MOOLARBEN COAL MINE – STAGE 1
Section 75W Modification (MP 05_0117 MOD 9)

1 BACKGROUND

1.1 Strategic Context

The Moolarben Coal Mine (Moolarben) is located 40 kilometres northeast of Mudgee in the Mid-Western local government area (see **Figure 1**). It was approved by the Minister in 2007, and started operating in 2010.

Together with the Ulan and Wilpinjong mines, it forms part of a large coal mining complex in the region that is currently allowed to extract up to 47 million tonnes of run-of-mine (ROM) coal a year, process it at existing coal handling and preparation plants, and export it to domestic and export markets via the Gulgong to Sandy Hollow Railway line. This is now one of the most significant mining complexes outside the Hunter Valley. 20.0

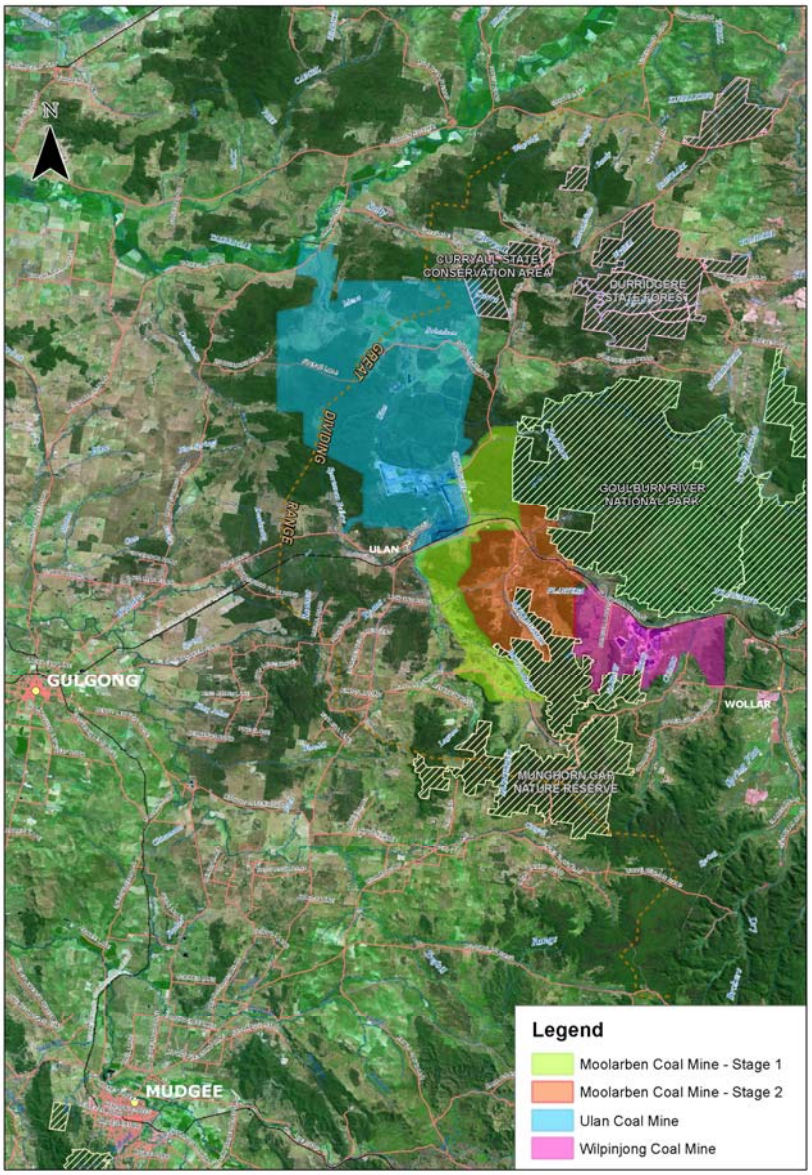


***Figure 1**: Regional Context*

As a consequence of the rapid growth of mining in the region over the last decade, most of the land in the vicinity of the complex is owned by one of the three mining companies (see **Figure 2**). This includes the land in the Ulan Village, where there is only one privately-owned residence remaining, and the Wollar Village, where there are only nine privately-owned residences remaining.

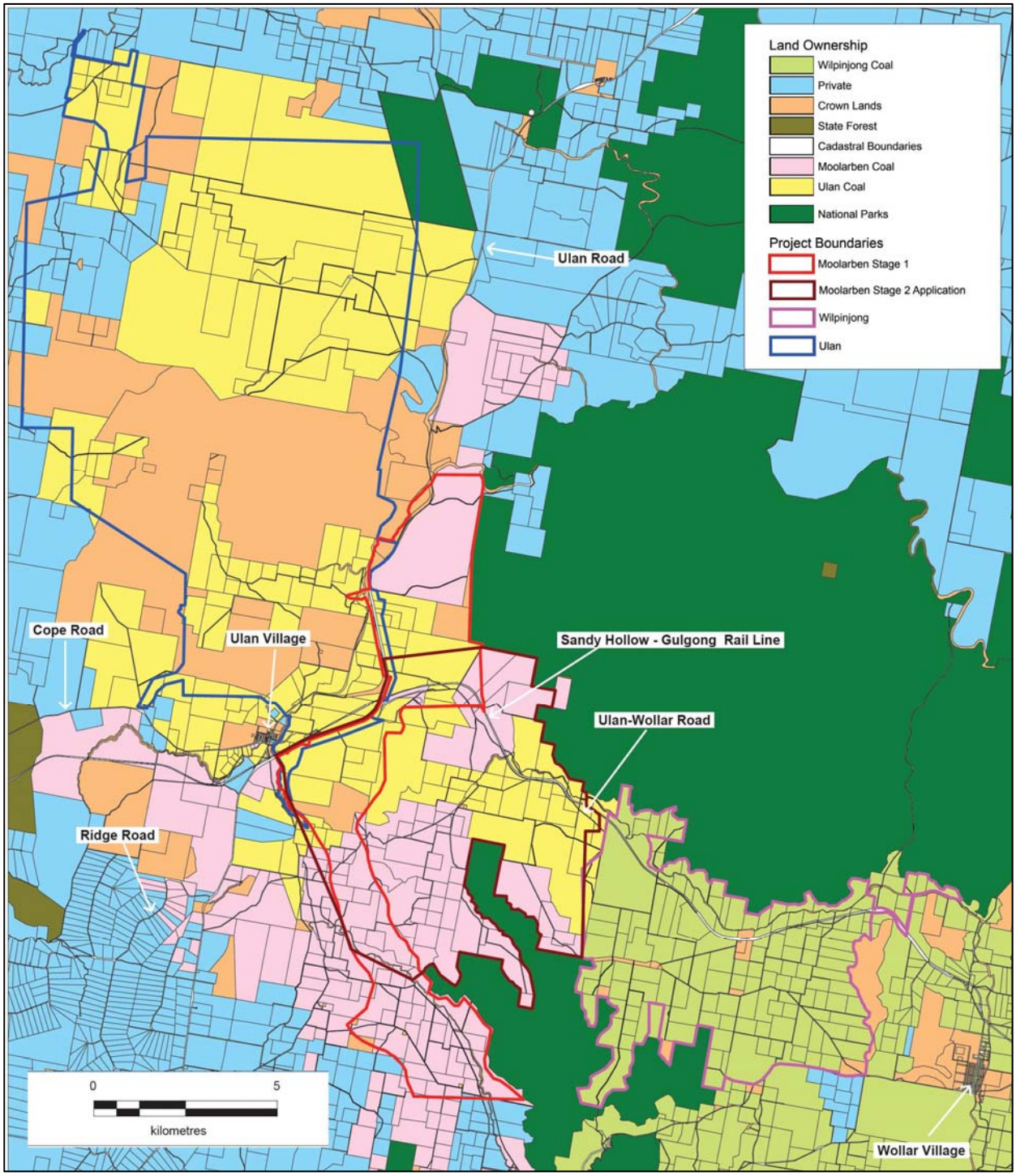


Figure 2: *Land Ownership and Nearest Residences*

While population densities are generally low in the areas surrounding the mining complex, there are still several privately-owned rural-residential properties in these areas. Most of these properties are used for some form of agriculture, primarily grazing, although some properties also offer tourist accommodation, as they are in close proximity to the vineyards in Mudgee and the conservation areas in the region, such as the Goulburn River National Park.

The closest “cluster” of private residences to the mining complex is located along Ridge Road, to the south of the Ulan mine and west of the Moolarben mine (see **Figure 2**). The largest population centres in the region are Mudgee and Gulgong (see **Figure 1**), both of which are located some way from the mining complex.

Large tracts of land surrounding the mining complex contain high quality native vegetation and have significant regional conservation values. This includes the Goulburn River National Park, Munghorn Gap Nature Reserve, Durridgere State Forest and Curryall State Conservation Area (see **Figure 1**), as well as the nearly 4,000 hectares of land that has been set aside as biodiversity offsets for the three mines.

The mining complex is predominantly located in the Goulburn River catchment, which drains to the east and eventually to the Hunter River. However, the western portion of Ulan is separated by the Great Dividing Range and drains to the Talbragar River in the west and eventually into the Murrary-Darling Basin. Most of the tributaries on the mine sites are ephemeral.

Key infrastructure in the area includes:

- Ulan, Cope, Ulan-Wollar and Wollar Roads;
- the Gulgong to Sandy Hollow Railway line; and
- a 330kV transmission line that forms part of the regional electricity distribution network.

1.2 Stage 1 – Moolarben Coal Project

The Moolarben mine is owned and operated by Moolarben Coal Mines Pty Limited (MCM), a joint venture comprising YanCoal Australia Pty Ltd (80%), Kores Australia Moolarben Coal Pty Ltd (10%), and Sojitz Moolarben Resources Pty Ltd (10%).

Stage 1 of the mine was approved by the NSW Minister for Planning on 6 September 2007 under the former Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act), following an Independent Hearing and Assessment Panel (IHAP).

This project approval has subsequently been modified on eight occasions, and currently allows MCM to extract up to 12 Mtpa of ROM coal from 3 open cut pits (OC1, OC2 and OC3) and one underground mining domain (UG4).

The general layout of the approved Stage 1 operations is shown in **Figure 3**.

To date, MCM has constructed the surface infrastructure of the mine and is close to completing mining operations in OC1. However, MCM is yet to commence any of the approved underground mining operations.

1.3 Stage 2 – Moolarben Coal Project and Associated Stage 1 Modification (MOD 3)

In July 2008, MCM lodged an application for a separate project approval for a major expansion of its mining operations.

The proposal – known as the Moolarben Coal Mine Stage 2 Project – involves expanding its mining operations further to the east, and developing two additional underground mining domains (UG1 and UG2) and one additional large open cut mining pit (OC4). The project would extract an additional 16 Mt of ROM coal per year for a period of 24 years.

The general layout of the proposed Stage 2 operations is shown in **Figure 4**.

This project would be operated in conjunction with the Stage 1 project, and together the two projects would form a single, integrated mining complex with a range of shared infrastructure, including the existing coal handling and preparation plant and rail facilities.

The Stage 2 project requires consequential modifications to the Stage 1 project approval (MOD 3). These modifications, would allow MCM to:

- use the approved Stage 1 infrastructure to receive, handle, process, store and load coal received from the Stage 2 mining operations; and
- extend the operational life of the approved Stage 1 infrastructure to match the time frame for mining at the Stage 2 project (ie. until 31 December 2037).

The Department has completed its preliminary assessment of the merits of the Stage 2 project and associated modifications to the Stage 1 project approval, and referred it to the Planning Assessment Commission (PAC).

The PAC will now carry out a review of the merits of the project with public hearings.

