



*Moolarben
Coal Project
Stage 1
Ancillary Works
(Modification 15)*

*State Significant
Development
Modification
Assessment
(05_0117 MOD 15)*

June 2020

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Executive Summary

The Moolarben Coal Mine is an open cut and underground coal mining operation located approximately 40 kilometres (km) northeast of Mudgee in the Mid-Western Regional Council local government area. The mine is operated by Moolarben Coal Operations Pty Ltd (Moolarben Coal), which is a wholly owned subsidiary of Yancoal Australia Limited.

Proposed Modification

Moolarben Coal is seeking to modify its Stage 1 development consent (05_0117) to allow for the construction and operation of additional ancillary surface infrastructure to service underground mining operations. The key aspects of the proposed modification include:

- a new downcast ventilation shaft and associated compound, including a new access road and intersection with Ulan Road;
- a remote services infrastructure area, including a new internal access road that crosses Bora Creek; and
- relocating or expanding four dewatering sites, including the construction of 4 km of additional access tracks and service corridors.

The modification also seeks to clarify the timing to submit longwall panel reports in relation to the commencement of second workings in longwall panels LW9-14, as required under condition 78A of Schedule 3 of the consent. This clarification is sought in order to avoid operational and employment discontinuity.

Engagement

During the exhibition of the application, the Department received 28 objections from members of the public and special interest groups. Advice was also received from eight Government agencies, including Mid-Western Regional Council.

Key issues raised in submissions related to groundwater drawdown and subsequent impacts on the 'The Drip' (a significant natural feature located 250 metres from the nearest dewatering site), water quality impacts to Bora Creek and the Goulburn River, impacts on Aboriginal cultural heritage and impacts on biodiversity.

Assessment

The Department has assessed the modification application in accordance with the requirements of the *Environmental Planning and Assessment Act 1979*, with particular focus on issues relating to water resources, Aboriginal cultural heritage, biodiversity and traffic.

The Department notes that the project's potential groundwater impacts were comprehensively assessed under the original Stage 1 project approval and the proposed modification does not seek to increase water extraction beyond existing allocations. The existing development consent contains strict performance and management measures to identify and manage impacts on surrounding surface water and groundwater features. The Department considers that the water-related impacts of the proposed modification can be appropriately managed under these existing conditions.

The Department has carefully considered the implications associated with the current wording of condition 78A of Schedule 3 of the consent and notes that the timing to submit additional reports in relation to longwall panels LW9-14 is unclear. It is considered that minor refinements can be made to this condition which would avoid operational and employment discontinuity whilst retaining its initial intention for an additional level of evaluation of mining impacts on 'The Drip' and the Goulburn River.

The proposed modification would result in the disturbance of five Aboriginal sites including two newly identified isolated artefacts and three previously recorded sites. Moolarben Coal proposes to salvage the five impacted sites and continue to implement existing management practices to avoid indirect disturbance to other nearby sites. The Department's Biodiversity and Conservation Division (BCD) did not raise any concerns with the proposed impacts on Aboriginal cultural heritage and the Department considers existing conditions remain appropriate for ongoing management of cultural heritage.

The proposed modification would increase surface disturbance by an additional 12.5 hectares (ha), which includes 10 ha of native woodland and grassland plant community types. BCD advised that it was satisfied with the assessment of biodiversity impacts and the Department has recommended the retirement of a number of ecosystem and species credits in accordance with the *Biodiversity Conservation Act 2016*.

Lastly, the proposed modification would generate additional traffic on public roads in the vicinity of the site, particularly during periods of construction. The additional traffic would not adversely affect the performance of relevant intersections; however, a new intersection would be required on Ulan Road to provide access to the downcast ventilation shaft compound. Transport for NSW also requested Moolarben Coal to upgrade the intersection of Saddlers Creek and Ulan Road to mitigate safety risks associated with increased heavy vehicle use. The Department has recommended that these intersections are constructed to the satisfaction of the appropriate road authority.

Evaluation

Overall, the proposed modification would create operational efficiencies and improve safety for underground mining operations with minimal incremental environmental impacts to biodiversity, Aboriginal cultural heritage, water resources and traffic compared to the approved project. The Department considers that the proposed modification is in the public interest and should be approved, subject to the recommended conditions.



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1. Introduction

1.1 Background

The Moolarben Coal Mine is an open cut and underground coal mine located approximately 40 kilometres (km) north-east of Mudgee (see **Figure 1**). The mine forms part of a larger coal mining complex within the Mid-Western Regional local government area (LGA), along with the Ulan and Wilpinjong coal mines.

Moolarben Coal Operations Pty Ltd (Moolarben Coal) operates the mine on behalf of the Moolarben Joint Venture (Moolarben Coal Mines Pty Ltd (MCM), Sojitz Moolarben Resources Pty Ltd and a consortium of South Korean power companies). Both Moolarben Coal and MCM are wholly owned subsidiaries of Yancoal Australia Limited.

The mine operates under two integrated development consents known as Stage 1 and Stage 2. The general layout of the approved Stage 1 and Stage 2 operations is shown in **Figure 2**.

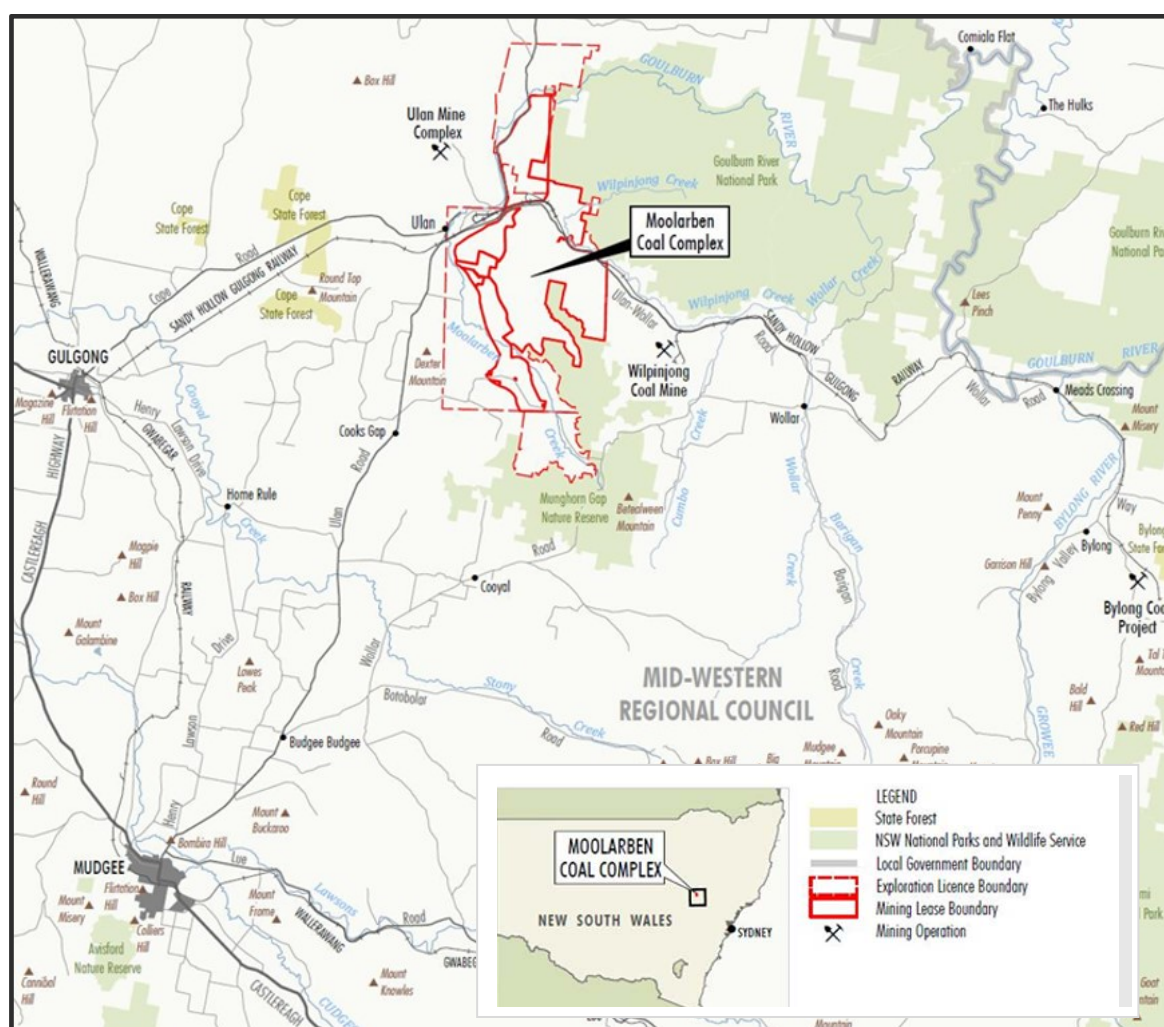


Figure 1 | Site Location

1.2 Approved and Current Mining Activities

Stage 1 Project

The Stage 1 Project (MP 05_0117) was approved by the then Minister for Planning on 6 September 2007 under the now repealed Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Stage 1 Project has been modified on 14 previous occasions and allows for the development of three open cut pits (named OC1, OC2 and OC3) and an underground mining operation (named UG4). It also allows for a range of surface infrastructure to support mining operations, including a coal handling and preparation plant (CHPP), coal rail transportation facilities, surface ventilation infrastructure, borefield infrastructure for extraction for water supply and mine-dewatering, and associated access tracks.

