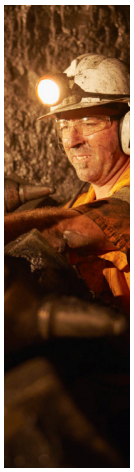
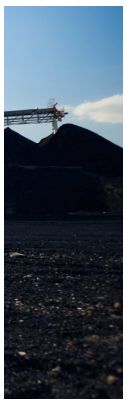





Ashton-Ravensworth Underground Mine Integration Modification

Ravensworth Underground Mine Modification Report

MAIN TEXT

RAVENSWORTH UNDERGROUND

GLENCORE

YANCOAL 兖煤澳大利亚有限公司

EXECUTIVE SUMMARY

Background

The Ravensworth Mine Complex and Ashton Mine Complex are neighbouring open cut and underground coal mining complexes, located in the Singleton Local Government Area, in the Hunter Valley region of New South Wales (NSW).

The Ravensworth Mine Complex includes the Ravensworth Operations Project and the Ravensworth Underground Mine (RUM). The RUM is owned and operated by Resource Pacific Pty Limited. Glencore Coal Assets Australia Pty Limited oversees the management of the RUM.

The Ashton Mine Complex includes the Ashton Coal Project (including the completed North East Open Cut [NEOC] and the Ashton Underground Mine) and approved Ashton South East Open Cut (SEOC) Project. The Ashton Coal Project is operated by Ashton Coal Operations Pty Limited (ACOL), a wholly owned subsidiary of Yancoal Australia Limited (Yancoal). Development for the SEOC Project has not yet commenced.

The RUM and Ashton Underground Mine share a common mining lease boundary and are approved to extract coal from similar coal seams.

ACOL is proposing to access and extract approved but unmined coal resources at the RUM and integrate part of the approved RUM with the Ashton Coal Project (hereafter referred to as the Modification). The coal would be accessed from the Ashton Underground Mine via new non-subsiding first workings developed between the two mining areas.

To support the modification applications, separate Modification Reports have been prepared for the RUM and the Ashton Coal Project. This Modification Report has been prepared to support an application to modify the Development Consent DA 104/96 for the RUM. A separate modification application has been prepared to modify Development Consent DA 309-11-2001-i for the Ashton Coal Project.

Modifications to both Development Consent DA 104/96 (RUM) and Development Consent DA 309-11-2001-i (Ashton Coal Project) are being sought under section 4.55(2) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Modification Overview

The Modification would allow ACOL to access and mine coal resources at the RUM that are approved to be mined under Development Consent DA 104/96.

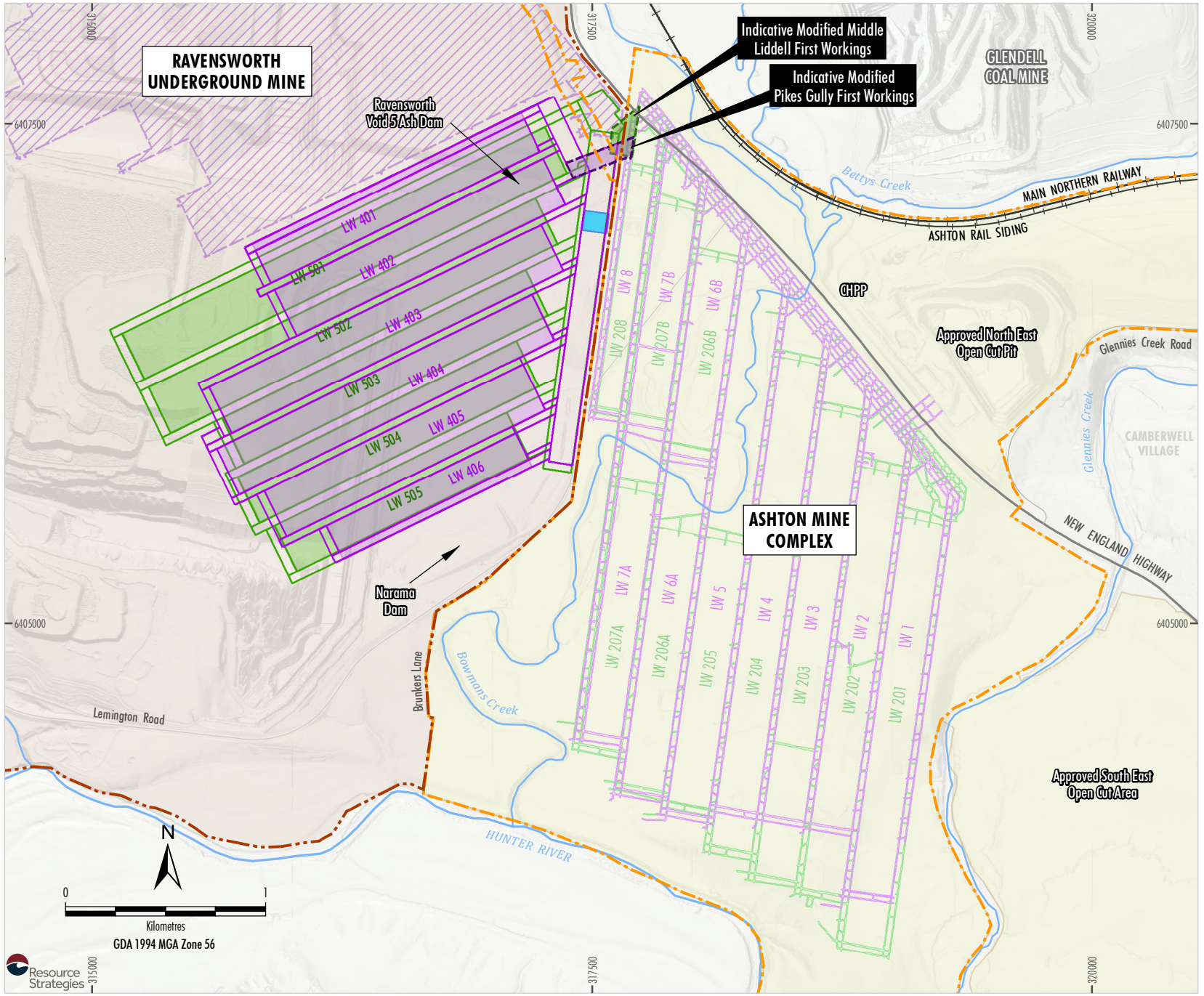
The modifications to the RUM Development Consent DA 104/96 would involve the following (Figure ES-1):

- transfer of ROM coal from the RUM Pikes Gully and Middle Liddell coal seams to the Ashton Coal Project for handling, processing and transport;
- minor changes to the approved Pikes Gully Seam Longwalls 10-15 (narrowing and shortening of some longwall panels) and Middle Liddell Seam Longwalls 14-18 (shortening of some longwall panels);
- transfer of water and gas from the ACOL-operated portion of the RUM to the Ashton Coal Project;
- minor adjustments to the gas and ventilation management infrastructure to ensure continued safe operation of the ACOL-operated portion of the RUM;
- extension of mining operations until 31 December 2032; and
- other administrative changes to facilitate management of the ACOL-operated portion of the RUM and integration with the Ashton Coal Project, such as integrated environmental management plans (as appropriate).

Strategic Context

The RUM has been in care and maintenance since 2014. If mining was not to recommence, then the approved but as yet unmined RUM coal resources would most likely not be mined. An opportunity therefore exists for ACOL to access and extract the approved but unmined RUM coal resources via the Ashton Underground Mine.

Yancoal has commenced commercial negotiations with Glencore to realise this opportunity.



LEGEND

Ashton Mine Complex
- Ashton Coal Project Development Consent Boundary
- Ashton Mine Complex
- Pikes Gully Seam Longwall Layout
- Upper Lower Liddell Seam Longwall Layout

Ravensworth Underground Mine
- Ravensworth Underground Mine Development Consent Boundary
- Completed Pikes Gully Seam Workings
- Existing Shaft 5 Location

Proposed Modification
- Indicative Pikes Gully Seam Longwall Layout
- Indicative Modified Pikes Gully First Workings
- Indicative Middle Liddell Seam Longwall Layout
- Indicative Middle Liddell Seam First Workings

NOTE
The approved Upper Liddell and Lower Barrett Seams at the Ashton Coal Project and approved Lemington and Barrett Seams at the Ravensworth Underground Mine are not shown on this figure.

Source: NSW Spatial Services (2021); Dams Safety NSW (2020)

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ASHTON - RAVENSWORTH UNDERGROUND MINE INTEGRATION MODIFICATION

Indicative Modification General Arrangement

Figure ES-1

Stakeholder Engagement

Yancoal and Glencore have consulted with the following stakeholders during the development of this Modification Report:

- the RUM and Ashton Coal Project Community Consultative Committees;
- the Department of Planning, Industry and Environment (DPIE);
- NSW Resources Regulator;
- NSW Division of Mining, Exploration and Geoscience within the Department of Regional NSW;
- DPIE – Water;
- NSW Natural Resources Access Regulator;
- NSW Environment Protection Authority;
- Singleton Council;
- Subsidence Advisory NSW;
- Dams Safety NSW; and
- NSW Health.

Key comments and issues raised during consultation have been considered and addressed in the preparation of this Modification Report.

Assessment of Potential Environmental Impacts

Glencore and ACOL have undertaken a review of the potential environmental impacts of the Modification to identify key potential environmental issues requiring assessment. The key environmental issues identified are summarised in Table ES-1.

Based on the outcomes of the environmental review, the Modification would result in a negligible change or reduction to previously assessed and approved impacts and, therefore, would involve minimal environmental impact.

Justification for the Modification

The modified RUM would be "substantially the same" as the approved RUM. The overall scale and nature of the development including intensity, production rates, mining method, hours of operation and severity of impacts would remain unchanged or be reduced.

The Modification would enable ACOL to mine approved, but as yet unmined, coal resources at the RUM. These coal resources would most likely not be mined without the Modification.

The proposed Modification would have the following benefits:

- would provide for the efficient extraction of approved resources that would potentially not be mined; and
- would utilise existing planning approvals to maximise economic recovery of approved coal resource.

The Modification can be implemented in accordance with the existing environmental limits and performance measures for the RUM, and the Modification infrastructure can be located in previously cleared and approved areas.

This Modification Report has been prepared in consideration of relevant legislation. ACOL as the proponent for the identified ACOL-operated portion of the RUM would make revisions to the relevant Ashton Coal Project plans, licences, and agreements to incorporate changes from the Modification as necessary.

In weighing up the main environmental impacts (costs and benefits) assessed and described in this Modification Report, the Modification is, on balance, considered to be in the public interest of the State of NSW.

Table ES-1
Key Outcomes of Environmental Review for the Modified RUM

Environmental Aspect	Summary of Key Environmental Review Conclusions
Subsidence	There would be a **reduction** in subsidence impacts compared to the approved RUM as the longwall layout represents a smaller footprint than the approved. Subsidence effects in some areas would not occur due to the shortening of RUM longwall panels compared to the approved layout. The predicted vertical subsidence in the area of natural ground is reduced compared to the previous predictions for the approved RUM and the magnitude of impacts is also expected to reduce. The modified RUM mine layout has been designed to be consistent with the Subsidence Impact Performance Measures in Development Consent DA 104/96. The majority of the Modification longwall panels are located beneath existing open cut mining operations and ongoing interactions with these operations would be managed via a commercial agreement between ACOL and Glencore. ACOL would also manage the Pikes Gully Seam secondary extraction in accordance with the approved Subsidence Management Plan (as modified). The Modification would result in no greater impacts or environmental consequences on natural or built features than those for the approved layout.
Groundwater Resources	There would be a **reduction** in groundwater impacts compared to the approved RUM as the longwall layout represents a smaller footprint than the approved. Updated groundwater modelling incorporating the revised sequencing of mining (including the revised RUM longwall layout) indicates that groundwater inflows would be generally consistent with the approved RUM.
Surface Water Resources	There would be **no change** in surface water impacts compared to the approved RUM. There are no increased subsidence impacts on surface water features expected. Groundwater inflows to the RUM would be transferred to, and managed within, the existing Ashton Coal Project water management system.
Air Quality	There would be a **reduction** in air quality impacts at the RUM as ROM coal would be processed at the Ashton CHPP, and emissions would be limited to ventilation and flaring of gas (consistent with the approved RUM).
Greenhouse Gas	There would be a **substantial reduction** in greenhouse gas emissions compared to the approved RUM, as a result of the reduction in longwall extents compared to the approved layout.
Noise	There would be **no increase** in noise impacts compared to the approved RUM. The RUM would continue to comply with the noise limits conditioned in Development Consent DA 104/96 under the extended mine life (to 2032).
Social	There would be a **negligible change** in social impacts under the Modification compared to the approved operations.
Transport	There would be a **reduction** in impacts on the local road network compared to those previously assessed for the RUM as the RUM operational workforce would not be required. The ACOL workforce would mine the ACOL-operated areas of the RUM under the Modification.
Biodiversity	The Modification would **not increase** the impact on biodiversity values, including threatened species and ecological communities. The Modification does not require additional surface disturbance of remnant vegetation beyond that already cleared or approved for clearing for the RUM. There would be no increase in subsidence impacts (including to vegetation) compared to the approved RUM.
Heritage	There would be **no increase** in impacts on heritage compared to the approved RUM. The Modification does not require additional surface disturbance of heritage items beyond that already approved for the RUM. There would be no increase in subsidence impacts compared to the approved RUM.
Other Aspects	The Modifications would result in **negligible or no change** in potential impacts on other environmental and economic considerations. The Modification would allow ACOL to mine approved RUM coal resources that would most likely not be mined without the Modification, and would provide the associated economic benefits (e.g. royalties).

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1 INTRODUCTION

The Ravensworth Mine Complex and Ashton Mine Complex are neighbouring open cut and underground coal mining complexes, located in the Singleton Local Government Area (LGA), in the Hunter Valley region of New South Wales (NSW) (Figure 1).

The Ravensworth Mine Complex includes the Ravensworth Operations Project and the Ravensworth Underground Mine (RUM). The RUM is owned and operated by Resource Pacific Pty Limited (RPPL). Glencore Coal Assets Australia Pty Limited oversees the management of RUM.

The Ashton Mine Complex includes the Ashton Coal Project (including the completed North East Open Cut [NEOC] and the Ashton Underground Mine) and approved Ashton South East Open Cut (SEOC) Project. The Ashton Coal Project is operated by Ashton Coal Operations Pty Limited (ACOL), a wholly owned subsidiary of Yancoal Australia Limited (Yancoal).

The RUM and Ashton Underground Mine share a common mining lease boundary (Figure 2) and are approved to extract coal from similar coal seams.

ACOL is proposing to access and extract approved but unmined coal resources at the RUM and integrate part of the approved RUM with the Ashton Coal Project (hereafter referred to as the Modification). The coal would be accessed from the Ashton Underground Mine via new non-subsiding first workings developed between the two mining areas.

To support the modification applications, separate Modification Reports have been prepared for the RUM and the Ashton Coal Project. This Modification Report has been prepared to support an application to modify the Development Consent DA 104/96 for the RUM. A separate modification application has been prepared to modify Development Consent DA 309-11-2001-i for the Ashton Coal Project.

1.1 APPLICANTS' DETAILS

The Applicants are:

Resource Pacific Pty Limited
Liddell Station Road
Ravensworth NSW 2330

Ashton Coal Operations Pty Limited
Glennies Creek Road
Camberwell NSW 2330

1.2 BACKGROUND

1.2.1 Ravensworth Mine Complex

The Ravensworth Mine Complex includes the Ravensworth Operations Project and the RUM.

The Ravensworth Operations Project is a standalone open cut operation authorised under Project Approval 09_0176. The Ravensworth Operations Project is not a component of this Modification.

The RUM has an approved operational capacity of up to 7 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal until 31 July 2024.

Development Consent DA 104/96 allows for ROM coal from the RUM to be transferred via underground conveyors to the RUM pit top area, for processing at the Ravensworth Coal Handling and Preparation Plant (CHPP). The Ravensworth CHPP and product coal loadout facilities are approved under Project Approval 09_0176 for the Ravensworth Operations Project.

