

GLENCORE

Glendell Coal Mine
Modification 4 - Minor Extension
to Barrett Pit

Independent Planning Commission Presentation
23rd January 2020

Mt Owen Glendell Operations (Glendell) and Proposed Modification

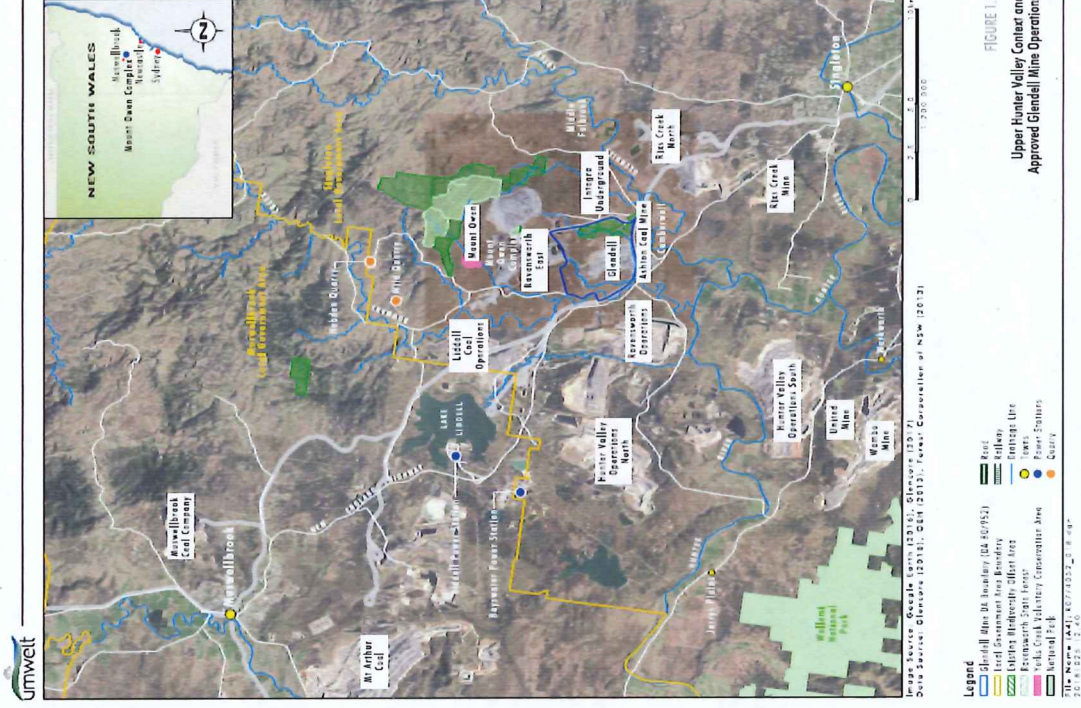
Glendell is located in the Hunter Coalfields in the Upper Hunter Valley of NSW, approximately 20km north-west of Singleton and 24km south-east of Muswellbrook.

Glendell is part of Mount Owen Glendell Operations (complex) which consists of Glendell, Ravensworth East and Mt Owen.

Modification (Mod) 4 would provide access to an additional 1.97 Mt of ROM Coal.

No changes to the workforce, operational hours, limits on annual extraction or the approval term.

Mod 4 lies wholly within existing approval and Mining Lease boundaries.