To date, Moolarben Coal has constructed the mine's surface infrastructure and is extracting coal from OC1 and OC2. Mining operations commenced in OC3 in 2020 and are scheduled to commence in UG4 in 2021.

As part of Modification 7 to the consent, Moolarben Coal received approval to construct surface infrastructure associated with the approved borefield above the UG4 mining area. This included 10 groundwater bores and 12 km of access tracks. Most of these tracks and bore sites have been constructed to date.

Stage 2 Project

The Stage 2 Project was approved by the then Planning Assessment Commission on 30 January 2015, also under Part 3A of the EP&A Act. This consent allows for the expansion of mining operations to the east of the Stage 1 operations, including the development of another large open cut pit (named OC4) and two underground mining operations (named UG1 and UG2).

Stage 2 operates concurrently with Stage 1, and both projects share the Stage 1 coal handling, processing and rail infrastructure. Mining operations at OC4 and UG1 commenced in 2016. Underground mining in UG2 is proposed to commence following completion of mining in UG4.

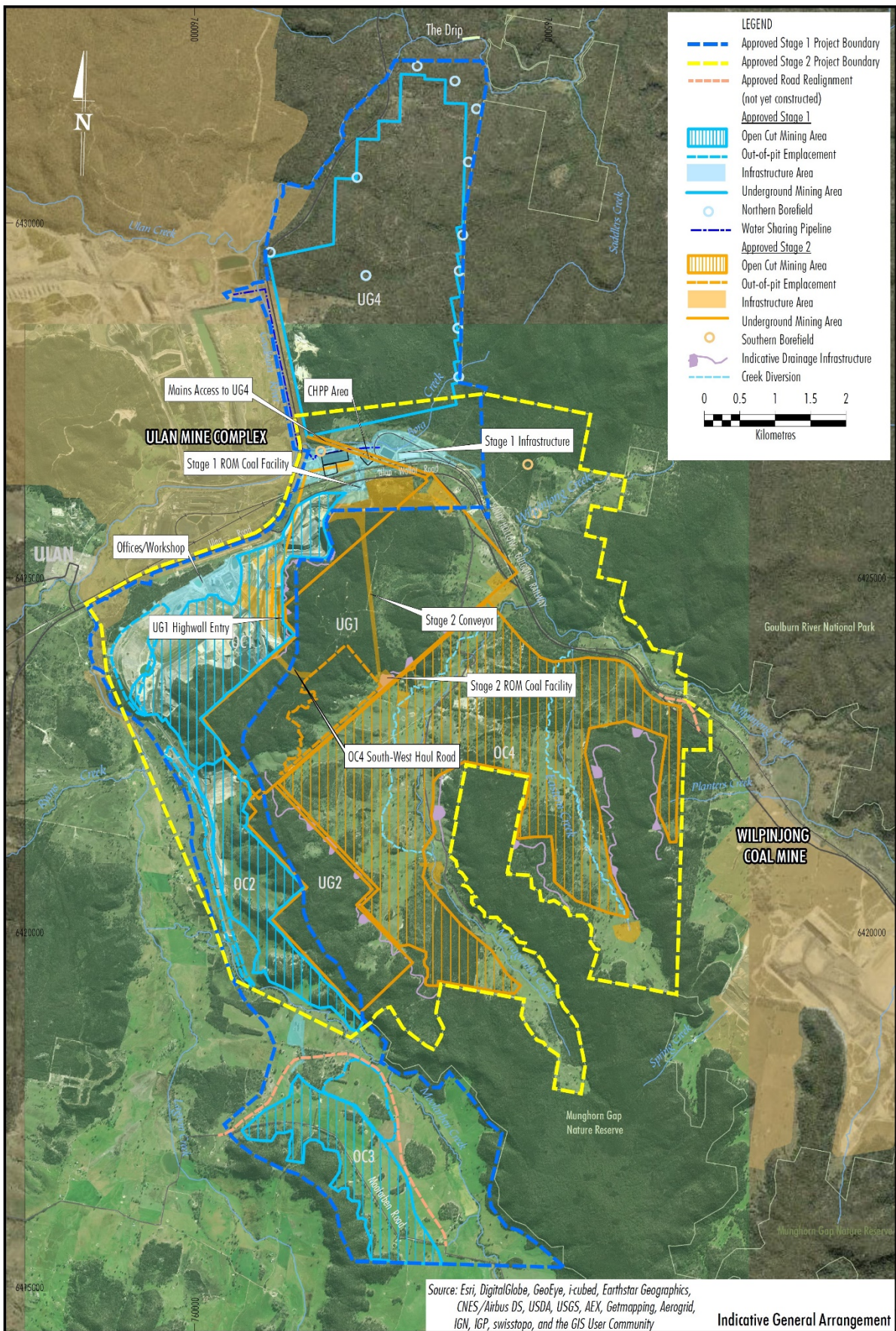


Figure 2 | Approved Stage 1 and Stage 2 operations



2. Proposed Modification

2.1 Scope of modification

On 1 October 2019, Moolarben Coal lodged a modification application for the Stage 1 Project (MOD 15) under section 4.55(2) of the EP&A Act.

The proposed modification seeks to develop additional ancillary infrastructure to service the UG4 mining area, including:

- a new downcast ventilation shaft and associated compound, with a new access road and intersection with Ulan Road;
- a new remote services infrastructure area, with an access road crossing Bora Creek; and
- relocating or expanding four dewatering sites¹, including an additional 4 km of access tracks and service corridors.

The proposed modification is depicted in **Figures 3 to 5** and described in detail in Moolarben Coal's Modification Report (see **Appendix B**). All construction would occur over approximately 9 months during 2021, with the exception of the two most northern dewatering sites and connecting access tracks, which would occur over approximately five months in 2026.

The proposed modification would increase surface disturbance by approximately 12.5 hectares (ha), which reflects a 0.9 percent increase to the approved Stage 1 disturbance footprint (ie 1,365 ha) and a 0.4 percent to the total Moolarben complex disturbance footprint (ie 2,925 ha).

No other changes are proposed to existing mining operations, including mine layout, mining method, mine life, extraction limits, production limits or workforce size.

Importantly, while there are proposed changes to bore locations, the extraction of water for water supply and/or mine-dewatering ahead of mining would not change from the approved operations. That is, there would be no changes to the approved groundwater impacts as a result of the modification.

Moolarben Coal advises that the approved borefield was designed primarily to provide water supply to the mine, whereas the purpose of the redesigned borefield is to optimise dewatering to enable safe underground mining.

Additionally, Moolarben Coal is seeking to clarify the timing of longwall panel reports required under condition 78A of Schedule 3 of the consent, to minimise the potential for longwall discontinuity and related employment impacts at the mine.

¹ Although some dewatering sites are proposed to be relocated, Moolarben Coal is seeking to maintain the previously approved disturbance areas to facilitate monitoring of underground mining impacts.

