification of concerns relating to:

1. Water management practices.
2. Impacts to water quality.
3. Effectiveness of mitigation measures.

Responses to these comments are provided below.

1. Water Management Practices

Issue

Several submissions stated previous pollution events occurring near the Metropolitan Coal Mine are likely to occur in the future should the Modification proceed and would result in impact to areas of high conservation value.

Response

Since the discharge events associated with heavy rainfall in 2022, significant steps have since been taken by Metropolitan Coal to prevent recurrence. These measures have reduced spillway discharge events due to the accumulation of sediment in site dams, which now have significantly improved operational functionality, and increased water-holding capacity. The new systems and equipment implemented will continue to enable the premises' personnel to better monitor the condition of site dams and the amount of sediment accumulating enabling the rapid removal of sediment when required**.**

2. Impacts to Water Quality

Issue

Comments made in public and organisation submission included the potential impacts on the security of Sydney's water supply given the potential for contamination as a result of the Modification proceeding.

Response

The Metropolitan Coal Mine Project Approval (08_0149) requires that there is no greater than negligible reduction in the quality or quantity of Woronora Reservoir.

As discussed in Section 6.5 of the Modification Report, the Woronora Special Area is managed primarily for the supply of drinking water to Helensburgh, Engadine and Lucas Heights. ATC Williams concludes that the subsidence performance measures "negligible reduction to the quality or quantity of water resources reaching the Woronora Reservoir" would continue to be met (Appendix C of the Modification Report). The Modification would therefore not impact the continued use of the land for water supply purposes. Mining activities co-exist with catchment management in this area, and the Modification is not expected to change this existing land use compatibility. The Modification longwalls would not result in any measurable subsidence effects at WaterNSW supply infrastructure.

Surface water runoff from rainfall within the relocated Ventilation Shaft 4 construction area would be directed to a stormwater basin in keeping with *Best Practice Erosion and Sediment Control* (International Erosion Control Association, 2008), and where water quality satisfies the neutral or beneficial water quality effects requirements, could be released (Appendix C of the Modification Report). Alternatively, water within the stormwater basin may also be transferred to the underground workings via the return water borehole to maintain suitable freeboard.

A sediment basin would be constructed to manage sediment laden runoff from the proposed Ventilation Shaft 4 area and minimise erosion. Construction and operation of the relocated Ventilation Shaft 4 area would have a neutral effect on water quality (Appendix C of the Modification Report).

3. Effectiveness of Mitigation Measures

Issue

A submitter stated that stream remediation activities undertaken by Metropolitan Coal have been unsuccessful to date.

Response

Since 2020, Metropolitan Coal has conducted stream remediation works in accordance with the Metropolitan Coal Stream Remediation Plan.

PUR grout curtains to a depth of up to 10 m have been installed at pools ETAH, ETAK, ETAL, ETAM and ETAO with additional shallow pattern grouting to a depth of approximately 1 m also undertaken at Pools ETAQ and ETAR.

Pool remediation efforts undertaken at Waratah Rivulet and Eastern Tributary have included fracture characterisation, stream grouting, environmental management and monitoring.

Significant improvements in stream bed permeability and pool drainage behaviour have been noted with water level charts for Eastern Tributary pools before and after stream remediation showing that PUR grouted rockbars along the Eastern Tributary have generally recorded notable increases in water levels and pooling following remediation. However, an extended period of dry climatic conditions is needed to properly assess the efficacy of the remediation activities undertaken to date, using recession analysis.

An example of remediation undertaken at a pool along Waratah Rivulet is shown in Plate 4-2 and Plate 4-3.

Plate 4-2: Image of Pool Before Remediation (17 March 2008)

Plate 4-3: Image of Pool Post-remediation (25 March 2025)

ATC Williams has undertaken an assessment of the effectiveness of stream remediation along Waratah Rivulet and Eastern Tributary (Attachment 8). ATC Williams (Attachment 8 of this Submissions Report) considers that the performance indicators have been met at the assessed Waratah Rivulet pools, indicating post-remediation water level recession behaviour is consistent with pre-impact behaviour or water levels of similar, unimpacted pools. Although the performance measures have not been met at some pools on Eastern Tributary, there has been a significant improvement in water level recessionary behaviour following remediation works in comparison to impact conditions (Attachment 8).

ATC Williams (Attachment 8 of this Submissions Report) recommends reassessing water level recessionary behaviour following an additional prolonged period of below average rainfall pools that have not met the performance indicator.

4.2.5 Upland Swamps

Comments made in public and organisation submissions relevant to the Upland Swamps include clarification of concerns relating to:

1. Impact to swamps.
2. Offset adequacy.
3. Increased fire risk due to drying out of swamps.

Responses to these comments are provided below.

1. Impact to Swamps

Issue

Comments made by the public relevant to upland swamps, in particular Swamp 106, included the potential impacts to the Sydney Drinking Water Catchment due to damage of the upland swamps as a result of the Modification.

Response

Metropolitan Coal recognises the importance of the Sydney Drinking Water Catchment and the Woronora Special Area to the water supply system and has considered the potential impact of the Modification on these areas (see Section 6 of the Modification Report).

The Modification adopts a precautionary approach by incorporating conservative longwall geometry (narrow panel voids of 163 m and wider chain pillars of 55 m) consistent with the approved underground mine layout to minimise subsidence effects on environmental features. The design also includes shortening of Longwall 317 by 67 m at the southern end and implementing a setback from Swamp 106 to reduce subsidence effects (Section 3.2 of the Modification Report). Using this geometry, there would be no surface to seam cracking at the Metropolitan Coal Mine including the Modification (which could result in loss of surface water to the underground workings) and tensile strain is predicted to be 0.5 mm/m or less, which is commonly associated with the onset of tensile cracking (IEAPUM, 2020).

The results of the unsaturated zone modelling of Swamps 74 and 106 indicate that if fracturing of the underlying Hawkesbury Sandstone Upper occurs, this may induce additional leakage from the swamp substrate and associated water level decline (Appendix C of the Modification Report). However, as the substrate water level of only one historically undermined swamp has been affected to date, the assessment of potential effects on swamps in the Modification area and surrounds is considered conservative (Appendix C of the Modification Report).

The majority of swamps are ‘losing disconnected’, meaning the regional groundwater table lies below the base of the swamp substrate such that the swamp gradually leaks to groundwater and changes to the regional groundwater table do not influence leakage rates (Appendix B of the Modification Report). A small area of the downstream end of Swamp 106, where it extends close to Honeysuckle Creek, is potentially connected to the regional groundwater table and is predicted to experience up to 1.8 m of drawdown in the underlying regolith due to the Modification (Appendix B of the Modification Report). This predicted drawdown is primarily related to subsidence above nearby Longwall 318 and therefore the drawdown is predicted to be temporary and to dissipate within approximately one year (Appendix B of the Modification Report).