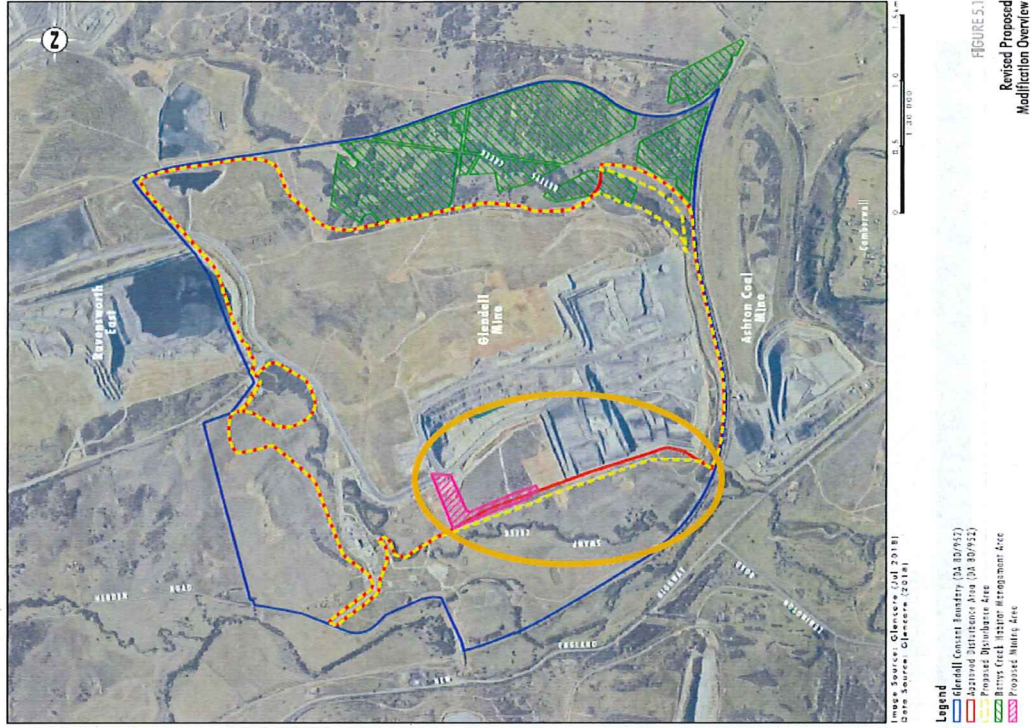


Proposed Modification

No additional noise or dust impacts at sensitive receivers – same as current approved operations.

No additional water (surface or ground) impacts – same as current approved operations.

Net increase in disturbance of 4.3 ha.



Proposed Modification

Comparative Summary

Aspect	Currently Approved	Updated Proposed Modification
Mining Method	Truck and Excavator	No change
Depth of Extraction	Approximately 200m	No change
Disturbance Area	834 ha approved for disturbance	Net 4.3ha increase to approved disturbance area (12ha additional disturbance and avoidance of 7.7ha of approved disturbance). 109 ecosystem credits required to offset modification area
Annual Production	4.5 Mtpa	No change
Total Reserve	50 Mt ROM Coal	Additional 1.97 Mt ROM Coal
Approval Date	June 2024	No change
CHPP Capacity	17 Mtpa (under SSD-5850)	No change
Hours of Operation	24 hours per day, 7 days per week	No change
Waste Management	In-pit and out-of-pit emplacement, with maximum height of 160m	No change
Employees	Approximately 300	No change
Water Management	Swamp Creek and Bettys Creek diversions. Existing water management system and Greater Ravensworth Area Water and Tailings Scheme	Extension of mine water management system to proposed disturbance area
Final Landform	Barrett Pit Void Progressive Rehabilitation of final landform incorporating vegetation corridors and post-mining landuse of grazing land and bushland	Minor changes to final landform

Project Update - Summary of Assessments

Aspect	Summary of Assessments
Ecology	<p>The additional disturbance area contains 'Bull Oak grassy woodland of the central Hunter Valley (regeneration)'; 'Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter (Derived Native Grassland)' and previously cleared land. The majority has been subject to previous ecological survey.</p> <p>Biodiversity Assessment Method (BAM) assessment of the proposed disturbance area undertaken as part of the SEE.</p>
Heritage	<p>The Glendell Mine site (incorporating the entire development consent area) has been subject to multiple survey and salvage works, including in the vicinity of the proposed additional disturbance area.</p> <p>Notwithstanding, a targeted assessment of potential Aboriginal Archaeological impacts has been undertaken in accordance with the Due Diligence Code as part of the RTS.</p>
Noise	<p>A review of the potential noise impacts of proposed mine plan changes undertaken and addressed in the SEE.</p>
Air Quality	<p>A review of the potential air quality impacts of proposed mine plan changes was prepared for the SEE and a revised Air Quality Assessment was prepared and submitted as part of the RTS.</p> <p>The revised Air Quality Assessment included air dispersion modelling for the 2022-2023 operational year.</p>
Groundwater	<p>A review of potential groundwater impacts of proposed mine plan changes was prepared for the SEE.</p> <p>Assessment concluded the modification would not have a significant impact on water according to Department of Environment and Energy guidelines.</p>

Statement of Environmental Effects

- Submitted to Department of Planning and Environment (now DPIE) during November 2018.