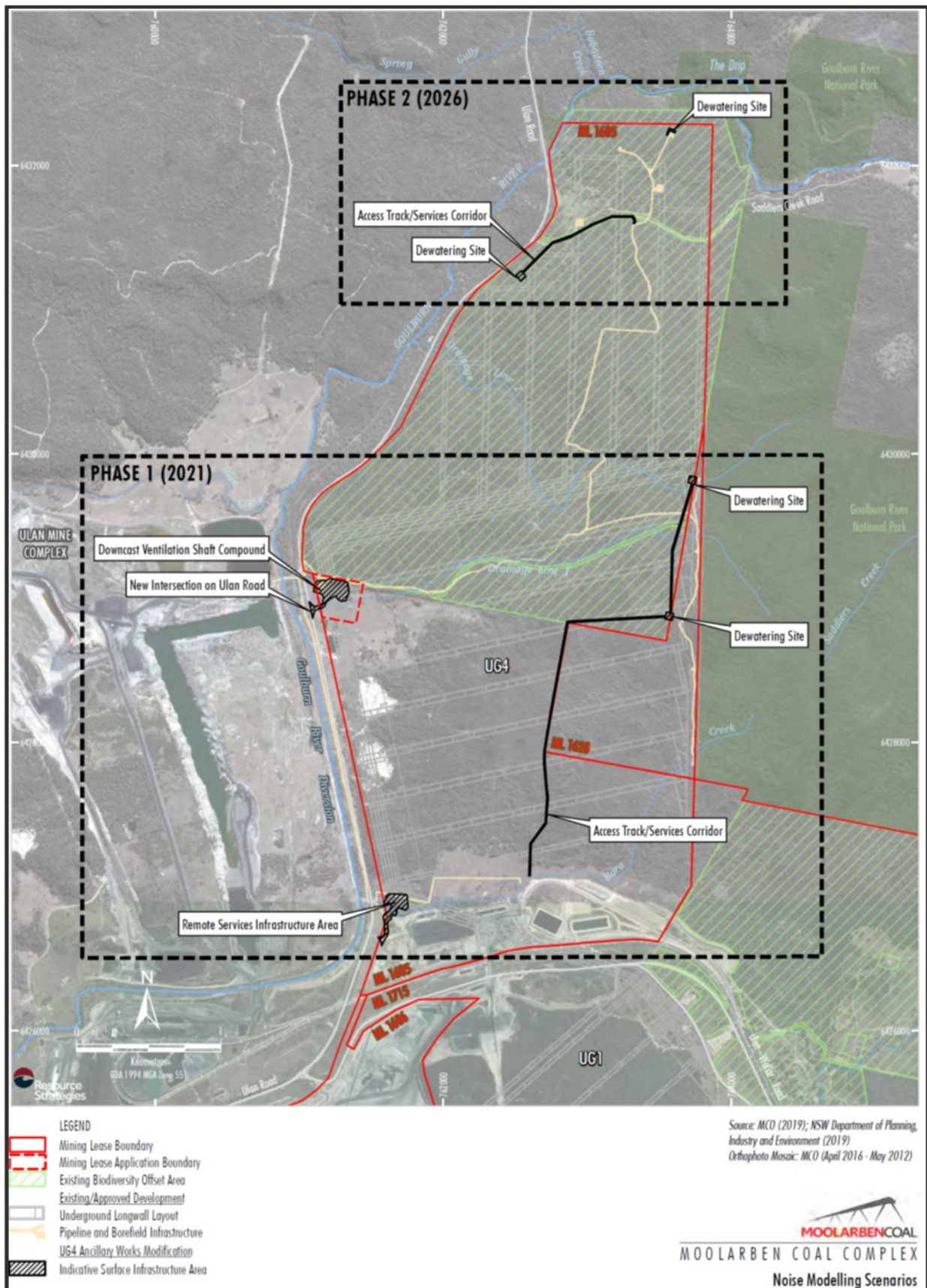


Figure 3 | Proposed surface infrastructure

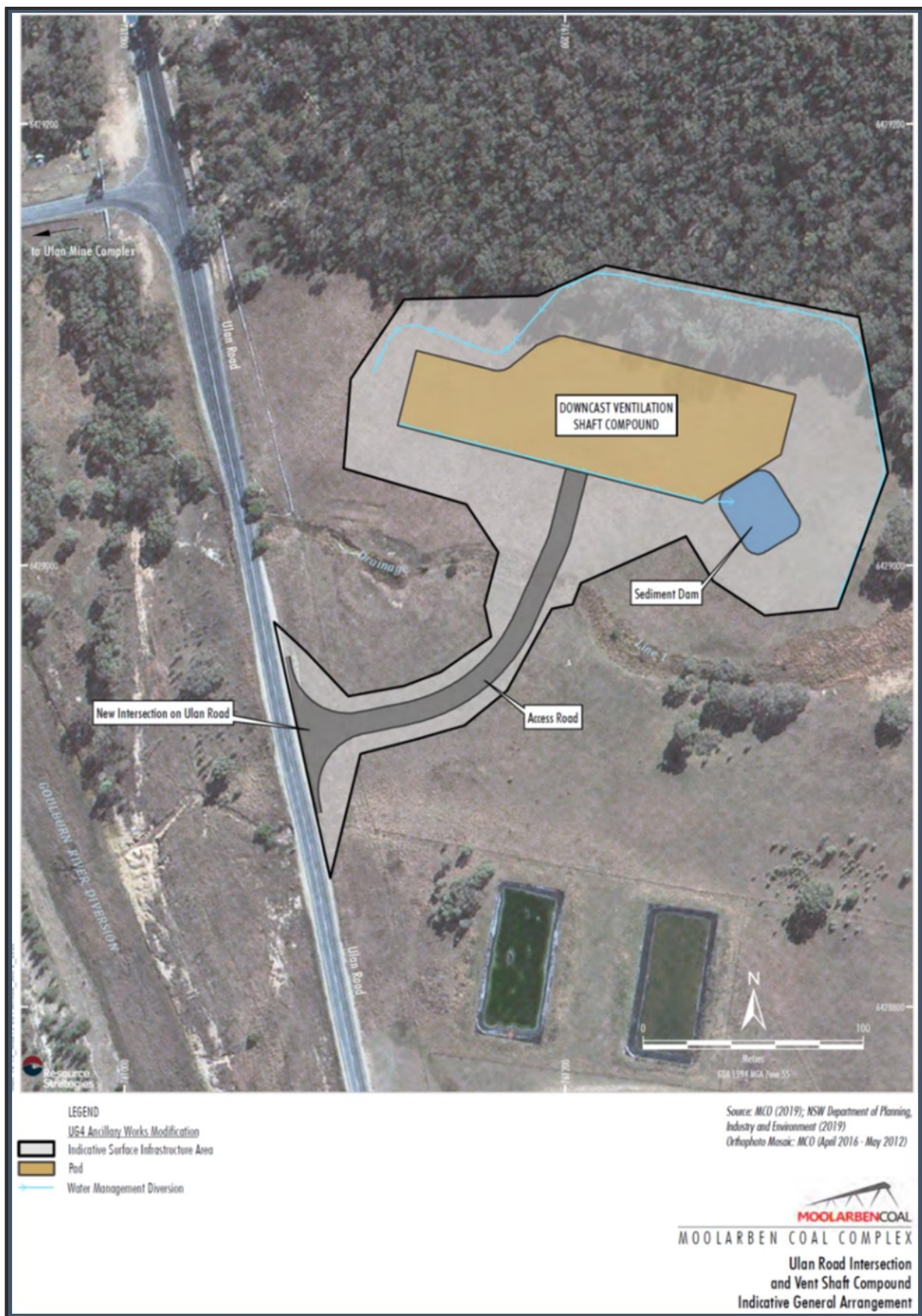


Figure 4 | Proposed ventilation shaft compound



Figure 5 | Proposed remote services infrastructure area

2.2 Justification for modification

Moolarben Coal advises that the proposed modification would provide operational efficiencies and improved safety outcomes for underground mining. Specifically:

- the new downcast ventilation shaft would supply adequate fresh air to approved underground operations, and keep mine pressures as low as practical to avoid the risk of spontaneous combustion;
- the remote services infrastructure area would be located 2 km closer to the UG4 mining area than the existing area, which would reduce transportation distances and operational costs; and
- the new dewatering sites would improve the efficiency of transferring water from the mine workings to the surface, in order to maintain a safe underground working environment.



3. Statutory Context

3.1 Scope of Modification

The Stage 1 Project was approved under the now repealed Part 3A of the EP&A Act. Under clause 6 of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*, the project was transitioned to State Significant Development (SSD) by order, which took effect by publication in the *NSW Government Gazette* on 28 June 2019.

The modification application was lodged under Section 4.55(2) of the EP&A Act. Under Section 4.55(2), a development consent can only be modified if the consent authority is satisfied that the proposed development would remain substantially the same as the originally approved project. The Department has reviewed the scope of the modification and considers that it meets this requirement as:

- the proposed changes to site infrastructure and disturbance areas are relatively minor in comparison to the approved project;
- there would be no change to the approved project life, extraction limits, mine layout, mining methods or hours of operation; and
- the impacts of the development as modified would be similar to the impacts of the approved project (see **Section 5**).

Therefore, the Department considers that the proposed modification can be assessed and determined under Section 4.55(2) of the EP&A Act.