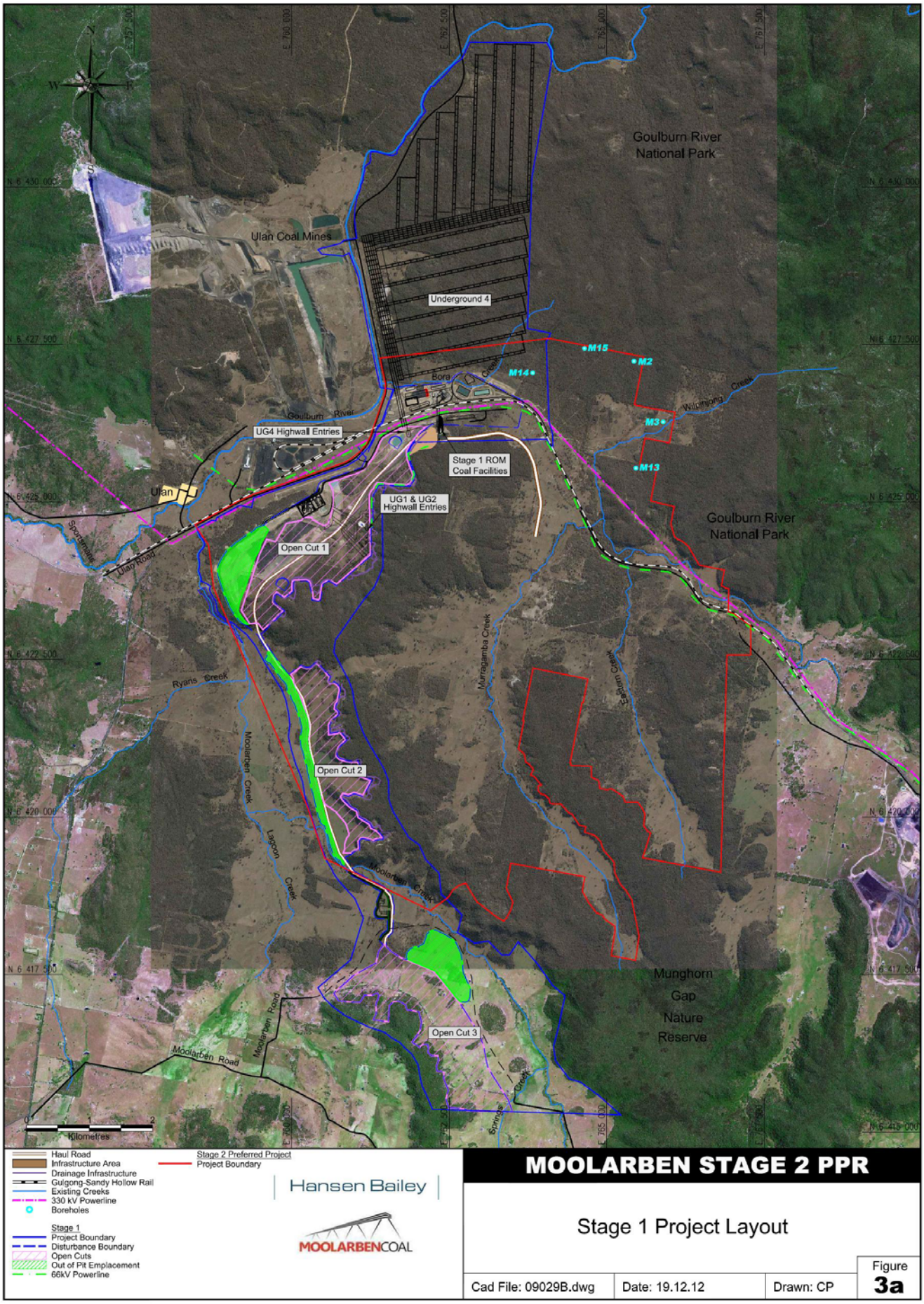


Figure 3: *Moolarben Coal Mine – Approved Stage 1 Layout*

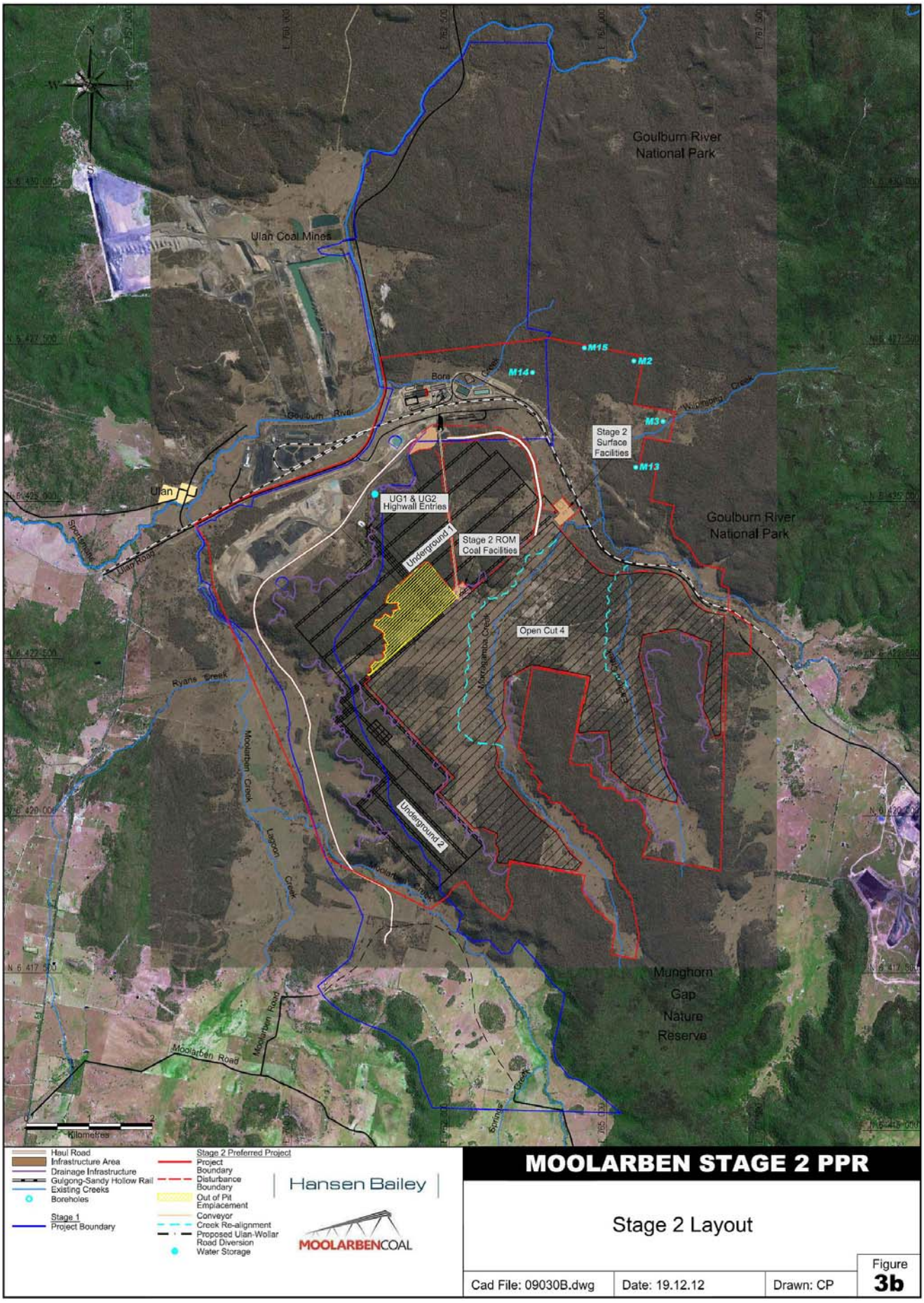


Figure 4: *Proposed Stage 2 Mine Layout*

2 PROPOSED MODIFICATION

In May 2013, Moolarben requested a further modification to the project approval for the Moolarben Stage 1 project.

The modification essentially involves extending two of the existing approved open cut pits to allow access to further coal reserves (ie. up to 30 Mt). In addition to maximizing resource utilisation, the modification would improve mining efficiencies and operations in the open cuts and to provide a longer life for the mine.

The modification would also allow MCM to significantly upgrade the existing water management system to minimise the potential for uncontrolled water discharges from the site.

The proposed modification is described in detail in the Environmental Assessment (EA) submitted in support of the application (see **Appendix A**). The modification has five components:

- **Extension of mining within Open Cuts 1 and 2**
  The current disturbance limit defined in the Stage 1 project approval restricts the extraction of up to 30 Mt of ROM coal reserves from OC1 and OC2. MCM is seeking approval to increase the disturbance boundary of OC1 and OC2 by 178 hectares (ha) to enable access to these reserves.

  As shown in **Figure 5**, the proposed OC1 extension area is 84 ha and would extend the pit to the south to connect with OC2. The OC2 extension area is 94 ha and would extend to the south and east. The proposed extension areas would increase the total footprint of the open cut areas by approximately 25% from 708 ha to 886 ha.

- **Changes to the Staging of the Mine Plan**
  The proposed extension of the mining areas in OC1 and OC2 would require changes to the approved staging and sequencing of mining within these open cut pits.

  MCM is seeking approval to amend the staging of mining within the open cuts, including extending the period mining in:
  - OC1 by a further 4 years until 2017;
  - OC2 for a 14 year period from 2017 until 2030 (instead of a 3 year period from 2013 until 2015); and
  - OC3 for a period of 4 years from 2030 to 2034 (instead of a 4 year period from 2015 to 2019).

  It is noted that this staging contemplates the concurrent operation of the proposed Stage 2 Open Cut 4 mine. If the Stage 2 application is not approved, MCM would not require additional time to conduct mining operations beyond those already approved in Stage 1.

- **Construction and Operation of Additional Water Management Infrastructure**
  In response to unauthorised discharges of sediment laden water from the mine site during late 2011 and early 2012, the Environment Protection Authority (EPA) incorporated a number of Pollution Reduction Programs (PRP) in MCM's Environmental Protection Licence (EPL). The PRP required MCM to review the current water management system and determine upgrades to improve the system and reduce the potential for sediment laden water discharges.

  The recommended upgrades are discussed in detail in the document "*Moolarben Coal Operations Pty Ltd Stage 1 Open Cut & CHPP Water Management Assessment and Upgrade*" (Arkhill Engineers, October 2012) (a copy of this report is included in **Appendix B**). MCM and the EPA subsequently agreed on the upgrades, and the EPA included a specific PRP in the EPL requiring them to be completed.

  The Department agrees that the upgrades are necessary to minimise the risk of uncontrolled water discharges from the mine. However, the upgrades require a significant amount of construction work, which has the potential to result in environmental impacts beyond those assessed and approved as part of Stage 1. Therefore, the Department did not consider the works to be generally in accordance with the Stage 1 approval, and recommended that they be assessed as part of this modification.

  MCM is therefore seeking approval to construct and operate the following water management infrastructure upgrade works in the vicinity of the surface infrastructure area and the rail loop:
  - increase the capacity of the sediment dams in the CHPP area to contain runoff from a 50 year-24 hour duration rainfall event;
  - desilt and increase the capacity of sediment dam SD10;

- construct two new dams SD10(B) and SD12(B);
- increase the capacity of Cockies Dam and the clean water diversion drains;
- remove unsuitable stockpiles in the CHPP area and remediate the disturbance area;
- install clean water diversions around the unsuitable stockpile area and SD14;
- remediate the rail loop batters; and
- increase the capacity of open cut sediment dam OC1-6.

Figure 6 provides a comparison of the existing and proposed surface water management infrastructure in the vicinity of the surface infrastructure and rail loop areas. The upgrade works are expected to take approximately 6 months and would be undertaken during the day time period only.

MCM developed a new surface water model as part of this modification, which indicates that the approved water management infrastructure associated with OC1 and OC2 is required to be upgraded to collect the increased volume of runoff from the extension areas. In addition, the outcomes of the water balance model indicate that in order to minimise the risk of sediment laden water being discharged from the open cuts, the capacity of the sedimentation dams in the open cuts which are yet to be constructed should be increased from the originally approved holding capacity [ie. 20 year annual recurrence interval (ARI)] to a revised sizing based on the 90th percentile 5-day rainfall duration.

MCM is therefore also seeking approval to construct:
- one additional sediment dam at the southern end of OC2 (ie. OC2E); and
- one dam in OC1, five dams in OC2 and six dams in OC3 to the revised capacities based on a 95% percentile 5-day rainfall duration.

The approximate location of the proposed water management infrastructure in the vicinity of the open cuts is provided in **Figure 7**.

- **Extension of the project life by 9 years to 2037**
  MCM intends to operate Stage 1 and Stage 2 (if approved) of Moolarben as a single integrated mining complex. The Stage 1 MOD 3 application (discussed above) seeks to modify the Stage 1 approval to enable this objective to be met by extending the operational life of the Stage 1 infrastructure to match the time frame for mining at the Stage 2 project (ie. until 2037).

  Consequently, MCM is now also seeking approval to allow for mining in the Stage 1 open cut pits (OC1, OC2 and OC3) to be extended to match the time frame for mining at the Stage 2 project (ie. until 2037). This would allow full integration of the Stage 1 and Stage 2 operations. If the Stage 2 project is not approved, the extended Stage 1 project life would allow for greater flexibility in mining in the stage 1 mine areas. As noted above, if the Stage 2 application is not approved, MCM will not require additional time to conduct open cut mining operations beyond those already approved for Stage 1.

- **Minor changes to the rehabilitation and final landform**
  The proposed extension of the mining areas within OC1 and OC2, and the extension of the project life, would result in minor changes to the design of the final landform and in the approved timing of the rehabilitation works.