Response to Submissions

- 36 submissions received from community and Special Interest Groups during public exhibition which largely focused on air quality, greenhouse gas emissions, health and final void.
- Revised Air Quality Assessment – inclusion of air dispersion modelling for the final operational year.
- Inclusion of Aboriginal Cultural Heritage Assessment Report in accordance with the *Aboriginal cultural heritage consultation requirements for proponents (2010, DECCW)*.

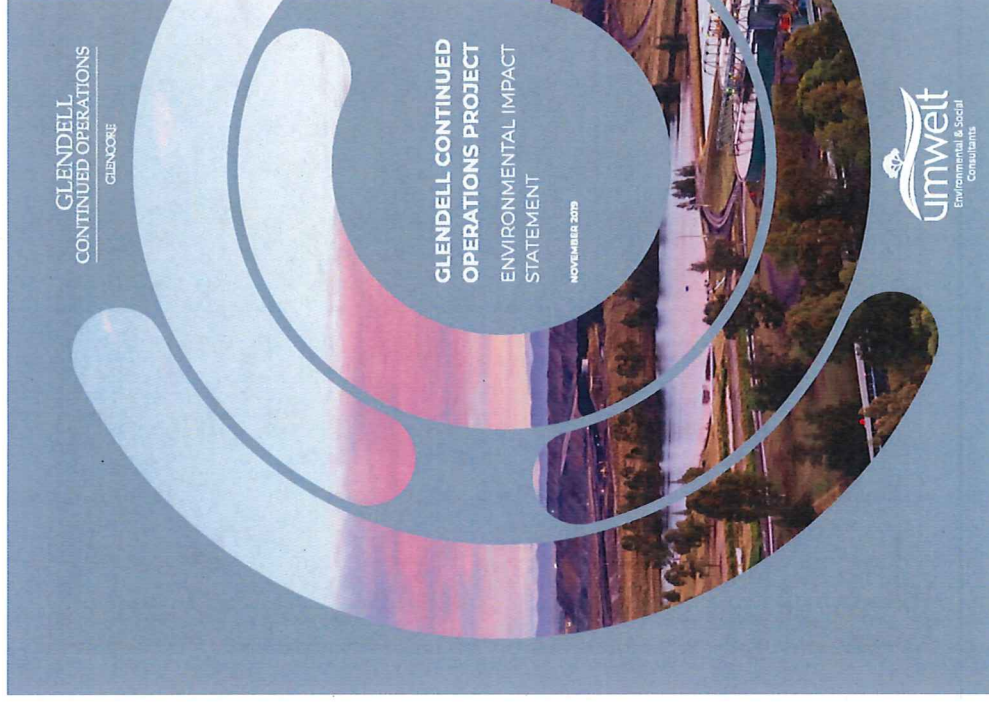


Mount Owen Continued Operations

- Department of Planning, Industry and Environment granted approval of Mount Owen Continued Operations Modification 2 in September 2019.

Glendell Continued Operations Project

- Environmental Impact Statement and associated Assessments lodged to Department of Planning, Industry and Environment.
- Extensive community consultation undertaken during preparation of assessment.
- Representations made under Section 9 and 10 of the Aboriginal and Torres Strait Islander Heritage protection Act 1984 - Application has since been withdrawn.
- Extension of operations to 2044.



Approximately 73 ha of native vegetation would be directly impacted as a result of Mod 4:



- 0.9 ha of Bull Oak woodland (regeneration)
- 6.4 ha Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter (Derived Native Grassland).

Mod 4 is not expected to result in any substantial indirect impacts on the biodiversity values of surrounding lands.

Draft consent conditions require 109 ecosystem credits to the satisfaction of BCD.