Development Consent DA 104/96 has been modified nine times since approval for the RUM was originally granted, most recently under the former section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

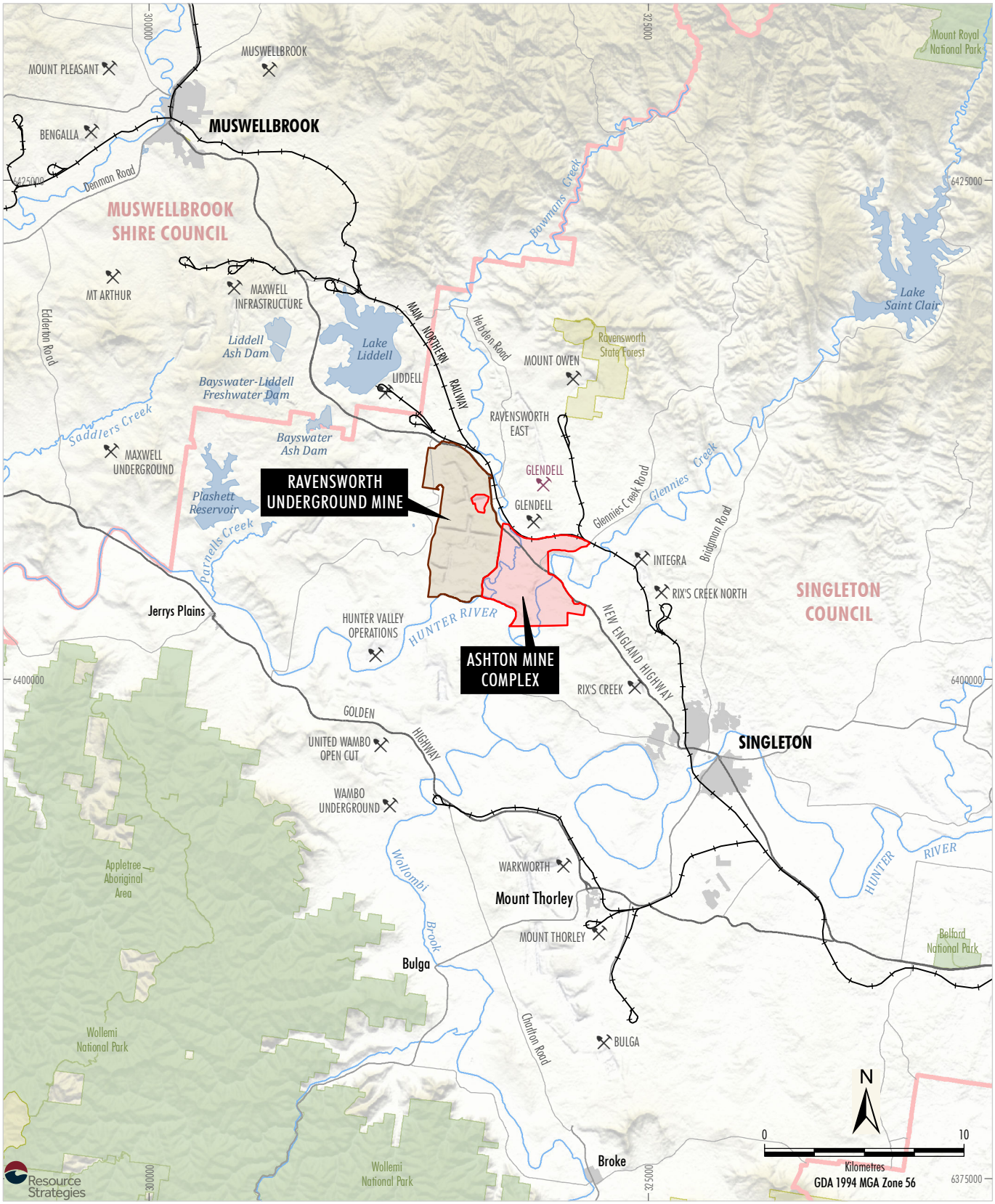
The RUM has been in care and maintenance since 2014. If mining was not to recommence, then the approved but as yet unmined RUM coal resources would most likely not be mined. An opportunity therefore exists for ACOL to access and extract approved but unmined RUM coal resources via the Ashton Underground Mine.

1.2.2 Ashton Mine Complex

The Ashton Mine Complex includes the Ashton Coal Project, approved under Development Consent DA 309-11-2001-i, and the SEOC Project, approved under Project Approval 08_0182.

The Ashton Coal Project includes the completed NEOC, Ashton Underground Mine, a CHPP, a rail siding and rail loadout as well as a range of other surface support facilities and infrastructure.

The Ashton Coal Project has an approved operational capacity of up to 5.45 Mtpa of ROM coal until 26 February 2024, or a period of 12 years following recommencement of open cut mining operations (i.e. the SEOC Project), whichever is the longer.



LEGEND

- Mining Operation
- Proposed Mining Operations (Application Lodged)
- Local Government Area
- State Forest
- National Parks and Wildlife Estate
- Ashton Mine Complex - Mining and Exploration Tenement Area
- Ravensworth Underground Mine - Mining and Exploration Tenement Area

Source: NSW Spatial Services (2021)

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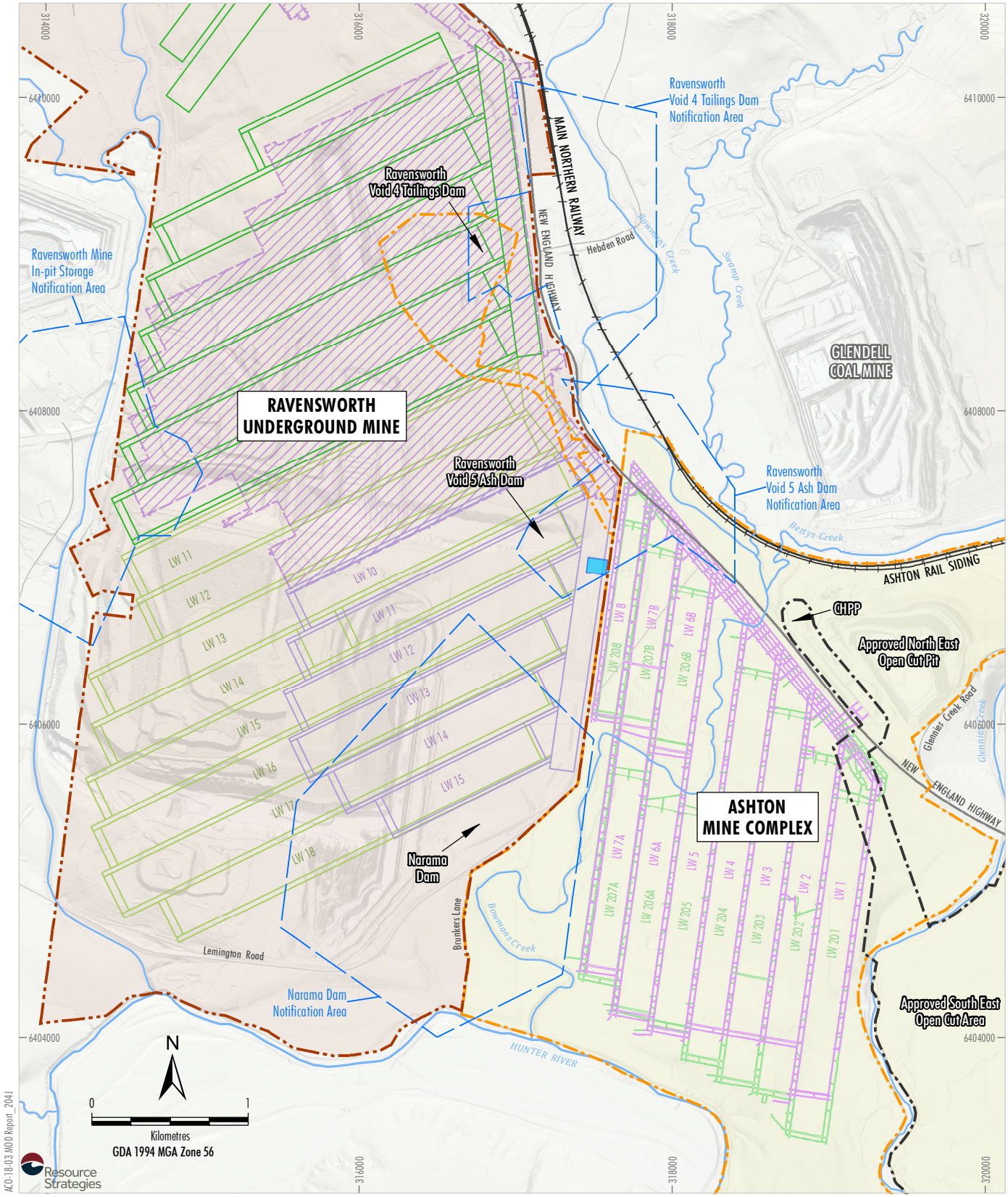
ASHTON - RAVENSWORTH UNDERGROUND MINE INTEGRATION MODIFICATION

Regional Location

Figure 1



LEGEND

- Dam Notification Area
- Ashton Mine Complex
  - Ashton Coal Project Development Consent Boundary
  - South East Open Cut Approval Boundary
  - Ashton Mine Complex
  - Pikes Gully Seam Longwall Layout
  - Upper Lower Liddell Seam Longwall Layout
- Ravensworth Underground Mine
  - Ravensworth Underground Mine Development Consent Boundary
  - Existing Shaft 5 Location
  - Completed Pikes Gully Seam Workings
  - Approved Pikes Gully Seam Longwall Layout
  - Approved Middle Liddell Seam Longwall Layout
  - Approved Upper Liddell Seam Longwall Layout

NOTE

The approved Upper Liddell and Lower Barrett Seams at the Ashton Coal Project and approved Lemington and Barrett Seams at the Ravensworth Underground Mine are not shown on this figure.

Source: NSW Spatial Services (2021); Dams Safety NSW (2020)

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ASHTON - RAVENSWORTH UNDERGROUND MINE INTEGRATION MODIFICATION

Approved Longwall Layouts

Figure 2

Development Consent DA 309-11-2001-i also authorises the integration of the Ashton Coal Project and the SEOC Project, which combined comprise the Ashton Mine Complex (Figure 2).

Development under Project Approval 08_0182 for the SEOC Project has not yet commenced.

Development Consent DA 309-11-2001-i has been modified 10 times since approval for the Ashton Coal Project was originally granted, most recently under the former section 75W of the EP&A Act.

1.3 OVERVIEW OF THE MODIFICATION

The modifications to the RUM Development Consent DA 104/96 would involve the following (Figure 3):

- transfer of ROM coal from the RUM Pikes Gully and Middle Liddell coal seams to the Ashton Coal Project for handling, processing and transport;
- minor changes to the approved Pikes Gully Seam Longwalls 10 to 15 (narrowing and shortening of some longwall panels) and Middle Liddell Seam Longwalls 14 to 18 (shortening of some longwall panels);
- transfer of water and gas from the ACOL-operated portion of the RUM to the Ashton Coal Project;
- minor adjustments to the gas and ventilation management infrastructure to ensure safe operation of the ACOL-operated portion of the RUM;
- extension of mining operations until 31 December 2032; and
- other administrative changes to facilitate management of the ACOL-operated portion of the RUM and integration with the Ashton Coal Project, such as integrated environmental management plans (as appropriate).

1.3.1 Integration of Operations

The Ashton Underground Mine and the RUM share a common mining lease boundary and the approved underground mining areas are separated (at their closest) by approximately 45 metres (m) in the Pikes Gully and Upper Lower Liddell coal seams (Figure 2).

The proposal requires a connection to be made between the existing Ashton Underground Mine Pikes Gully Seam main headings to the approved RUM Pikes Gully Seam longwall mining area via non-subsiding first workings (Figure 3). A further connection would be made between the Ashton Underground Mine Upper Lower Liddell Seam main headings to the approved RUM Middle Liddell Seam longwall mining area. ACOL would utilise its existing longwall mining equipment and employees to mine the Pikes Gully and Middle Liddell coal seams at the RUM.

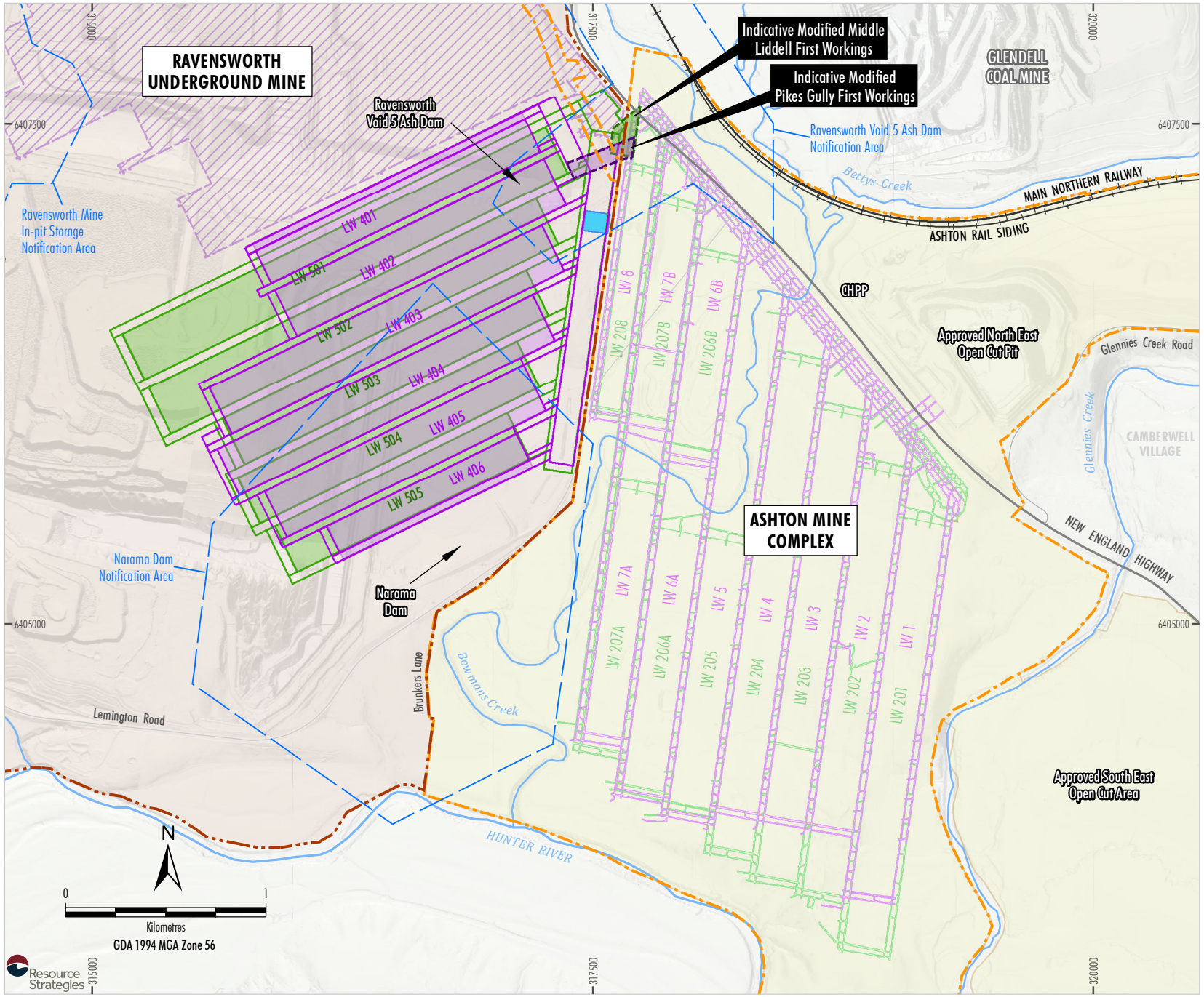
Development of first workings in the Pikes Gully Seam between the two mines would need to commence in August 2022 to enable continuity of ACOL's operations. This will allow ACOL to shift mining to the RUM after the completion of mining in the Upper Lower Liddell Seam (where it is currently mining). Mining of the remaining Lower Barrett Seam at the Ashton Underground Mine would then proceed upon completion of mining in the Pikes Gully and Middle Liddell coal seams at the RUM.

ACOL would handle, process and transport coal from the RUM in the same manner it handles coal from its Ashton Underground Mine. ROM coal from the RUM would be transferred via underground conveyors to the Ashton Underground Mine and through to the Ashton pit top, via its existing coal clearance system. The ROM coal would be processed at the Ashton Coal Project CHPP prior to being loaded onto trains for transportation to market using the existing Ashton Coal Project rail siding and rail loadout.

Rejects and tailings generated from the processing of the RUM ROM coal would be emplaced in the existing NEOC void and Ravensworth Void 4 Tailings Dam.

Water from the ACOL-operated portion of the RUM would also be transferred to the Ashton Coal Project to be managed within the existing water management system.

A combination of approved gas management and ventilation infrastructure at the RUM and Ashton Coal Project would be used for the integrated operations.



LEGEND

Dam Notification Area

Ashton Mine Complex

- Ashton Coal Project Development Consent Boundary
- Ashton Mine Complex
- Pikes Gully Seam Longwall Layout
- Upper Lower Liddell Seam Longwall Layout

Ravensworth Underground Mine

- Ravensworth Underground Mine Development Consent Boundary
- Completed Pikes Gully Seam Workings
- Existing Shaft 5 Location

Proposed Modification

- Indicative Pikes Gully Seam Longwall Layout
- Indicative Modified Pikes Gully First Workings
- Indicative Middle Liddell Seam Longwall Layout
- Indicative Middle Liddell Seam First Workings

NOTE
The approved Upper Liddell and Lower Barrett Seams at the Ashton Coal Project and approved Lemington and Barrett Seams at the Ravensworth Underground Mine are not shown on this figure.