  MCM is seeking approval for a revised final landform in the vicinity of OC1 and OC2. The revised landform and associated cross sections showing a comparison of the proposed and approved landforms are shown in **Figures 8a-b**.

  The proposed final landform is not significantly different from the originally approved final landform. The proposed final landform in OC1 is approximately 60 meters (m) higher in the western side of the pit and approximately 40 m lower in the eastern side of the pit than was originally approved. Similarly, the proposed final landform in OC2 is approximately 60 m higher in the western side of the pit, but is only about 20 m lower in the eastern areas. Importantly, the height of the ridgeline between OC1 and OC2 and the proposed Stage 2 OC4 remains the same as the pre-mining height.

  The proposed final landform also involves the addition of a final void in the northern most extent of OC1 (which is required to provide access to Underground 4) and the removal of the final voids in OC2 and OC3.

  A summary of the key elements of the approved Stage 1 project and the proposed modification is provided in **Table 1**.

Table 1: *Approved Stage 1 and Proposed Modification (MOD9)*

Project Aspect	***Approved Stage 1***	***Proposed Modification (MOD9)***
Mining reserves	130 Mt	Additional 30 Mt
Extraction rate	12 Mtpa (8 Mtpa from open cuts and 4 Mtpa from UG)	No change
Life of mine	21 years (to 2028)	Additional 9 years (to 2037)*
Mining methods	Open cut truck and shovel. Underground longwall methods.	No change
Total disturbance footprint	708 ha	Increased by 178 ha to include the proposed OC extension areas and 12 ha to include upgraded water management infrastructure (total additional disturbance is 190 ha).
Coal Processing	At the CHPP, which can process up 17 Mt of ROM coal a year.	No change
Overburden	Initially used to form environmental bunds then emplaced in pit within voids left by open cut mining.	No change
Rejects disposal	In-pit emplacement.	No change
Coal Transport	Approximately 4 trains per day on the Gulgong to Sandy-Hollow Railway.	No change
Water Balance	Water deficit (maximum of 6.8ML/day) sourced from surface water runoff, groundwater inflows into the mining areas, groundwater extraction from the UG4 borefield and via a water sharing with Ulan.	An additional 0.5ML/day (200ML/year) on average is required to sustain site demands. This can be sourced from the current water sources.
Water Management Infrastructure	As approved by Water Management Plan	• Construct upgraded surface water infrastructure in the surface infrastructure and rail loop areas as required by the EPA's PRP. • Construct additional sediment basin in OC2. • Upgrade all future sediment basins in OC1, OC2 and OC3 to capacities based on a 95% percentile 5-day rainfall duration.
Final voids	One in OC1, OC2 and OC3	Two in OC1 and one in OC3.
Biodiversity Offset	1,282 ha of native vegetation and 144 ha of EEC. In addition, 153 ha of disturbed lands are to be regenerated with native vegetation and 48 ha of cleared land is to be regenerated with EEC.	924 ha of native vegetation, including 324 ha of EEC.
Rehabilitation	Rehabilitate 370 ha of land to woodland and 580 ha of land to grassland.	Rehabilitate 201 ha of land to native vegetation.
Operating hours	7 days a week, 24 hours a day	No change
Number of employees (operation only)	317 full time positions	No change
* Extended timeframe only applies if the Moolarben Stage 2 application is approved.		