Technical studies – Ecology and Offsets (Cont'd)

<p>PCT Name</p>	<p>PCTI692 - Bull Oak Grassy Woodland of the Central Hunter Valley</p>	<p>PCTI691 – Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter</p>
<p>Condition</p>	<p>Regeneration</p> 	<p>Derived Native Grassland</p> 

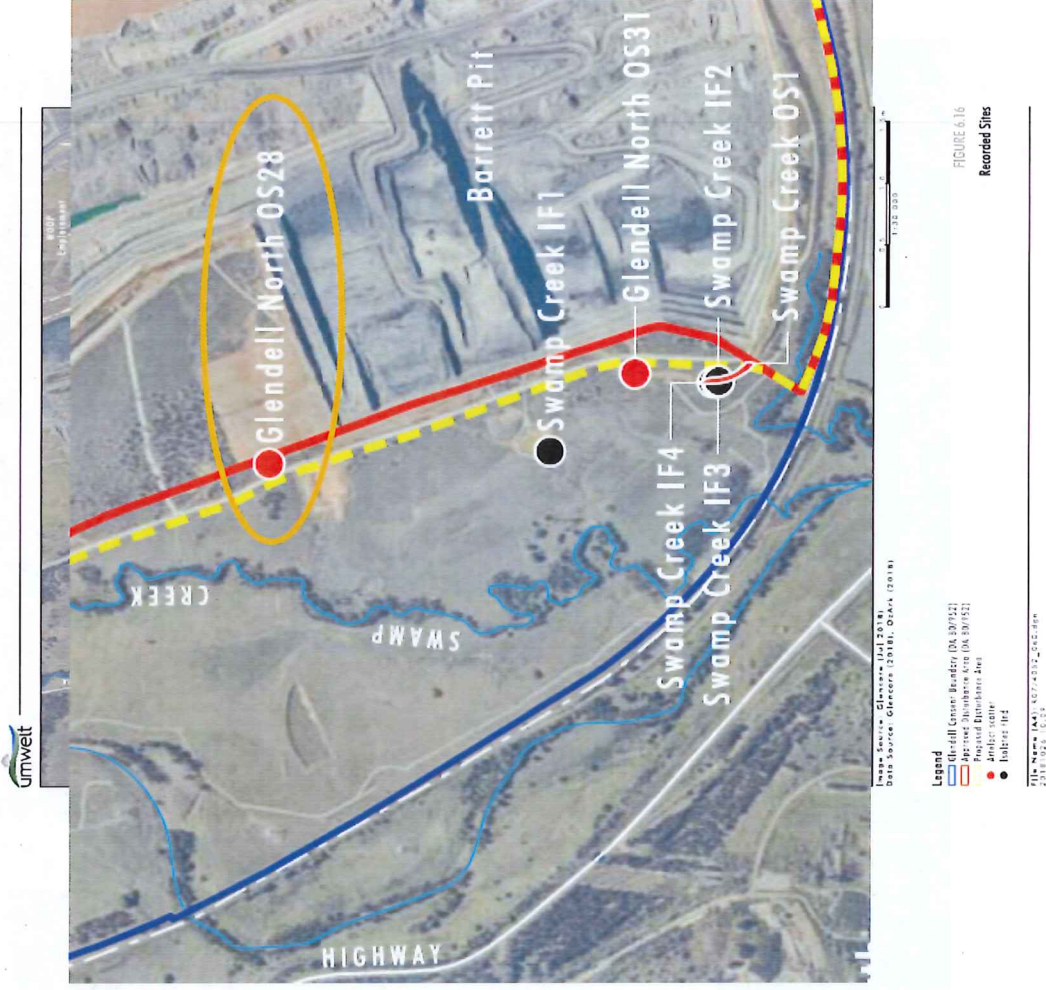
Technical studies – Heritage

- Four isolated finds and three low-density artefact scatter sites were identified during Due Diligence and Assessment stages:
- Isolated finds are located outside of the Mod 4 area
 - Low-density scatter sites located within Mod 4 area

All sites were noted of low-scientific value.

As per existing approved ACHMP:

- One scatter site (OS28) would be disturbed by mining operations at Glendell and will be salvaged.
- Glendell will apply mitigation and management measures for the remaining sites not to be consumed by mining operations.