An Adaptive Management Plan can be used to address impacts that are infrequent, uncertain or difficult to measure, such as prescribed impacts. An Adaptive Management Plan would be prepared for the Modification to describe the management and monitoring of potential subsidence impacts to upland swamps. The Adaptive Management Plan would include trigger action response plans that incorporate the before-after-control-impact framework, where feasible, to manage impacts to upland swamps and threatened species.

2. Offset Adequacy

Issue

Some public submitters questioned the adequacy of the offsets proposed to address the potential impacts of the Modification on upland swamps.

Response

Refer to responses to Government Agency comments in Sections 4.1.1, 4.1.8 and 4.1.9 regarding the adequacy of offsets proposed for upland swamps.

3. Increased fire risk due to drying out of swamps.

Issue

Concerns were raised that the Modification could increase the likelihood of fire to the local area including upland swamps.

Response

Potential fire risks to biodiversity, including upland swamps, was considered in the BDAR prepared by Niche for the Modification (refer Appendix D of the Modification Report).

The Modification involves the construction of the relocated Ventilation Shaft 4, however, once completed, there would be limited ignition sources associated with the Modification in the Woronora Catchment area.

Historically at the Metropolitan Coal Mine, reductions to the swamp substrate water level due to mining-related subsidence impacts has not occurred, with the exception of Swamp 20. There have been no incidences where reduced substrate water levels has increased bushfire risk.

Further, the proposed relinquishment of 253 ha of underground mining areas reduces the area at risk of subsidence-related effects.

In consideration of the potential changes to upland swamp saturation, Niche concluded the Modification is unlikely to increase fire risk within the Study Area (Appendix D of the Modification Report).

Metropolitan Coal has a number of Occupational Health and Safety management plans that form part of the Metropolitan Coal Emergency Management System, including a Firefighting Capability Management Plan. The Bushfire Preparedness Plan also includes fuel management and general housekeeping measures, procedures to minimise the risk of bushfire and response to bushfire in the Woronora Special Area.

Notwithstanding the above, during construction and operation, Metropolitan Coal would mitigate any increased risk of bushfire through the implementation of mitigation measures. These mitigation measures would focus on education and training, annually assessing the bushfire hazards, minimising and controlling ignition sources (e.g. by appropriate engineering design, where relevant) and revising existing response and evacuation strategies for the Modification area (Appendix D of the Modification Report).

4.2.6 Biodiversity

Comments made in public and organisation submissions relevant to biodiversity include clarification of concerns relating to :

1. Development footprint.
2. Habitat disturbance.
3. Threatened species and ecological communities.
4. Survey effort.

Responses to these comments are provided below.

1. Development Footprint

Issue

Several submitters requested further clarification regarding the relocation of Ventilation Shaft 4 and the Development Footprint size associated with the proposed relocation.

Response

As a result of the reduced extent of the underground mine layout has been reduced compared to the approved layout, construction of the approved Ventilation Shaft 4 has not been required at that location to date to maintain suitable gas concentrations and air quality within the underground mining area.

The proposed location of the relocated Ventilation Shaft 4 would support safe and efficient operations and allow for targeted gas management as longwall mining of the 300-series longwalls progresses. Metropolitan Coal would relinquish the right to develop the currently approved Ventilation Shaft 4, and would provide additional offsetting and compensatory measures for the relocated Ventilation Shaft 4. The proposed offsetting measures for the relocated Ventilation Shaft 4 do not account for the avoided disturbance at the currently approved Ventilation Shaft 4 (i.e. a larger offset is proposed than if avoided disturbance was taken into account).

Impacts from surface disturbance associated with the relocated Ventilation Shaft 4 (approximately 3.8 ha) have been assessed and are considered to be minor, noting residual impacts are proposed to be managed and/or offset. Upon completion of construction, the development area of the shaft would be less than 0.1 ha.

Furthermore, a downcast ventilation system was adopted for the Modification to avoid the impacts on biodiversity values associated with the development of a powerline easement that was required as part of the original design of the ventilation system, thus avoiding approximately 8 ha of direct vegetation disturbance.

The BDAR prepared by Niche for the Modification included an assessment of direct impacts associated with the construction of relocated Ventilation Shaft 4 (Appendix D of the Modification Report).

2. Habitat Disturbance

Issue

Some submissions raised concerns regarding biodiversity impacts due to the Modification relevant to potential subsidence impacts, disturbance associated with the proposed relocated Ventilation Shaft 4 and heavy vehicle movements.

Response

Underground mining activities would result in subsidence of the land surface. The Subsidence Assessment (Appendix A of the Modification Report) includes a description of geological features (including faults, lineaments, joints and igneous intrusions) within the vicinity of the Modification relevant to the assessment of potential subsidence effects and the effect of geological features, and commentary on how these have been considered in the assessment of subsidence impacts.

The Surface Water Assessment (ATC Williams, 2025) assessed six swamps as having a low potential risk of greater than negligible impact. These predictions have been considered and assessed in the Modification BDAR (Appendix D of the Modification Report).

Hydrological alterations resulting from subsidence-related processes may lead to minor reductions in habitat connectivity for amphibian species, such as the Giant Burrowing Frog, Littlejohn's Tree Frog, and Red-crowned Toadlet, which are reliant on moist, connected microhabitats. These impacts are expected to be localised and associated primarily with changes to ephemeral water flow and hydrological regimes (Appendix D of the Modification Report).

The surface disturbance area (3.8 ha) associated with the Modification would be rehabilitated and revegetated to an area of 0.1 ha during mining operations. The area would be completely rehabilitated following the completion of underground mining.

The proposed relocated Ventilation Shaft 4 would result in the removal of 3.8 ha of PCT 3590 Southern Sydney Scribbly Gum Woodland from the southern portion of the Study Area. The removal of this vegetation has the potential to reduce connectivity of wooded habitat utilised by a number of threatened species. However, the impacts to connectivity of wooded habitat are considered minor due to the large areas of connected habitat remaining within the BDAR Study Area and surrounding the Development Footprint.

Furthermore, the removal of 3.8 ha of vegetation associated with the Development Footprint is unlikely to significantly affect landscape-scale connectivity. The species recorded in the Development Footprint are capable of traversing fragmented habitats and utilising a broad range of roosting and foraging resources across the landscape. Further, habitat within the Study Area and surrounding the Development Footprint will remain well-connected, allowing for continuity of fauna movement (Appendix D of the Modification Report).

Regarding potential vehicle strikes to biodiversity as a result of the Modification, the BDAR prepared by Niche (2025a) concluded that the Modification would not result in an increase in the likelihood of vehicle strike of animals. It is anticipated the construction activities for the relocated Ventilation Shaft 4 would generate 5 light vehicle trips per day, and 10 heavy vehicle trips per day (on average). There is a low likelihood of vehicle strikes; however, it is not expected to be of a magnitude that would result in the loss of any threatened species from the local area (Appendix D of the Modification Report).