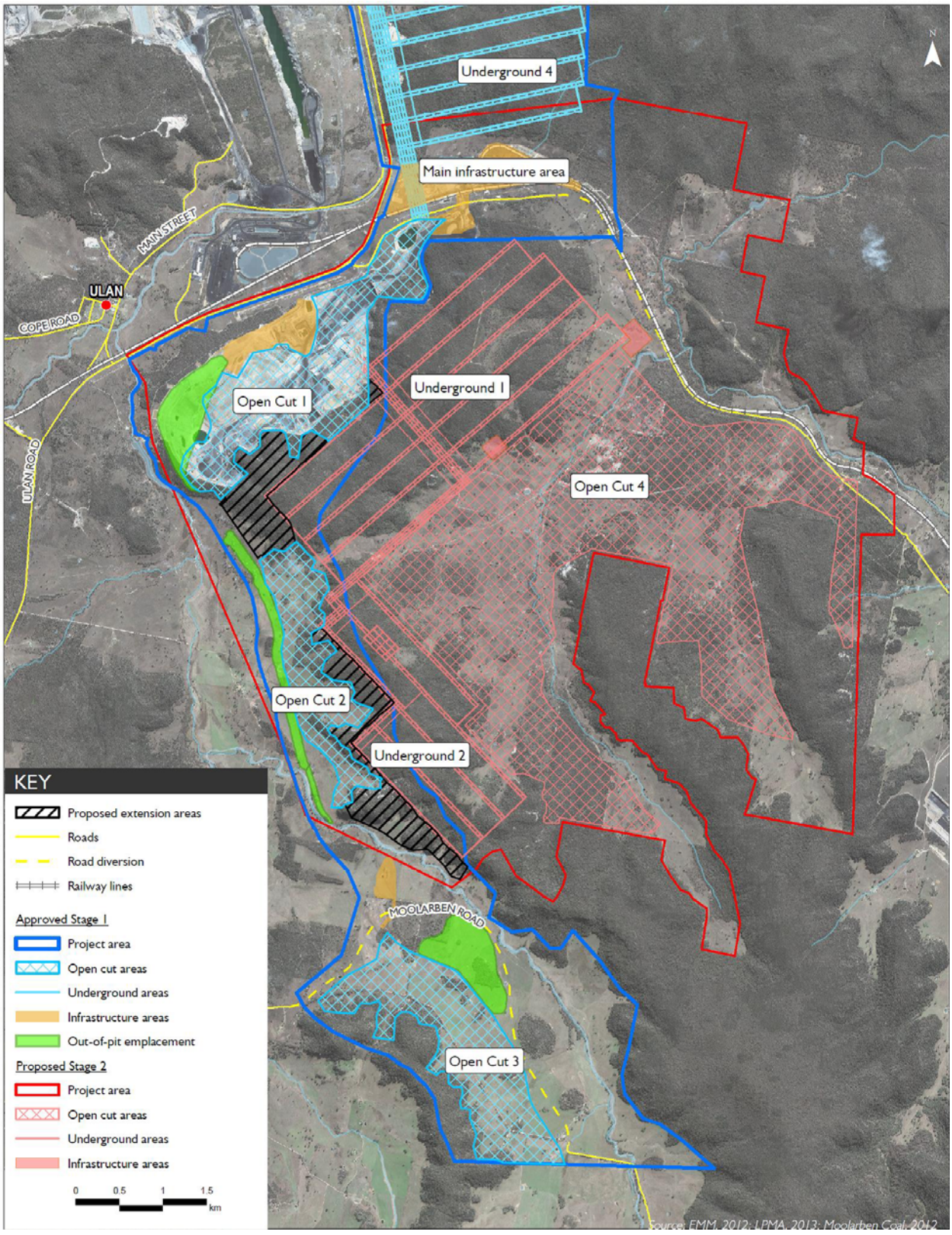


***Figure 5**: Proposed Modification Layout*

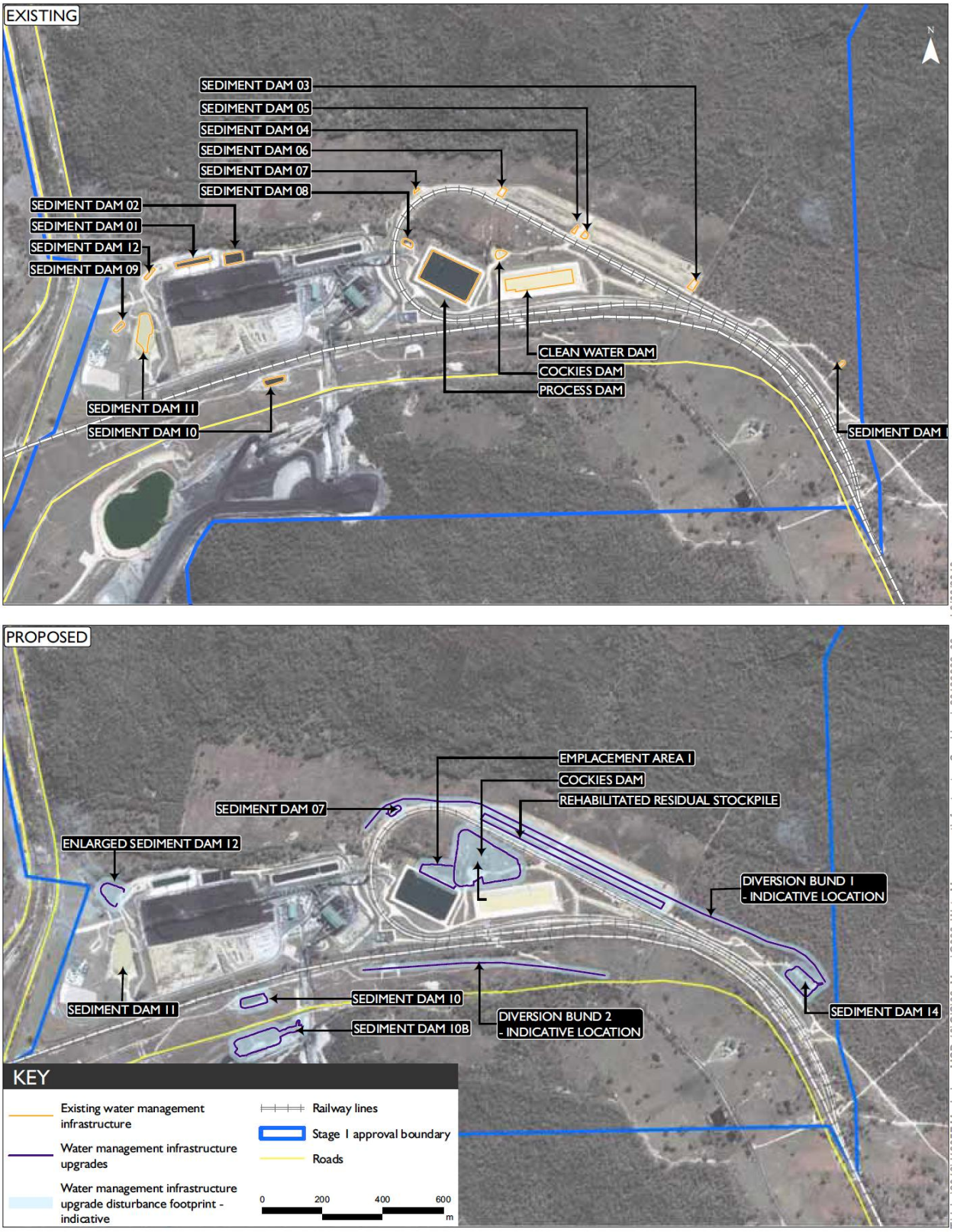


***Figure 6**: Existing and Proposed Stage 1 Surface Water Management Infrastructure*

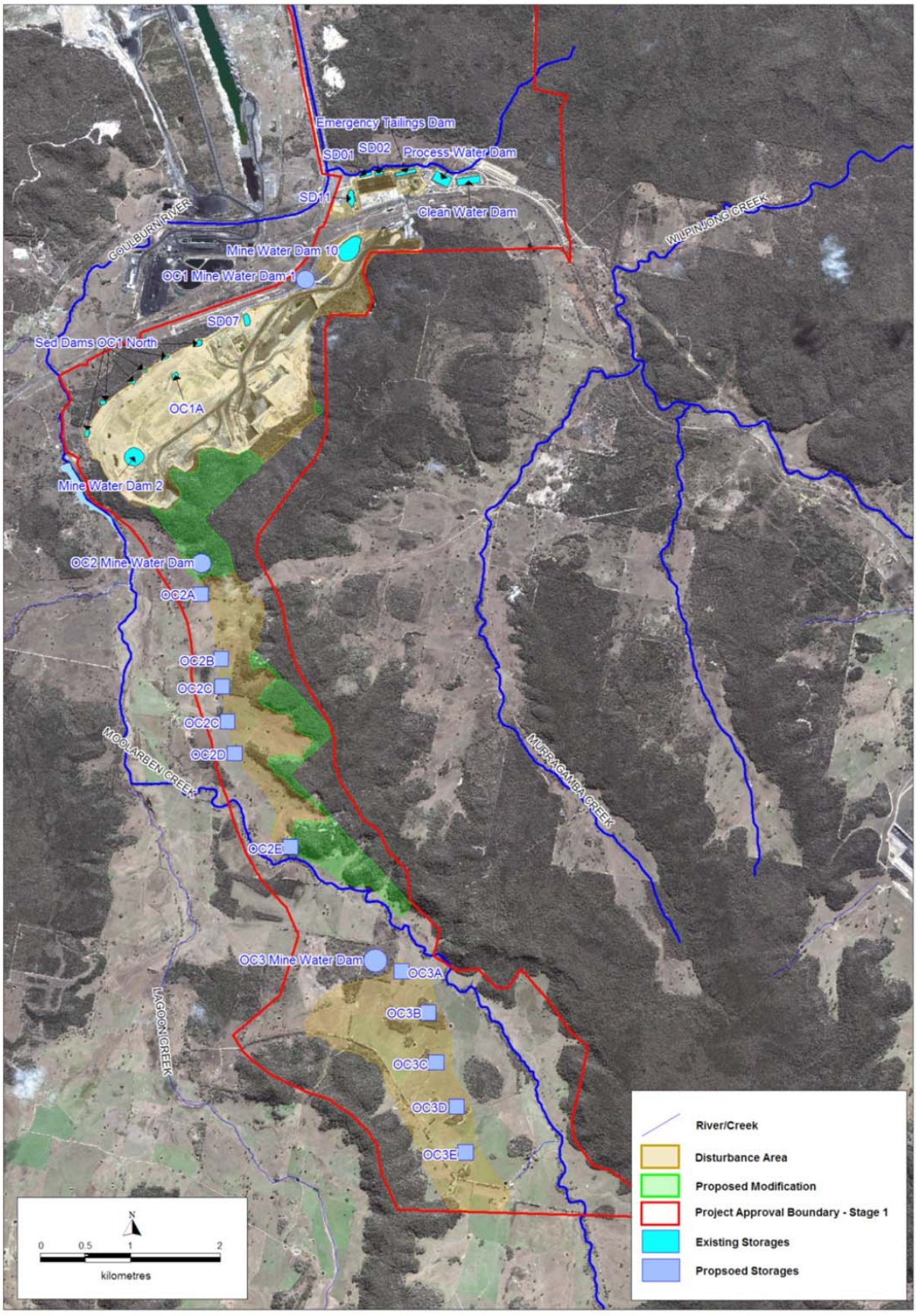


***Figure 7**: Stage 1 Surface Water Management Infrastructure within Open Cuts*

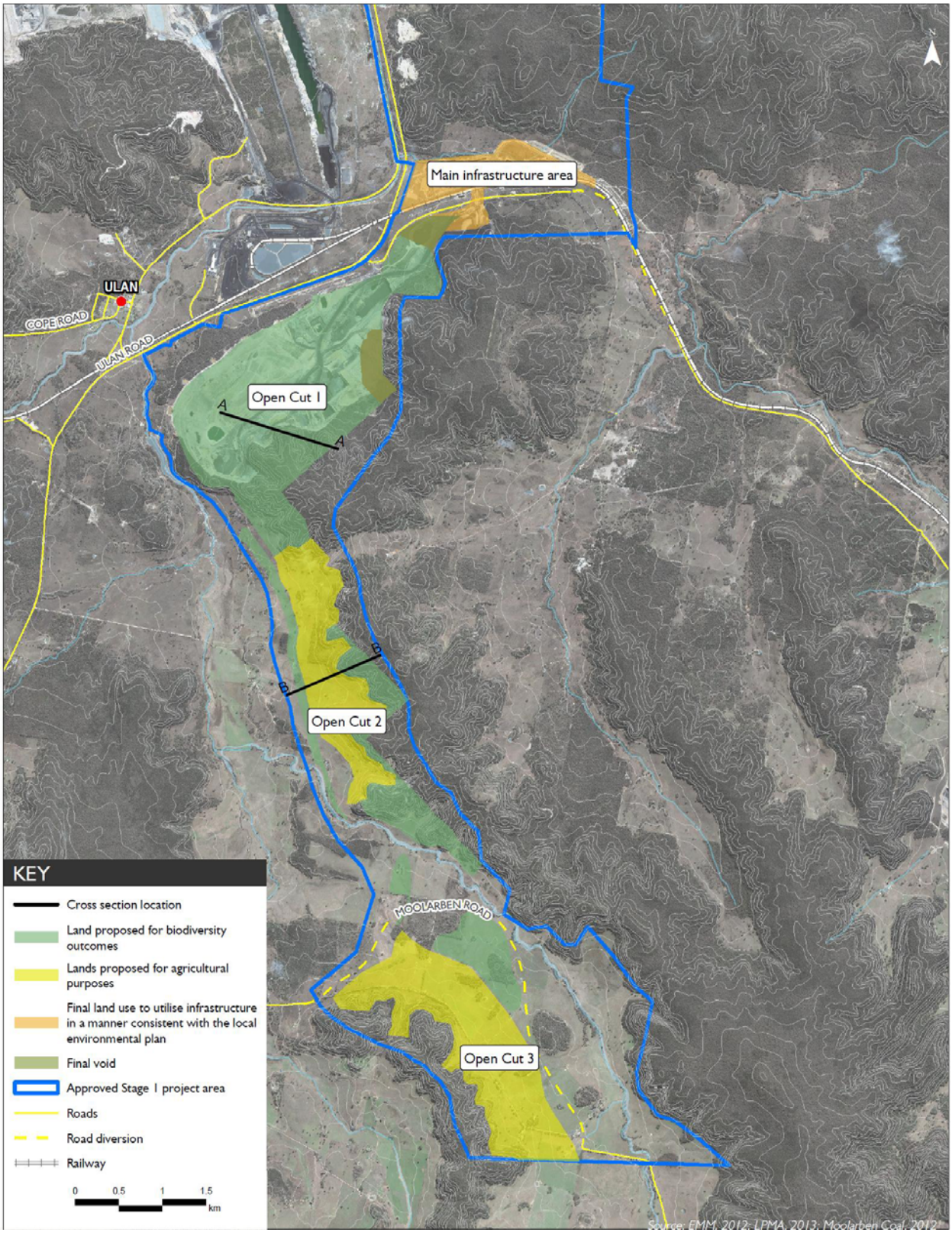
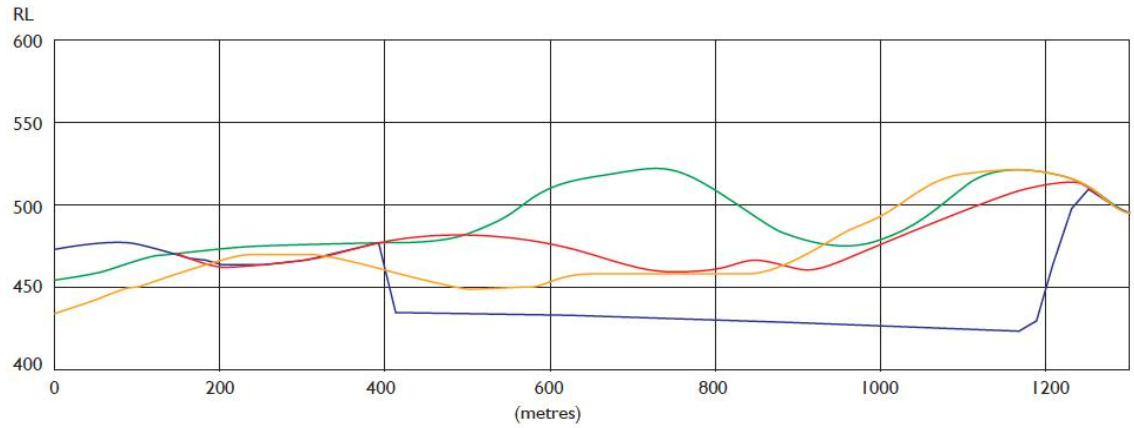
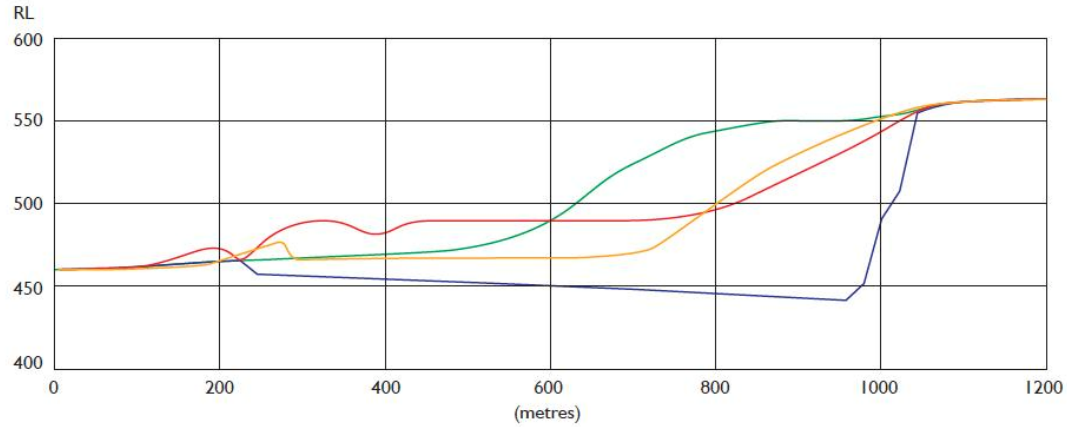


Figure 8(a): *Indicative Final Landform Plan*



Section A - Indicative Open Cut 1 Cross Section

Vertical Exaggeration 2:1



Section B - Indicative Open Cut 2 Cross Section

Vertical Exaggeration 2:1

KEY

- Original topography
- Final landform (proposed)
- Final landform (approved)
- Pit void

Source: Moolarben Coal, 2012

Figure 8(b): *Indicative Final Landform Cross Sections*

3. STATUTORY CONTEXT

3.1 Legislative Framework

Although Part 3A of the *Environmental Planning & Assessment Act, 1979* (EP&A Act) has been repealed, the project approval for Stage 1 of the Moolarben Coal Project remains a "transitional Part 3A project" under Schedule 6A of the Act. This means that the project approval will continue to be modified under the provisions of the former Section 75W of the EP&A Act.

The Department is satisfied that the proposed modifications to the Stage 1 project approval can be characterised as modifications to the currently approved project, and consequently fall within the scope of Section 75W.

In this regard, the Department notes the proposed modifications:

- is wholly located within the approved Stage 1 project boundary;
- would not change the approved maximum annual rate of coal production or extraction;
- would not change the approved mining methods, equipment, site access, coal handling or processing, coarse rejects and tailings management or external coal transport;
- would not require additional operational employees;
- would not change existing approved operating hours; and
- would involve relatively minor changes to the approved open cut mining operations.

3.2 Approval Authority

The Minister approved the application for Stage 1 of the Moolarben Coal Project, and is consequently the approval authority for this modification application. However, the application falls within the terms of the Minister's delegation of 14 September 2011, as more than 25 of the public submissions objected to the proposal, and must therefore be determined by the PAC.

3.3 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's report is required to include a copy of, or reference to, the provisions of environmental planning instruments (EPIs) that substantially govern the carrying out of the project.

The Department has considered the relevance of a range of EPIs to the modification, and EPIs (see **Appendix C**). The Department is satisfied that none of these instruments substantially govern the carrying out of the modification.

The Mining SEPP was recently modified to require consent authorities to consider the significance of the resource when considering the merits of any mining proposal, as well as the economic benefits to the State and region of any such proposal.

While these provisions of the Mining SEPP do not strictly apply to the modification application (because Stage 1 is a transitional Part 3A project), consistent with longstanding practice the Department has considered these matters fully in its assessment of the merits of the proposal.

This assessment has concluded that:

- the additional coal resource is significant based on its relatively large size (around 30 Mt which is equivalent to 23% of the total Stage 1 coal reserves) and its location within an approved mine which is in the middle of one of the biggest mining complexes in the State outside the Hunter Valley; and
- the proposal would generate economic benefits for both the State and the region by ensuring continued direct employment for at least 317 employees, attracting total net production benefits of around $188 million, and generating significant royalties for the State Government.

4. CONSULTATION

After receiving MCM's request and the associated EA for the proposed modification, the Department:

- made the EA publicly available from 29th May to 14th June 2013:
  - on the Department's website;
  - at the Department's Information Centre, Council's office and at the office of the Nature Conservation Council;
  - at the Moolarben Coal Mine site office;
- notified relevant State Government authorities and Council by letter; and
- advertised the exhibition in the local media.

The Department received a total of 191 submissions (**Appendix D**) on the proposed modification, including:

- 6 from public authorities;
- 23 from special interest groups; and
- 162 from the general public.

Of the 185 submissions received from the general public and interest groups, 74% (136 submissions) supported the proposal and 26% (48 submissions) objected to it.

4.1 Key Issues Raised

Submissions in support of the project generally cited employment and socio-economic benefits as key reasons why the project should be approved. The majority of the special interest group submissions that supported the project were received from local businesses, contractors and suppliers who work for the mining companies in the area.