3.2 Consent Authority

The Minister for Planning and Public Spaces is the consent authority for the application under Section 4.5(a) of the EP&A Act. However, under the Minister's delegation dated 9 March 2020, the Executive Director, Energy, Resources and Compliance may determine the application because there were less than 50 unique submissions by way of objection, Council did not object to the proposal and Moolarben Coal did not make any political donations.

3.3 Mandatory Matters for Consideration

In accordance with Section 4.15(1) and Section 4.55(3) of the EP&A Act, a consent authority must consider the following matters as relevant to the application:

- environmental planning instruments or proposed instruments;
- any planning agreement;
- *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation);
- likely impacts of the modification application, including environmental impacts on both the natural and built environments, and social and economic impacts;
- suitability of the site;
- any submissions;
- the public interest; and
- the reasons for granting approval for the original application.

The Department has considered these matters carefully and has summarised the findings of this below and in the following sections.

Environmental planning instruments

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

- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP);
- *State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)*;
- *State Environmental Planning Policy No. 44 (Koala Habitat Protection)*;
- *State Environmental Planning Policy (Infrastructure) 2007*;
- *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP);
- *State Environmental Planning Policy No. 55 (Remediation of Land)*; and
- *Mid-Western Regional Local Environment Plan 2012*.

The Department has considered the proposed modification against the relevant provisions of these instruments. The Department also considered Moolarben Coal's assessment against the relevant instruments in its Modification Report. The Department has concluded that the proposed modification can be carried out in a manner that is generally consistent with the aims, objectives and provisions of these instruments.

The reasons for granting consent for the original application

In determining the original Stage 1 application, the Minister concluded that the benefits of the project outweighed the impacts, subject to the adherence to strict conditions. The Department has considered the proposed modification against the reasons the Minister provided for determining the project and considers that none of these reasons would preclude the approval of the application.

3.4 Objects of the EP&A Act

The Department has assessed the proposed modification against the current objects of the EP&A Act. The objects of most relevance to the proposed modification are found in section 1.3 of the EP&A Act; and are:

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

The Department considers that the proposed modification encourages the proper management and development of resources (Object 1.3(a)) and the promotion of the orderly and economic use of land (Object 1.3(c)) as it would provide operational efficiencies and safety improvements for underground mining operations.

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

The Department has carefully considered the environmental impacts of the proposed modification, including potential impacts on the natural, cultural and built environments (Object 1.3(e) and (f)). The Department's consideration of these matters is provided in **Section 5**.

The Department publicly exhibited the modification application and consulted with key stakeholders, including Mid-Western Regional Council (Council) (Object 1.3(i) and (j)).



4. Engagement

4.1 Department's Engagement

The Department publicly exhibited the modification application from 4 to 20 October 2019:

- on the Department's website and at its offices;
- at Mid-Western Regional Council's office; and
- at the Nature Conservation Council's office.

The exhibition of the modification application was advertised in the *Mudgee Guardian* and previous submitters were notified and invited to make a submission. The modification application was also referred to Council and relevant NSW Government agencies for advice.

In response to the exhibition of the modification application, the Department received 37 submissions, including eight from government agencies, five from special interest groups and 24 from members of the public. Full copies of these submissions are provided in **Appendix C** and summarised below.

Moolarben Coal provided a Submissions Report and Supplementary Submissions Report, which responded to issues raised in submissions. Both documents were made available on the Department's website (see **Appendix D**).

4.2 Key Issues – Government Agencies

The Department's **Biodiversity and Conservation Division** (BCD) requested further justification for the buffer distance used to inform species habitat polygons for the Glossy Black and Gang-Gang Cockatoos (ie 30 m around hollow bearing trees). BCD recommended a minimum buffer of 100 m around hollow bearing trees be applied.

In response, Moolarben Coal advised that the *Biodiversity Assessment Method* (BAM) calculator no longer associated the Glossy Black-Cockatoo or Gang-Gang Cockatoo species with the vegetation communities in the proposed disturbance area (ie Plant Community Type 479). Nonetheless, Moolarben Coal proposed to offset the credit liability derived from the 30 m species polygon buffer, although it is not required to do so. The inclusion of this credit liability would result in an overall increase of protected habitat for these species.

BCD also requested Moolarben Coal to update its Biodiversity Development Assessment Report to include the accredited assessor certification and mitigation measures for potential indirect impacts. Moolarben Coal responded to these requests in its Submissions Report and BCD advised this response was satisfactory.

Lastly, BCD advised that it had no comment regarding the proposal's Aboriginal Cultural Heritage Assessment.

Transport for NSW (TfNSW, formerly referred to as Roads and Maritime Services) advised that:

- the existing intersection of Saddlers Creek Road with Ulan Road (proposed to be used to access the northern borefield) is unsatisfactory for the proposal's construction-related traffic and that intersection treatment is warranted to mitigate safety risks;
- Saddlers Creek Road should be sealed for at least 30 m from its intersection with Ulan Road; and
- the proposed intersection with Ulan Road should be designed for a 100 km per hour speed zone and in accordance with relevant Austroads requirements.

Moolarben Coal considered that traffic management measures could effectively mitigate safety risks at Saddlers Creek Road and that intersection treatment works would be more disruptive than the proposed construction traffic management measures. However, the Department agrees with TfNSW and has recommended a condition requiring Moolarben Coal to upgrade the intersection to the satisfaction of the appropriate road authority and in accordance with Austroads requirements. These matters are further considered in **Section 5.5**.

The Department's **Natural Resources Access Regulator** (NRAR) advised that works on waterfront land should be conducted in accordance with the *Guidelines for Controlled Activities on Waterfront Land (2012)*. Moolarben Coal noted this requirement and advised that it is an existing performance measure in the conditions of consent.

The **Environment Protection Authority** (EPA) considered that the proposed modification would not lead to any significant impacts on air, water and noise beyond the site boundary. EPA sought clarification of whether sediment dams within the proposed infrastructure compounds would be managed as nil-discharge or licensed discharge points.

Moolarben Coal advised that it proposes to include the sediment dams as discharge points under the site's Environment Protection Licence, however both dams would be constructed to maintain sufficient freeboard in accordance with *Managing Urban Stormwater: Soils and Construction (Landcom, 2004)* (ie the 'Blue Book').

Mid-Western Regional Council requested that:

- the proposed new intersection with Ulan Road to access the downcast ventilation shaft be designed in accordance with Austroads requirements;
- Moolarben Coal consult with Council and TfNSW to obtain all relevant road works approvals; and
- Moolarben Coal meet the full costs of the proposed intersection works.

Moolarben Coal agreed to these requests. Council acknowledged that the proposed modification is not anticipated to have any additional groundwater impacts, or impacts on 'The Drip', but advised that Moolarben Coal should ensure compliance with its existing conditions to protect these features.

The Department of Regional NSW – Mining, Exploration and Geoscience (MEG) supported the modification as it would facilitate the safe and efficient operation of the UG4 mining area.

The **Resources Regulator** advised that rehabilitation requirements had been adequately addressed in Moolarben Coal's Modification Report and that sustainable rehabilitation outcomes could be achieved; and the **Department of Primary Industries** advised that it had no comments on the proposed modification.

4.3 Key Issues – Community and Special Interest Groups

The Department received 29 submissions from members of the public and special interest groups, of which, 28 objected and one provided comment. The most common concerns raised in submissions related to groundwater drawdown and associated impacts on 'The Drip', water quality impacts to Bora Creek and the Goulburn River, impacts on Aboriginal cultural heritage and vegetation clearing within biodiversity offset areas. The Department has summarised the key issues raised in these submissions in **Table 1** and considered these issues in **Section 5**.