Various offset and management measures are proposed to be implemented to mitigate the potential impacts from the Modification. These are detailed in Section 6.7.4 of the Modification Report and summarised below:

- implementation of Subsidence Management (i.e. adaptive management and monitoring);
- implementation of a Construction Management Plan;
- biodiversity management training;
- vegetation and habitat clearance protocol;
- alternative roosting and/or nesting habitat for threatened fauna;
- re-use of felled timber;
- preparation of an Erosion and Sediment Control Plan;
- implementation of a Water Management Plan (including groundwater and surface water monitoring);
- implementation of a Biodiversity Management Plan;
- bushfire management;
- light, noise and dust mitigation; and
- weed and pathogen management plan.

3. Threatened Species and Ecological Communities

Issue

A number of submitters raised concerns regarding potential impacts on biodiversity, including potential impacts to the Coastal Upland Swamp Threatened Ecological Communities and associated fauna habitat.

Response

The BDAR (Appendix D of the Modification Report) provides a discussion of the potential impacts of the Modification on biodiversity, including potential impacts to the Coastal Upland Swamps in the Sydney Basin Bioregion endangered ecological community.

Metropolitan Coal has undertaken monitoring of Upland Swamps within the Metropolitan Coal Mine underground mining area since 2003, as well as monitoring of relevant control swamps. This monitoring focuses on vegetation change (floristic plots and photo monitoring) augmented with piezometer groundwater level data and more recently, drone imagery. This monitoring program collects data for approximately 37 Upland Swamps at the Metropolitan Coal Mine. Ongoing monitoring of threatened species found that no detrimental impacts on threatened flora species present in impacted swamps (Prickly Bush-pea [*Pultenaea aristatea*]) have occurred and such impacts are considered unlikely to occur in the future as a result of the subsidence impacts recorded to date (Ecoplanning Pty Ltd, 2025).

An assessment of historical effects on upland swamps within the Metropolitan Coal Mine area is presented in Section 8 of the Surface Water Assessment (Appendix C of the Modification Report). ATC Williams concluded, with the exception of Swamp 20, it is considered longwall mining has resulted in negligible effects to the substrate water level dynamics of upland swamps overlying Longwalls 20-27 and Longwalls 301-311 (refer Appendix C of the Modification Report). Although several swamps had experienced impacts to the shallow upper Hawkesbury Sandstone, impacts to the substrate water level was considered indiscernible with the exception of Swamp 20 where a persistent but minor change in substrate water level is considered to have occurred.

Of the 41 swamps within the Modification Indirect Impact Footprint, six have a low potential risk of greater than negligible environmental consequence (Swamps 74, 75, 106, 117, 119 and 130).

Environmental impacts could include reductions in soil moisture and pool availability, and potential impacts to water quality may impact species reliant on the swamp hydrology such as the Giant Burrowing Frog, Littlejohn's Tree Frog, Red-crowned Toadlet and Southern Myotis (Appendix D of the Modification Report).

Under Section 6 of the BAM and Clause 6.1 of the BC Regulation, the impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and TECs (including from subsidence or upsidence resulting from underground mining) is classified as a prescribed impact. As per Section 8.6(5) of the BAM (DPIE, 2020a), the consent authority may take prescribed impacts, and any potential offsets or other measures to address these impacts, into account when it determines the number of biodiversity credits required to be retired and can require the retirement of additional biodiversity credits or alternative measures to address these impacts.

There is no requirement to include a credit liability for the Coastal Upland Swamps in the BAM-C (NSW DCCEEW, 2024) as there are no upland swamps where it is predicted greater than negligible impact will occur (only swamps where there is a low potential risk it may occur) and the Modification is at the application stage, not the Extraction Plan phase. If required by the conditions of consent, the maximum credit offset liability for Coastal Upland Swamps will be included with the Extraction Plan associated with Longwalls 317 and 318.

For the six swamps with a low potential risk of greater than negligible environmental consequence, a hypothetical partial loss scenario has also been included in the BDAR to assist the consent authority in its review of the Modification and does not represent biodiversity credits required under the BDAR to be retired.

4. Survey Effort

Issue

A submitter stated the biodiversity surveys completed for fauna species were not adequate in the context of current survey guidelines.

Response

Niche conducted the flora and fauna surveys within the Development Footprint in accordance with the BAM (DPIE, 2020a) and the appropriate guidelines (Niche, 2025a). A revised survey approach was developed for the Indirect Impact Footprint in consideration of the terrain, extensive size of the area, and potential to impact Coastal Upland Swamps through foot traffic. Relevant threatened flora and fauna species were assumed present based on the outputs of the BAM-C unless excluded based on vagrancy (refer Attachment 3 of this Submissions Report).

Niche has updated the BDAR to address comments raised by CPHR including on surveys and assuming presence. Responses to CPHR comments relating to survey effort are provided in Section 4.1.1 and further detailed in Attachment 2 of this Submissions Report.

4.2.7 Aboriginal Cultural Heritage

Comments made in public and organisation submissions relevant to Aboriginal cultural heritage include clarification of concerns relating to:

1. Potential impacts to Aboriginal Cultural heritage sites.
2. Cultural significance and values assessment.
3. Consultation.
4. Survey effort.

Responses to these comments are provided below.

1. Potential Impacts to Aboriginal Cultural Heritage Sites

Issue

Some organisation and public submissions raised concerns regarding the potential impacts of the Modification on Aboriginal cultural heritage sites, including cumulative impacts.

Response

The assessment of potential subsidence-related impacts to Aboriginal cultural heritage sites from the Modification has been undertaken by Niche (Appendix F of the Modification Report) in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011).

A portion of the Subject Area for the Modification overlaps the approved Metropolitan Coal Mine underground mining area, and as a result 10 of the 25 Aboriginal cultural heritage sites within the predicted subsidence extent for the Modification are already approved to experience subsidence impacts under Project Approval (08_0419). The impact assessments for these sites do not change as a result of the Modification (refer Appendix F of the Modification Report)

For the remaining 15 Aboriginal cultural heritage sites within the predicted subsidence extent, the predicted subsidence parameters are similar to or less than those predicted for the approved Metropolitan Coal Mine and therefore the potential impacts to Aboriginal heritage sites would be similar or less (refer Appendix A of the Modification Report).

The likelihood of surface fracturing impacting the Aboriginal cultural heritage sites located above the Modification layout is considered to be low (MSEC, 2025). While surface fracturing of the bedrock can occur outside the longwall layouts, such fracturing is minor and isolated and the likelihood of fracturing impacting the Aboriginal cultural heritage sites outside the longwall layouts is also considered to be low (refer Appendix A of the Modification Report).