Key issues raised in submissions from objectors were in relation to impacts on biodiversity and water resources, the generation of greenhouse gases and noise impacts. The number of times each issue was raised in submissions on the EA is shown in **Figure 9**.

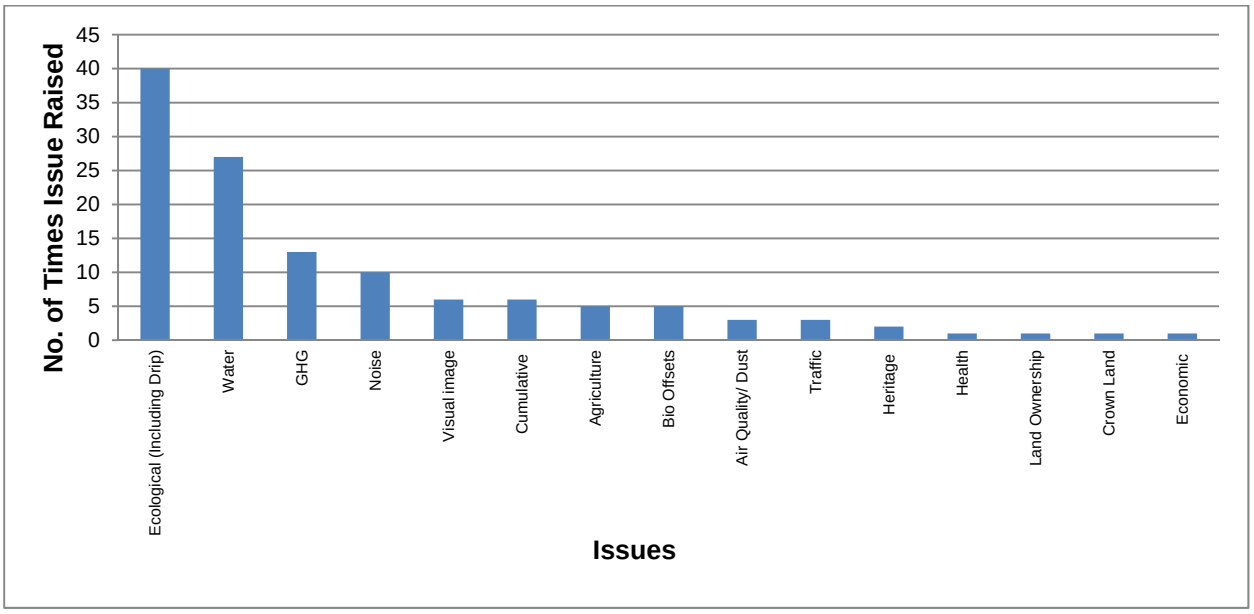


Figure 9: *Issues Raised in Objections to the Proposal*

4.2 Response to Submissions

MCM has provided a response to the issues raised in these submissions (RTS) (see **Appendix E**). The RTS addresses the issues raised in submissions, and includes a range of additional information to support the proposal. In particular, the RTS includes:

- supplementary information and assessment on the proposed upgrades of the surface water management system in the vicinity of the surface infrastructure and rail loop areas;
- a addendum to the Noise and Vibration Impact Assessment, which includes the Year 24 (ie. OC3) operating scenario; and
- revision of the biodiversity offset strategy.

The Department made the RTS publically available for viewing or download on its website. In addition, the Department forwarded the RTS to the ***Environment Protection Authority*** (EPA), the ***Office of Environment and Heritage*** (OEH) and the ***NSW Office of Water*** (NOW) and invited further comments.

Copies of the additional comments from agencies are also provided in **Appendix D**.

4.3 Residual Concerns in Agency Submissions

None of the government authorities consulted specifically objected to the proposal. The ***Road and Maritime Service*** (RMS) and ***Agriculture NSW*** (a division of the Department of Primary Industries) indicated that they had no concerns in relation to the proposal. ***Fisheries NSW*** (a division of the Department of Primary Industries) also raised no concerns, but requested adequate buffer zones to be established around riparian areas.

A summary of the residual issues raised by the remaining agencies is provided below.

The ***OEH*** originally requested more detailed information and justification in relation to the proposed biodiversity offset and how it meets OEH's Offset Principles and the requirements of the draft OEH Interim Offset Policy. In response to these issues, MCM provided substantial additional information in the RTS, which included a significantly revised Biodiversity Offset Strategy and Offset Package (BOS) (see Appendix E of the RTS) and detailed information on how the revised offset meets OEH's principles and draft policy.

OEH reviewed the information in the RTS and made numerous additional recommendations, including requesting:

- the results of the Spring 2013 threatened flora surveys;
- clarification of threatened species lists;
- additional information in relation to cumulative biodiversity impacts;
- more detailed assessment of potential cave bat breeding and/or roosting sites;
- further condition of the adequacy of the avoidance measures; and
- additional biodiversity offset areas.

These issues and recommendations were further considered by MCM in a response to the Department dated 11 November 2013 (a copy of which is included in **Appendix F**). OEH's subsequent comments and the outcomes of the biodiversity assessment are described in detail in Section 5.2 of this report.

The ***EPA*** requested that the residual noise impact associated with the modification be re-evaluated against the Industrial Noise Policy, particularly in relation to the additional consideration of social and economic benefits when setting the intrusive noise criteria for the modification. This information was provided in MCM's RTS.

The EPA also requested that the modification application include the upgrades of the surface water management system in the vicinity of the surface infrastructure and rail loop areas. This was also included in the RTS.

The ***NOW*** (a division of the Department of Primary Industries) requested clarification in relation to the increased volume of surface water that would be intercepted as a result of the proposal and how this water take would be accounted for. MCM's RTS provided this information to the satisfaction of NOW.

Crown Lands (a division of the Department of Primary Industries) noted that the extension to OC1 encroaches on Crown reserve land and that occupation of this land will require authorization under the *Crown Lands Act 1989*. MCM acknowledged this requirement.

Mid-Western Regional Council (Council) raised concerns that the rate base of the region is being continually eroded through project approvals that require biodiversity offsets and that the current modification is exacerbating this situation. However, preliminary analysis suggests that mining-related offsets cover a very small proportion of the land in the LGA (about 0.5 % of land), and that none of offsets contain prime agricultural land. They generally contain areas of existing native vegetation or grazing lands that are required to be regenerated.

Council also indicated that a condition requiring MCM to enter into the negotiated agreement for the upgrade and maintenance of Ulan Road (in accordance with the Ulan Road Strategy) should be included in the Stage 1 project approval as part of this modification. The Department understands that Council and the three mines are now working on the agreement and that Council has received extensive funding under the Resources for Regions program for the implementation of the URS. The Department has recommended a condition requiring MCM to participate in the development of this agreement, and to pay its share of the costs associated with implementing the URS.

Finally, Council raised concerns regarding the potential noise impacts on residents on the Ridge Road, Winchester Crescent and Cooks Gap area and indicated that if noise levels exceed predictions then acquisition rights should apply. The noise modelling results and recommended conditions of approval in relation to noise are discussed in Section 4.1 of this report.

The Department has considered all issues in the submissions and MCM's response to these issues in its assessment below.

5. ASSESSMENT

The Department has assessed the EA (see **Appendix A**), submissions on the proposal (**Appendix D**) MCM's RTS (see **Appendix E**), and additional information provided by MCM (**Appendix F**) and considers the key issues to be the potential noise, biodiversity and water resource impacts of the proposal. Consideration of these impacts is provided below, with further consideration of other impacts provided in **Table 7**.

5.1 Noise

Consideration

Noise Assessments

MCM engaged EMGA Mitchell McLennan Pty Ltd (EMM) to undertake a Noise and Vibration Impact Assessment (NIA) for the modification (see Appendix C Volume 2 of the EA). In response to a request from the Department, two separate noise addendums were included in the RTS, including:

- Appendix F – addendum providing consideration of the potential for additional noise impacts from the surface water management infrastructure upgrades proposed in the vicinity of the rail loop and CHPP areas (as described in Section 2); and
- Appendix G – addendum providing noise modelling and results consistent to those provided in the NIA for the proposed mining in OC3 (ie. Year 24 operating scenario).

The NIA modelled the potential impacts of the combined operations of the Stage 1 and 2 projects, as well as the extended operations associated with this modification. The Department supports this approach.

Numerous submissions from special interest groups and the general public raised concerns regarding the accuracy of the NIA. However, after a detailed review of the assessment (see **Appendix G**), the Department believes that it represents the most up-to-date assessment of the potential impacts of the combined projects and is satisfied that the assessment has been carried out in accordance with the relevant guidelines, and provides a robust assessment of the potential impacts of the modification.

It should be noted that temperature inversion conditions are common in the area during the winter evening period (occurring 41% of the time), and have therefore been incorporated into the worst case modelling predictions. However, low frequency noise is not expected to be a feature of the area, and so the modifying factors for such impacts under the INP have not been applied to the modelling results.

Mitigation Measures

Since the approval of the Stage 1 project, MCM has implemented a broad array of noise mitigation measures. These measures include:

- purchasing a large buffer area around the mine to the extent where there are very few privately-owned residences properties left in the vicinity of the mine, with the closest properties being located 3-4 kilometres to the west of the approved OC 2 and OC 3 operations;
- progressively installing noise attenuation packages on its mining fleet, including 3 excavators and 17 dump trucks;
- installing a DuraTray Body on at least 4 dump trays to reduce the noise impacts of dumping on the trays;
- installing bunds around the open cut mining pits haul roads; and
- developing a comprehensive real time noise management system for the complex to assist in ensuring compliance with the relevant noise levels in the Stage 1 project approval, and minimising the noise impacts of these operations during adverse weather conditions.

The Department is satisfied that these measures represent current best management practice, and that with the implementation of these measures MCM is complying with its current noise limits.

MCM has also been working with its noise consultant to redesign the Stage 1 mine plan in order to further reduce noise levels. The key design changes proposed include:

- utilising the additional overburden sourced from the expansion areas to construct a redesigned environmental bund earlier in the project life; and
- redesigning the primary haulage route to be in-cut behind overburden and within the open cut pits to increase the shielding of the haul road from properties to the west and south-west.

In addition, if the Stage 2 project is approved, MCM proposes to extend the use of all these measures to the Stage 2 project, and has also:

- agreed to enter into a noise agreement with the owner of Property 63 for the acceptance of slightly higher noise impacts; and
- committed to ensure all new plant purchased for the project is properly attenuated.

Residual Impacts

The NIA predicts that the noise generated by the Moolarben mining complex as a whole would comply with 35dBA, the lowest possible limit under the *NSW Industrial Noise Policy*, at almost all privately-owned residences surrounding the mine, *even during adverse weather conditions*.

The only exceptions to this would be at:

- Property 63, the closest privately-owned property to the mine, where there would be marginal exceedances (1-2 dBA) of the existing noise limits only during adverse weather conditions for between 6 to 7 years of the project (see **Table 2**). The owner of this property already has additional noise mitigation rights under the Stage 1 approval, and as indicated above, has agreed to enter into a negotiated noise agreement with MCM to accept higher noise impacts if the Stage 2 project is approved;
- Properties 70 and 75 to the immediate west of the mine, where there would be marginal exceedances (1-2 dBA) of the current 35 dBA limit, again only during adverse weather conditions. While these exceedances would be spread over several years (years 6-21, with a gradual reduction after year 11) for Property 70, they would be restricted to year 11 for Property 75 (see **Table 2**);
- Properties 30, about 3 kilometres to the west of OC 3, where there would be marginal to moderate exceedances of the current 35 dBA limit, also only during adverse weather conditions. These exceedances would occur in the later years of the project when OC 3 is being mined (years 21-24 of the project), and gradually reduce as mining moves further south in OC3 (see **Table 2**). In other words, they would be due largely to the approved Stage 1 mining operations rather than this modification or the proposed Stage 2 mining operations.

The location of these properties, along with the worst-case noise contours, is shown in **Figure 10**.

Table 2: Summary of Operational Noise Limit Exceedances - Residences

Receiver ID	Criteria Day / evening / night	Predicted Worst Case Noise Level dB(A)LAeq, 15 min					
		Yr 2	Yr 6	Yr 11	Yr 16	Yr 21	Yr 24
30	35 / 35 / 35					39 (+4)	37 (+2)
31	35 / 35 / 35					36 (+1)	
63	38 / 38 / 37		38 (+1)	39 (+2)			
70	35 / 35 / 35		37 (+2)	37 (+2)	36 (+1)	36 (+1)	
75	35 / 35 / 35			36 (+1)			

The Department has considered whether any further measures could be implemented on site to ensure compliance with the relevant noise criteria at these properties, and concluded that very little could be done other than curtailing night-time operations during adverse weather conditions.