Source: NSW Spatial Services (2021); Dams Safety NSW (2020)

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ASHTON - RAVENSWORTH UNDERGROUND MINE INTEGRATION MODIFICATION

Indicative Modification General Arrangement

Figure 3

To enable the integration of the operations, modifications to Development Consent DA 104/96 (RUM) and Development Consent DA 309-11-2001-i (Ashton Coal Project) are required. This would include the modification of Development Consent DA 104/96 conditions to facilitate environmental and operational management of part of the RUM by ACOL. The area of the RUM that would be managed by ACOL under the modified Development Consent DA 104/96 is shown on Figure 4 (and is herein referred to as the ACOL-operated portion of the RUM). The modifications to the RUM are described in Section 4. The modifications to the Ashton Coal Project are described in a separate Modification Report supporting the application to modify Development Consent DA 309-11-2001-i (ACOL, 2021).

1.3.2 Consideration of Alternative Options

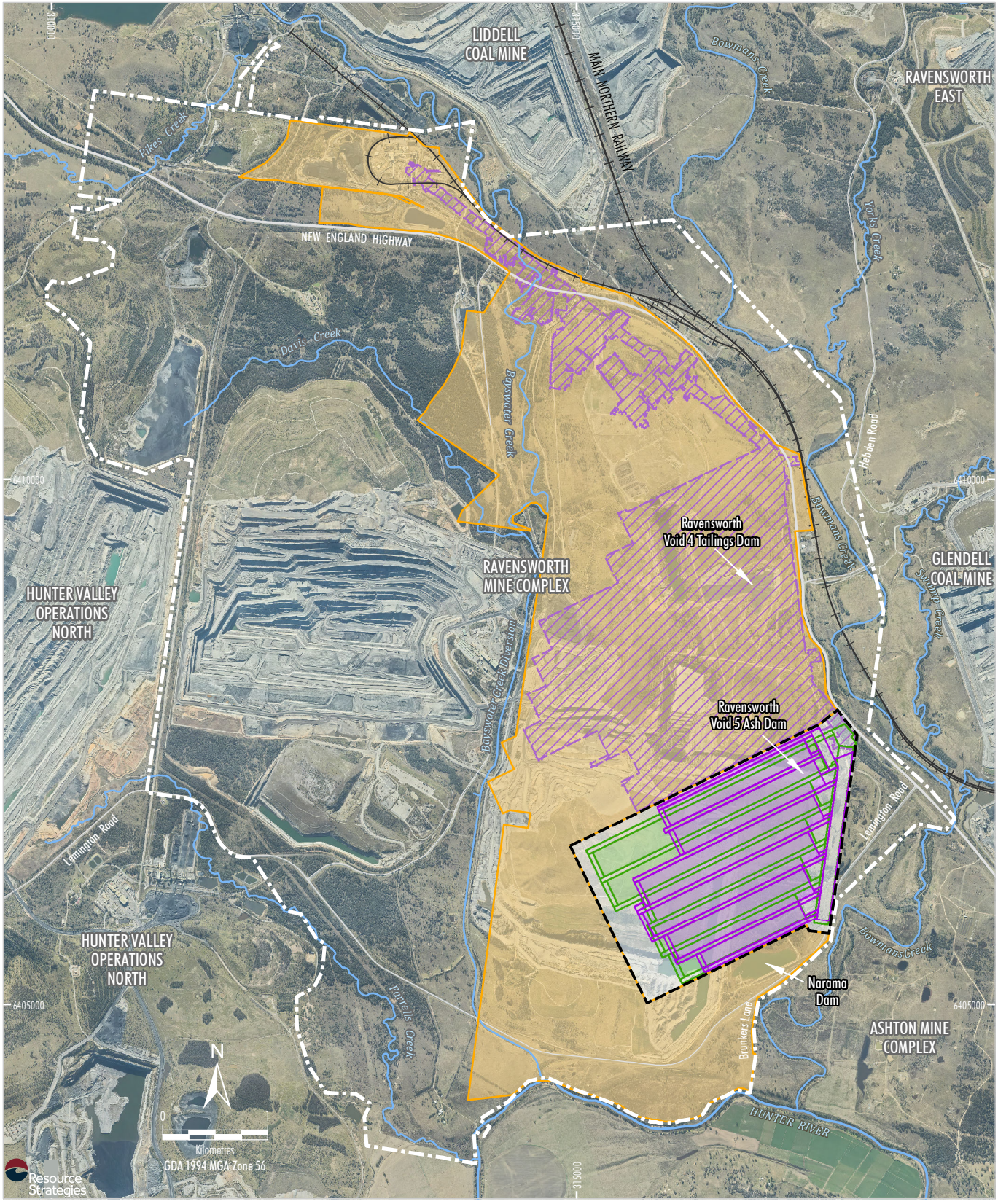
Alternatives to the proposed Modification would be to recommence mining operations at the RUM under the existing Development Consent DA 104/96, or to close the mine.

The completed Pikes Gully workings at the RUM have not been dewatered since the mine went into care and maintenance in 2014. Recommencing mining operations at the RUM via the existing portal and workings would require significant remedial works to the mine and pit top following dewatering of the workings. It would also require the re-establishment of an underground mining workforce.

Closing the RUM would forgo the approved but undeveloped resource with consequential loss of royalties to the state.

The Modification was selected as being the preferred option on the basis that it:

- would provide for the efficient extraction of approved resources that would potentially not be mined; and
- would utilise existing planning approvals to maximise economic recovery of approved coal resource.



LEGEND

- Ravensworth Open Cut Operations Development Consent Boundary

Ravensworth Underground Mine

- Completed Pikes Gully Seam Workings
- Indicative Pikes Gully Seam Longwall Layout
- Indicative Middle Liddell Seam Longwall Layout

Ravensworth Underground Mine - Management Responsibility under Development Consent DA 104/96

- Operational Area to be managed by Resource Pacific Pty Ltd (Glencore) #
- Operational Area to be managed by Ashton Coal Operations Ltd (Yancoal) # ^

Source: NSW Spatial Services (2021)
Orthophoto: Ravensworth Mine Complex (2021)

The Ravensworth Underground Mine includes ancillary infrastructure and surface disturbance associated with underground mining including, but not limited to, ventilation, gas management and water management infrastructure and subsidence monitoring, management and remediation activities.

^ This area is called the 'ACOL-operated portion of the RUM' in the Modification Report.

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ASHTON - RAVENSWORTH
UNDERGROUND MINE INTEGRATION MODIFICATION

ACOL's Management Responsibility Under Development Consent DA 104/96

Figure 4

2 OVERVIEW OF THE APPROVED OPERATIONS

2.1 RAVENSWORTH UNDERGROUND MINE

This Modification applies to the ACOL-operated portion of the RUM only (Figure 4). RPPL will continue to manage the completed Pikes Gully Longwalls 1 to 9 mining area and continue evaluating its future plans for the remaining approved Lemington and Barrett coal seams at the RUM.

2.1.1 Underground Mining

The RUM Development Consent DA 104/96 includes underground longwall mining within the Lemington (B and C), Pikes Gully, Liddell (Upper and Middle) and Barrett coal seams (Figure 2)[1].

In October 2014, after the completion of Longwall 9 in the Pikes Gully Seam, operations at RUM were placed into care and maintenance and no further underground mining has occurred since. A total of nine longwalls (Longwalls 1 to 9) were mined out of the approved 16 longwall panels in the Pikes Gully Seam.

Approximately 400 m of development headings had also been advanced ahead of Longwall 9 in the Pikes Gully Seam (in preparation for Longwall 10), before the operations were suspended. An approved (August 2013) Subsidence Management Plan (SMP) remains in place for Longwalls 10 to 15 in the Pikes Gully Seam[2]. This SMP approves the secondary extraction of Longwalls 10 to 15 in the Pikes Gully Seam and satisfies all requirements of Condition 6, Schedule 3 of Development Consent DA 104/96.

Mining within the Lemington, Liddell and Barrett coal seams has not commenced at the RUM.

While in care and maintenance, water has accumulated in the extracted areas of the Pikes Gully Seam, which would need to be removed if operations were to recommence, as approved, via the existing RUM portal.

2.1.2 Coal Handling and Processing

Development Consent DA 104/96 allows for ROM coal from the RUM to be transferred via underground conveyors to the RUM pit top area, for processing at the Ravensworth CHPP.

Product coal produced at the Ravensworth CHPP is conveyed to the Ravensworth Coal Terminal rail loadout facility to be transferred onto trains for transportation to market.

2.1.3 Coarse Rejects and Tailings Management

Coarse rejects and tailings produced at the Ravensworth CHPP are managed in accordance with Project Approval 09_0176 for the Ravensworth Operations Project, which authorises the emplacement and permanent storage of the coal washery rejects in open cut voids (e.g. Cumnock Voids 1, 2 and 3, Cumnock Wash Plant Pit Void and West Pit Void).

2.1.4 Gas and Ventilation Management

Carbon dioxide (CO_2) and methane (CH_4) gas emissions are released during mining of the coal. These are both classified as greenhouse gases. They also pose a significant safety hazard to underground mine operations.

Development Consent DA 104/96 authorises installation and use of a gas drainage network, including in-seam gas pre-drainage and surface goaf gas drainage bores.

A number of indicative locations for surface goaf gas drainage bores were described in the Environmental Assessments for Modifications 8 and 9.

Under Condition 9, Schedule 3 of Development Consent DA 104/96, where additional or revised gas drainage infrastructure is required for the RUM, it can be constructed and used subject to approval of a Gas Drainage Management Plan (GDMP).

[1] The Middle Liddell Seam approved for extraction under the RUM Development Consent DA 104/96 aligns with the Upper Lower Liddell Seam approved for extraction at the Ashton Underground Mine.

[2] An SMP approved prior to 1 January 2014 is also taken to satisfy all requirements of an Extraction Plan under Condition 6, Schedule 3 of Development Consent DA 104/96.

Development Consent DA 104/96 also authorises the construction and operation of a series of ventilation shafts and supporting infrastructure to ventilate the mine. Three ventilation shafts (Ventilation Shafts 1 to 3) were constructed for the RUM and will continue to be used by RPPL for maintenance of, and access to, the existing RUM area. Ventilation Shaft 4 was never constructed, although an initial pad was developed. Ventilation Shaft 5 was constructed, but was not connected to the underground workings.

2.1.5 Water Management

During mining operations, dewatering of the RUM was managed by collecting and pumping mine water inflows to the surface via the mine portal and then transferred to site water storages for reuse at the Ravensworth Mine Complex.

2.2 ASHTON COAL PROJECT

2.2.1 Underground Mining

The Ashton Underground Mine includes underground longwall mining within the Pikes Gully, Upper Liddell, Upper Lower Liddell and Lower Barrett coal seams (Figure 2).

Underground longwall mining of the Pikes Gully and Upper Liddell coal seams was completed in 2012 and 2017, respectively, and mining of the Upper Lower Liddell Seam commenced in 2017 and is anticipated to be completed by approximately August 2023. Mining of the Lower Barrett Seam has not yet commenced.

2.2.2 Coal Handling and Processing

The Ashton Coal Project CHPP is located to the west of the NEOC, adjacent to the New England Highway and the Main Northern Rail Line. ROM coal is processed through the CHPP and product coal is loaded onto trains for transport to the Port of Newcastle.

The CHPP was commissioned in 2004 and has since been upgraded to provide an operating capacity of 1,000 tonnes per hour.

The Ashton Coal Project produces high quality metallurgical grade coal for the international market.

2.2.3 Coarse Rejects and Tailings Management

ROM coal from the Ashton Underground Mine is processed through the CHPP which results in the production of product coal, coarse rejects and fine rejects (tailings).

Coarse Rejects

Development Consent DA 309-11-2001-i authorises the use of the Ravensworth Void 4 Tailings Dam and NEOC void for emplacement and permanent storage of reject materials. Coarse rejects are currently trucked from the Ashton Coal Project CHPP to the NEOC void for emplacement. Rejects trucks servicing the CHPP may operate 24 hours per day, seven days per week in accordance with DA 309-11-2001-i.

The NEOC void rejects emplacement strategy is designed to enable effective water recovery, via an in-pit caisson with a submersible pump.

Tailings

Tailings from the CHPP are currently piped to the Ravensworth Void 4 Tailings Dam.

The Ravensworth Void 4 Tailings Dam is approved under AGL Energy Ltd's (AGL) Development Consent DA 144/93 (Figure 2). Under Development Consent DA 309-11-2001-i and a commercial agreement with AGL, ACOL has constructed and operates pipelines and supporting infrastructure to facilitate tailings emplacement. Once the Ravensworth Void 4 Tailings Dam reaches capacity, tailings will be disposed of in the NEOC void.

Tailings are processed through a thickener and are pumped to the Ravensworth Void 4 Tailings Dam, where they are treated with coagulants and allowed to settle. Water is decanted from the tailings dam and pumped back to the Ashton Coal Project process water dam for reuse on site. The management and rehabilitation of the Ravensworth Void 4 Tailings Dam is detailed in the approved Tailings Emplacement Operations Management Plan (TEOP)[3].

[3] Approved as a component of the Mining Operations Plan/Rehabilitation Management Plan.

2.2.4 Gas and Ventilation Management

Development Consent DA 309-11-2001-i authorises the installation and use of a gas drainage network, a central gas drainage plant and gas flaring facility. The gas drainage network is constructed progressively, with goaf gas drainage boreholes and supporting pipelines being developed throughout the life of the Ashton Coal Project.

Ventilation of the underground mine is achieved via a series of strategically located shafts and fans, which, in conjunction with the gas drainage network, provides for the safe operation of the mine.

2.2.5 Water Management

Water at the Ashton Coal Project is managed in accordance with ACOL's approved Water Management Plan (WMP). The WMP includes a Site Water Balance, Surface Water Management Plan (SWMP) and Groundwater Management Plan (GWMP).

The Ashton Coal Project is operated on a nil-discharge basis under the *Protection of the Environment Operations Act 1997* (PoEO Act), with all water collected from disturbed areas stored in approved water storages for reuse on-site.

Water demand is supplied by site runoff, underground dewatering, tailings decant reclaim and water sourced from the Hunter River and Glennies Creek via water access licences (WALs).

Dewatering of the underground mine is managed by either collecting and pumping mine water inflows to the surface via the mine portal or a series of strategically located dewatering bores. Water recovered from the mine is pumped via surface pipelines to the CHPP Settling Dam for reuse in the operations.

3 STRATEGIC CONTEXT

3.1 REGIONAL CONTEXT

The RUM is located within the Hunter Coalfield. The Hunter Coalfield and adjacent Newcastle Coalfield in the Sydney-Gunnedah Basin form the target resource of major coal developments in the Hunter region.

Coal mining operations in the region have been occurring for many decades, with operations commencing at the Ravensworth Mine Complex in the early 1970s and the Ashton Coal Project in 2004. Coal mining has close ties with regional communities in the Hunter region.

In the Singleton LGA, the mainstays of the economy are coal mining, agriculture, manufacturing and retail. The *Hunter Regional Plan 2036* states that coal mining will remain significant in the region (NSW Government, 2016).

Coal from the Upper Hunter is transported via the Hunter Valley rail network (Figure 1), which provides access to domestic coal customers (i.e. primarily electricity production) and international markets via the Port of Newcastle.

In the Upper Hunter Valley, mining employs almost 8,000 people in the Muswellbrook and Singleton LGAs alone (NSW Government, 2016).

3.2 PROJECT CONTEXT

The RUM is located in the Singleton LGA, approximately 17 kilometres north-west of the township of Singleton in the Upper Hunter Valley (Figure 1). The RUM is located within a recognised mining precinct, with the Ashton Mine Complex located to the east, the Mount Owen Complex located to the north-east, Integra Underground located to the east and Rix's Creek Mine located to the south-east.

Land uses other than mining in the vicinity of the RUM comprise a combination of agricultural land uses, industrial and residential areas in the village of Camberwell.

The RUM and the Ashton Underground Mine share a common mining lease boundary and the approved underground mining areas are separated (at their closest) by approximately 45 m in the Pikes Gully and Upper Lower Liddell coal seams (Figure 2).

Mining of the Upper Lower Liddell Seam at the Ashton Underground Mine commenced in 2017 (following mining in the Pikes Gully and Upper Liddell seams) and is anticipated to be completed by approximately August 2023. The Lower Barrett Seam would be next to be mined under the approved mining sequencing for the Ashton Underground Mine.

The RUM has been in care and maintenance since 2014. If mining was not to recommence, then the approved but as yet unmined RUM coal resources would most likely not be mined. An opportunity therefore exists for ACOL to access and extract approved but unmined RUM coal resources via the Ashton Underground Mine.

Yancoal and ACOL have commenced commercial negotiations with Glencore Newpac Pty Limited (Glencore) to realise this opportunity.

3.3 KEY STRATEGIC PLANNING DOCUMENTS

The *Strategic Statement on Coal Exploration and Mining in NSW* outlines how the NSW Government will continue to support responsible resource development for the benefit of the State (NSW Government, 2020). The *Strategic Statement on Coal Exploration and Mining in NSW* 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 Hunter 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 Modification would provide for the ongoing safe and efficient extraction of significant coal resources at the RUM that State and Commonwealth Governments have approved to be mined, subject to the conditions of the relevant State approvals.

The Modification would maintain or reduce the scale or nature of the approved RUM, and would continue to align with the objectives of the *Strategic Statement on Coal Exploration and Mining in NSW*.