The longwall panel geometry adopted at the Metropolitan Coal Mine (i.e. using narrower panel voids and wider chain pillars), which would also be used for the Modification, significantly reduces subsidence impacts and reduces the potential for harm to the Aboriginal heritage sites. This is the key measure that has been successfully used during historical mining at the Metropolitan Coal Mine to reduce subsidence impacts on Aboriginal cultural heritage sites.

On this basis, Niche (Appendix F of the Modification Report) conclude that the approved Metropolitan Coal Mine incorporating the Modification is expected to comply with the subsidence impact performance measure under Project Approval (08_0149).

As recommended in the Modification ACHA, baseline recording of Aboriginal cultural heritage sites associated with the Modification would be undertaken prior to longwall mining in accordance with the protocol outlined in the approved Heritage Management Plan and in consultation with RAPs.

In addition, the Modification ACHA also recommended implementation of a monitoring program to monitor subsidence impacts and environmental consequences of Modification-related subsidence on Aboriginal cultural heritage sites in accordance with the protocol outlined in the approved Heritage Management Plan. Monitoring would be undertaken a suitably qualified archaeologist (with experience in rock art recording and management) and representatives of RAPs (where available).

The monitoring results will be used to assess the Project against the performance indicator and subsidence impact performance measure in accordance with the detailed Trigger Action Response Plan (refer to Table 8 of the approved Heritage Management Plan).

The approved Heritage Management Plan would be reviewed and updated to incorporate the Modification (e.g. to include additional sites identified during the survey undertaken for the ACHA) in consultation with the RAPs and any requirements of Project Approval (08_0149), as modified.

Further detail is provided in the response to Heritage NSW Comment #1 (refer to Section 4.1.3).

2. Cultural Significance and Values Assessment

Issue

Some public submitters noted that all Aboriginal cultural heritage sites are considered as having high cultural significance and value to the Aboriginal community.

Response

Metropolitan Coal acknowledges that all Aboriginal heritage sites and Country hold spiritual and cultural significance and value to the Aboriginal community.

The RAPs maintain a strong relationship with their traditional lands and have stated that all Aboriginal heritage sites, known or otherwise, and Country are considered to have high cultural and social value by the RAPs. When completing the archaeological significance assessment, each site was considered in the context of the local area and wider region.

Sections 6.7 and 6.8 of the Modification ACHA provide an assessment of archaeological and cultural significance of the Subject Area with respect to the archaeological context of the broader environment and cultural landscape of the Woronora Plateau and Illawarra Escarpment (Niche, 2025b).

During the surveys and site inspections, the RAPs (and their representatives) were asked to identify any areas of cultural significance within the Modification area and surrounds, or any cultural values relevant to the area. All comments relating to the cultural significance of the Modification area and/or the wider region were recorded and considered in the significance assessment in the Modification ACHA.

The assessment of the archaeological and cultural significance of the Subject Area informed consideration of potential intangible and tangible cumulative impacts of the Modification in the ACHA (refer to Section 8.4 of the ACHA).

The significance assessment in the Modification ACHA was undertaken in accordance with the criteria provided in the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011). The Guide outlines two main themes in the overall Aboriginal cultural heritage significance assessment process, namely the identification of the cultural/social significance of Aboriginal objects and/or places to Aboriginal people and the identification of the scientific (archaeological) significance to the scientific/research community.

It is acknowledged that grading of heritage values, scientific or otherwise, is a process which does not have support from the RAPs as it can emphasise the values of individual components of a landscape rather than the cultural landscape as a whole. In consideration of this, the scientific significance assessment of each Aboriginal heritage site considered results of the site inspection and consultation with RAPs as well as results of surveys and assessments undertaken for the Metropolitan Coal Mine and across the Southern Coalfield and the archaeological context of the region. It is acknowledged that this assessment in no way diminishes the recognition or significance of Aboriginal peoples' connection to the land and its resources within and in the vicinity of the Subject Area.

3*. *Aboriginal Community Consultation

Issue

Some public submissions requested clarification of the consultation undertaken for the Modification ACHA with the Aboriginal community, and noted that records of correspondence with RAPs was redacted from the publicly available version of the Modification ACHA.

Response

Consultation for the Modification ACHA (Appendix F of the Modification Report) was undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010b) and the *National Parks and Wildlife Regulation 2019.*

Consultation with RAPs for the Modification ACHA has been extensive and involved various methods including public notices, on-site meetings, written and verbal correspondence, and field survey attendance. All comments received from RAPs throughout the consultation process for the Modification ACHA were considered and incorporated in the final ACHA.

RAPs have been consulted on the nature and extent of Aboriginal cultural heritage at the Metropolitan Coal Mine on a number of occasions, including during the community consultation processes undertaken for previous cultural heritage assessments and investigations as well as for this Modification ACHA.

A redacted version of the Modification ACHA is displayed publicly to ensure any sensitive cultural heritage information and personal information is restricted to the public. The version of the draft ACHA provided to RAPs for review included this redacted information. RAPs were also notified when the Modification Report (including the final ACHA) was placed on public exhibition, which included an offer to provide a complete hard copy of the final report on request.

4. Justification of Survey Effort

Issue

Several public submissions requested further justification of the Aboriginal cultural heritage survey effort undertaken for the Modification ACHA.

Response

The Code of Practice (DECCW, 2010a) provides that the purpose of archaeological survey is to “record all (or a representative sample of all) the material traces and evidence of Aboriginal land use” to inform the archaeological assessment.

Consistent with Requirement 5a of the Code of Practice, a targeted survey strategy was developed in consideration of the Predictive Model to focus survey effort on landforms within the Subject Area with higher archaeological potential, including open depressions, drainage lines, steep slopes and ridges, in addition to other landform features such as drainage lines and swamps (Niche, 2025b). The focus of the survey undertaken for the Modification ACHA was to inspect previously recorded sites and survey targeted landforms and areas of exposure where highly obtrusive and typical of the sandstone environment Aboriginal sites were located.

The Predictive Model for the Modification Subject Area was informed by previous archaeological surveys and assessments undertaken for the Metropolitan Coal Mine and across the wider region. The Predictive Model details the expected distribution and patterning of archaeological sites within the Subject Area considering the landform units, landscape context, and previous known land uses (Niche, 2025b).

Approximately 13.4 ha (i.e. 3%) of the Subject Area has previously been subject to comprehensive archaeological survey as part of investigations and baseline recording programs undertaken for the approved Metropolitan Coal Mine.

The archaeological potential of the entire extent of the 'Previously Surveyed Area' (i.e. red hatched area shown on figures in the Modification ACHA) is considered to be well understood on account of these previous survey efforts and baseline recording programs. On this basis, further survey within the 'Previously Surveyed Area' for the Modification was not considered to be required as it has been sufficiently assessed for the potential presence of Aboriginal objects.