The Department has considered whether MCM should be required to curtail its night-time operations to ensure compliance, and concluded that such a requirement is not justified in this instance.

Firstly because the predicted noise levels at these properties during these exceedances would be quite low in an absolute sense (36 to 37 dBA in most instances), and well below the recommended night-time amenity criteria for rural areas under the INP.

Secondly, because the restriction would result in a significant economic cost to MCM and result in limited noise benefit.

Nevertheless, the Department believes MCM should be required to implement additional noise mitigation measures (such as double-glazing, insulation and/or air conditioning) at the residences on these properties if requested by the landowner.

Cumulative Noise & Sleep Disturbance

The noise assessment does not predict any exceedances of the relevant cumulative noise and sleep disturbance criteria at any privately-owned residence surrounding the mine.

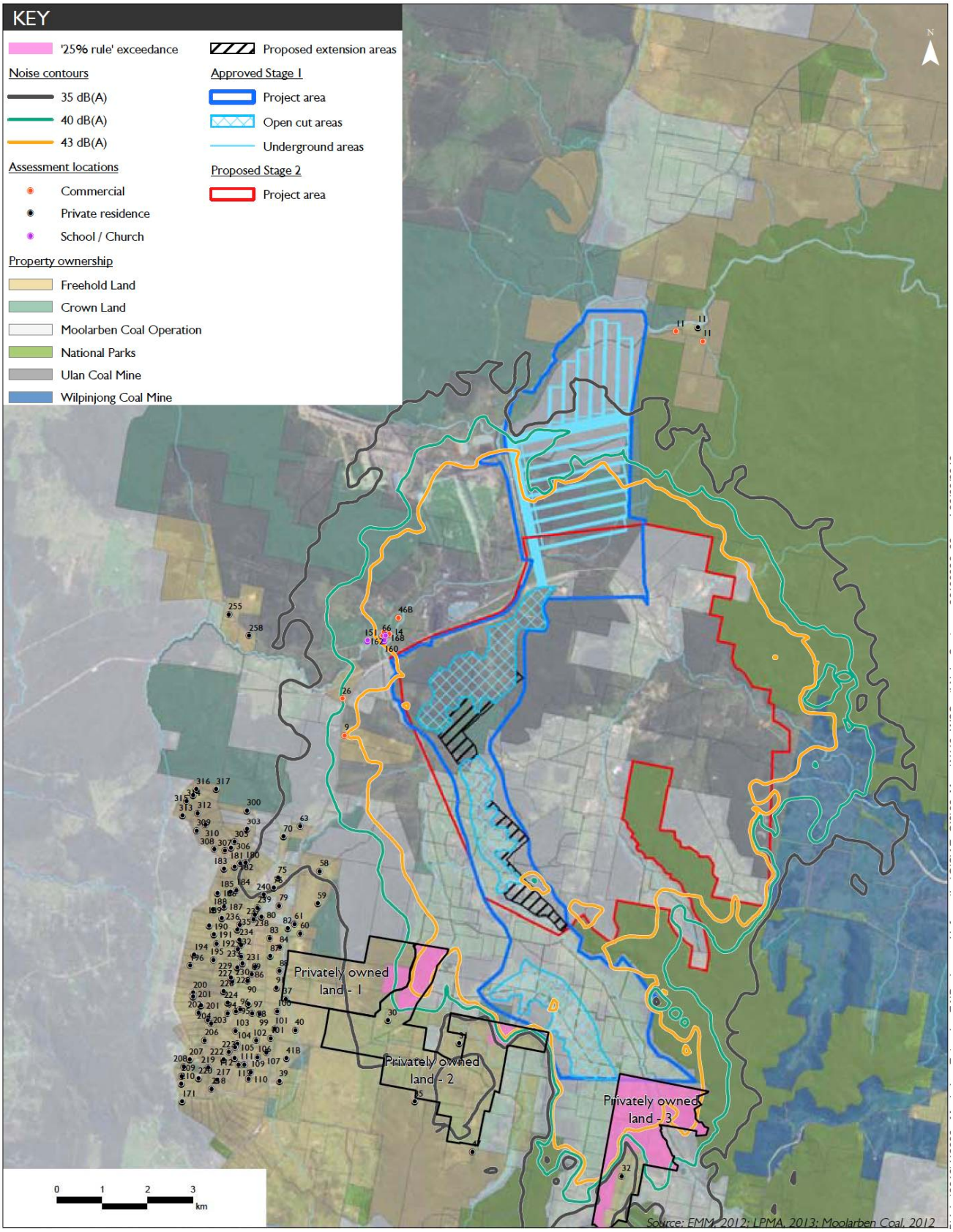


Figure 10: *Predicted Worst Case Noise Levels*

Conclusion
The Department is satisfied that the noise impacts of the modification can be suitably minimised with the continued implementation of best management practice.

To ensure this occurs, the Department has recommended that the existing noise conditions be updated to require MCM to:

- comply with strict noise limits;
- carry out regular attended monitoring (at least 12 times a year) to check whether the project is complying with these limits, and to make these monitoring results public on its website;
- commission an independent expert to review the noise impacts of the project if any landowner considers the project to be exceeding the relevant noise limits for the project on his/her land;
- comply with a range of operating conditions, including a condition requiring MCM to implement best management practice to minimise the operation, road and rail noise impacts of the project;
- implement additional noise mitigation measures (such as double glazing, insulation and/or air conditioning) at 4 residences;
- prepare a detailed Noise Management Plan for the project; and
- review and update this plan on a regular basis following each annual review and independent audit.

5.2 Biodiversity

Issues
The modification would result in the clearing of approximately 200.8 ha of land, of which 177.1 ha is native forest and woodland (including 20.6 ha of EEC), 4.6 ha is shrubland and 19.1 ha is cleared land or exotic pasture. This would result in the removal or disturbance of a range of habitat for threatened fauna species.

Consideration
MCM engaged EMM to undertake an Ecological Assessment for the modification (see Appendix E Volume 2 of the EA).

The OEH and numerous public and special interest group submissions raised concerns about the level of survey effort undertaken in the extension areas, potentially resulting in poor identification of species. A comparison of survey effort at the extension areas with survey effort requirements as prescribed in the *Threatened Biodiversity Survey and Assessment Guidelines for Developments and Activities* (DEC 2004) showed that the survey effort was generally in accordance with the guidelines.

<u>Flora</u>
As indicated in **Table 3** and shown on **Figures 11(a)-(c)**, the modification would result in the clearing of 200.8 ha of land, which includes 6 vegetation communities. One of these vegetation types (totalling 20.6 ha) contains endangered ecological communities (EECs) and critically endangered ecological communities (CEECs) as defined by the NSW *Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environmental Protection and Biodiversity Conservation Act* 1999 (EPBC Act), respectively (referred to as EECs in the remainder of this report).

Over half of the land that would be cleared contains a Ridgetop Broad-leaved Ironbark Grey Gum Forest community (see **Table 3**). Smaller areas of different woodland communities cover the remainder of the extension areas, with small patches of exotic pasture evident on the lower slopes. The majority of the 20.6 ha of EEC community is located in the area between OC1 and OC2, with a small patch also located within the rail loop area.