3.3.1 Climate Change

The NSW Government has released the *NSW Climate Change Policy Framework* (Office of Environment and Heritage, 2016), which commits NSW to the 'aspirational long-term objective' of achieving net-zero emissions by 2050. The *NSW Climate Change Policy Framework* endorses the Paris Agreement and includes as one of its aspirational objectives the implementation of policies consistent with the Commonwealth Government's plans for long-term greenhouse gas emission reductions. It also includes an objective for NSW to be more resilient to climate change impacts (Office of Environment and Heritage, 2016).

The NSW Government's *Net Zero Plan Stage 1: 2020 – 2030* (Net Zero Plan) has recently reiterated that the State's actions on climate change should not undermine the business, jobs and communities supported by mining (Department of Planning, Industry and Environment [DPIE], 2020). This illustrates that the State of NSW is adopting an approach to emissions reduction that balances both socio-economic factors and emission reduction opportunities for the long-term benefit of the State.

The proposed Modification would substantially reduce greenhouse gas emissions compared to the approved RUM, as a result of the reduction in longwall extents (i.e. reduced longwall panel lengths) compared to the approved layout and would provide for the ongoing employment of the ACOL workforce, and therefore is consistent with the NSW Government's Net Zero Plan.

4 PROPOSED RAVENSWORTH UNDERGROUND MINE MODIFICATION

The modifications to the RUM Development Consent DA 104/96 would involve the following (Figure 3):

- transfer of ROM coal from the RUM Pikes Gully and Middle Liddell coal seams to the Ashton Coal Project for handling, processing and transport;
- minor changes to the approved Pikes Gully Seam Longwalls 10 to 15 (narrowing and shortening of some longwall panels) and Middle Liddell Seam Longwalls 14 to 18 (shortening of some longwall panels);
- transfer of water and gas from the ACOL-operated portion of the RUM to the Ashton Coal Project;
- minor adjustments to the gas and ventilation management infrastructure to ensure continued safe operation of the ACOL-operated portion of the RUM;
- extension of mining operations until 31 December 2032; and
- other administrative changes to facilitate management of the ACOL-operated portion of the RUM and integration with the Ashton Coal Project, such as integrated environmental management plans (as appropriate).

A summary of the approved operations and proposed modifications for the RUM is provided in Table 1.

4.1 MINE SEQUENCING AND LONGWALL LAYOUT

The Modification would involve the shortening and narrowing of some longwall panels in the Pikes Gully Seam and shortening of some longwall panels in the Middle Liddell Seam. The widths of the first (Longwall 401) and last (Longwall 406) longwall panels in the Pikes Gully Seam would be reduced from the approved 245 m and 261 m, respectively, to 223 m and 191 m, respectively. Further details of the minor longwall layout changes are provided in Appendix A.

Indicative longwall layouts are shown on Figures 2 and 3. Under the modified RUM, the height of extraction would be 2.3 m in the Pikes Gully Seam and 2.8 m in the Middle Liddell Seam (i.e. 5.1 m total extraction height). This would result in a reduction in total extraction thickness compared to the approved RUM, which was based on 2.6 m extraction in both seams (i.e. 5.2 m total extraction height).

The actual mining layout and progression of the longwalls may vary due to localised geological features, detailed mine design and/or adaptive management requirements. The final layout and extraction sequence would be subject to review and satisfaction of the Secretary of the DPIE as part of the SMP/Extraction Plan process.

4.2 MINE LIFE

As shown in Table 1, mining operations at the RUM are currently approved until 31 July 2024.

Under the Modification, it is expected that mining of the Pikes Gully Seam (Longwalls 10 to 15) and Middle Liddell Seam (Longwalls 14 to 18) would be completed by approximately 2030. An extension in consented operational mine life to 31 December 2032 is being sought (Table 1) to allow for operational flexibility in response to potential market conditions, unknown geological constraints or other unforeseen delays to production.

4.3 COAL HANDLING AND PROCESSING

ROM coal from the ACOL-operated portion of the RUM would be handled, processed and transported in the same manner as ROM coal from Ashton Underground Mine.

ROM coal recovered from the RUM Pikes Gully and Middle Liddell coal seams would be transferred via the Ashton Underground Mine to the Ashton Coal Project pit top and CHPP area for processing prior to being loaded onto trains for transportation to market.

All coarse rejects and tailings generated from processing the RUM ROM coal would be emplaced within emplacement areas approved under the Ashton Coal Project.

4.4 GAS AND VENTILATION MANAGEMENT

ACOL would develop the gas management and ventilation infrastructure approved for the RUM under Development Consent DA 104/96 (including using the already constructed Ventilation Shaft 5). Additional backroad upcast ventilation fans would be required to provide adequate ventilation of the ACOL-operated portion of the RUM, given it will be sealed off from the remainder of the RUM and its existing ventilation system.

Table 1
Comparison of the Approved RUM and the Modification

Project Component	Summary of Relevant Component of Existing/Approved RUM (DA 104/96)	Summary of the Modification to the RUM
Mining Method	Underground longwall mining.	No change.
Underground Mine Resource	Mining of the Pikes Gully, Liddell (Upper and Middle) and Barrett coal seams.	Narrowing and shortening of some longwall panels in the Pikes Gully Seam and shortening of some longwall panels in the Middle Liddell Seam.
Underground Annual Production	ROM coal production of up to 7 Mtpa. Underground mining has not occurred since 2014.	No change.
Consented Operational Mine Life	Until 31 July 2024.	Until 31 December 2032.
Coal Handling and Preparation	Processing of up to 7 Mtpa of ROM coal from the RUM. ROM coal from the RUM is transferred to the RUM ROM stockpile where it is then processed at the Ravensworth CHPP.	Transfer of ROM coal by conveyors to the Ashton Coal Project.
Product Transport	Up to 20 Mtpa of product coal is transferred from the product stockpile at the Ravensworth CHPP via the reclaim conveyor to the Ravensworth Coal Terminal, where it is loaded onto trains and transported to the Port of Newcastle for export. (Approved under the Ravensworth Operations Project Project Approval 09_0176.)	No change. (Not applicable to Modification.)
Tailings and Rejects Management	Coarse rejects can be disposed in either the Ravensworth No. 2, Ravensworth South or Cumnock mine voids. Tailings which have been temporarily stored within an on-site tailings dam will be transferred via truck to either the Cumnock No. 1 Colliery void or the Ravensworth Operations site.	No change. (Not applicable to Modification.)
Water Management	On-site management systems for clean water, sediment water and operational water. RUM is operated on a nil-discharge basis under the PoEO Act, with opportunistic water sharing with AGL.	No change. (Not applicable to Modification.)
Gas and Ventilation Management	Gas and ventilation infrastructure including gas management facility, in-seam pre-drainage and goaf drainage wells, small bleeder ventilation intake shafts, five ventilation shaft sites (two upcast), and three ventilation fans at shaft No. 4.	The position of approved ventilation shafts for RUM would be adjusted to match the shortening and narrowing of the modified RUM longwall panels. Additional backroad upcast ventilation fans to provide adequate ventilation of the underground workings.
General Infrastructure	Surface infrastructure including pit-top facilities, CHPP and Ravensworth Coal Terminal, conveyor systems, tailings pipeline, water management infrastructure and electricity substation and supporting infrastructure.	No change. (Not applicable to Modification.)
Hours of Operation	24 hours per day, seven days per week.	No change.
Operational Workforce	Approximate workforce of 410 (personnel and contractors).	No change.
Management Responsibilities	Operated and managed by RPPL.	Operated and managed by ACOL and RPPL as per Figure 4.

Ventilation of the ACOL-operated portion of the RUM would be designed and integrated with the existing ventilation system for the Ashton Coal Project.

Gas captured by in-seam drainage at the RUM would be transferred by underground pipelines to the existing Ashton Coal Project gas drainage network.

Gas extracted from goaf gas drainage bores would either be transferred via a combination of surface and underground pipelines (in the underground workings) to the Ashton Coal Project for management within ACOL's gas drainage network or treated using portable gas flares (as approved under Development Consent DA 104/96).

The gas and ventilation management infrastructure would be located within previously cleared or areas approved for clearing at the Ravensworth Mine Complex, with locations adjusted to match the modified RUM longwall panels.

Gas and ventilation infrastructure would be developed and operated in accordance with the GDMP, required under Condition 9, Schedule 3 of Development Consent DA 104/96.

4.5 WATER MANAGEMENT

Water captured from the ACOL-operated portion of the RUM in the Pikes Gully and Middle Liddell coal seams would be pumped via underground pipelines to the Ashton Coal Project or pumped to the surface via a series of dewatering bores.

Water extracted by dewatering bores would be transferred via a combination of surface and underground pipelines (in the underground workings) to the Ashton Coal Project.

The water management infrastructure would be located within previously cleared and approved areas at the Ravensworth Mine Complex.

To enable safe access into the ACOL-operated portion of the RUM, a section of the existing RUM workings may be grouted in the southeast to ensure there is a sufficient barrier between the existing and future workings (Figure 3). This would minimise movement of groundwater from the existing Pikes Gully Longwalls 1 to 9 workings into future Longwalls 10 to 15 workings. As a result, there will be no future connected workings between the existing RUM workings and the future ACOL-operated portion of the RUM.

ACOL would obtain and hold relevant licences under the *Water Management Act 2000* to account for the take of water associated with mining of the ACOL-operated portion of the RUM and the Ashton Coal Project.

4.6 PROPOSED AMENDMENTS TO DEVELOPMENT CONSENT

The Modification would require amendments to the existing RUM Development Consent DA 104/96. A summary of the proposed amendments is provided in Table 2.

ACOL will consult with key NSW Government agencies post approval to update the Ashton Coal Project management plans to reflect the Modification, including details of environmental management and compliance responsibilities within the ACOL-operated portion of the RUM given the overlapping mining areas with the Ravensworth Operations Project. The Ashton Coal Project management plans that would likely be reviewed and updated to incorporate the ACOL-operated portion of the RUM are outlined in Table 3.

Table 2
Summary of Proposed Amendments to the Ravensworth Underground Mine Development Consent

Reference	Existing Condition	Proposed Condition	Justification
-	Department names, titles and guidelines should be updated to their latest versions.		Global administrative update.
Definitions (Applicant)	Resource Pacific Pty Limited, or its successors.	Ashton Coal Operations Pty Ltd (for development on the land within the black dashed line on the figure in Appendix 5), Resource Pacific Pty Ltd (for the remainder of the land within the land shown on the figure in Appendix 5), or their successors in title.	Under the commercial agreement with Glencore, ACOL will be responsible for underground operations within the relevant area (Figure 4).
Definitions (Ashton Coal Project)	-	The open cut and underground mining operations and associated surface activities approved under DA 309-11-2001-i.	Administrative update.

Table 2 (Continued)
Summary of Proposed Amendments to the Ravensworth Underground Mine Development Consent

Reference	Existing Condition	Proposed Condition	Justification
Sch. 2, Cond. 5	Mining operations under this approval may take place on the site until 31 July 2024.	Mining operations under this approval may take place on the site until 31 December 2032.	Extension to operational mine life is required to allow ACOL sufficient time to extract the resource.
Sch. 2, Cond. 10	With the approval of the Director-General, the Applicant may integrate any strategy, plan, program, report, review or audit required by this consent with any similar strategy, plan, program, report, review or audit for other components of the Ravensworth mine complex.	With the approval of the Secretary, the Applicant may integrate any strategy, plan, program, report, review or audit required by this consent with any similar strategy, plan, program, report, review or audit for either the Ravensworth Mine Complex or Ashton Coal Project.	This proposed amendment would allow for integrated management plans and monitoring programs to be prepared and implemented that would allow for effective environmental management across the consents.
Sch. 3, Note to Cond. 6	*Note: An SMP approved by DRE prior to 1 January 2014 is taken to satisfy all requirements of this condition.*	*Note: An SMP approved by RR prior to 1 January 2014 is taken to satisfy all requirements of this condition, even if it is subsequently modified and approved prior to the carrying out of the approved second workings.*	It is anticipated that the approved SMP for Pikes Gully Longwalls 10 to 15[1] will be varied to reflect the Modification.
Sch. 4, Cond. 4	The Applicant shall maintain a Community Consultative Committee (CCC) for the development to the satisfaction of the Director-General. This CCC must be operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version). *Notes:* • *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.* • *In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community.* • *The CCC may be combined with any similar CCC for the Ravensworth Operations Project.*	The Applicant shall operate a Community Consultative Committee (CCC) for the development in accordance with the Department's *Community Consultative Committee Guidelines: State Significant Development* (2019), or its latest version. With the agreement of the CCC Chairs and the approval of the Secretary, matters associated with the ACOL-operated portion of the RUM may be dealt with by the Ashton Coal Project CCC. *Notes:* • *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.* • *In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community.*	It is anticipated that the Community Consultative Committee (CCC) for the Ashton Coal Project may deal with matters associated with the ACOL-operated portion of the RUM subject to agreement of the CCC Chairs and approval of the Secretary.
Appendix 5	-	Include a new Appendix 5 that shows the operational areas for Resource Pacific Pty Ltd and Ashton Coal Operations Pty Ltd.	Figure 4 would be inserted as the new Appendix 5.

[1] Approved RUM Longwalls 10 to 15 are referred to Longwalls 401 to 406 under the Modification application (Figures 2 and 3).

Table 3
Summary of Ashton Coal Project Management Plans to be Updated to Incorporate the ACOL-operated Portion of the RUM

Document	Equivalent Management Plan Condition in RUM Development Consent DA 104/96	Relevant Activities and Impacts at the ACOL-operated Portion of the RUM to be Considered in the Revised Document
Water Management Plan	Schedule 3, Condition 23.	Groundwater inflows management. Surface water and erosion management for infrastructure required to support the underground operations (e.g. ventilation fans).
Air Quality and Greenhouse Gas Management Plan	Schedule 3, Condition 18.	Construction and operation of ventilation and gas management infrastructure.
Noise Management Plan	Schedule 3, Condition 14.	Construction and operation of backroad ventilation fans.
Heritage Management Plan	Schedule 3, Condition 26.	Construction of ventilation, gas, water management and other surface infrastructure to support the underground mining operations (located in previously cleared or areas approved for clearing).
Biodiversity Management Plan	Schedule 3, Condition 6 (required under the Extraction Plan/SMP).	Construction of ventilation, gas, water management and other surface infrastructure to support the underground mining operations (located in previously cleared or areas approved for clearing).
Environmental Management Strategy	Not applicable.	Incorporation of the ACOL-operated portion of the RUM in the strategic framework for environmental management.
Mining Operations Plan/Rehabilitation Management Plan	[required under *Mining Act 1992*]	Mining activities, infrastructure and equipment required to support the underground operations (Section 5.2.3).
Extraction Plan/SMP[1]	Schedule 3, Condition 6.	Existing SMP to be updated to reflect the modified RUM longwall layout.

[1] The SMP for RUM Pikes Gully Longwalls 10 to 15 is a RPPL document that was approved on 8 August 2013. The SMP would be revised to incorporate the changes to the longwall layout proposed under this Modification, and implemented by ACOL.

5 RAVENSWORTH MINE COMPLEX STATUTORY CONTEXT

This section outlines the statutory requirements relevant to the assessment of the Modification.

As outlined in the *State Significant Development Guidelines* (DPIE, 2021), Attachment 1 provides a detailed statutory compliance table for the RUM incorporating the Modification that identifies all the relevant statutory requirements and the relevant sections in this Modification Report that address these requirements.

5.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The EP&A Act and *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) set the framework for planning and environmental assessment in NSW.

5.1.1 Applicability of Section 4.55(2) of the EP&A Act

The RUM (formerly known as the Nardell Coal Mine) was approved under Part 4 of the EP&A Act by the then NSW Minister for Urban Affairs and Planning on 20 November 1996 (Development Consent DA 104/96). Development Consent DA 104/96 has been modified nine times, most recently on 20 June 2013 via former section 75W of the EP&A Act.

Approval for the proposed Modification has been sought under section 4.55(2) of the EP&A Act.

Clause 3BA(6) of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017* relevantly provides:

> ***3BA Winding-up of transitional Part 3A modification provisions on cut-off date of 1 March 2018 and other provisions relating to modifications***
>
> …
>
> *(6) In the application of section 4.55 (1A) or (2) or 4.56 (1) of the Act to the following development, the consent authority need only be satisfied that the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W):*
>
> *(a) development that was previously a transitional Part 3A project and whose approval was modified under section 75W,*
>
> …

Substantially the Same Development

The RUM has demonstrably remained an underground coal mining operation. This would also clearly continue to be the case if the Modification was approved as the overall scale and nature of the development including intensity, production rates, mining method, hours of operation and severity of impacts would remain unchanged or be reduced (Table 1).

In the context of the surrounding open cut and underground mining operations and proposed Modification activities (i.e. underground mining and associated gas management), the eight year extension of mining operations (to 2032) would not materially change the overall scale and nature of the RUM.

Therefore, the consent authority can be satisfied that the RUM incorporating the Modification would remain "substantially the same" development as was last modified under section 75W of the EP&A Act (i.e. Modification 9), inclusive of consideration of changes arising from previously approved modifications.