The targeted and systematic survey undertaken for the Modification ACHA added an additional 26.7 ha (i.e. 6%) of survey coverage within the Subject Area. Therefore, a total of 40.2 ha (i.e. approximately 9%) of the Subject Area has been surveyed to date.

As described in Section 5.3.2 of the Modification ACHA, very low visibility conditions were encountered during surveys within the Subject Area due to the dense woodland vegetation. In addition, steep terrain and rough topography also limited the extent of survey efforts as these areas could not be safely accessed (Niche, 2025b). The safety of visitors, personnel and contractors to Metropolitan Coal is a key consideration for all works undertaken onsite, which also applies to RAPs and archaeologists undertaking field surveys.

The surveys undertaken to inform the Modification ACHA were considered to provide an adequate characterisation of the archaeological potential of the Subject Area and confirmed the Predictive Model (Niche, 2025b).

Further detail regarding survey efforts for the Modification ACHA is provided in the response to Heritage NSW Comment #7 (refer to Section 4.1.3).

4.2.8 Greenhouse Gas Emissions

Comments made in public and organisation submissions relevant to greenhouse gas emissions include clarification of concerns relating to:

1. Direct emissions.
2. Indirect emissions.
3. Climate change impacts and commitments.
4. Cumulative impacts.
5. Reporting requirements.
6. Renewable Energy.

Responses to these comments are provided below.

1. Direct Emissions

Issue

Submissions questioned whether there has been adequate consideration of impacts associated with methane. Concerns were raised regarding the estimation of greenhouse gas Scope 1 emissions during the Modification life of mine and decommissioning phases.

Response

The Modification is a logical continuation of an already established mining operation at the Metropolitan Coal Mine (approved to operate until June 2032). In comparison to the approved Metropolitan Coal Mine, the Modification would relinquish the unmined areas of the approved mine layout. This would result in a reduction of 253 ha of longwall mining area and a net reduction of 10.8 Mt of ROM coal mined.

In consideration of the above, the Modification would result in a net decrease of Scope 1 greenhouse gas emissions of approximately 1.1 Mt $CO_{2\text{-}e}$ when compared to the originally approved Metropolitan Coal Mine (Appendix G of the Modification Report).

The Metropolitan Coal Mine's direct (and indirect) greenhouse gas emissions have been estimated by Todoroski Air Sciences Pty Ltd (TAS, 2025) using published emission factors from Australia's National Greenhouse Accounts (NGA) (prepared by the Cth DCCEEW). Where NGA factors were not available, emissions have been estimated based on similar projects consistent with the Safeguard Rule (Appendix G of the Modification Report). Fugitive emissions were estimated using the Metropolitan Coal Mine gas model, developed from existing borehole data and refined through real-time monitoring data.

The Greenhouse Gas Assessment provided an estimate of direct emissions as a result of activities under the Modification, which as expected for an underground coal mine, was largely attributed to fugitive emissions (i.e. approximately 99.5%). As discussed in Section 4.1.5 and Table 4-7, Metropolitan Coal already employs, or will employ best practice mitigation measures for the Modification including methane drainage, flaring and the implementation of an electrified mining fleet.

Metropolitan Coal's proposed use of an enclosed methane flaring system is expected to reduce Scope 1 greenhouse gas emissions by approximately 700,000 t $CO_{2\text{-}e}$.

It is acknowledged that (subject to the efficacy of national and international greenhouse gas abatement measures) all sources of greenhouse gas emissions will contribute in some way towards the potential global, national, state and regional effects of climate change.

The Modification's contribution to global climate change effects would be proportional to its contribution to global greenhouse gas emissions. Greenhouse gases directly generated at the Modification (i.e. Scope 1 emissions) and indirect emissions associated with the on-site use of electricity (i.e. Scope 2 emissions) have together been estimated at approximately 0.39 Mt $CO_{2\text{-}e}$ per year during operations.

The Modification's annual average Scope 1 and 2 greenhouse gas emissions would contribute approximately 0.0007% to total global anthropogenic greenhouse gas emissions (excluding land use change), which were approximately 53,100 Mt $CO_{2\text{-}e}$ in 2023 (United Nations Environment Programme, 2023) (Appendix G of the Modification Report).

2. Indirect Emissions

Issue

Some submitters suggested there has been insufficient consideration of the Modification's Scope 3 greenhouse gas emissions and questioned the future global market for coal in light of global greenhouse gas reduction efforts. Some submissions also referred to the potential impacts of the Modification on the local area, citing the recent NSW Court of Appeal decision in relation to the Mount Pleasant Optimisation Project (SSD-10418).

Response

In accordance with *The Greenhouse Gas Protocol* (WBCSD and WRI, 2004), Scope 3 emissions are those emissions that are a consequence of an activity that is not directly owned or controlled by the producing entity (but are rather the Scope 1 emissions of other entities).

As outlined in the *Greenhouse Gas Accounting and Reporting Guidelines* (NSW DCCEEW, 2025c), greenhouse gas accounting and reporting in NSW is limited to Scope 1 and 2 emissions. Nevertheless, the Modification's Greenhouse Gas Assessment (Metropolitan Coal, 2025b) does calculate the Scope 3 emissions associated with the Modification.

Due to the fluctuating nature of the international coal market, accurately predicting the proportion of coal from the Modification that would be sold into each overseas market is challenging. However, based on historical and forward sales data, Metropolitan Coal expects that around 60% of the product coal would be exported, with the balance utilised for steel production within Australia.

Table 9 of the Modification's Greenhouse Gas Assessment provides a high-level summary of the nationally determined contributions (NDCs) under the *Paris Agreement* (UNFCCC, 2015), for the countries expected import product coal from the Metropolitan Coal Mine. It should be noted that, under the *Paris Agreement*, the NDCs are progressive and must be updated every five years, with the next round due by the end of 2025 (UNFCCC, 2024). The review mechanisms established under the *Paris Agreement* are designed to progressively strengthen emission reduction commitments over time to support the achievement of the *Paris Agreement's* overarching goals.

Social, Economic and Environmental Impacts of Climate Change for the Modification's Locality

The Greenhouse Gas Assessment prepared for the Modification (Metropolitan Coal, 2025b) considered the potential impacts of climate change at global, national, State and regional scales.

The Modification is located within the Illawarra region of the AdaptNSW Interactive Climate Change Projections Map (AdaptNSW, 2025). AdaptNSW projections are derived from NARCliM data, which was produced using the Weather Research and Forecasting (WRF) Model (Evans and McCabe, 2010). The WRF Model has been shown to effectively simulate temperature and rainfall patterns across NSW and provides a reliable representation of local topography and coastal processes.