Table 1 | Issues raised in submissions

| Issue | Description | % of submissions | Assessment reference |
|---|--|------------------|----------------------|
| Impacts on groundwater resources | <ul style="list-style-type: none"> Proximity of the proposed dewatering sites to 'The Drip' and inadequate monitoring and management measures to detect impacts. Lack of consideration of recent groundwater monitoring results. Potential impacts on groundwater resources and groundwater dependent ecosystems and inconsistencies with the principles of ecologically sustainable development, intergenerational equity and the precautionary principle. | 79% | Sections 3.4 and 5.2 |
| Impacts on Aboriginal cultural heritage | <ul style="list-style-type: none"> Survey effort of part of the proposed access track. Further disturbance to artefact scatter site S1MC230. Location of the proposed remote services infrastructure area. Damage to culturally sensitive sites and the broader cultural environment. | 72% | Section 5.3 |
| Surface water | <ul style="list-style-type: none"> Potential erosion and sediment impacts in Bora Creek. Adverse water quality impacts on the Goulburn River. | 55% | Section 5.2 |
| Biodiversity offset areas | <ul style="list-style-type: none"> Disturbance of an existing biodiversity offset area. | 55% | Section 5.4 |
| Coal extraction | <ul style="list-style-type: none"> Climate change impacts associated with coal use. Subsidence impacts from underground mining. | 14% | Section 5.6 |
| Noise impacts | <ul style="list-style-type: none"> Noise associated with 24-hour operations. Increased road traffic noise. | 3.5% | Section 5.6 |
| Traffic and road safety impacts | <ul style="list-style-type: none"> Road safety impacts. Potential deterioration of public roads. | 3.5% | Section 5.5 |

| Issue | Description | % of submissions | Assessment reference |
|---------------------|--|------------------|----------------------|
| | <ul style="list-style-type: none"> Congestion on Saddlers Creek Road during construction of northern dewatering sites. | | |
| Visual impacts | <ul style="list-style-type: none"> Adverse visual impacts associated with vegetation clearing along Saddlers Creek Road. Adverse impacts on tourism. | 3.5% | Section 5.6 |
| Vegetation clearing | <ul style="list-style-type: none"> Removal of native vegetation. | 3.5% | Section 5.4 |



5. Assessment

5.1 Introduction

The Department has undertaken a comprehensive assessment of the merits of the proposed modification in accordance with the requirements of the EP&A Act. The Department considers the key impacts associated with the proposed modification relate to water resources, Aboriginal cultural heritage, biodiversity and traffic. Consideration of these impacts is provided below, with consideration of other impacts provided in **Table 6**.

5.2 Water resources

Surface water

Surface disturbance associated with the proposed modification, including culverts associated with the new access roads constructed across Bora Creek and an unnamed drainage line referred to as Drainage Line 1, has the potential to impact receiving water quality and reduce receiving catchment volumes. Several submissions expressed concern regarding surface disturbance and erosion in these creek lines.

Moolarben Coal advises that stormwater runoff from disturbed areas would be minimised by diverting clean water from upslope catchments. Stormwater runoff within the disturbed areas would be managed in accordance with the requirements of the mine's Water Management Plan and erosion and sediment controls prescribed in the *Blue Book*, and includes installation and operation of sediment dams to minimise sediment discharges from construction activities.

The water captured in sediment dams proposed to be installed at the two new surface infrastructure areas (see Figures 4 and 5 above) would be captured in accordance with the excluded works provisions of the *Water Management Act 2000* (WM Act) and do not require licensing for the take of water.

The surface water assessment included in the Modification Report found that the proposed disturbance areas would reduce the Bora Creek and Drainage Line 1 catchment areas by 0.17 and 0.43 percent, respectively, and would have negligible impact on receiving watercourses. It also concluded that there would be no significant change to the mine's site water balance, discharge regime or flood levels along Bora Creek and Drainage Line 1.

The Department notes that existing conditions of consent impose strict water management and performance measures for the site. The Department considers that surface water related impacts of the proposed modification would be negligible, and could be managed under existing conditions.

Groundwater

The proposed modification seeks to amend the layout of the approved borefield above the UG4 mining area to enable efficient dewatering and improve safety for underground workings. Disturbance associated with the approved bores sites has predominantly been completed and the proposed amendments involve either relocating or expanding four of these sites. In relation to the relocated sites, Moolarben Coal is seeking to maintain the previously approved disturbance areas to facilitate monitoring of underground mining impacts in the future.

A locally recognised natural cliff water feature, known as 'The Drip', is located approximately 250 m north-east of the nearest proposed dewatering site and 500 m from the nearest longwall panel in the UG4 mining area. Many objecting submissions raised concerns about potential groundwater drawdown impacts on 'The Drip' and other natural water features in the vicinity of the Goulburn River.

'The Drip' is a perched aquifer system, which is fed by a spring located to the north of the Goulburn River and the UG4 mining area. The dewatering sites within the borefield would extract groundwater from aquifers that are considered to be hydraulically disconnected from the Goulburn River and 'The Drip'.

Groundwater impacts associated with extraction from the approved borefield were assessed as part of the original Stage 1 application and the proposed modification does not seek to increase water extraction beyond Moolarben Coal's approved allocation. Further, the re-configuration of the borefield does not move any dewatering bores closer to 'The Drip' than currently approved. However, the footprint of the closest approved bore to 'The Drip' (ie the most northern dewatering site) would be slightly expanded (see **Figure 8 - Inset C**).

On this basis, the Department considers that groundwater impacts associated with the proposed modification would be negligible.

The Department notes that the existing conditions of consent impose strict requirements on Moolarben Coal to protect 'The Drip' and other aquatic and riparian ecosystems proximal to mining activities. This includes:

- a performance measure of 'nil' subsidence or water supply impacts on 'The Drip';
- a program to monitor and report on groundwater impacts of the project, particularly on regional and local aquifers and groundwater dependent ecosystems (including 'The Drip');

- the submission of a report for longwalls closest to 'The Drip' (ie Longwalls 9-14) to further analyse subsidence, surface water and groundwater impacts;
- ensuring that Moolarben Coal holds sufficient water licences under the WM Act to cover its take of water; and
- a program to continuously validate groundwater modelling for the project.

No impacts on 'The Drip' have been detected to date and the Department considers that the existing conditions provide a robust process to detect and respond to any potential impacts on 'The Drip' and other water features in the locality.

Reporting requirements of Condition 78A

Moolarben Coal is seeking to clarify the timing to deliver reports required under condition 78A of Schedule 3 of its consent. This condition requires a report to be submitted for each longwall panel in the vicinity of 'The Drip' (ie Longwalls 9-14, see **Figure 6**), prior to the commencement of second workings in each longwall. The Department notes that this condition was included by the Planning Assessment Commission in order to provide an additional level of evaluation of mining impacts as longwall mining moves closer to 'The Drip'.

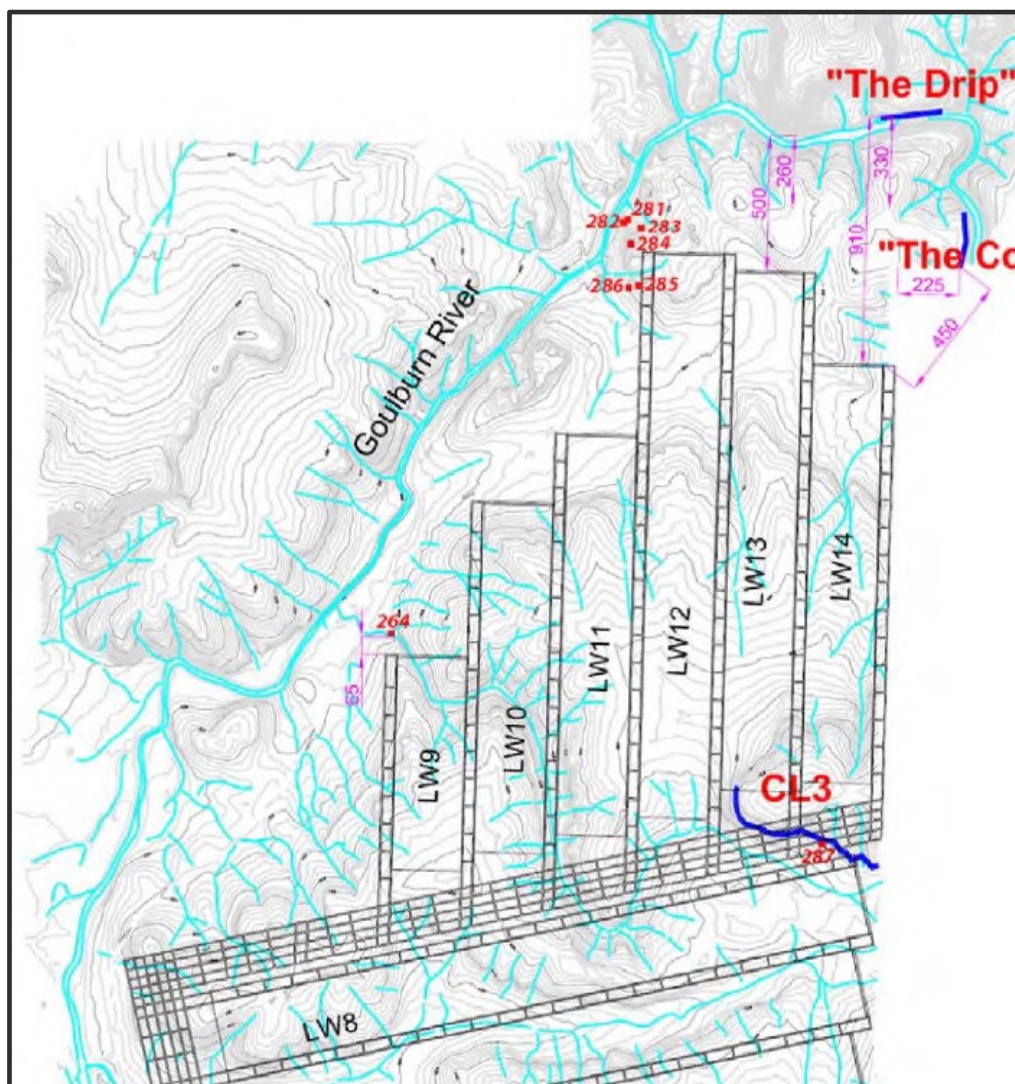


Figure 6 | Longwall Panels LW9-LW14

The condition in its current form does not specify what extraction stage the report is to be based on (ie partially progressed or completed longwalls), and Moolarben Coal has identified that significant operational and employment discontinuity could arise if the reports are to be prepared and subsequently approved by the Secretary following the completed extraction of each longwall.