Minimal Environmental Impact

A review of the potential environmental impacts associated with the Modification has been undertaken and is outlined in Section 7 and Appendices A to C. The key outcomes of the environmental review are set out in Section 8.2.

Based on the outcomes of the environmental review, the Modification would result in a negligible change or reduction to previously assessed and approved impacts and, therefore, would involve minimal environmental impact.

5.2 RELEVANT NSW LEGISLATION

In addition to the EP&A Act, the following NSW legislation may be applicable to the RUM incorporating the Modification:

- *Biodiversity Conservation Act 2016* (BC Act);
- *Dams Safety Act 2015*;
- *Mining Act 1992*;
- *National Parks and Wildlife Act 1974*;

- PoEO Act; and
- *Water Management Act 2000.*

Relevant licences or approvals required under these Acts would continue to be obtained for the RUM incorporating the Modification.

5.2.1 Biodiversity Conservation Act 2016

The BC Act provides the approach to be followed for conducting an assessment of a development's impacts on threatened species and ecological communities.

Under the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*, a Biodiversity Development Assessment Report is not required to be submitted with a modification if the authority or person determining the application for modification (or determining the environmental assessment requirements for the application) is satisfied that the modification would not increase the impact on biodiversity values.

The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. There would also be no increase in subsidence impacts as a result of the Modification. Therefore, no increase in impact on biodiversity values (to that previously assessed and approved under DA 104/96), including threatened species and ecological communities, is expected.

Nonetheless, biodiversity values requiring consideration in accordance with section 7.17(2)(c) of the BC Act and clause 1.4 of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* are addressed in Table 4.

Accordingly, with reference to section 7.17(2)(c) of the BC Act and the *Threatened Species Test of Significance Guidelines* (State of NSW and Office of Environment and Heritage, 2018), no Biodiversity Development Assessment Report is required for the Modification as the Modification would not increase impacts on biodiversity values.

5.2.2 Dams Safety Act 2015

The objects of the *Dams Safety Act 2015* are to manage matters relating to dams safety, and promote the application of risk management.

There are three declared dams in the area of the proposed Modification and surrounds which are operated and maintained under the *Dams Safety Act 2015*:

- Narama Dam;
- Ravensworth Void 5 Ash; and
- Ravensworth Mine Inpit Storage.

There would be no changes proposed to the declared dams as a result of the Modification. ACOL would provide notification to Dams Safety NSW prior to longwall mining within the notification areas for the declared dams in accordance with the requirements of the *Dams Safety Act 2015*.

5.2.3 Mining Act 1992

The objects of the *Mining Act 1992* are to encourage and facilitate the discovery and development of mineral resources in NSW, having regard to the need to encourage ecologically sustainable development.

The *Mining Act 1992* regulates environmental protection and rehabilitation of all mining leases, including the requirement for the submission of a Mining Operations Plan (MOP) or Rehabilitation Management Plan (RMP).

The proposed activities within the ACOL-operated portion of the RUM (i.e. mining of the Pikes Gully and Middle Liddell seams) would be located within Mining Lease (ML) 1348, ML 1349, ML 1668, held by Glencore, and ML 1495, held by RPPL.

Subdivision and partial transfer of tenements ML 1348, ML 1349, ML 1495 and ML 1668 to ACOL is proposed to facilitate the proposed Modification.

The MOP/RMP would be reviewed and revised to incorporate the Modification. This would include updating the MOP/RMP for both the RUM and the Ashton Coal Project and accompanying securities to incorporate the partially transferred areas of ML 1348, ML 1349, ML 1495 and ML 1668. The Ashton Coal Project MOP/RMP would be updated to cover the ACOL-operated portion of the RUM and the RUM MOP/RMP would be updated to remove this area.

Pursuant to section 380AA of the *Mining Act 1992*, RPPL has obtained written consent from the relevant tenement holders to modify Development Consent DA 104/96 (Attachment 2).

Table 4
Biodiversity Values Consideration

Biodiversity Value	Modification Consideration
(a) threatened species abundance—being the occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site,	The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. There would be no increase in subsidence impacts (including to vegetation). Therefore, there is no impact on threatened species abundance anticipated.
(b) vegetation abundance—being the occurrence and abundance of vegetation at a particular site,	The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. There would be no increase in subsidence impacts (including to vegetation). Therefore, there is no impact on vegetation abundance anticipated.
(c) habitat connectivity—being the degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range,	The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. There would be no increase in subsidence impacts (including to vegetation). Therefore, there is no impact on habitat connectivity anticipated.
(d) threatened species movement—being the degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle,	The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. Therefore, there is no impact on threatened species movement anticipated.
(e) flight path integrity—being the degree to which the flight paths of protected animals over a particular site are free from interference,	The Modification would include the construction of backroad ventilation fans at the RUM within previously cleared or areas approved for clearing. Given the height of construction fleet and the height of the proposed backroad ventilation fans, they are not expected to impact on flight path integrity.
(f) water sustainability—being the degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.	The outcomes of the water resources studies conducted for this Modification demonstrate that the Modification would not result in any new or additional impacts to surface water or groundwater resources compared to the approved RUM. Therefore, there is no impact on water sustainability anticipated.

5.2.4 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* contains provisions for the protection and management of national parks, historic sites, nature reserves and Aboriginal cultural heritage in NSW.

The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing, and would avoid Aboriginal cultural heritage sites. There would be no increase in subsidence impacts or consequences, and therefore the Modification would not involve any increase in impacts on Aboriginal cultural heritage to those previously assessed.

Notwithstanding, the existing Ashton Coal Project Heritage Management Plan would also be updated to incorporate the ACOL-operated portion of the RUM, which ACOL would take responsibility over, as shown on Figure 4.

ACOL would obtain permits under the *National Parks and Wildlife Act 1974* for relevant extant Aboriginal heritage sites (where appropriate) located near the southern two Pikes Gully Seam longwall panels (i.e. Longwalls 405 and 406 for the Modification) prior to their secondary extraction (Section 7.1.4), where required.

5.2.5 Protection of the Environment Operations Act 1997

The PoEO Act and the NSW *Protection of the Environment Operations (General) Regulation 2009* set out the general obligations for environmental protection for industry in NSW, which is regulated by the NSW Environment Protection Authority (EPA).

Operations and monitoring at the RUM are currently undertaken in accordance with existing Environment Protection Licence (EPL) 2652 held by Ravensworth Operations Pty Ltd issued under the PoEO Act.

Operations and monitoring at the Ashton Mine Complex are currently undertaken in accordance with existing EPL 11879 held by ACOL issued under the PoEO Act.

RPPL and ACOL would seek to vary the existing EPL 2652 (held by Ravensworth Operations Pty Ltd) to remove the relevant part of the ACOL-operated portion of the RUM and include them in EPL 11879 (held by ACOL). The proposed variations would be undertaken in consultation with the NSW EPA.

5.2.6 Water Management Act 2000

The *Water Management Act 2000* contains provisions for the licensing, allocation, capture and use of water resources.

Under the *Water Management Act 2000*, water sharing plans have commenced for water sources relevant to the RUM. Water sharing plans establish rules for sharing water between different users and between the various environmental sources (namely rivers or aquifers). Water sharing plans relevant to the RUM are:

- *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.*
- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009.*
- *Water Sharing Plan for the Hunter Regulated River Water Source 2016.*

Consideration of the Modification against the water management principles and access licence dealing principles of the *Water Management Act 2000* is provided in Section 7.2.

5.3 RELEVANT NSW ASSESSMENT POLICIES

Aquifer Interference Policy

The *Aquifer Interference Policy* (AIP) (NSW Government, 2012) has been developed by the NSW Government as a component of the NSW Government's *Strategic Regional Land Use Policy.* The AIP applies State-wide and details water licence and impact assessment requirements.

The stated purpose of the AIP is to ensure equitable water sharing between various water users and proper licencing of water taken by aquifer interference activities, such that the take is accounted for in the water budget and water sharing arrangements.

The *Water Management Act 2000* defines an aquifer interference activity as that which involves any of the following:

- *the penetration of an aquifer;*
- *the interference with water in an aquifer;*
- *the obstruction of the flow of water in an aquifer;*
- *the taking of water from an aquifer in the course of carrying out mining or any other activities prescribed by the regulations; and*
- *the disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.*

The Groundwater Review (Appendix B) has been prepared in consideration of the AIP for the Modification and the results are described in Section 7.2.3.

5.4 ENVIRONMENTAL PLANNING INSTRUMENTS

State environmental planning policies of relevance to the Project were described in the RUM Environmental Impact Statement (EIS) (HLA-Envirosciences Pty Limited, 1996) and subsequent modifications. Detail on potential Modification requirements under the key environmental planning instruments is included in the statutory compliance table provided in Attachment 1.

5.5 COMMONWEALTH LEGISLATION

5.5.1 Environment Protection and Biodiversity Conservation Act 1999

The objective of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance (MNES).

Proposals that are likely to have a significant impact on a MNES are defined as a controlled action under the EPBC Act. A proposal that is, or may be, a controlled action is required to be referred to the Commonwealth Department of Agriculture, Water and Environment to determine whether or not the action is a controlled action.

Based on the minor nature of the Modification, it was concluded that the Modification would not have a significant impact on MNES for the following reasons:

- The Modification would not have a significant impact on listed threatened species and ecological communities and/or migratory species.
- The Modification would not have a significant impact on wetlands of international importance.
- The Modification would not have a significant impact on world heritage properties or national heritage places.
- The Modification would not impact the Great Barrier Reef Marine Park and/or Commonwealth marine areas.
- The Modification is not a nuclear action.
- The assessment of potential impacts of the Modification on water resources indicates that there would be no significant impact on water resources as a result of the Modification (Section 7.2 and Appendix B).

5.5.2 National Greenhouse and Energy Reporting Act 2007

The Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act) introduced a single national reporting framework for the reporting and dissemination of corporations' greenhouse gas emissions and energy use.

ACOL would take over responsibility for NGER Act reporting for the ACOL-operated portion of the RUM, and account for the greenhouse gas emissions associated with mining of the ACOL-operated portion of the RUM in its annual NGER Act report.

6 ENGAGEMENT

Consultation with NSW government agencies, Singleton Council and the local community has been undertaken by Glencore and Yancoal.

6.1 NSW GOVERNMENT AGENCIES

NSW Department of Planning, Industry and Environment

Glencore and Yancoal held a meeting with DPIE on 23 September 2021 to provide an overview of the Modification, the supporting environmental assessments to be undertaken, and the proposed approval process and timing. Feedback on the proposed environmental assessments provided by DPIE during this meeting has been considered in this Modification Report.

On 1 October 2021, Glencore submitted a scoping letter to DPIE providing an overview of the Modification, proposed approval pathway and the proposed scope of the environmental assessment.

DPIE subsequently responded to Glencore on 12 October 2021, nominating a proposed approval pathway, consultation requirements and environmental assessment matters to be considered as part of the Modification.

On 28 October 2021, Yancoal provided further information to DPIE providing justification that the Modification would involve minimal environmental impact.

The matters raised by DPIE have been considered in this Modification Report.

NSW Resources Regulator

Glencore and Yancoal provided a briefing letter to NSW Resources Regulator on 1 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken. Yancoal offered to meet with NSW Resources Regulator to discuss the details of the proposed Modification and environmental assessment, and invited NSW Resources Regulator to provide any comments or feedback on the proposal.

NSW Division of Mining, Exploration and Geoscience

Glencore and Yancoal provided a briefing letter to the NSW Division of Mining, Exploration and Geoscience (MEG) within the Department of Regional NSW on 15 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken. Yancoal met with MEG on 9 November 2021 to discuss coal resource information relevant to the approved and modified RUM. Yancoal plans to meet with MEG in November 2021 to discuss the tenement requirements relevant to the Modification.

Natural Resources Access Regulator

Yancoal provided a briefing letter to NSW Natural Resources Access Regulator (NRAR) (and the Department of Planning, Industry and Environment – Water [DPIE – Water]) on 6 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken. Feedback on the proposed environmental assessments provided by NRAR in response to the letter has been considered in this Modification Report.

NSW Environment Protection Authority

Yancoal provided a briefing letter to the NSW EPA on 1 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken.

Dams Safety NSW

Yancoal provided a briefing letter to Dams Safety NSW on 12 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken. Yancoal offered to meet with Dams Safety NSW to discuss the details of the proposed Modification and environmental assessment, and invited Dams Safety NSW to provide any comments or feedback on the proposal. In reply, Dams Safety NSW indicated that it did not require a meeting with Yancoal and indicated it had no issues with the proposal. Dams Safety NSW also noted the notification requirements applicable to the proposed Modification activities.

Subsidence Advisory NSW

Yancoal provided a briefing letter to Subsidence Advisory NSW on 1 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken.

NSW Health

Yancoal provided a briefing letter to NSW Health on 1 October 2021 to provide an overview of the Modification and the supporting environmental assessments to be undertaken.

6.2 SINGLETON COUNCIL

The Ravensworth Mine Complex and Ashton Coal Project are located within the Singleton LGA (Figure 1).

Glencore and Yancoal provided a briefing letter to the Singleton Council on 1 October 2021 to provide an overview of the Modification and outline the approach to assessing potential environmental impacts associated with the Modification. Glencore offered to meet with the Singleton Council to discuss the details of the proposed Modification and environmental assessment, and invited the Singleton Council to provide any comments or feedback on the proposal. In reply, the Singleton Council indicated that it did not require a meeting with Yancoal and provided no comments on the briefing letter.

6.3 COMMUNITY CONSULTATION

Community Consultative Committees

The Ravensworth Mine Complex CCC was established in accordance with Development Consent DA 104/96 and Project Approval 09_0176. The Ashton Coal Project CCC was established in accordance with DA 309-11-2001-i.

The CCCs provide a mechanism for ongoing communication between the mines and the local community. Membership of the CCCs include representatives of the local community, the Singleton Council, and Operators (Glencore and ACOL). Meetings for both CCCs are currently held every four months.

The CCCs have been, and will continue to be, consulted on the Modification. It is anticipated that the CCC for the Ashton Coal Project may deal with matters associated with the ACOL-operated portion of the RUM subject to agreement of the CCC Chairs and approval of the Secretary (Table 2).

Public Consultation

The Glencore website provides up to date information on the Ravensworth Mine Complex, and provides access to relevant environment and community information, including compliance reports and approval documents. The Ravensworth Mine Complex Environment and Community Enquiries Hotline (1800 620 553) allows members of the public to contact Glencore with enquiries or complaints.

The ACOL website provides up to date information on the Ashton Mine Complex, and provides access to relevant environment and community information, including compliance reports and approval documents. The ACOL Environment and Community Response Line (1800 657 639) allows members of the public to contact ACOL with enquiries or complaints.

Under the Modification, the environmental reporting and management plans required under Development Consent DA 104/96, for the ACOL-operated portion of the RUM (Figure 4), would be made available on the ACOL website.

7 ASSESSMENT OF IMPACTS

This section presents the assessment of impacts associated with the modified RUM. The assessment of impacts associated with the separate application for the modified Ashton Coal Project (that is required to integrate the two underground mining operations) is presented in the Ashton Coal Project Modification Report (ACOL, 2021).

7.1 SUBSIDENCE

A Subsidence Review has been prepared by SCT Operations (SCT) (2021) for the Modification and is presented in Appendix A.

The purpose of this assessment is to assess potential additional subsidence impacts and/or environmental consequences from modifying the longwall layout (as described in Section 4.1).

7.1.1 Background

The most recent subsidence assessment for the RUM was undertaken in 2012 to support the Modification 9 application (SCT, 2012). The Modification 9 Subsidence Assessment predicted:

- Maximum subsidence for single seam mining in the Pikes Gully Seam areas below natural ground with no waste rock backfill was expected to range between 1.3 to 1.7 m.
- Maximum subsidence in areas of single seam mining below waste rock backfill, was estimated to be generally less than 2.0 m.
- Maximum vertical subsidence in areas of multi seam mining was expected to be 4.4 m on natural ground and up to 4.9 m, where waste rock backfill material is present.
- Maximum tilts were estimated to be up to 100 millimetres per metre (mm/m) and maximum strains were estimated to be up to 40 mm/m.

7.1.2 Predicted Subsidence Effects

Subsidence is the vertical and horizontal movement of overburden and the land surface as a result of the extraction of underlying coal. Land surface movements are generally referred to as subsidence effects.

SCT (2021) presents revised estimates of the primary subsidence parameters based on the modified RUM longwall layout. Other key revisions and improvements to the modelling parameters since the 2012 assessment include incorporation of contemporary understanding of multi-seam subsidence behaviour, the subsidence monitoring database from RUM and Ashton Underground Mine and the current topography of the Ravensworth Mine Complex.