At the regional level, the *Shoalhaven and Illawarra Enabling Regional Adaptation* (NSW Office of Environment and Heritage, 2019) identifies key environmental, social and economic areas that are vulnerable to the impacts of climate change, taking into account projected climate changes and the adaptive capacity of these areas.

In summary (NSW Office of Environment and Heritage, 2019):

- The region is expected to experience an increase in all temperature variables (average, maximum and minimum), more hot days, and fewer cold nights for the near and far futures. Heatwaves are also projected to increase, be hotter and last longer.
- Seasonality of rainfall will change. Autumn rainfall is predicted to increase in the near future and the far future. The majority of models agree that winter rainfall will decrease in the near future. Summer rainfall is projected to decrease in the near future; however, summer rainfall is projected to increase in the far future.
- Fire risk will increase, with projected increases in average and severe Forest Fire Danger Index values in the near future and the far future.

Australia's National Climate Risk Assessment Report (Australian Climate Service, 2025) describes the likely effects of climate change and associated impacts to Australia's key systems, including communities (urban, rural and remote), defence and national security, economy, trade and finance, health and social support, infrastructure and the built environment, the natural environment, and primary industries and food. The types of climate change effects and their associated economic and social impacts in the Modification locality are expected to be consistent with those identified by the Australian Climate Service (2025). There may include impacts to physical health and wellbeing, reduced air quality, exacerbation of existing health conditions, increased cost of living, and disruptions to local economies, social networks and traditional identities.

Modification's Contribution to Climate Change

The likely impacts of a development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality, is a mandatory matter for consideration by the consent authority under section 4.15 of the NSW EP&A Act.

If the Modification does not proceed, it is likely that customers of the Metropolitan Coal Mine would source an equivalent quantity of coal from alternative suppliers to meet their demand, meaning there would likely be no corresponding reduction in global greenhouse emissions. In this context, the ultimate timing of coal phase out is determined by the end user of fossil fuels. Consequently, the greenhouse gas emissions associated with the Modification coal would not contribute additionally to climate change, as global emissions would remain effectively unchanged with or without the Modification.

Assuming that the Modification's coal would not be substituted with coal from other sources, the Modification's contribution to global climate change (i.e. global average temperature rise) would be proportional to its contribution to global greenhouse gas emissions. Comparison of the estimated annual average Scope 3 emissions of customer entities using coal produced by the Modification (approximately 2.22 Mt CO_2-e per annum on average) to the total anthropogenic greenhouse gas emissions globally (excluding land use change) in 2023 (i.e. 53,100 Mt CO_2-e) indicates these emissions would be approximately 0.004% of global anthropogenic emissions in 2023. Therefore, on the counterfactual assumption that Modification coal would not be substituted in the international market for coal, Modification coal used by other entities would account for approximately 0.004% of global annual average temperature rise over the period of the Modification. This is an infinitesimally small amount, when converted to degrees Celsius.

It is to be noted that global average temperature rise since the Industrial Revolution (1750-1800) has been just over 1 degree Celsius, in total, and that therefore global annual average temperature rise has been only a tiny fraction of 1 degree Celsius. Responsibility for this minuscule rise would in any case rest, under the Paris Agreement, with the countries using the Modification's coal. This fact would increase the pressure on these countries to reduce their emissions from all sources.

Modification's Contribution to Climate Change Impacts in the Modification's Locality

Even under the conservative assumption that the Modification's product coal would result in a 0.004% increase in global annual emissions (i.e. assuming this coal supply is truly "additional" and not substituted elsewhere in the global fossil fuel market), the resulting emissions would be so small as to be unlikely to have a perceptible effect on climate change. Such emissions would represent only a tiny fraction of the global annual average temperature increase, itself measured in a fraction of a degree Celsius. Consequently, the emissions from the Modification coal would also be unlikely to produce any measurable change to the expected local climate change impacts described above, even assuming an approximately linear relationship between global temperature increases and local environmental (climate change) impacts.

Given the extremely small proportions and high uncertainties involved, it can be concluded that the local impacts of greenhouse gas emissions (including Scope 3 emissions from use of Modification coal) would be effectively undetectable during and beyond the life of the project. Even if some degree of detectability were assumed over longer timeframes, such as local impacts would be infinitesimally small and legally *de minimis*.

Considering that the Modification's contribution to annual global greenhouse gas emissions, conservatively assuming it is fully additional, would be extremely small and legally *de minimis* even over extended timeframes, its influence on local climate change, including potential risks and impacts identified in *Australia's National Climate Risk Assessment Report* (Australian Climate Service, 2025) and the *Shoalhaven and Illawarra Enabling Regional Adaptation* (NSW Office of Environment and Heritage, 2019), would likewise be negligible and unlikely to be detectable on an annual or multi-year basis.

The above matters must be given appropriate weight along with other mandatory matters for consideration, including, but not limited to, the significant social and economic benefits of the Modification (including in the locality).

3. Climate Change Impacts and Commitments

Issue

Concerns were raised regarding the Modification's greenhouse gas emissions in light of State and Federal commitments to reduce greenhouse gas emissions and global climate change targets (e.g. 1.5°C) and greenhouse gas emission reduction strategies.

Response

As an existing large facility, the Metropolitan Coal Mine is already covered by the Safeguard Mechanism and would continue to be subject to a progressively declining emission baseline consistent with Australia's legislated targets of a 43% reduction below 2005 levels by 2030 and net zero by 2050 (Commonwealth of Australia, 2022). The Modification would continue to align with Australia's recently published 2035 Nationally Determined Contributions (NDC) of 62-70% reduction below 2005 levels by 2035 given the Modification does not seek an extension of the approved mine life and would cease prior to 2035, it would not materially contribute to 2035 targets.
The Safeguard Mechanism is a key element of Australia's domestic implementation of its commitments under the Paris Agreement, which seeks to limit global temperature increases to well below 2°C and pursue efforts to limit warming to 1.5°C.

It is also noted that the NSW Government's Net Zero Plan reiterates that actions on climate change should not undermine the businesses, jobs and communities supported by mining (NSW Government, 2020a).