***Figure 11(a)**: Vegetation Types – Rail Loop Area*

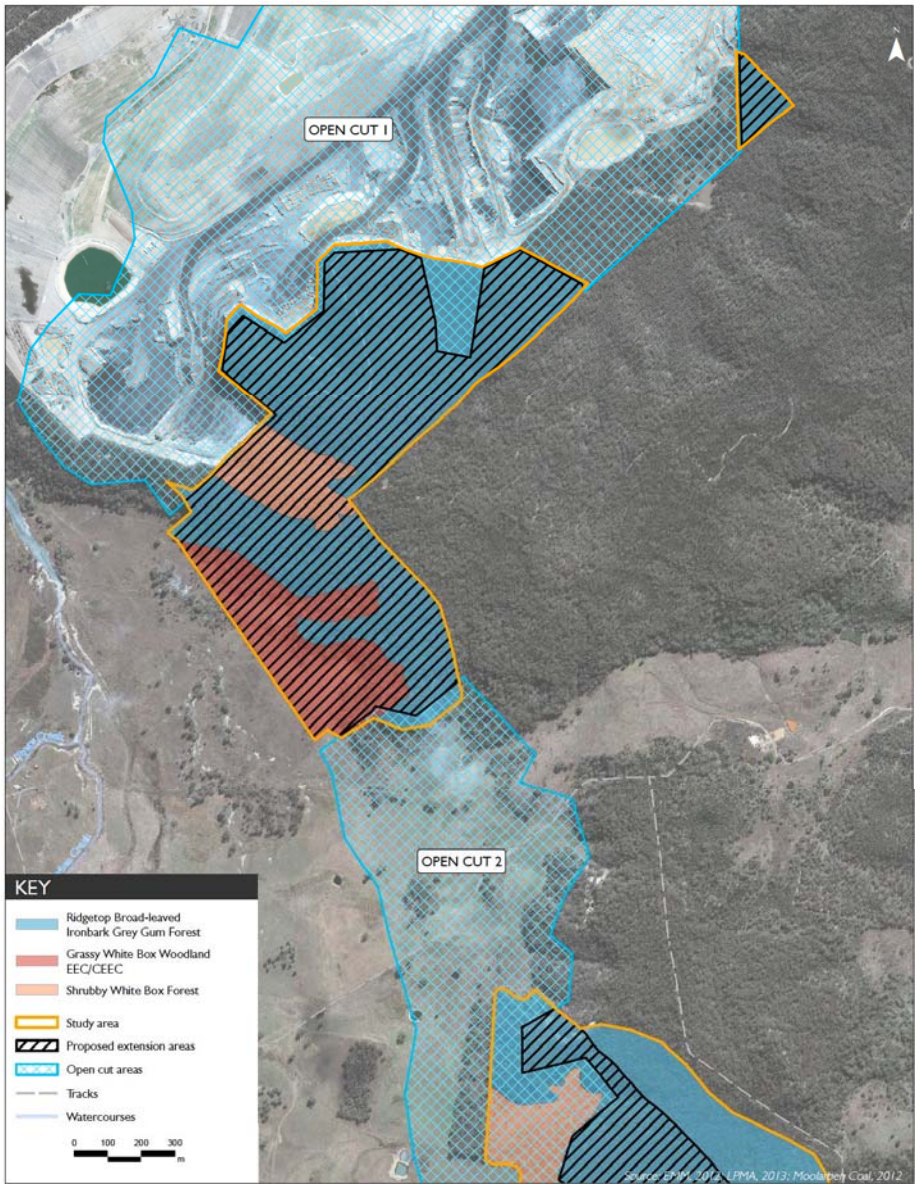


***Figure 11(b)**: Vegetation Types – Extension Areas - North*

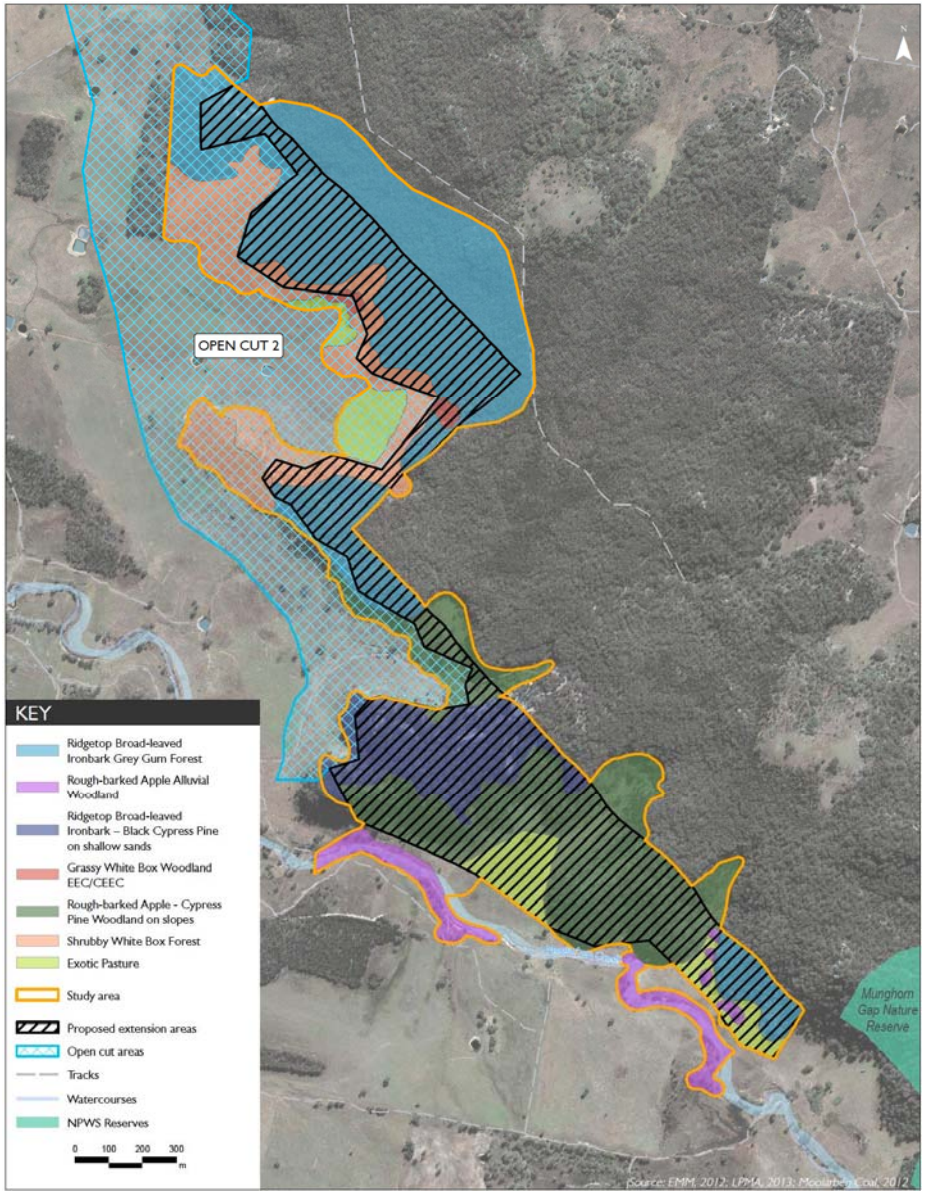


***Figure 11(c)**: Vegetation Types – Extension Areas - South*

Table 3: *Summary of direct impacts on vegetation communities*

Biometric Vegetation Type	Impact Area (ha)
Shrubby White Box Forest	13.3
Grassy White Box Woodland (EEC)*	17.2
Ridgetop Broad leaved Ironbark – Black Cypress Pine on shallow sands	14.3
Ridgetop Broad-leaved Ironbark Grey Gum Forest	96.8
Rough-barked Apple Alluvial Woodland	3.0
Rough-barked Apple – Cypress Pine Woodland on slopes	29.1
Grey Box/Narrow-leaved Ironbark/ Blakely's Red Gum Woodland	1.3
Blakely's Red Gum Woodland	2.1
Sifton Bush Shrubland	4.6
Cleared land	19.1
TOTAL	**200.8***
* includes 20.6 ha of White Box Yellow Box Blakely's Red Gum Woodland EEC (TSC Act) and 19. 9 ha of White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC (EPBC Act).	

EMM indicates that, although the areas of EEC proposed to be removed are in relatively poor condition and represent a comparatively small area (ie. 10% of the total area to be cleared), the regional impact of the removal of this EEC is considered to be significant. This conclusion was primarily based on the fact that the EEC has been heavily cleared in the Hunter Central Rivers CMA (90% cleared since 1750). MCM indicates that impacts to EECs will be compensated for by rehabilitation activities in the proposed modification footprint and by offsets to provide a long-term improvement in the quality and quantity of this EEC in the region (discussed below).

The Ecological Assessment also identified potential impacts to two threatened plant species [Pine Donkey Orchid (*Diuris tricolor*) and Scant Pomaderris (*Pomaderris queenslandica*)], which are listed under the TSC Act. However, EMM did not consider the potential impact on the threatened plant species to be significant because the species were not recorded in the extension areas (therefore only presents potential habitat) and the wider area is not considered to be an important area for the species.

OEH questioned EMM's assessment of the significance of the Pine Donkey Orchid and recommended that MCM undertake flora surveys for this species in the appropriate flowering periods.

Consequently, MCM undertook targeted surveys for the Pine Donkey Orchid during 3 days in September and November 2013. The results of these surveys are presented in MCM's response to OEH's comments on the RTS (see **Appendix F**). MCM indicate that the Pine Donkey Orchid was not observed at any of the reference sites during the surveys. MCM also point out that extensive surveys for this species were undertaken across the Moolarben Coal Project Exploration License area by Biota in September, October and November of 2005 and by Ecovision Consulting in spring of 2006 and 2007. In all this survey effort, only 2 individual specimens were recorded in the vicinity of the site. Therefore, it was concluded that the likelihood of there being any large populations of the Pine Donkey Orchid in the modification disturbance area is low.

In order to minimise impacts on native vegetation as a result of the modification, MCM committed to continue to implement best practice mitigation and monitoring measures, including:

- implementation of the Vegetation Clearance Protocol which includes delineation of areas to be cleared, pre-clearance surveys and vegetation management procedures;
- implementation of the Ground Disturbance Permit prior to the commencement of clearing activities;
- management of weeds, pest animals and restriction of access to undisturbed areas;
- implementation of dust minimisation and suppression measures.

To offset the impacts of the modification, MCM is proposing to implement a detailed Biodiversity Offset Strategy (see below).

<u>Fauna</u>

As indicated in **Table 4**, the modification would result in the removal of fauna habitat, including 153.5 ha of open forests on hillsides and ridges, 17.2 ha of footslope grassy woodlands and smaller areas of grassy woodlands on flats (3.4 ha), riparian grassy woodlands (3.0 ha) and shrubland (4.6 ha). These habitats contain known habitat for 7 threatened fauna species and potential habitat for an additional 31 threatened fauna species. Of these, 24 species are birds, 13 are mammals and 1 is a reptile.

Table 4: *Summary of fauna habitat removed*

Habitat Type	Area to be Cleared (ha)	Associated Threatened Fauna Species
Open forests on hillsides and ridges	153.5	Broad-headed Snake*, Brown Treecreeper, Black-chinned Honeyeater, East-coast Freetail Bat, Eastern Bentwing Bat, Eastern Cave Bat, East-coast Freetail Bat, Eastern False Pipistrelle, Gilbert's Whistler**, Glossy Black-cockatoo, Greater Broadnosed Bat, Koala***, Large-eared Pied Bat, Little Bentwing Bat, Little Pied Bat, Masked Owl, Painted Honeyeater ****, Powerful Owl, Regent Honeyeater****, Scarlet Robin, Spotted-tail Quoll*, Varied Sittella and Yellow-bellied Sheathtail Bat
Footslope grassy woodlands	17.2	Eastern Bentwing Bat, Eastern Cave Bat, East-coast Freetail Bat, Eastern False Pipistrelle, Flame Robin, Grey-crowned Babbler, Hooded Robin , Koala***, Little Bentwing Bat, Little Eagle, Little Lorikeet, Little Pied Bat, Painted Honeyeater, Regent Honeyeater, Southern Long-eared Bat, Squirrel Glider, Speckled Warbler, Turquoise Parrot and Yellow-bellied Sheathtail Bat
Grassy woodlands on flats	3.4	Black-breasted Buzzard, Spotted Harrier, Square-tailed Kite, Painted Honeyeater, Regent Honeyeater, Brown Treecreeper, Little Lorikeet, Turquoise Parrot, Diamond Firetail, Grey-crowned Babbler, Speckled Warbler, Varied Sittella, Flame Robin, Hooded Robin, Scarlet Robin, East-coast Freetail Bat, Southern Long-eared Bat. Foraging habitat only for Eastern Bentwing Bat, Eastern Cave Bat and Large-eared Pied Bat.
Riparian grassy woodlands	3.0	Black-breasted Buzzard, Diamond Firetail, Eastern Cave Bat, East-coast Freetail Bat, Eastern False Pipistrelle, Flame Robin, Hooded Robin, Little Bentwing Bat, Little Eagle , Little Lorikeet, Little Pied Bat , Turquoise Parrot, Southern Long-eared Bat, Speckled Warbler, Spotted Harrier, Square-tailed Kite, Squirrel Glider and Yellow-bellied Sheathtail Bat
Shrubland	4.6	Black-breasted Buzzard, Spotted Harrier, Square-tailed Kite, Diamond Firetail, Hooded Robin
Cleared land	19.1	Diamond Firetail, Turquoise Parrot and Yellow-bellied Sheathtail Bat
Total	**200.8**	**-**

Notes:
**The Broad-headed Snake and Spotted-tail Quoll are only associated with Ridgetop Broad-leaved Ironbark Grey Gum Forest, therefore potential habitat removal is 96.8 ha.*
***Gilbert's Whistler is only associated with Shrubby White Box Forest, therefore potential habitat removal is 13.3ha.*
****The Koala is associated with Shrubby White Box Forest, Footslope Grassy Woodlands and Ridgetop Broad-leaved Ironbark Grey Gum Forest, therefore potential habitat removal is 30.5 ha of secondary and 96.8 ha of supplementary habitat.*
*****Regent Honeyeater and Painted Honeyeater habitat in open forests on hillsides and ridges is only represented in Shrubby White Box Forest, therefore is equal to 30.5 ha when combined with Footslope Grassy Woodlands.*

EMM indicates that the potential impact of the modification on the majority of these threatened fauna species is not significant. This conclusion was based on the view that:

- the local populations of most of the species extends outside of the study area;
- connectivity would be maintained to large expanses of native bushland and conservation areas which contain suitable habitat for the species;
- most species are highly mobile (ie. birds); and
- clearing would be progressive and allow for relocation of many of the species.

However, EMM predicts that the modification has the potential to result in significant impacts on the following two species:

- Brown Treecreeper bird (*Climacteris picummus victoriae*) – due to removal of 153.5 ha of known habitat; and
- Eastern Cave Bat (*Vespadelus trpughtoni*) – due to removal of 171.4 ha of habitat comprising 3km of rock outcrop (potential breeding habitat) and 171.4 ha of foraging habitat.

To minimise potential impacts, MCM has committed to progressive rehabilitation during mining, including the reinstatement of habitat features, such as rock salvaged during clearing which would assist these species to maintain territories in the locality by providing habitat features in the medium and long term.

OEH questioned EMMs assessment in relation to potential cave bat breeding and/or roosting sites, and requested more detailed assessment of rock shelter sites. In its response, MCM indicated that the rocky areas in the proposed extension areas are comprised of small shallow standstone outcrops with cracks and fissures, and some overhangs, which may potentially provide habitat for the Eastern Cave Bat. It is noted that the 3 kilometers of these outcrops that would be removed as part of the modification were targeted during the field surveys, and only 5 meters was found to contain evidence of occupation by micro bats. Irrespective, EMM has conservatively assumed that the 3 kilometers of outcrops are potentially bat habitat and has confirmed that the offset areas (described below) contain at least 7.6 kilometers of similar habitat.

In addition, the Ecological Assessment indicates that the modification has the potential to impact on three migratory species listed under the EPBC Act, which are considered likely to occur in the study area (Rainbow Bee-eater, Rufpous Fantail and Regent Honeyeater). However, the assessment of the significance of potential impacts on these species indicates that no significant impact is anticipated on these species because an ecologically significant proportion of the species is not know to reside in the

study area and the study area either does not contain or contains a very small area of habitat for these species.

To minimise the impacts on fauna, MCM proposes to implement a range of standard management strategies including progressive clearing, pre-clearance surveys and habitat augmentation. MCM proposed that these measures would complement the key mitigation measure, which is the implementation of the biodiversity offset strategy (see below).

Groundwater Dependant Ecosystems (GDEs)

The Ecological Assessment indicates that the occurrence of GDEs was assessed in accordance with the relevant NSW policy and that there are no high priority GDEs within the Water Sharing Plan that applies to the area.

'The Drip' represents the only significant seep/spring within the locality (outside of existing conservation reserves) with groundwater dependent vegetation. 'The Drip' is a locally recognised important cliff seepage feature located on the Goulburn River about 6 km north of the proposed extension areas.

Many public and special interest group submissions raised concerns about the impact of the modification on 'the Drip', and indicated that the proposed modification should not be approved until the area containing 'the Drip' is protected via its inclusion in the Goulburn River National Park.

However, EMM indicate that the proposed modification will not cause an impact on this feature. This view is supported by previous groundwater studies in the area undertaken by both MCM and Ulan's hydrological consultants, as well as a specialist review commissioned by the Department. These studies and reviews all conclude that 'the Drip' is a perched aquifer system that would be "isolated" hydraulically from any drawdown effects due to mining in the long term.

The Department notes that the existing project approval requires MCM to ensure that the project has negligible impact on groundwater supply to 'the Drip'.

In terms of the long term protection of the area containing 'the Drip', the Department can confirm that the Reserve Referral Process under the *National Parks and Wildlife Act, 1974* has been initiated for incorporation of this area, as well as adjacent Crown Lands, into the Goulburn River National Park. The OEH has indicated that the details of the transfer are still being negotiated with MCM and the other government agencies involved.