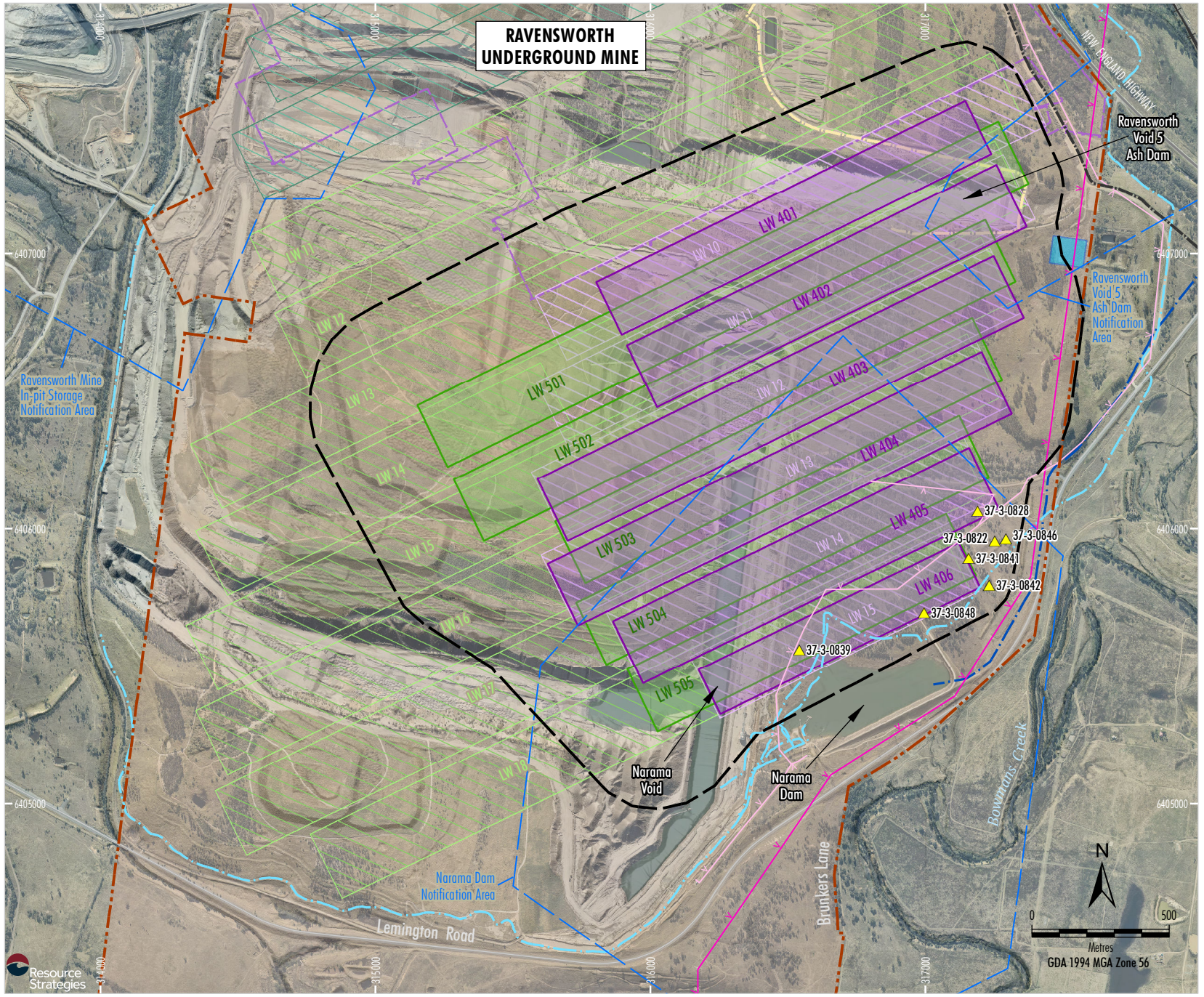
The modified RUM longwall layout, relevant natural and built features and Ravensworth Mine Complex infrastructure in the vicinity of the longwall panels are shown on Figure 5.

The proposed multi-seam mining in areas of waste rock backfill material is expected to cause maximum subsidence of approximately 5.9 m. This maximum subsidence is approximately 1 m more than previously predicted for the approved layout. The increase in maximum subsidence below the waste rock backfill (i.e. an increase of approximately 1 m) is due primarily to the greater thickness of waste rock backfill as a result of ongoing operations at the Ravensworth Mine Complex compared to the previous assessment (Appendix A).

Multi-seam mining below the small areas of natural ground just north of the Narama Dam is expected to cause maximum subsidence of approximately 4.2 m, approximately 0.2 m less than predicted for the approved layout (Appendix A).

Tilts of up to 120 mm/m are expected where the Middle Liddell Seam longwalls start near the start lines of the Pikes Gully Seam longwalls along the southern edge of Longwall 505 (i.e. the western end). Maximum tilts of up to 175 mm/m are expected where the finish lines of the Pikes Gully Seam longwall are undercut by the Middle Liddell Seam longwalls (i.e the eastern end). The impacts from these tilts are likely to occur in narrow zones at predictable locations at the eastern end of the longwall panels (Appendix A).

Strains of up to 60 mm/m are expected where the Middle Liddell Seam longwalls start near the start lines of the Pikes Gully Seam longwalls along the southern edge of Longwall 505 (i.e. at the western end). Maximum strains of up to 90 mm/m are expected where the finish lines of the Pikes Gully Seam longwall are undercut by the Middle Liddell Seam longwalls (i.e. at the eastern end) (Appendix A).



LEGEND

- Dam Notification Area
- Ashton Coal Project Tailings Pipeline
- Void 5 Fly Ash Pipeline
- Mount Owen Complex Narama Dam Pipeline
- Water Pipeline
- 33 kV Powerline
- 330 kV Powerline
- Extant Aboriginal Cultural Heritage Site

Ravensworth Underground Mine

- Ravensworth Underground Mine Development Consent Boundary
- Existing Shaft 5 Location
- Completed Pikes Gully Seam Workings
- Approved Pikes Gully Seam Secondary Extraction Area
- Approved Middle Liddell Seam Secondary Extraction Area
- Approved Upper Liddell Seam Secondary Extraction Area

Proposed Modification

- Subsidence Assessment Area
- Indicative Pikes Gully Seam Secondary Extraction Area
- Indicative Middle Liddell Seam Secondary Extraction Area

Note: The proposed Main Headings and Gate Roads are not shown on this figure - see Figure 3.

Source: SCT (2021); NSW Spatial Services (2021); Dams Safety NSW (2020)

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UNDERGROUND MINE INTEGRATION MODIFICATION

Natural and Built Features in the Vicinity of the Modification

Figure 5

Further details of the predicted subsidence effects due to the modified RUM longwall layout are provided in Appendix A.

7.1.3 Potential Subsidence Impacts and Environmental Consequences

The majority of the Modification longwall panels are located beneath existing open cut mining operations (Figures 3 and 4). Ongoing interactions with these operations would be managed via a commercial agreement between ACOL and Glencore[4].

Subsidence impacts are the physical changes to the ground and its surface caused by the subsidence effects described in Section 7.1.2.

The potential consequences of these impacts are dependent on the size, location and nature of sensitive natural and built features.

The modified RUM longwall layout represents a smaller footprint than the approved RUM layout and has been designed to achieve the existing Subsidence Impact Performance Measures in Development Consent DA 104/96.

The predicted vertical subsidence in the area of natural ground is reduced compared to the approved mine layout and therefore the magnitude of impacts to any natural and built features is expected to reduce (Appendix A).

There is no increase in impacts to natural and built features expected from the proposed longwall layouts compared to those previously predicted. Impacts to all built and natural features are expected to be minor and manageable (Appendix A). In addition, subsidence impacts under the Modification would be reduced in some areas due to the reduction in longwall footprint compared to the approved layout.

7.1.4 Mitigation Measures

SCT (2021) concluded that the previously recommended subsidence management measures and monitoring, which have been incorporated into the approved SMP for the Pikes Gully Seam, continue to be appropriate for the Modification.

Consistent with the recommendation made by OzArk Environmental & Heritage Management Pty Ltd (2012) in its Aboriginal Heritage Due Diligence Assessment for the approved SMP, ACOL would undertake further assessment to ground truth the seven extant Aboriginal sites (Figure 5), and determine appropriate management measures and obtain permits under the *National Parks and Wildlife Act 1974* for relevant sites (where appropriate). Consistent with the OzArk (2012) recommendation, this would be undertaken prior to secondary extraction of the two southern Pikes Gully Seam longwalls (i.e. Longwalls 405 and 406 for the Modification).

The approved SMP for the Pikes Gully Seam would be reviewed and updated to incorporate the minor changes to the Pikes Gully Seam longwall layout. ACOL would consult with relevant infrastructure owners and stakeholders during the revision of the SMP. This would include review of the approved SMP Environmental Management System for Macquarie Generation (AGL) Owned Land and Infrastructure, in consultation with AGL.

Extraction of the Middle Liddell Seam would be subject to the approval of a new Extraction Plan prepared in accordance with Development Consent DA 104/96.

7.2 GROUNDWATER

A Groundwater Review has been undertaken by Australasian Groundwater & Environmental Consultants Pty Ltd (AGE) (2021) for the Modification and is presented in Appendix B.

The Groundwater Review has been peer reviewed by Dr Noel Merrick (Director, HydroAlgorithmics Pty Ltd) and is presented in Attachment 3.

7.2.1 Methodology

The main purpose of the revised groundwater modelling was to predict groundwater inflows due to the combined operations of the modified RUM and Ashton Underground Mine (i.e. the Modification) to assess water take from relevant water sources. This was required due to ACOL proposing to take responsibility for the modified RUM (i.e. the ACOL-operated portion of the RUM), and to account for the change in longwall sequencing and extraction timing compared to previous predictions.

[4] The commercial agreement is between Glencore Newpac Pty Limited and Resource Pacific Pty Limited, and White Mining (NSW) Pty Limited, who owns ACOL.

The modelling was also undertaken to verify that impacts of the Modification are consistent with, or in some cases less than, the approved impacts at the RUM and Ashton Underground Mine.

A contemporary groundwater model was developed in 2015 for the Ashton Coal Project by AGE and was most recently updated in 2019. AGE (2021) builds on these earlier studies and groundwater model to provide a review of potential groundwater impacts associated with the Modification. The modified RUM longwall panels were incorporated into the existing groundwater model to enable prediction of cumulative impacts due to both the RUM and Ashton Underground Mine through to the end of mining (2035).

7.2.2 Background

A number of groundwater investigations, assessments and reviews have been undertaken since the 1990s to assess the potential impacts of the approved RUM and Ashton Coal Project. Recent groundwater assessments undertaken include:

- Ravensworth Underground Mine Assessment of Groundwater Impacts Associated with Proposed Modification to DA 104/96 (Mackie Environmental Research [MER], 2009);
- Assessment of Groundwater Impacts Associated with Modifications to Mining in the Liddell Seam (MER, 2012); and
- Ashton Coal Project Bowmans Creek Diversion: Groundwater Impact Assessment Report (Aquaterra, 2009).

MER (2012) concluded that extensive mining in the areas surrounding RUM and historical mining in the overlying Ravensworth Operations Project open cuts had already substantially depressurised and dewatered the coal measures down to the Bayswater Seam (which overlies the Pikes Gully Seam). The historical Cumnock Operations to the west and the current Ashton Coal Project and RUM have further reduced pore pressures down to the Pikes Gully Seam which has led to a partial reduction in pressures in the deeper Liddell Seam (MER, 2012).

Predictions in MER (2012) for modelled year 2024 show significant depressurisation of coal measures including Pikes Gully, Liddell and Barrett seams associated with the mining operations at and surrounding the RUM and Ashton Coal Project.

7.2.3 Potential Impacts

The existing Ashton Coal Project groundwater model has been updated by AGE (2021) for the Modification to incorporate the modified RUM longwall panels (Appendix B). This model has been used to predict groundwater inflows over the life of the Modification (including the mining of the RUM longwalls).

The key findings of the Groundwater Review (Appendix B) are:

- The predicted groundwater inflows due to the Modification are generally consistent with those previously assessed and approved for the RUM and Ashton Coal Project.
- There is no increase in impacts expected at privately-owned bores neighbouring the proposed Modification.
- There is no increase in impacts expected to the Hunter River, Glennies Creek or Bowmans Creek alluvium or baseflows to those previously assessed and approved for the RUM and Ashton Coal Project.
- There is no increase in impacts expected to groundwater dependent ecosystems.

Groundwater Inflows

The predicted inflows to the Pikes Gully and Middle Liddell Seams are consistent with those reported in MER (2012). The maximum annual predicted inflow to the RUM and Ashton Coal Project is 884 megalitres per annum (ML/annum). This maximum inflow is predicted to occur during the mining of the RUM Middle Liddell Seam, with inflows reducing during the mining of the Ashton Coal Project Lower Barrett Seam.

Groundwater Licensing

ACOL holds sufficient water licences for the total predicted take for the Modification (i.e. combined Ashton Underground Mine and the ACOL-operated portion of the RUM) for the relevant water sources (Appendix B).

7.2.4 Mitigation and Monitoring

The Ashton Coal Project WMP (ACOL, 2020) would be reviewed and updated to incorporate the Modification. This would include revising the WMP to incorporate groundwater management for the ACOL-operated portion of the RUM, which ACOL would take responsibility over, as outlined on Figure 4.

7.3 NOISE

A Noise Review has been undertaken by SLR Consulting Australia (SLR) (2021) for the Modification and is presented in Appendix C. The Noise Review considered the operation of two backroad upcast ventilation fans as these would be the only acoustically significant changes to the approved RUM proposed by the Modification.

7.3.1 Methodology

The Noise Review assessed the potential noise impacts from the construction and operation of the Modification in accordance with the:

- NSW *Noise Policy for Industry* (NPfI) (EPA, 2017); and
- NSW *Interim Construction Noise Guideline* (ICNG) (Department of Environment and Climate Change [DECC], 2009).

Noise Measurement and Description

The assessed noise levels presented in Appendix C and summarised in this section are expressed in A-weighted decibels (dBA). The logarithmic dBA scale simulates the response of the human ear, which is more sensitive to mid to high frequency sounds.

Hearing 'nuisance', for most people, begins at noise levels of about 70 dBA, while sustained (i.e. eight hours) noise levels of 85 dBA can cause hearing damage.

Operational Noise Criteria

Given the operation of two backroad upcast ventilation fans would be the only acoustically significant changes to the approved RUM as part of the Modification, SLR adopted a method from the NPfI applicable when new or modified components are made to an existing site.

The method involves setting the Project Noise Trigger Levels (PNTLs) at 10 dBA below existing site noise criteria. Use of this approach means that any additional noise from the Modification would be negligible compared to the existing approved noise limits, and the Modification would not increase the existing approved noise limits.

Using this methodology, the PNTLs that were applied for all sensitive receivers assessed were as follows (Appendix C):

- 25 dBA $L_{Aeq\ (15\ minute)}$ for the day, evening and night periods; and
- 35 dBA $L_{A1\ (1\ minute)}$ for the night period.

Construction Noise Management Levels

The ICNG (DECC, 2009) is considered applicable to the Modification construction activities.

Construction of the backroad ventilation shaft pads would be limited to 7.00 am to 6.00 pm Monday to Saturday and 8.00 am to 6.00 pm Sundays and public holidays. Drilling the ventilation shafts would be undertaken 24 hours per day, seven days per week.

For residential receivers, the recommended acceptable construction noise levels during ICNG standard hours are the Rating Background Level (RBL) plus 10 dBA, while the construction noise criteria outside of standard hours are the RBL plus 5 dBA. For all potential residential receivers, a 'highly affected' noise management level of $L_{Aeq(15min)}$ 75 dBA is also adopted (Appendix C).

Assuming the minimum RBLs applicable under the NPfI, Table 5 provides the adopted construction noise management levels.

Table 5
Construction Noise Management Levels

Applicable Hours	Noise Management Level (dBA $L_{Aeq\ (15\ minute)}$)		
	Day	Evening	Night
Standard Construction Hours	45	-	-
Outside Standard Construction Hours	40	35	35

Source: After Appendix C.

Noise Model

Noise modelling was undertaken using the SoundPLAN software (v8.1) with the CONCAWE algorithms (Appendix C). The model incorporated topography, noise source data and atmospheric information to predict noise levels at the nearest potentially affected sensitive receivers.

Standard and noise-enhancing meteorological conditions, as defined in the NPfI, were modelled in each time period as appropriate (Appendix C).

7.3.2 Potential Impacts

Operational Noise

No exceedances of the adopted PNTLs or noise criteria in Development Consent DA 104/96 were predicted for any sensitive receiver, in any time period, under standard and noise-enhancing meteorological conditions (Appendix C).

As such, noise from the Modification would be negligible compared to the existing approved noise limits, and the Modification would not increase the existing approved noise limits.

Sleep Disturbance

SLR assessed the potential for the construction and operation of the Modification to disturb the sleep of the nearest sensitive receptors. The predicted noise levels were well below the screening criterion adopted (Appendix C).

Construction Noise

No exceedances of the adopted noise management levels were predicted for any receiver, during both standard construction hours and outside standard construction hours (Appendix C).

7.3.3 Mitigation and Monitoring

The Ashton Coal Project Noise Management Plan would be updated to incorporate the ACOL-operated portion of the RUM, for which ACOL would take responsibility for, as shown on Figure 4.