In relation to greenhouse gas emissions, climate change and the principles of ecologically sustainable development, it is noted that:

- Greenhouse gas emissions estimates for the Modification (Scopes 1, 2 and 3) have accounted for uncertainty by adopting conservative assumptions (TAS, 2025).
- The assessment of greenhouse gas emissions of the Modification allows the effective integration of social, economic and environmental considerations in the decision-making process.
- Metropolitan Coal would continue to implement mitigation measures to minimise the Modification's Scope 1 greenhouse gas emissions.
- The Modification would benefit current and future generations through:
    - approximately $49 million additional in royalties to the State of NSW over the Metropolitan Coal Mine's life in real terms;
    - the continued employment of the existing 400-strong workforce for a further two years; and
    - a range of positive flow-on effects from the Modification, including continuation of contribution to local suppliers and businesses and Metropolitan Coal's plans to continue to support community initiatives throughout the life of the Metropolitan Coal Mine including the Modification (i.e. a two year increase) from the community of Helensburgh and the greater Illawarra region.
- The greenhouse gas emissions associated with the combustion of the Metropolitan Coal Mine product coal will be primarily addressed and regulated by the expected export countries, under their NDCs. Those NDCs reflect national priorities, including in respect of sustainable development and considering the potential benefits of providing reliable, affordable and efficient energy and electricity to different populations

The Modification's annual average Scope 1 and 2 greenhouse gas emissions would contribute approximately 0.0007% to total global anthropogenic greenhouse gas emissions (excluding land use change), which were approximately 53,100 Mt $CO_{2\text{-}e}$ in 2023 (United Nations Environment Programme, 2023) (Appendix G of the Modification Report).

Further, comparison of the annual average Scope 3 emissions of customer entities combusting metallurgical coal produced by the Metropolitan Coal (approximately 2.22 Mt CO_2-e per annum on average) to the total anthropogenic greenhouse gas emissions globally (excluding land use change) in 2023 (i.e. 53,100 Mt CO_2-e) indicates these emissions would be approximately 0.004% of global anthropogenic emissions (Appendix G of the Modification Report).

4. Cumulative Impacts

Issue

Some submissions suggest that no additional coal projects should be approved in light of global greenhouse reduction efforts to address climate change.

Response

As described in the NSW Government's Strategic Statement (NSW Government, 2020b), the importance of metallurgical coal supply for use in the steelmaking process is recognised:

> *The use of coal in the manufacture of steel (coking coal) is likely to be sustained longer as there are currently limited practical substitutes available.*

The Strategic Statement also recognises the value of coal production to the NSW economy, including:

- The long history of coal mining in NSW and its close ties with regional communities in the Illawarra region.
- The potential for coal production to provide significant benefits to local communities, including jobs and investment.
- Coal production's significant contributions to export earnings as the State's biggest single export earner.

The NSW Government's (2020b) Strategic Statement outlines how the NSW Government will continue to support responsible resource development for the benefit of the State. The statement indicates that the NSW Government will take a balanced approach to the future of coal mining in the State by setting a clear and consistent policy framework that supports investment certainty, so the NSW coal sector can satisfy long-term global demand for coal, while giving NSW coal-reliant communities time to adapt to a low carbon future. The Modification would be consistent with the statement. It is also noted that the NSW Government's Net Zero Plan reiterates that actions on climate change should not undermine the businesses, jobs and communities supported by mining (NSW Government, 2020a).

Metropolitan Coal is and will continue to meet its obligations under the Safeguard Mechanism, including for the Modification, by retiring Australian Carbon Credit Units or Safeguard Mechanism Credit units as required.

Metropolitan Coal also understands that NSW emission projections from the Net Zero Emissions Modelling team already include the Metropolitan Coal Mine operating until 2032.

5. Reporting Requirements

Issue

Some submitters raised concerns regarding the greenhouse gas-related reporting and requirements of Metropolitan Coal, or its parent company, including its commitments to follow NSW regulations/laws.

Response

The proponent for the Modification is Metropolitan Collieries Pty Ltd (Metropolitan Coal), a wholly owned subsidiary of Peabody Energy Australia Pty Ltd. Metropolitan Coal is an Australian company that was specifically founded to operate the Metropolitan Coal Mine and is bound by applicable Australian and NSW legislation.

Metropolitan Coal is legally required to comply with the Commonwealth *National Greenhouse Gas and Energy Reporting Act 2007* (NGER Act) and the Safeguard Mechanism administered by the Clean Energy Regulator (CER). These legislative frameworks ensure transparent reporting and management of emissions across Australia and are key mechanisms for achieving Australia's NDCs under the Paris Agreement.

Scope 1 and Scope 2 emissions from the Metropolitan Coal Mine are reported annually to the CER by Metropolitan Coal under the NGER Act and operates as a designated facility under the Safeguard Mechanism (which applies an annually declining emissions baseline in line with national targets).

Metropolitan Coal would continue to comply with its reporting obligations under the NGER Act, Safeguard Mechanism and applicable NSW EPA licence requirements should the Modification be approved.

6. Renewable Energy

Issue

Several submissions received by the public and organisations requested the consideration of the potential for use of alternative energies, including renewable energy. The submitters were also concerned that the Modification would involve the use of resources that could otherwise be used for renewable energy projects.

Response

The metallurgical coal produced by the Modification cannot be replaced by renewable or alternative energy, because currently Metropolitan Coal supplied coal is, and future Modification coal will be, used as a reducing agent in the steelmaking process, not for power generation. BlueScope is continuing with current furnace technology given the prevailing view that 'green steel' is still under development.

The steel produced by BlueScope may be used in the development of renewable projects and associated infrastructure (e.g. powerlines).

4.2.9 Socio-economic

Comments made in public and organisation submissions relevant to the socio-economic include clarification of concerns relating to:

1. Socio-economic benefit.
2. Community impacts.
3. Treatment of workers.
4. Economic benefits and exporting overseas.
5. Recreational Value of the Royal National Park.

Responses to these comments are provided below.

1. Socio-economic Benefit

Issue

Submissions queried the justification of the socio-economic benefits of the Modification given the potential impacts to the security of water within the Sydney Drinking Water Catchment .

Response

The Modification has been proposed as a logical extension of the existing Metropolitan Coal Mine to maximise the recovery of coal resources within the currently approved mine life. The Modification would enable the recovery of an additional 3.2 Mt of ROM coal from Longwall 317 and 318, contributing approximately $49 million in additional royalties to the State of NSW over the mine's life in real terms.

The Modification would also continue the benefits for the region and the State in terms of employment opportunities (direct and indirect), income and value added to a further two years.

As far as practicable, Metropolitan Coal Mine employs local contractors, supply companies and services during the course of its operations. This would continue under the Modification for a further two years.

Metropolitan Coal has made a number of significant donations to support the community of Helensburgh and the greater Illawarra region throughout the mine life. Community donations and sponsorship during 2024 amounted to over $190,000. Metropolitan Coal plans to continue supporting community initiatives throughout the life of the Metropolitan Coal Mine including the Modification (i.e. a two year increase).

Further, the Modification coal production would continue to contribute to the continuation of manufacturing operations at the BlueScope Steelworks, the operation of the Port Kembla Coal Terminal, NSW export income and industry in other countries that purchase the Modification product coal.

Unlike some greenfield mining proposals that are developed to address general projected global commodity demand, the Metropolitan Coal Mine is an existing metallurgical coal mine that has a high level of integration with its metallurgical coal customers, including BlueScope Steelworks.

Metropolitan Coal has considered the potential impact of the Modification on the water supply of the Sydney Drinking Water Catchment and Woronora Special Area (see Section 6 of the Modification Report).