This is because the timeframe to extract coal from each of the longwall panels is relatively short and ranges between 1.5 and 4 months. In particular, extraction from the shorter longwalls (ie Longwalls LW 9-11) ranges between 1.5 and 2.6 months. Whereas, it would take approximately three months for each report to be prepared, reviewed by experts and subsequently reviewed and approved by the Secretary. The Department acknowledges that a three-month time delay between second workings in each longwall would create significant disruption to operations.

It should be noted that mining in longwall panels 9-14 progresses in a north to south direction (ie moving away from 'The Drip') and therefore any potential impacts would likely appear during these earlier stages of each longwall's extraction. Longwall panels LW12-14 are relatively longer and are located closer to 'The Drip' than the three previous panels. On this basis, the Department considers the delivery of this report prior to extraction in the panels closest to 'The Drip' would be a suitable check point for evaluating impacts from the previous panels to determine whether any mine plan changes are required.

To avoid operational discontinuity whilst retaining the intention of this condition, the Department has recommended amendments to the condition so that a single report would be submitted prior to the commencement of extraction in Longwall 12. This report would consider data collected from all previously mined panels, including the partial progression of Longwall 11.

Importantly, the Department notes that this report provides a secondary level of evaluation of mining impacts, and comprehensive monitoring and trigger action response plans required by other conditions of consent would be in place to identify any adverse impacts on this feature and its surrounding landscape. This includes the Secretary's approval of an Extraction Plan prior to the commencement of second workings in longwall LW9.

The Department considers that these amendments do not conflict with the intention of the existing condition and would mitigate risks to operational continuity associated with the current drafting of this condition.

5.3 Aboriginal cultural heritage

Previous assessments indicate concentrated Aboriginal occupation areas on the northern ridge of the UG4 mining area and in the vicinity of Bora Creek.

An Aboriginal Cultural Heritage Assessment undertaken for the modification included the results of field surveys undertaken on 22 and 23 July 2019 with representatives of Registered Aboriginal Parties (RAPs). An additional survey was also undertaken on 31 October 2019 for part of a proposed access track not included in the original survey.

The proposed surface disturbance area would directly impact five Aboriginal heritage sites (see **Figure 7**), including:

- two newly identified isolated artefacts (S1MC460 and S1MC461) of low scientific significance; and
- three previously recorded sites, including:
 - one artefact scatter of high scientific significance (S1MC230);
 - one isolated find (S1MC278) of low of scientific significance; and
 - one isolated artefact (S1MC357) of low scientific significance.

Moolarben Coal proposes to salvage the five impacted sites in accordance with its Heritage Management Plan and continue to implement management practices (ie site induction, fencing and erosion control measures etc) to avoid indirect disturbance to nearby sites. Additionally, the proposed northern dewatering site and associated access tracks are located near several rockshelter sites and an open artefact site posing potential indirect impacts through accidental disturbance.

Many submissions raised concern with the proposed salvage regime and advised that salvage would result in 'total', rather than 'partial' loss of the value of these sites. The Department acknowledges these concerns. Submissions also considered that the remote services infrastructure area should be relocated to avoid impacts on S1MC230 and the three other nearby sites.

Moolarben Coal advised that it considered Aboriginal cultural heritage values in the design of the proposed infrastructure areas which resulted in:

- a reduced footprint of the remote services infrastructure area;
- incorporation of areas with some previous disturbance or already managed under the mine's Heritage Management Plan; and
- avoidance of disturbance to the nearby Bora Creek Management Area.

Moolarben Coal advised that any further relocation of these areas would implicate the design intent and lead to other adverse environmental and social impacts. The salvage of artefacts would be undertaken in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (2010)* and Moolarben Coal advised that it would continue to consult with RAPs, including the Ibbai Waggan-Wiradjuri People, throughout these processes.

BCD did not raise any concerns with the proposed impacts on Aboriginal cultural heritage, and the Department considers that the proposed impacts would be minor given the nature of the proposed mitigation and management measures. The Department notes that the existing conditions of consent require Moolarben Coal to implement a Heritage Management Plan and to update all relevant management plans within three months of a modification to the consent. The Department considers these existing conditions remain appropriate for the proposed modification.

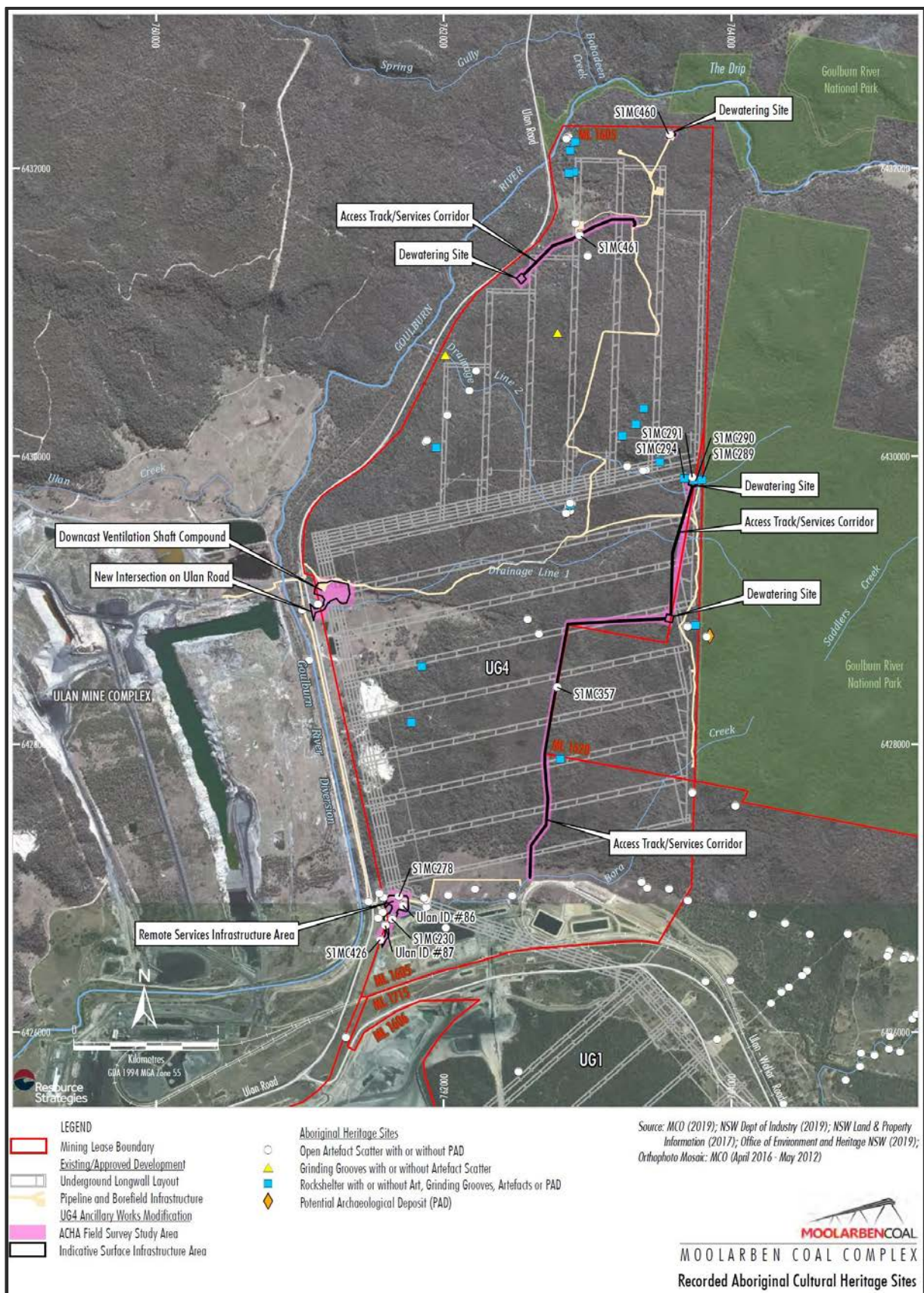


Figure 7 | Aboriginal cultural heritage sites within and surrounding the proposed modification area

5.4 Biodiversity

A Biodiversity Development Assessment Report (BDAR) was prepared in accordance with the BAM to assess the proposed modification's biodiversity impacts.