7.4 GREENHOUSE GAS

A review of potential greenhouse gas emissions associated with the modified RUM and modified Ashton Coal Project has been undertaken by Todoroski Air Sciences (TAS) (2021) and is presented in the Ashton Coal Project Modification Report (ACOL, 2021).

TAS (2021) concluded that total estimated Scope 1, 2 and 3 greenhouse gas emissions for the modified RUM would be approximately 6 million tonnes (Mt) carbon dioxide equivalent (CO_2-e) and represents approximately 20.8% of the emissions associated with the remaining approved RUM coal resource (i.e. 28.9 Mt CO_2-e).

There would be a significant reduction in greenhouse gas emissions for the ACOL-operated portion of the RUM compared to the approved RUM associated with the reduced longwall footprint (i.e. shortening and narrowing of longwall panels).

Under the Modification, ACOL would be responsible for reporting of emissions under the NGER Act associated with the proposed underground mining activities at RUM (as per the ACOL-operated portion of the RUM defined on Figure 4) and the processing and handling of coal at the Ashton Coal Project.

7.5 OTHER ENVIRONMENTAL CONSIDERATIONS

7.5.1 Social

ACOL would utilise the existing Ashton Mine Complex workforce to mine the ACOL-operated portion of the RUM as shown on Figure 4. The RUM Modification 9 Environmental Assessment (GSS Environmental, 2012) proposed an operational workforce of 410 long-term total average employees, which is similar to the 386 employees previously assessed for the Ashton Coal Project.

Social impact themes for the local area in the context of a proposed mining development were identified in the *Glendell Continued Operations Project Social Impact Assessment* (Umwelt, 2019). These themes include issues such as dust and noise emissions, health, community, economic benefits, employment, property prices and impacts on water. A review of the relevance of the Modification to the social impact themes identified by Umwelt (2019) is provided in Table 6.

Based on the review, there would be a negligible change in social impacts under the Modification compared to the approved RUM.

7.5.2 Economic

As described in Section 1.3.2, in the absence of the Modification, the approved but as yet unmined RUM coal resources would most likely not be mined and, therefore, the NSW Government royalties associated with the mining of the approved RUM coal in the Pikes Gully and Middle Liddell seams may not be realised.

Table 6
Review of Social Impact Themes Identified in Glendell Continued Operations Project Social Impact Assessment

Social Impact Theme[1]	Definition[1]	Relevance of Modification
Social Amenity	Social amenity concerns primarily relate to the impacts on way of life and rural lifestyle and include the impacts experienced as a result of dust/air quality, operational noise, blasting (vibration and plumes), visual impact and potential odour.	Under the Modification, the RUM would be completed by 2032. The existing ACOL workforce would continue to be employed to mine already approved RUM and Ashton Coal Project coal resources. The amenity impacts associated with the approved RUM (e.g. associated with operation of ventilation and flaring infrastructure) would continue until up to 2032.
Sense of Community and Culture	Changes to the cohesion and character of the community, including impacts on cultural heritage.	The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared and approved areas. There would be no increase in subsidence impacts compared to the approved RUM, and impacts would be reduced in some areas as the longwall layout represents a smaller footprint than the approved. Therefore, no new impacts to Aboriginal cultural heritage are expected. Under the Modification, the RUM would be completed by 2032. The existing ACOL workforce would continue to be employed to mine the already approved RUM and Ashton Coal Project coal resources. The amenity impacts associated with the approved RUM (e.g. associated with operation of ventilation and flaring infrastructure) would continue until up to 2032.
Economic Contribution and Community Investment	Contribution to the regional economy and community investment efforts. Opportunities for employment, training and partnerships, particularly for near neighbours, the Aboriginal community and emergency services.	Under the Modification, the RUM would be completed by 2032. The existing ACOL workforce would continue to be employed to mine the already approved RUM and Ashton Coal Project coal resources. It is expected that ACOL would continue to make contributions to community groups and causes under the Modification, consistent with current practices. ACOL would continue to engage with the Aboriginal and local community via the Ashton and Ravensworth CCC and Aboriginal Community Consultation Forum to identify opportunities employment, training and partnerships.
Access to and Use of Infrastructure and Services	Potential disruption on the local road network due to operational activities (e.g. blasting and cumulative effects of mine traffic). Inability to access particular services and facilities in the area, (e.g. provision of telecommunications, housing/accommodation).	The Modification does not propose any new activities that would disrupt the local road network or reduce access to services or facilities.

Table 6 (Continued)
Review of Social Impact Themes Identified in Glendell Continued Operations Project Social Impact Assessment

Social Impact Theme[1]	Definition[1]	Relevance of Modification
Water Access and Use	Access to and use of water, including impacts on both ground and surface water.	There would be a reduction in groundwater impacts compared to the approved RUM as the longwall layout represents a smaller footprint than the approved. There would be no change in surface water impacts compared to the approved RUM.
Engagement and Decision-Making	Existing engagement mechanisms and the ongoing potential to have a voice in the assessment process - provide input and feedback to decision making.	Glencore has engaged with the RUM CCC as part of the engagement undertaken for the Modification and has considered comments raised in this Modification Report. ACOL will also respond to comments raised by the community during the assessment of the Modification.
Intergenerational Equity	Intergenerational equity refers to addressing the needs of the present generation without compromising the ability of future generations to meet their own needs (IAIA, 2003). The Intergenerational equity theme includes impacts relating to future land use, land management (including the management of pests such as wild dogs) and climate change.	The Modification does not propose any material change to landforms in the underground areas at the RUM. The predicted vertical subsidence in the area of natural ground is reduced compared to the previous predictions for the approved RUM and the magnitude of impacts is also expected to reduce. The Modification would not change the future land use or land management at the RUM. There would be a substantial reduction in greenhouse gas emissions compared to the approved RUM, as a result of the reduction in longwall extents compared to the approved layout (Section 7.4).
Health and Wellbeing	Health impacts as a result of dust impacts, including respiratory issues and psychosocial affects relating to the cumulative presence of mining.	Under the Modification, the RUM would be completed by 2032. The existing ACOL workforce would continue to be employed to mine the already approved RUM and Ashton Coal Project coal resources. The amenity impacts associated with the approved RUM (e.g. associated with operation of ventilation and flaring infrastructure) would continue until up to 2032. Air quality impacts under the Modification would be reduced as processing of coal would occur at the Ashton CHPP. The Modification is not expected to result in new psychosocial impacts.
Personal and Property Rights	Impacts of the project on private property values and the ability to sell/move out of the area.	Under the Modification, the RUM would be completed by 2032. The existing ACOL workforce would continue to be employed to mine the already approved RUM and Ashton Coal Project coal resources. It is anticipated that the Modification would result in a negligible change to property values and the ability to sell properties.

[1] Social impact themes and definition sourced from the Glendell Continued Operations Project Social Impact Assessment (Umwelt, 2019).

7.5.3 Biodiversity

The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. There would be no increase in subsidence impacts (including to vegetation) at the RUM under the Modification. Therefore, the Modification would not result in an increase to impacts on biodiversity values, including threatened species and ecological communities, relative to the impacts already approved.

7.5.4 Aboriginal Heritage

The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared or areas approved for clearing. There would be no increase in subsidence impacts at the RUM under the Modification. Therefore, the Modification would not result in an increase to impacts on Aboriginal cultural heritage relative to the impacts already approved.

As described in Section 7.1.4, ACOL would undertake further assessment to ground truth the seven extant Aboriginal sites (Figure 5), determine appropriate management measures and obtain relevant permits under the *National Parks and Wildlife Act 1974* for these sites where necessary.

7.5.5 Visual

The only new visible component of the Modification would be the backroad upcast ventilation fans which would be constructed to provide adequate ventilation of the underground workings. These would be located within the Ravensworth Mine Complex waste emplacement and therefore there would be negligible impact on views from public and private vantage points.

7.5.6 Air Quality

The Modification would involve the transfer of ROM coal mined at the RUM to the Ashton CHPP for processing and transport to market. Accordingly, the only air quality emissions associated with the Modification would be related to ventilation and flaring of the ACOL-operated portion of the RUM.

Given the above, there would be an overall reduction in air quality impacts at the RUM.

7.5.7 Surface Water

The Modification would involve the transfer of groundwater inflows from the RUM to the Ashton Coal Project water management system. Accordingly, there would be a reduction in water management requirements (e.g. containment of water) at the RUM as a result of the Modification.

The predicted subsidence impacts on surface water resources would also not increase.

Therefore, there would be no change in impacts to surface water resources or changes to surface water management at the RUM as a result of the Modification.

7.5.8 Transport

The Modification would result in a very minor short-term (approximately 3 months) increase in traffic movements associated with construction of the proposed back-road ventilation fans (i.e. transport of plant/equipment). However, there would be a reduction in impacts on the local road network compared to those previously assessed for the RUM as the ACOL operational workforce would operate the RUM (i.e. there would be no RUM operational workforce accessing the site).

Other construction related traffic impacts as a result of various on-site activities for the RUM are already approved and would not materially change as a result of the Modification.

7.5.9 Other Matters

As the Modification infrastructure (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared and areas approved for clearing, and the longwall layout footprint would reduce, no new assessments of the following potential impacts have been carried out for the Modification:

- potential soil impacts; or
- potential impacts to agricultural land.

These matters would be managed in accordance with the Ashton Coal Project MOP/RMP, which would be updated to incorporate the ACOL-operated portion of the RUM (Figure 4) which ACOL would take responsibility over.

8 JUSTIFICATION OF THE MODIFIED PROJECT

The RUM (formerly known as the Nardell Coal Mine) was approved under Part 4 of the EP&A Act by the then NSW Minister for Urban Affairs and Planning on 20 November 1996 (Development Consent DA 104/96). Development Consent DA 104/96 has been modified nine times, most recently on 20 June 2013 via former section 75W of the EP&A Act.

The Modification would allow ACOL to access and mine coal resources at the RUM that are approved to be mined under Development Consent DA 104/96.

The Modification would not change the following components of the approved RUM:

- mining method and operating hours; and
- ROM coal extraction rate.

In addition, there would be reduction in the scale and nature of the RUM associated with the following:

- There would be no RUM operational employees required as the ACOL workforce would mine the RUM.
- There would be no RUM ROM coal handling and preparation or RUM coal rejects management at the Ravensworth CHPP.
- There would be no RUM product coal transport from the Ravensworth Coal Terminal rail loadout facility.

The Modification can be implemented in accordance with the existing environmental limits and performance measures for the RUM, and the Modification infrastructure can be located in previously cleared and approved areas.

This Modification Report has been prepared in consideration of relevant legislation. ACOL, as the proponent for the identified ACOL-operated portion of the RUM (Figure 4), would make revisions to the relevant Ashton Coal Project plans, licences, and agreements to incorporate changes from the Modification as necessary.

8.1 STAKEHOLDER ENGAGEMENT

Yancoal and Glencore have consulted with the following stakeholders during the development of this Modification report:

- the RUM and Ashton Coal Project CCCs;
- DPIE;
- NSW Resources Regulator;
- MEG;
- DPIE – Water;
- NRAR;
- NSW EPA;
- Singleton Council;
- Subsidence Advisory NSW;
- Dams Safety NSW; and
- NSW Health.

Key comments and issues raised during consultation have been considered and addressed in the preparation of this Modification Report.

8.2 CONSOLIDATED SUMMARY OF ASSESSMENT OF IMPACTS

ACOL would operate the ACOL-operated portion of the RUM (Figure 4) in accordance with the existing SMP and Ashton Coal Project environmental management plans and environmental monitoring programs, incorporating any necessary revisions.

ACOL and RPPL have undertaken a review of the potential environmental impacts of the Modification to identify key potential environmental issues requiring assessment. The key environmental issues identified are summarised in Table 7.

Table 7
Key Outcomes of Environmental Review for the Modified RUM

Environmental Aspect	Summary of Key Environmental Review Conclusions
Subsidence	There would be a **reduction** in subsidence impacts compared to the approved RUM as the longwall layout represents a smaller footprint than the approved. Subsidence effects in some areas would not occur due to the shortening of RUM longwall panels compared to the approved layout. The predicted vertical subsidence in the area of natural ground is reduced compared to the previous predictions for the approved RUM and the magnitude of impacts is also expected to reduce. The modified RUM mine layout has been designed to be consistent with the Subsidence Impact Performance Measures in Development Consent DA 104/96. The majority of the Modification longwall panels are located beneath existing open cut mining operations and ongoing interactions with these operations would be managed via a commercial agreement between ACOL and Glencore. ACOL would also manage the Pikes Gully Seam secondary extraction in accordance with the approved SMP (as modified). The Modification would result in no greater impacts or environmental consequences on natural or built features than those for the approved layout.
Groundwater Resources	There would be a **reduction** in groundwater impacts compared to the approved RUM as the longwall layout represents a smaller footprint than the approved. Updated groundwater modelling incorporating the revised sequencing of mining (including the revised RUM longwall layout) indicates that groundwater inflows would be generally consistent with the approved RUM.
Surface Water Resources	There would be **no change** in surface water impacts compared to the approved RUM. There are no increased subsidence impacts on surface water features expected. Groundwater inflows to the RUM would be transferred to, and managed within, the existing Ashton Coal Project water management system.
Air Quality	There would be a **reduction** in air quality impacts at the RUM as ROM coal would be processed at the Ashton CHPP, and emissions would be limited to ventilation and flaring of gas (consistent with the approved RUM).
Greenhouse Gas	There would be a **substantial reduction** in greenhouse gas emissions compared to the approved RUM, as a result of the reduction in longwall extents compared to the approved layout.
Noise	There would be **no increase** in noise impacts compared to the approved RUM. The RUM would continue to comply with the noise limits conditioned in Development Consent DA 104/96 under the extended mine life (to 2032).
Social	There would be a **negligible change** in social impacts under the Modification compared to the approved operations.
Transport	There would be a **reduction** in impacts on the local road network compared to those previously assessed for the RUM as the RUM operational workforce would not be required. The ACOL workforce would mine the ACOL-operated portion of the RUM under the Modification.
Biodiversity	The Modification would **not increase** the impact on biodiversity values, including threatened species and ecological communities. The Modification does not require additional surface disturbance of remnant vegetation beyond that already cleared or approved for clearing for the RUM. There would be no increase in subsidence impacts (including to vegetation) compared to the approved RUM.
Heritage	There would be **no increase** in impacts on heritage compared to the approved RUM. The Modification does not require additional surface disturbance of heritage items beyond that already cleared or approved for clearing for the RUM. There would be no increase in subsidence impacts compared to the approved RUM.
Other Aspects	The Modifications would result in **negligible or no change** in potential impacts on other environmental and economic considerations. The Modification would allow ACOL to mine approved RUM coal resources that would most likely not be mined without the Modification, and would provide the associated economic benefits (e.g. royalties).

8.3 CONSIDERATION OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

8.3.1 Objects of the Environmental Planning and Assessment Act 1979

Section 1.3 of the EP&A Act describes the objects of the EP&A Act as follows:

(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,

(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

(c) to promote the orderly and economic use and development of land,

(d) to promote the delivery and maintenance of affordable housing,

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(g) to promote good design and amenity of the built environment,

(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) to provide increased opportunity for community participation in environmental planning and assessment.

The Modification is considered to be generally consistent with the objects of the EP&A Act, because it is a Modification that:

- involves the orderly and economic use of land as the Modification area is the minimum amount of land required to accommodate the Modification; and
- is an application under section 4.55(2) of the EP&A Act that would be determined by the NSW Government.

8.4 JUSTIFICATION FOR THE MODIFICATION

The Modification would enable ACOL to mine approved, but as yet unmined, coal resources at the RUM. These coal resources would most likely not be mined without the Modification.

The proposed Modification would have the following benefits:

- would provide for the efficient extraction of approved resources that would potentially not be mined; and
- would utilise existing planning approvals to maximise economic recovery of approved coal resource.

8.5 CONCLUSION

The modified RUM would be "substantially the same" development as the approved RUM. The overall scale and nature of the development including intensity, production rates, mining method, hours of operation and severity of impacts would remain unchanged or be reduced.

The RUM (as modified) would continue to comply with existing criteria, performance measures and limits described in Development Consent DA 104/96.

The ACOL-operated portion of the RUM would be operated in accordance with the existing management and monitoring regime (as required to be updated from time to time) described in Development Consent DA 104/96. The relevant Ashton Coal Project environmental management and operational plans would be updated to include the ACOL-operated portion of the RUM, for which ACOL would take responsibility for.

Based on the outcomes of the environmental review, the Modification would result in a negligible change or reduction to previously assessed and approved impacts and, therefore, would involve minimal environmental impact.

In weighing up the main environmental impacts (costs and benefits) assessed and described in this Modification Report, the Modification is, on balance, considered to be in the public interest of the State of NSW.

9 REFERENCES

Ashton Coal Operations Pty Limited (2020) *Water Management Plan.*

Ashton Coal Operations Pty Limited (2021) *Ashton-Ravensworth Underground Mine Integration Modification – Ashton Coal Project Modification Report.*

Aquaterra (2009) *Ashton Coal Project Bowmans Creek Diversion Groundwater Impact Assessment*.