Mod 4 is considered minor in nature and there would not be an increase in the potential air quality impacts, over and above that currently approved.

The predicted maximum contributions of Mod 4 to air quality would be less than the predicted maximum contributions of the Approved Operations at all private sensitive receivers.

Findings from the Revised Air Quality Assessment (Jacobs, 2019) were consistent with the conclusions provided in Mod 4 SEE (Umwelt, 2018) and Air Quality Review Report (Jacobs, 2018).

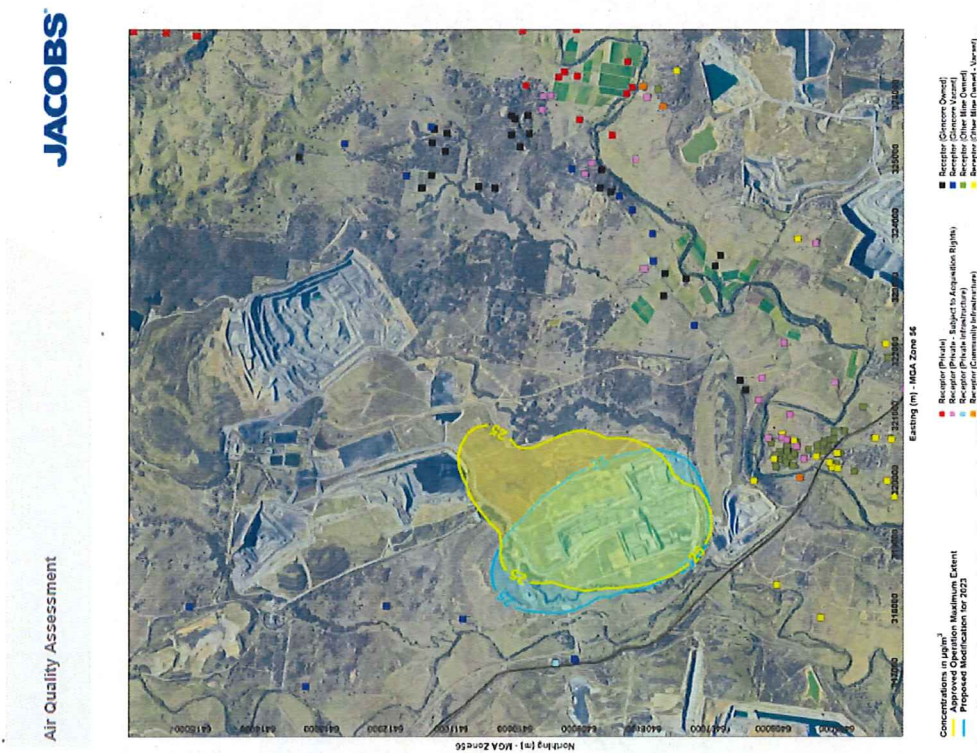
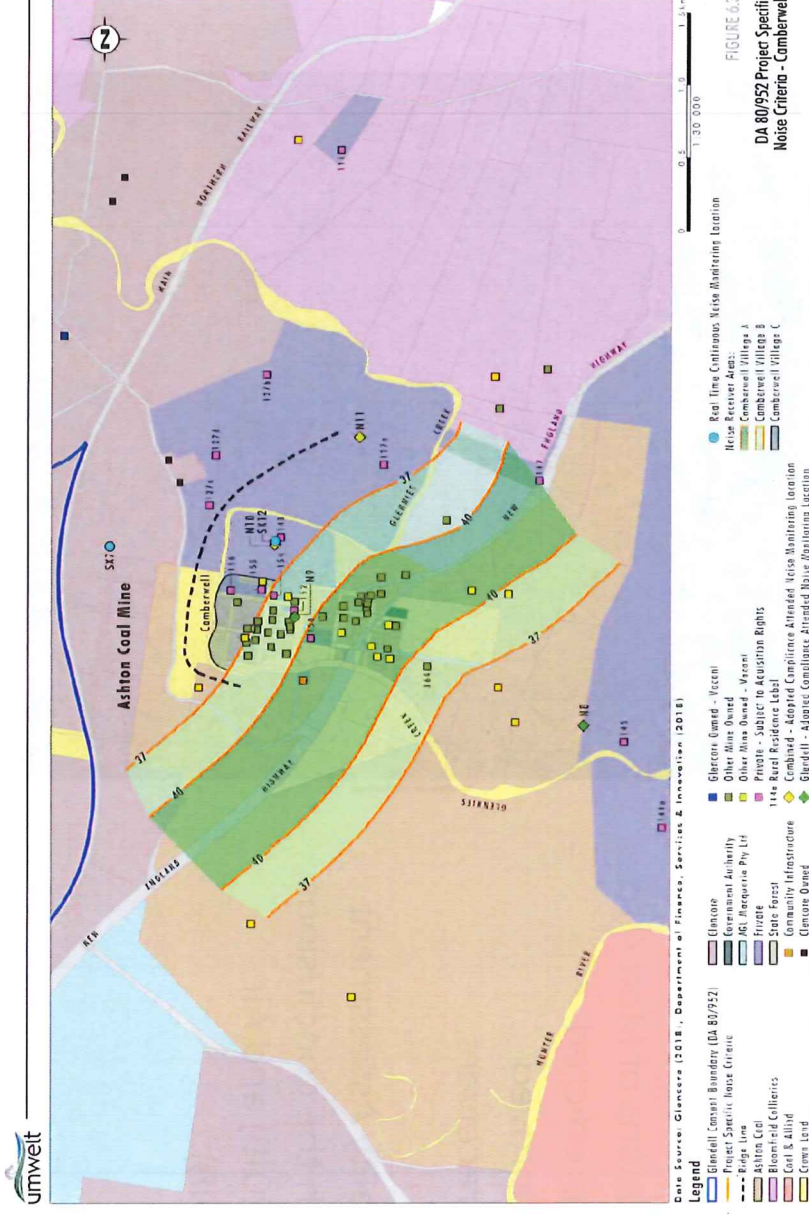