The proposed modification has a development footprint of approximately 12.5 ha, of which 10 ha is comprised of native woodland and grassland plant community types (PCTs) (see **Figure 8**), including:

- 5.5 ha of Rough-barked Apple – red gum – Yellow Box Woodland (PCT 281);
- 4 ha of Narrow-leaved Ironbark – Black Cypress Pine – stringybark +/- Grey Gum +/- Narrow-leaved Wattle (PCT 479); and
- 0.5 ha of Tootoon – *Lepyrodia leptocaulis* shrubland (PCT 1711).

Patches of PCT 281 conform to Box Gum Woodland endangered ecological community (EEC) listed under the *Biodiversity Conservation Act* 2016 (BC Act) (2.5 ha), and a critically endangered ecological community (CEEC) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (0.3 ha).

Moolarben Coal considers that impacts on the EPBC listed CEEC would not be significant, but has referred the modification to the Commonwealth Department of Agriculture, Water and the Environment (DAWE) to determine whether the modification is a controlled action. Should it be determined that the application is a controlled action, it would be assessed and determined separately by DAWE and the Commonwealth Minister for the Environment.

Approximately 3.25 ha of the proposed disturbance footprint forms part of an existing biodiversity offset area. This includes 0.25 ha of PCT 281 listed as CEEC under the EPBC Act.

A number of threatened fauna and flora species are known or likely to occur in the proposed disturbance areas, including the Large-eared Pied Bat, Eastern Cave Bat, Glossy Black-Cockatoo, Gang-gang Cockatoo and *Tylophora linearis*. In determining the proposed modification's potential impacts, Moolarben Coal has assumed the presence of these species within the associated PCTs.

Moolarben Coal sought to minimise and avoid disturbance to native vegetation by locating site infrastructure in areas of the lowest biodiversity value and using existing disturbance areas where possible (e.g. existing roads, tracks and dewatering locations). Moolarben Coal advised that this strategy enabled the avoidance of disturbance to a CEEC (ie PCT 1603 – Central Hunter Grey Box-Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions).

Moolarben Coal also proposes to implement mitigation measures in accordance with its Biodiversity Management Plan to minimise the impacts associated with direct and indirect disturbance.

Biodiversity offsets

To offset residual biodiversity impacts, Moolarben Coal would be required to retire 111 ecosystem credits and 314 species credits (refer to **Tables 2** and **3**).

Table 2 | Ecosystem Credit Liability

| PCT Code | PCT Name | Proposed Disturbance Area (ha) | Ecosystem credits required |
|--------------|--|--------------------------------|----------------------------|
| 281 | Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion | 2.5* | 42 |
| 479 | Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion | 4 | 59 |
| 1711 | Tantoon - <i>Lepyrodia leptocaulis</i> shrubland on sandstone drainage lines of the Sydney Basin | 0.5 | 10 |
| Total | | 7 | 111 |

* Excludes 2.8 ha of this PCT which has a condition score of less than 15, and therefore has no credit liability, in accordance with the BAM.

Table 3 | Species Credit Liability

| Species | Common name | Direct impact (ha) | Species credits required |
|---------------------------------|-----------------------|--------------------|--------------------------|
| <i>Callocephalon fimbriatum</i> | Gang-gang Cockatoo | 0.43 | 9 |
| <i>Calyptorhynchus lathamii</i> | Glossy Black-Cockatoo | 0.43 | 9 |
| <i>Chalinolobus dwyeri</i> | Large-eared Pied Bat | 4.21 | 135 |
| <i>Vespadelus troughtoni</i> | Eastern Cave Bat | 4.21 | 135 |
| <i>Tylophora linearis</i> | n/a | 1.43 | 26 |
| Total | | | 314 |

Moolarben Coal advises that 101 ecosystem credits for PCTs 281 and 479 could be offset within one of its land-based offset sites, known as the 'Gilgal Property', which has excess credits available to offset these PCTs. The remaining 10 ecosystem credits associated with PCT 1711 would be retired through other available mechanisms under the BC Act (e.g. land-based offset or payment into the NSW Biodiversity Offsets Fund).

Moolarben Coal has advised that all required species credits could be retired within the 'Gilgal Property', which has excess credits available to offset these species. The Department notes that if it is found that there are insufficient species credit species at the Gilgal property, the credits could be retired via alternative mechanisms in accordance with the BC Act.

A number of submissions expressed concern with the proposed disturbance within an existing offset area. The Department notes that approximately 3.25 ha of the proposed disturbance area (0.75 ha of PCT 281 and 2.5 ha of PCT 479) is located within Offset Area 2 established above the UG4 mining area as part of the original Stage 1 Project.

Moolarben Coal proposes to replace the existing offset with an equivalent (or better) land-based offset within its 'Gilgal Property', where excess credits are available for these PCTs. Moolarben Coal also proposes to retain the existing offset liability within the proposed disturbance area, which would be re-established following completion of the project. On this basis, the Department notes that the proposed modification would result in a net increase in offsets for these PCTs.

The Department has recommended the retirement of all credits generated by the proposed modification (including those required for replacement) within two years of the determination of the application.

BCD advised that it was satisfied with the assessment of biodiversity impacts and the proposed offset strategy and the Department considers that the biodiversity impacts of the proposed modification are acceptable, subject to the recommended conditions of consent.

5.5 Traffic

The proposed modification would generate additional traffic on public roads in the vicinity of the site. This traffic would be associated with construction of the dewatering sites and infrastructure compounds, as well as the ongoing operation and maintenance of these areas.

Moolarben Coal identified four existing intersections that would experience impacts from the proposed modification. Moolarben Coal also proposes to construct a new intersection with Ulan Road to provide access to the Downcast Ventilation Shaft Compound. **Table 5** identifies these intersections, their proposed use and the number of proposed additional vehicle movements per day (vmpd).

Table 1 | Peak traffic generation at intersections for proposed modification

| Intersection | Proposed Use | Peak Construction Traffic (vmpd) | Peak Operational Traffic (vmpd) |
|--|---|--|--|
| 1. Ulan Road / Ulan-Wollar Road | Haulage of excavated material from construction sites to open cut operations ¹ | 72 heavy vehicles | n/a |
| 2. Ulan-Wollar Road / Open Cut Access Road | | 72 heavy vehicles | n/a |
| 3. Ulan Road / Saddlers Creek Road | Access to northern dewatering sites | 60 heavy vehicles 40 light vehicles | 20 heavy vehicles 30 light vehicles |
| 4. Ulan Road / CHPP Access Road | Access to southern dewatering sites and | 60 heavy vehicles 40 light vehicles | 20 heavy vehicles 30 light vehicles |
| | Access to remote services infrastructure area | 60 heavy vehicles 40 light vehicles | 20 heavy vehicles 30 light vehicles |
| 5. New Intersection with Ulan Road | Access to ventilation shaft compound | 60 heavy vehicles 40 light vehicles | 20 heavy vehicles 30 light vehicles |

¹ This haulage would occur during the construction of both the northern and southern dewatering sites. These sites are proposed for construction at different times.

Moolarben Coal's Road Transport Review concluded that these additional movements would not reduce the Level of Service (LoS) at all existing intersections and that intersections 1, 2 and 4 would continue to operate with safe sight distances in accordance with Austroads requirements.

The new intersection (No. 5) would be designed to meet a Basic Auxiliary Left (BAL) and Basic Auxiliary Right (BAR) treatment and operate at a Level A LoS and meet safe sight distance requirements. TfNSW advised that this intersection may require a Channelised Right Turn (CHR) treatment to accommodate future traffic growth and meet the Austroads requirements for a 100 km/hour speed zone.

The Department notes that Council is the appropriate road authority for Ulan Road, however, TfNSW has a concurrence role under the *Roads Act 1993*. The Department has consulted closely with both TfNSW and Council on this matter and has recommended a condition for this intersection to be constructed to the satisfaction of the appropriate road authority and designed in accordance with the *Austroads Guide to Road Design*.