Australasian Groundwater & Environmental Consultants (2021) *Ashton Coal Project Groundwater Review*.

Department of Environment and Climate Change (2009) *NSW Interim Construction Noise Guideline.*

Environment Protection Authority (2017) *NSW Noise Policy for Industry.*

Glencore (2020) *Plan for Ravensworth Complex Water Management*.

GSS Environmental (2012) *Ravensworth Underground Mine Liddell Seam Project Environmental Assessment.*

HLA-Envirosciences Pty Limited (1996) *Environmental Impact Statement – Proposed Nardell Underground Mine – Ravensworth, New South Wales.*

International Association for Impact Assessment (2003) *International Principles for Social Impact Assessment.*

Mackie Environmental Research (2009) *Ravensworth Groundwater Impacts Assessment.*

Mackie Environmental Research (2012) *Liddell Seam Groundwater Impacts Assessment.*

New South Wales Department of Planning, Industry and Environment (2020) *Net Zero Plan Stage 1: 2020 – 2030.*

New South Wales Department of Planning, Industry and Environment (2021) *State Significant Development Guidelines.*

New South Wales Government (2012) *Aquifer Interference Policy.*

New South Wales Government (2016) *Upper Hunter Regional Plan.*

New South Wales Government (2020) *Strategic Statement on Coal Exploration and Mining in NSW.*

New South Wales Office of Environment and Heritage (2016) *NSW Climate Change Policy Framework.*

OzArk Environmental & Heritage Management Pty Ltd (2012) *Aboriginal Heritage Due Diligence Assessment' Ravensworth Underground Mine, Proposed Pikes Gully Longwalls 10 to 15*.

SCT Operations (2021) *Ravensworth Underground Mine Subsidence Review.*

SLR Consulting Australia (2021) *Ashton-Ravensworth Underground Integration Modification – Noise Review.*

State of New South Wales and Office of Environment and Heritage (2018) *Threatened Species Test of Significance Guidelines.*

Todoroski Air Sciences (2021) *Air Quality Assessment – Ashton Ravensworth Underground Integration Modification*.

Umwelt (2019) *Glendell Continued Operations Project Social Impact Assessment*.

Attachment 1
Detailed Statutory Compliance Reconciliation Table for Ravensworth Underground Mine

Table A1-1
Summary Statutory Compliance for State Legislation

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the RUM EIS or Modification EA	Relevant Section in Modification Report	Modified Project Compliance Status
Environmental Planning and Assessment Act 1979 (EP&A Act)				
section 1.3	Relevant objects of the EP&A Act: • Promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources. • Facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment. • Promote the orderly and economic use and development of land. • Protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats. • Promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage). • Promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State. • Provide increased opportunity for community participation in environmental planning and assessment.	-	Sections 3 and 8.3	✓
section 4.15	Relevant environmental planning instruments: • *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP). • *State Environmental Planning Policy (SEPP) No 33: Hazardous and Offensive Development* (SEPP 33). • *State Environmental Planning Policy No.55 – Remediation of Land* (SEPP 55). • *State Environmental Planning Policy (Koala Habitat Protection) 2021* (Koala SEPP). • *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP). • *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). • *Singleton Local Environmental Plan 2013* (Singleton LEP). • Any planning agreement or draft planning agreement that a developer has entered into under section 7.4 of the EP&A Act. • The EP&A Regulation. The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality; the suitability of the site for the development; any submissions made in accordance with the EP&A Act or the EP&A Regulation; the public interest.	Section 6.4 of Modification 9 and Section 4.2 of Modification 8	Remainder of Table A1-1.	✓

Table A1-1 (Continued)
Summary Statutory Compliance for State Legislation

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the RUM EIS or Modification EA	Relevant Section in Modification Report	Modified Project Compliance Status
EP&A Regulation				
clause 115AA	An application for modification of a development consent for State significant development under the Act, section 4.55(1), (1A) or (2) or 4.56(1) must— a) be in the form approved by the Planning Secretary and made available on the NSW planning portal, and b) include particulars of the nature of the proposed modification to the development consent, and c) be prepared having regard to the State Significant Development Guidelines, and be lodged on the NSW planning portal.	-	Sections 1 to 8	✓
Mining Act 1992				
section 380AA	An application for development consent to mine for coal cannot be made or determined unless the applicant is the holder of an authority that is in force in respect of coal for the relevant land, or the applicant has the written consent of the holder of such an authority to make the application.	Section 6.3.4 of Modification 9 and Section 4.4 of Modification 8	Section 5.2.3 and Attachment 2	✓
Biodiversity Conservation Act 2016				
section 7.14(2)	The consent authority is to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR. The infrastructure proposed under the Modification (e.g. relocated gas and ventilation infrastructure) would be located in previously cleared and approved disturbance areas and would therefore not result in an increase to impacts on biodiversity values, including threatened species and ecological communities, relative to the impacts already approved.	-	Sections 5.2.1 and 7.5.3	✓
section 7.16(3)	If the consent authority is of the opinion that the RUM (as modified) is likely to have serious and irreversible impacts on biodiversity values, the consent authority is required to: • take those impacts into consideration; and • determine whether there are any additional and appropriate measures that will minimise those impacts if consent or approval is to be granted.	-	Sections 5.2.1 and 7.5.3	✓
Protection of the Environment Operations Act 1997 (PoEO Act)				
section 43	The RUM currently operates under EPL 2652, granted under the PoEO Act, which allows for coal works and mining for coal as scheduled activities. The EPL contains conditions that relate to emission and discharge limits, environmental monitoring and reporting.	Section 6.3.2 of Modification 9 and Sections 4.2.7 and 4.4 of Modification 8	Section 5.2.5	✓

Table A1-1 (Continued)
Summary Statutory Compliance for State Legislation

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the RUM EIS or Modification EA	Relevant Section in Modification Report	Modified Project Compliance Status
Water Management Act 2000				
sections 89, 90 and 91	RPPL holds appropriate licences under the *Water Management Act 2000* for the existing activities at the RUM. Appropriate licences under the *Water Management Act 2000* would continue to be held and where necessary obtained via purchase or trade according to the operating rules of the water market.	Section 4.11.2 of Modification 9 and Section 4.4 of Modification 8	No change.	✓
Dams Safety Act 2015				
section 48(4)	A consent authority must, before granting Development Consent for mining operations within a notification area of a declared dam, refer the application to Dams Safety NSW and take into consideration any matters raised by Dams Safety NSW.	Section 6.3.7 of Modification 9	Section 5.2.2	✓
Coal Mine Subsidence Compensation Act 2017 (CMSC Act)				
section 8	At all times while the RUM is an active mine, RPPL would be liable to pay compensation in relation to damage caused by subsidence arising from the RUM on improvement or goods under Part 2 of the CMSC Act. Any claims for compensation under the CMSC Act would be lodged with Subsidence Advisory NSW. The RUM is not located within a Mine Subsidence District declared under section 20 of the CMSC Act, and in the regulations made under the CMSC Act.	-	No change.	✓
National Parks and Wildlife Act 1974 (NPW Act)				
section 90	Relevant section 90 permits under the NPW Act have been obtained for the completed RUM. ACOL would operate in accordance with these permits and obtain any additional permits required for the Modification.	Section 6.3.8 of Modification 9 and Section 4.4 of Modification 8	Section 5.2.4	✓
Heritage Act 1977				
section 139	No items of historic heritage would be directly disturbed by surface development and underground mining at the RUM (as modified) as the Modification does not require additional surface disturbance of heritage items beyond that already approved for the RUM and there would be no increase in subsidence impacts compared to the approved RUM.	Section 7.11 of Modification 9 and Section 6.3 of Modification 8	No change.	✓

Table A1-2
Summary Statutory Compliance for Environmental Planning Instruments

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the RUM EIS or Modification EA	Relevant Section in Modification Report	Modified Project Compliance Status
State and Regional Development SEPP				
clause 3	Clause 3 of the State and Regional Development SEPP outlines the aims of the policy, that includes identifying development that is State Significant Development. The RUM falls within item 5 of Schedule 1 of the State and Regional Development SEPP as it is development for the purpose of mining that is coal mining. Under clause 8 of the State and Regional Development SEPP, the RUM is, therefore, a State Significant Development for the purposes of the EP&A Act.	-	No change.	✓
Mining SEPP				
clause 12	Before determining an application for consent for the purposes of mining the consent authority must: (a) consider – (i) the existing uses and approved uses of land in the vicinity of the development, and (ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and (iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and (b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a)(i) and (ii), and (c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a)(iii).	Section 6.4.4 of Modification 9 and Section 4.2.3 of Modification 8	No change.	✓
clause 12A	Before determining an application for consent for the purposes of mining the consent authority must consider relevant provisions of the *Voluntary Land Acquisition and Mitigation Policy* (NSW Government, 2018).	Section 6.4.4 of Modification 9 and Section 4.2.3 of Modification 8	No change.	✓
clause 13	Before determining an application for development in the vicinity of mining, petroleum or extractive industry, the consent authority must (among other things) consider whether or not the development is likely to have a significant impact on current or future extraction or recovery of minerals, petroleum or extractive materials (including by limiting access to, or impeding assessment of, those resources), and any ways in which the development may be incompatible with any of those existing or approved uses or that current or future extraction or recovery.	Section 6.4.4 of Modification 9	Section 3	✓

Table A1-2 (Continued)
Summary Statutory Compliance for Environmental Planning Instruments

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the RUM EIS or Modification EA	Relevant Section in Modification Report	Modified Project Compliance Status
Mining SEPP (Continued)				
clause 14	Before determining an application for consent for the purposes of mining the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner (including conditions to ensure that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable, that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable, and that greenhouse gas emissions are minimised to the greatest extent practicable). This includes considering an assessment of greenhouse gas emissions (including downstream emissions) having regard to any applicable State or National policies, programs of guidelines concerning greenhouse gas emissions.	Section 6.4.4 of Modification 9 and Section 4.2.3 of Modification 8	Section 7	✓
clause 15	Before determining an application for consent for the purposes of mining the consent authority must consider the efficiency of the development in terms of resource recovery and whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resources recovery and the reuse or recycling of material.	Section 6.4.4 of Modification 9	Section 3	✓
clause 16	Before determining an application for consent for the purposes of mining the consent authority must consider whether or not the consent should be issued subject to conditions regarding transport of materials.	Section 6.4.4 of Modification 9	No change.	✓
clause 17	Before determining an application for consent for the purposes of mining the consent authority must consider whether or not the consent should be issued subject to conditions regarding rehabilitation, including the particular considerations set out in clause 17(2).	Section 6.4.4 of Modification 9	No change.	✓
SEPP 33				
clause 13	A consent authority must consider current circulars or guidelines published by the DPIE relating to hazardous or offensive development, whether to consult with relevant public authorities regarding any environmental or land use safety requirements, a preliminary hazard analysis prepared by the applicant, feasible alternatives to the development and likely future use of surrounding land.	Section 6.4.1 of Modification 9 and Section 4.2.4 of Modification 8	No change to potentially hazardous or offensive activities.	✓
SEPP 55				
clause 7(1)	A consent authority must consider whether the land is contaminated and be satisfied that, if the land is contaminated, the land is suitable in its contaminated state (or will be suitable after remediation) for the purpose of the Project.	Section 6.4.3 of Modification 9	No change to Development Application area.	✓

Table A1-2 (Continued)
Summary Statutory Compliance for Environmental Planning Instruments

Relevant Legislation or Instrument	Mandatory Consideration	Relevant Section in the RUM EIS or Modification EA	Relevant Section in Modification Report	Modified Project Compliance Status
Infrastructure SEPP				
clause 45(2)	Before determining a development application (or an application for modification of a consent) for development to which this clause applies the consent authority must give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks and take into consideration any response to the notice that is received within 21 days after the notice is given.	-	No change.	✓
clause 85(2)	Before determining a development application for development to which this clause applies, the consent authority must within 7 days after the application is made, give written notice of the application to the rail authority for the rail corridor, and take into consideration: (i) any response to the notice that is received within 21 days after the notice is given, and (ii) any guidelines that are issued by the Secretary for the purposes of this clause and published in the Gazette.	-	No change.	✓
Singleton LEP				
clause 2.3	A consent authority must have regard to the objectives for development in a zone when determining a development application in respect of land within that zone.	Section 6.5.1 of Modification 9 and Section 4.2.2 of Modification 8	No change.	✓
clause 5.10(4)	If applicable, a consent authority must, before granting consent under clause 5.10 in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned.	Sections 5.10 and 6.3 of the EIS	No change.	✓
clause 5.10(8)	If applicable, a consent authority must, before granting consent under clause 5.10 to the carrying out of development in an Aboriginal place of heritage significance, consider the effect of a proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment.	Sections 3.9 and 5.10 of the EIS and Section 7.10 of Modification 9	No change.	✓
clause 7.6	If applicable, a consent authority must, before granting development consent for earthworks, consider the effect of proposed earthworks on drainage patterns, soil stability, quality of fill, likely amenity impacts, likelihood of disturbing relics and proximity to and potential impacts on water courses.	Sections 5.2, 5.4, 5.13 and 6.2 of the EIS	No change.	✓

Attachment 2
Consent under Section 380AA of the Mining Act

RAVENSWORTH
UNDERGROUND

GLENCORE

5 November 2021

Ashton Coal Operations Pty Limited
Glennies Creek Road
Camberwell NSW 2330

To whom it may concern,

RE: APPLICATION TO MODIFY DEVELOPMENT CONSENT DA 104/96

Resource Pacific Pty Limited and Glencore Newpac Pty Limited (collectively the **Current Registered Holders**) are the current registered holders of Mining Lease (ML) 1348, ML 1349, ML 1668 and ML 1495.

ML 1348, ML 1349, ML 1668 and ML 1495 for Group 9 minerals (coal) are over the relevant parts of land where mining for coal is proposed to be carried out for the modified Ravensworth Underground Mine (DA 104/96).

I am an authorised representative for the Current Register Holders. Pursuant to section 380AA of the New South Wales *Mining Act 1992*, the Current Register Holders of ML 1348, ML 1349, ML 1668 and ML 1495 provide consent to Ashton Coal Operations Pty Limited (ACN 22 078 556 500) and Resource Pacific Pty Limited (ACN 106 177 108) to lodge a Development Application to modify the Ravensworth Underground Mine Development Consent DA 104/96.

Yours sincerely,

Xavier Wagner
General Manager – Ravensworth Complex

Attachment 3
Groundwater Peer Review Letter

Ref: HA2021/15

HydroAlgorithmics Pty Ltd
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Phone +61 (0)404 001 780

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Date: **8 November 2021**

To: **Phillip Brown**
Ashton Coal Operations Pty Ltd
Glennies Creek Road
Camberwell NSW 2330

From: **Dr Noel Merrick**

Re: **Ashton-Ravensworth Integration Modification - Groundwater Peer Review**

Introduction

This letter provides a peer review of the Groundwater Review and associated modelling for the Ashton-Ravensworth Underground Mine Integration Modification (the Modification). The Groundwater Review has been prepared by Australasian Groundwater and Environmental Consultants Pty Ltd (AGE), for the client Yancoal Australia Limited.

Relevant to my peer review, I have previously undertaken groundwater peer reviews for the Ashton Coal Project in 2008 and 2009, and have been involved in peer reviews for the nearby Integra Underground Mine, Mt Owen Complex and Glendell Mine over the past five years.

The Ashton Underground Mine and the Ravensworth Underground Mine are neighbouring approved mines in the Hunter Valley, New South Wales. Ashton Coal Operations Pty Ltd is proposing to access and extract approved but unmined coal resources at the Ravensworth Underground Mine and integrate part of the approved Ravensworth Underground Mine with the Ashton Underground Mine (hereafter referred to as the Modification). The coal would be accessed from the Ashton Underground Mine via new non-subsiding first workings developed between the two mining areas.

Documentation and Review

The review is based on the AGE (2021) *"Ashton-Ravensworth Integration Modification Groundwater Review. Letter report to Ashton Coal Operations Pty Ltd, 8 November 2021"* and supporting information provided by AGE as noted below.

The numerical groundwater model used and updated by AGE is a mature model. The major update for the Modification was the introduction of a fracture zone into the Ravensworth Underground Mine area. I provided feedback to AGE on the fracture model implementation during a teleconference on 7 September 2021. Following this meeting, AGE provided evidence showing that these comments were incorporated into the model satisfactorily and the resulting fracture zone parameters are considered to be reasonable, based on my experience.

My comments on the draft Groundwater Review report have been incorporated in the final report. Given the Modification does not involve an increase in longwall mining extent and, in fact, proposes to reduce the longwall extent in some areas (e.g. shortened longwalls), the assessment methodology used by AGE and findings presented in the Groundwater Review report are considered to be appropriate.

Conclusion

Based on the evidence presented, supporting information provided by AGE and the modelling conducted, I concur with the overarching report conclusion that the Modification would not result in any additional groundwater impacts compared to those already approved for Ravensworth Underground Mine and Ashton Underground Mine.

Yours sincerely,

Dr Noel Merrick