Figure 8 Predicted annual average PM₁₀ concentrations due to Glendell Mine

- Noise modelling and sensitivity analysis confirms proposed mine plan amendments can be implemented and meet relevant project specific noise levels.
- Mining operations will progress further from surrounding sensitive receivers (such as Camberwell).
- Mine plans strategically designed to minimise noise emissions.



Acquisition Rights – Camberwell Village



Image Source: Glencore (2019)
Data Source: Glencore (2019)

Legend
■ Ref: Smith (SSD-4300), Ashton SEC (PA08_0142), Mr Owen (SSD-5540)

Land Ownership

714 999 431 452 007 444
7096171 1154

Technical studies – Groundwater (Australasian Groundwater and Environmental Pty Ltd (AGE))

- Groundwater regime at Glendell Mine consists of three low productivity groundwater systems:
 - Alluvium along Bowmans, Swamp and Betty's Creek
 - Weathered bedrock (regolith)
 - Permian strata, comprising the target coal measures and sand/siltstone overburden/interburden
- Proposed mining extension area is located outside the extent of the Quaternary Alluvium.
- Existing groundwater monitoring network sufficient with no additional monitoring sites required. Existing groundwater licences / entitlements sufficient for modification.



Surface Water and Flooding

Modelling for 1% AEP flood event extends along Swamp Creek and within 30m of the proposed pit shell.

Water course stability monitoring will continue to be undertaken across Mt Owen Glendell Operations (MGO).

Mod 4 is not expected to result in any changes to current water demands associated with approved operations.

Mod 4 will have negligible cumulative impacts on water use, flows and water quality in surrounding water systems.



FIGURE 6.10
Modelled Flood Extents for
the 1% AEP Event

In summary:

- A number of submissions raised objections to an extension of the mining industry and the use of coal.
- MOD 4 represents a small extension to the existing approved Barrett Pit.
- The social and environmental impacts as a result of the modification would be minimal compared to the approved operation. This is reflected in DPIE's assessment report.



- Direct employment of approximately 300 personnel
- Over \$34 Million paid in wages and salaries
- Purchased over \$157 Million of goods and services from 414 suppliers
 - Over \$87 Million engaging suppliers located within Hunter LGAs for goods and services



Glendell Coal Mine – Site visit