The intersection of Ulan Road and Saddlers Creek Road (No. 3) is a basic rural T-intersection with no localised widening of the sealed surface of Ulan Road in the vicinity of the intersection. It is an unsealed two-way Crown Road and is an existing access point for surface works above the UG4 mining area and a number of local properties.

The Road Transport Review concluded that this intersection would operate with minor delays but would require traffic management for construction vehicles entering and exiting Ulan Road. These measures would include the use of traffic controllers, advanced warning signs and reduced speed limits.

However, TfNSW considered this intersection to be unsafe for the proposed use and recommended it be upgraded with either BAR or CHR treatments to allow north-bound traffic to safely pass heavy vehicles turning right into Saddlers Creek Road. TfNSW also recommended:

- an auxiliary acceleration lane for vehicles turning left from Saddlers Creek Road onto Ulan Road to manage limited sight distances; and
- sealing of Saddlers Creek Road for at least 30 m from the intersection, to minimise tracking of road base onto Ulan Road.

In response to these concerns, Moolarben Coal provided further analysis of the likely construction timeframes for the two northern dewatering sites in comparison to the time to undertake intersection treatment works. It considered that these works would be more disruptive to road users than the proposed construction traffic management measures.

The Department notes that traffic volumes on Ulan Road indicate an excess of 2,000 vehicles per day, and although the number of heavy movements turning in and out of Saddlers Creek Road each hour would be relatively low (ie up to 10 movements per hour each way), there would be some safety risks associated with turning traffic in a high speed zone. Additionally, the Department also notes that this intersection would continue to be used during operations (ie up to 20 heavy vmpd) where traffic control measures may not be in place.

On this basis, the Department agrees with the recommendations of TfNSW and consider that the safety benefits of road treatment works would outweigh short-term traffic disruptions. The Department has recommended a condition requiring Moolarben Coal to upgrade the intersection to the satisfaction of the appropriate road authority and in accordance with Austroads requirements. The Department also notes that Moolarben Coal contributes to local road maintenance through an existing Voluntary Planning Agreement with Council and that this arrangement would continue under the proposed modification

Overall, the Department considers that the additional traffic associated with the modification would be acceptable, subject to the recommended conditions.

5.6 Other Issues

The Department has considered other potential impacts of the proposed modification, which are summarised in **Table 6**.

Table 2 | Summary of other issues raised

| Issue | Findings | Recommended Condition |
|--|--|--|
| Air quality and Greenhouse Gas Emissions | <ul style="list-style-type: none"> The proposed modification would generate additional dust emissions, particularly during construction. Moolarben Coal advised that the mine's total dust emissions would increase by approximately 0.42 per cent and would unlikely be discernible from existing operations. Additional greenhouse gas emissions would be associated with diesel and electricity usage during construction. These emissions would be negligible in comparison to the existing approved emissions. No changes are proposed to coal production and associated Scope 3 emissions. Moolarben Coal would continue to monitor and manage air quality and greenhouse gas emissions in accordance with its existing management plan requirements. The EPA considered that the proposed modification would not lead to any significant air quality impacts beyond the site boundary. The Department considers that potential dust and greenhouse gas emissions resulting from the proposed modification would be negligible. | No additional conditions are required. |
| Noise | <ul style="list-style-type: none"> The proposed modification would generate some noise during the construction of the proposed infrastructure areas. A noise review was undertaken by Moolarben Coal, which found that there would be no exceedances to existing noise limits of the consent. The greatest potential for noise impacts would be associated with the daytime construction of the most northern dewatering site, which is located approximately 700 m south-east of the nearest private residences (Property 11). | No additional conditions are required. |

| Issue | Findings | Recommended Condition |
|----------------|---|--|
| | <ul style="list-style-type: none"> Moolarben Coal proposes to install a temporary 3 m noise screen to mitigate noise impacts at this receiver. The noise impacts associated with the operation of new infrastructure is considered to be minor. Additionally, the majority of construction traffic would be on Ulan Road, where there are no nearby private receivers. The EPA considered that the proposed modification would not lead to any significant noise impacts beyond the site boundary. Moolarben Coal would continue to mitigate, monitor and manage potential noise impacts in accordance with its Noise Management Plan. | |
| Visual | <ul style="list-style-type: none"> The visual impacts of the proposed modification would primarily be associated with the ventilation shaft compound and remote services infrastructure area. No privately-owned dwellings would have views of these components. However, both sites would be visible from Ulan Road. Following construction, Moolarben Coal would plant vegetation on bunds surrounding these sites to mitigate visual impacts along Ulan Road. There would also be some visual impacts associated with the construction and operation of dewatering sites, many of which would be visible from Saddlers Creek Road. Usage of Saddlers Creek Road is very low and therefore the visual impacts are expected to be minor. Overall, the Department considers the visual impacts of the proposed modification to be minor. | No additional conditions are required. |
| Rehabilitation | <ul style="list-style-type: none"> Disturbance areas resulting from the proposed modification would be rehabilitated to native vegetation post decommissioning. Moolarben Coal would update its Rehabilitation Management Plan to reflect the additional rehabilitation required as a result of the modification. The Resources Regulator advised that sustainable outcomes can be achieved from the proposed modification and that any identified risks or opportunities can be effectively regulated under the <i>Mining Act 1992</i>. | No additional conditions are required. |
| Subsidence | <ul style="list-style-type: none"> There are no proposed changes to underground mining operations and therefore no changes to subsidence impacts are expected as a result of the modification. | No additional conditions are required. |



6. Evaluation

The Department has assessed the modification application and supporting information in accordance with the relevant requirements of the EP&A Act, and in consultation with relevant Government agencies.

The proposed modification would create operational efficiencies and improve safety for underground mining operations. The Department considers that these benefits can be achieved with minimal incremental environmental impacts on biodiversity, Aboriginal cultural heritage, water resources and traffic, particularly as:

- residual biodiversity impacts would be offset in accordance with the BC Act and there would be a net increase in offsets for PCT 479 and the Glossy Black and Gang Gang Cockatoo;
- Aboriginal cultural heritage sites proposed for disturbance would be salvaged in consultation with Registered Aboriginal Parties;
- there would be no additional impacts on groundwater resources, including 'The Drip';
- potential surface water impacts could be appropriately managed through existing conditions of consent; and
- the recommended intersection improvements would mitigate road safety risks by being in place prior to increased traffic generated by construction.

The Department has recommended revisions to existing conditions of consent which reflect advice from Government agencies and commitments made by Moolarben Coal to mitigate the proposed modification's impacts.

The Department has drafted a Notice of Modification (**Appendix E**) as well as a consolidated version of the consent (**Appendix F**) as proposed to be modified.

Based on its assessment, the Department considers that the proposed modification is in the public interest and should be approved, subject to stringent conditions of consent.



7. Recommendation

It is recommended that the Executive Director – Energy, Resources & Compliance, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **determines** that the application falls within the scope of section 4.55(2) of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **modifies** the consent 05_0117; and
- **signs** the attached Notice of Modification (**Attachment E**).

Recommended by:

11 June 2020

Andrew Rode

Senior Environmental Assessment Officer
Energy, Resources and Compliance Division

11 June 2020

Gen Lucas

Team Leader
Energy, Resources and Compliance Division

11/6/20

Stephen O'Donoghue

Director – Resource Assessments
Energy, Resources and Compliance Division



8. Determination

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

19 June 2020

Mike Young

Executive Director – Energy, Resources and Compliance
as delegate of the Minister for Planning and Public Spaces



Appendices

Appendix A – List of Documents

- Moolarben Coal Complex UG4 Ancillary Works Modification: Modification Report, dated 1 October 2019
- Moolarben Coal Complex UG4 Ancillary Works Modification: Submissions Report – dated 15 November 2019
- Moolarben Coal Complex UG4 Ancillary Works Modification: Supplementary Submissions Report – dated 22 November 2019
- Letter from Moolarben Coal dated 13 December 2019
- Letter from Moolarben Coal dated 21 January 2020
- Project approval 05_0117
- Departmental Assessment Report relating to project approval 05_0117 – dated September 2007
- Report of the Independent Hearing and Assessment Panel for the Moolarben Coal Project, dated February 2007

Appendix B – Modification Report

See the Department's Major Project's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/25446>

Appendix C – Submissions

See the Department's Major Project's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/25446>

Appendix D – Submissions Report and Supplementary Submissions Report

See the Department's Major Project's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/25446>

Appendix E – Notice of Modification

See the Department's Major Project's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/25446>

Appendix F – Consolidated Consent

See the Department's Major Project's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/25446>