A Surface Water Assessment conducted by ATC Williams (2025a) concludes that the subsidence performance measures *"negligible reduction to the quality or quantity of water resources reaching the Woronora Reservoir"* would continue to be met for the Modification (Appendix C of the Modification Report). The Modification would therefore not impact the continued use of the land for water supply purposes. Mining activities co-exist with catchment management in this area, and the Modification is not expected to change this existing land use compatibility.

Mining operations and State Conservation Areas have historically co-existed and this would continue for the Modification (e.g. no evidence of significant loss of water, or changes in water quality from mining, or concern to water supply). The Modification would also be developed in a manner that is responsible and considers the benefits and consequences of the development for other land uses, including coexistence with the Woronora Special Area.

The Metropolitan Coal Mine Project Approval (08_0149) requires that there is no greater than negligible reduction in the quality or quantity of Woronora Reservoir. The Metropolitan Coal Mine, incorporating the Modification would continue to comply with this requirement.

In the absence of the Modification, the Metropolitan Coal Mine is most likely to close after the completion of Longwall 316 in 2029, leading to significant job losses at the Metropolitan Coal Mine and likely flow on effects to the local region and the Southern Coalfield economic ecosystem including Port Kembla Coal Terminal and BlueScope's Port Kembla Steelworks.

2. Community Impacts

Issue

Concerns were raised in the public submissions regarding potential impacts on human health associated with potential impacts of the Modification.

Response

The Metropolitan Coal Mine has played an important role in the Illawarra region from a social and economic perspective, through its ongoing production of metallurgical coal product for BlueScope's Port Kembla Steelworks and sale of product to international markets via Port Kembla.

The EPA impact assessment criteria and the National Environment Protection Measures Air Quality Environmental Protection goals are set to ensure the protection of human health and wellbeing. These criteria are periodically reviewed by the relevant NSW and Commonwealth Government authorities in the context of available health and air quality data. The NPfI (EPA, 2017) also considers management of noise impacts to protect the amenity and wellbeing of local communities living near industry.

The potential noise and dust impacts associated with the Modification were assessed to have negligible impact (Attachment 6 and Attachment 7).

The Metropolitan Coal Mine operates under an Environmental Management Strategy that provides a framework to facilitate the conduct of operations in an environmentally responsible manner in accordance with relevant statutory requirements. The implementation of this strategy would continue for the Modification.

The continuation of the Metropolitan Coal Mine through the proposed Modification would result in continued positive social impacts through continued employment of the 400-strong Metropolitan Coal Mine workforce of whom 90% reside in the Wollongong, Shellharbour and Sutherland Shire Local Government Areas. The Modification would continue the benefits to the region and State in terms of direct and indirect employment, income and value added for a further two years.

3. Treatment of Workers

Issue

A submitter queried the adequacy of Metropolitan Coal's workforce numbers and employment standards at the Metropolitan Coal Mine.

Response

The proponent for the Modification is Metropolitan Collieries Pty Ltd (Metropolitan Coal), a wholly owned subsidiary of Peabody Energy Australia Pty Ltd. Metropolitan Coal is an Australian company that was specifically founded to operate the Metropolitan Coal Mine and is bound by applicable Australian and NSW legislation.

Metropolitan Coal must comply with the Commonwealth *Fair Work Act 2009* and NSW *Work Health and Safety Act 2011*.

The matters raised are not considered relevant to an assessment under the EP&A Act.

It is noted that the Mining and Energy Union South Western District provided a submission of support for the Modification stating *"It would allow for the recovery of high-quality coal that would otherwise be sterilised, supporting local steelmaking at Port Kembla, generating economic activity including royalties for NSW and maintaining good local jobs for an additional two years".*

4. Economic Benefits and Exporting Overseas

Issue

A public submission raised concerns regarding the tax paid by the company.

Response

The extended Longwall 317 and additional Longwall 318 would provide for the continuation of employment for approximately 400 personnel for a further two years, as well as the generation of benefits such as $49 million in royalties to NSW, that would otherwise not be realised.

Peabody abides by all applicable tax rules and regulations where we operate and those include corporate income taxes, payroll taxes and royalties.

5. Recreational Value of the Royal National Park

Issue

Concerns were raised in some submissions regarding potential impacts to the Royal National Park, in particular impacts on water quality and security that could potentially result in the deterioration of recreational significance.

Response

Metropolitan Coal has considered the potential impact of the Modification on the Royal National Park and Garawarra State Conservation Area (see Attachment 5 of the Modification Report).

The Royal National Park and Garawarra State Conservation Area are located approximately 3 km east of the Modification.

Due to the distance, the Royal National Park and Garawarra State Conservation Area are not anticipated to experience any significant impacts within the Royal National Park and Garawarra State Conservation Area.

Further information regarding this matter is provided in responses to Government agency submissions (Section 4).

5 MODIFICATION EVALUATION

A total of 225 submissions on the Modification were received from government agencies, local councils, organisations and members of the public during the exhibition period for the Modification. These comprised of 13 submissions (6%) from government agencies and local councils, 21 submissions (9%) from organisations, and 191 submissions (85%) from members of the public.

This Submissions Report provides responses to issues raised by government agencies, local councils, organisations and members of the public during the exhibition period for the Modification and has been prepared in consideration of the *State significant development guidelines – preparing a submissions report* (DPHI, 2024a).

The Modification Report provides an evaluation of the Modification in Section 7 (Metropolitan Coal, 2025a). This evaluation concluded that in weighing up the main environmental impacts (costs and benefits) associated with the proposal as assessed and described in the Modification Report, the Modification is, on balance, considered to have merit.

Since lodgement of the Modification Report, Metropolitan Coal has reviewed the submissions on the Modification and has continued to consult with members of the community and key NSW Government agencies, and also sought additional advice from its technical specialists. Based on this further consideration and analysis, Metropolitan Coal has concluded that the key potential impacts and benefits of the Modification and the justification for the Modification remain consistent with the conclusions presented in Section 7 of the Modification Report.

Unlike some greenfield mining proposals that are developed to address general projected global commodity demand, the Metropolitan Coal Mine is an existing metallurgical coal mine that has a high level of integration with its metallurgical coal customers, including BlueScope Steelworks.

In the absence of the Modification, the Metropolitan Coal Mine is most likely lead to close after the completion of Longwall 316 in 2029, leading to significant job losses at the Metropolitan Coal Mine and likely flow on effects to the local region and the Southern Coalfield economic ecosystem including Port Kembla Coal Terminal and BlueScope's Port Kembla Steelworks.

In weighing up the main environmental impacts (costs and benefits) associated with the proposal as assessed and described in the Modification Report and this Submissions Report, the Modification remains, on balance, in the public interest of the State of NSW.

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