Cumulative Biodiversity Impacts

Numerous public and special interest group submissions raised concerns about cumulative impacts of the modification on biodiversity. OEH also recommended that MCM present a cumulative impact (including both direct and indirect impacts) on vegetation communities, threatened species habitat and connectivity. This information was provided in detail in MCM's RTS.

The RTS indicates that the proposed modification, Moolarben Stage 2, Ulan and Wilpinjong coal mines are all located in the Kerrabee subregion of the Hunter-Central Rivers CMA area. The proposed modification would contribute between 1% and 13% of cumulative impacts in the locality for the range of threatened biodiversity identified in the proposed extension areas or with a high likelihood of occurring. The three mines (approved and proposed) account for impacts to 2.3% of remnant vegetation outside the conservation reserves in the regional area. It is also noted that 47% of the regional area is set aside in existing conservation areas. Of this, the proposed modification accounts for 5% of these impacts (or 0.12% across the entire regional area).

Based on these figures, MCM indicates that the cumulative impacts of the modification on biodiversity are not significant and would be further reduced by rehabilitation and implementation of the biodiversity offset strategy (see below).

OEH also raised concerns that the cumulative assessment provided in the RTS did not consider indirect impacts on biodiversity, such as noise, dust and light spill. The Department notes that indirect biodiversity impacts associated with the modification were addressed in the EA (Section 6.1.3 of Appendix E) and were not considered to be significantly different to those already approved. The Department agrees that mining within the extension areas is unlikely to result in additional indirect impacts on biodiversity beyond those already approved, and is satisfied that the existing cumulative assessment provides a thorough analysis of the key cumulative biodiversity impacts.

Rehabilitation

MCM has committed to rehabilitate the areas disturbed (totalling 200.8 ha) as part of the modification. The rehabilitation would generally be consistent with the existing approach, which is detailed in the approved Rehabilitation Management Plan (RMP) and involves progressively rehabilitating disturbed areas with native vegetation as soon as practicable following disturbance. Both the OC1 and OC2 areas would be rehabilitated for biodiversity outcomes to create long-term habitat corridors between Munghorn Gap Nature Reserve and the Goulburn River National Park.

The final proposed rehabilitated landform is shown in **Figures 8(a)** and **(b)**. It is MCM's objective that the final rehabilitated landform will create a natural looking, stable and well drained post-mining landform that is visually consistent with the surrounding areas.

The Department is satisfied that, in the longer term, the rehabilitated lands would provide valuable linkages of woodland vegetation between existing conservation areas.

In addition, the Department is satisfied that the existing Rehabilitation Management Plan can be updated to incorporate the extension areas, and that this will provide a sound basis for achieving successful overall rehabilitation outcomes for the project. The updated Rehabilitation Management Plan will need to be prepared in consultation with relevant agencies and aimed at achieving defined rehabilitation objectives.

Biodiversity Offset Strategy

MCM engaged Eco Logical Australia Pty Ltd (Eco Logical) to prepare a biodiversity offset strategy (BOS) that, together with the rehabilitation proposal, is directed toward reducing the biodiversity impacts of the project (refer to Appendix D of Appendix E of the EA).

OEH was critical of the BOS presented in the EA, both in terms of the lack of detail of information provided and deficiencies in the quantum of the offset. MCM subsequently engaged Eco Logical to revise the BOS to address the issues raised by OEH. A significantly revised BOS is presented in Appendix E of the RTS. Eco Logical state that the revised BOS has been prepared in accordance with the NSW Offsetting Principles (OEH 2008), the OEH Interim Major Projects Offsets Policy (OEH 2011) and the EPBC Act Offset Assessment Guide (SEWPaC, 2012).

As indicated in **Table 5**, MCM propose a direct offset package of 922 ha which comprises 8 MCM owned properties containing remnant and regenerating 'like for like' vegetation types and threatened fauna habitat. The location of each offset area in relation to the project is shown on **Figure 13**.

Table 5: *Biodiversity Offset*

Offset Property	**Offset Property Area**	**Vegetation Condition (ha) [portion EEC]**			
		Woodland	**Woodland Patches**	**DNG**	**Total**
Clarke	332	298 [24]	19 [3]	15 [5]	332 [32]
Clifford	103	72 [54]	8 [8]	1 [0]	81 [62]
Elward	170	146 [18]	24 [6]	-	170 [24]
Property #5	65	39 [4]	4 [4]	22 [17]	65 [25]
Properties #24 and #25	63	21 [3]	4 [0]	38 [1]	63 [4]
Bobadeen	826	10 [2]	36 [36]	121 [121]	167 [159]
Moolarmoo	45	26 [1]	4 [4]	14 [14]	44 [19]
Total Offset Portion EEC	**1604**	**612 [106]**	**99 [61]**	**211 [158]**	**922 [325]**

The BOS would result in offset ratios of 4.6:1 for native vegetation and 15.7:1 for EECs (or 8.1:1 if the DNG component is excluded).

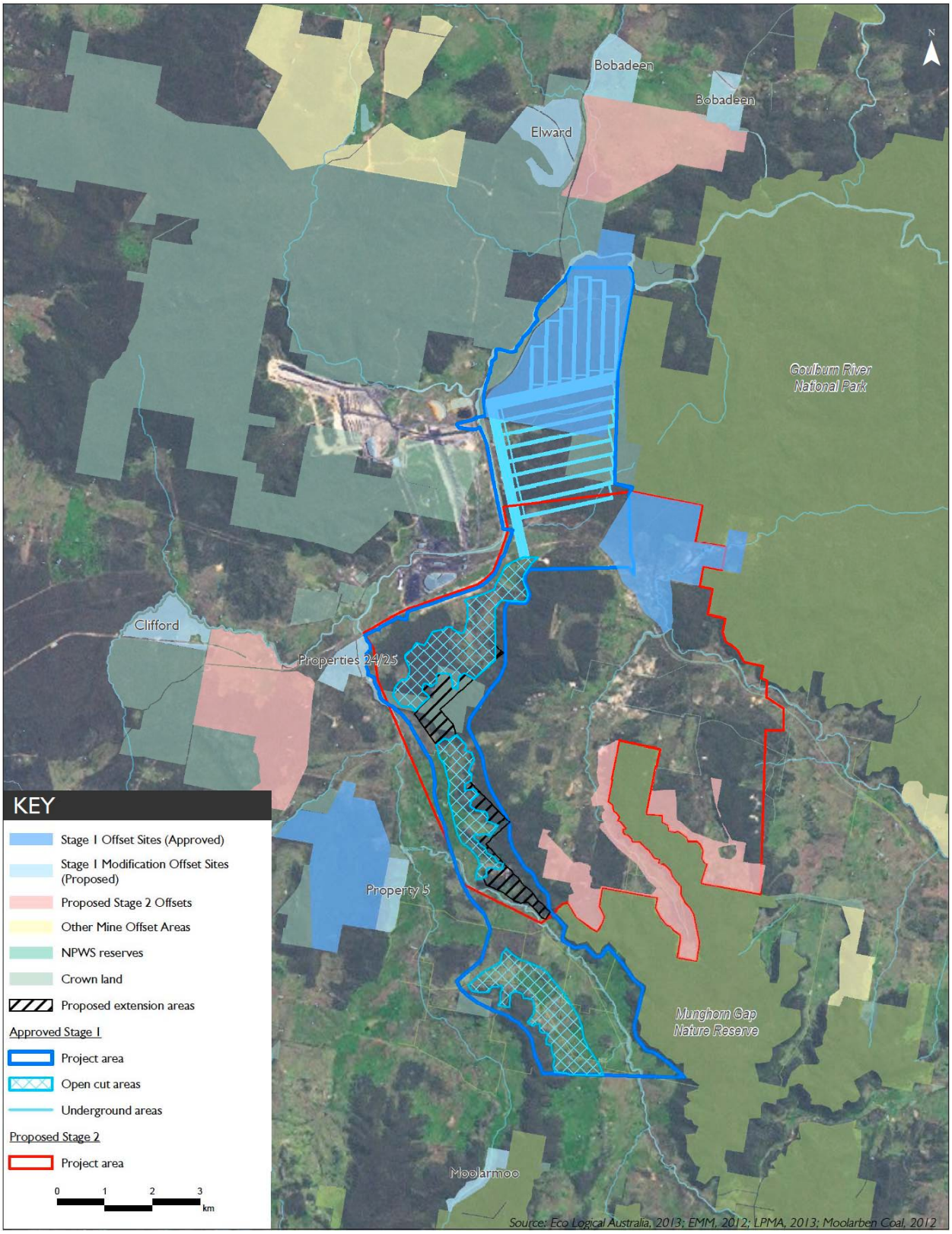


Figure 12: *Location of Existing and Proposed Offset Areas*

In response to issues raised by OEH, MCM provided additional information in relation to the BOS (refer to **Appendix F**), which indicated that the BOS:

- is consistent with OEH's NSW Offsetting Principles and the matters to be considered in SEWPaC's Offset Assessment Guide;
- predominantly consists of enhancing and managing existing vegetation (714 ha of 922 ha or 77.3%);
- provides matching threatened fauna habitat;
- significantly exceeds 2:1 ratios for each of the vegetation types impacted;
- contains known records of the Pine Donkey Orchid on one of the offset sites (ie. Property 24) and around 63 ha of potential habitat;
- contains 7.6 kilometers of rocky outcrops which is considered potential habitat for the Eastern Cave Bat;
- contains properties that are in close proximity to the impact area and are strategically located adjacent to existing conservation reserves or biodiversity offset areas from previous mining projects providing strategic links and connectivity to these reserves;
- contains properties that are a size, shape and condition conducive to long term conservation management;
- contains properties that are not currently required under any existing legislative requirement to be actively managed for biodiversity conservation and thus meet the "additionality" Offset Principle.

In addition, at the request of OEH, MCM has committed to undertaking a scientifically rigorous translocation program (consistent with the monitoring and reporting requirements of the Australian Network for Plant Conservation translocation guidelines) for the Pine Donkey Orchid if it is detected in the future pre-clearance surveys in the disturbance areas.

OEH questioned the inclusion of the "State 3" Box Gum Grassy Woodland in the offset. This issue has been discussed between the Department, MCM and their ecological consultant (EcoLogical) and further explained in detail in MCM's response (**Appendix F**). It has been confirmed that OEH and MCM used different definitions of the "State" of the Box Gum Grassy Woodland to describe its suitability for use as a Derived Native Grassland (DNG) offset. MCM has confirmed that it used a definition for "State 3B" provided to it by OEH's Community Conservation Programs Section, which defines native grassland as having "*infrequent fertilisation, moderate native plant diversity and moderate nativeness of plant ground cover*". MCM has confirmed that the DNG in the offset areas is of a sufficient quality to naturally regenerate once management measures (such as the exclusion of cattle) are implemented.

The Department satisfied with the explanation provided and has recommended a condition requiring MCM's monitor the DNG offset areas response to management programs, and to investigate alternative management measures if they are found not to be recovering as expected.

Conclusion

The Department accepts that the extension areas as proposed present the most efficient and cost effective option to extract the coal resource, and that there are limited options to further avoid biodiversity impacts without sterilising significant amount of the coal resource.

The Department is also satisfied that the implementation of the biodiversity offset strategy, coupled with the rehabilitation strategy, will suitably offset any residual impacts associated with this clearing and improve the conservation value of the region in the medium to long term.

To ensure this occurs, the Department has recommended that MCM be required to:

- implement the biodiversity offset strategy and rehabilitation strategy;
- provide suitable habitat for the threatened fauna species confirmed and identified as being potentially present in the extension disturbance areas;
- provide for the in perpetuity conservation of the offset areas and the rehabilitated mine area;
- develop a comprehensive Biodiversity Management Plan and Rehabilitation Management Plan; and
- lodge a substantial conservation and biodiversity bond to ensure that the offset areas are established and maintained to the satisfaction of the Director-General.

5.3 Water Resources

Issues
The proposed modification has the potential to impact on local and regional groundwater and surface water resources.

Consideration
MCM engaged WRM Water & Environment Pty Ltd (WRM) to undertake a surface water impact assessment and Australasian Groundwater & Environmental Consultants Pty Ltd (AGE) to undertake the groundwater impact assessment for the proposed modification. These reports are included at Appendix I and Appendix J of Volume 4 of the EA, respectively.

Water Balance
The surface water impact assessment includes a revised water balance, which incorporates two scenarios - Stage 1 with and without the proposed modification. However, both scenarios included the proposed Stage 2 works, which are yet to be approved. The Department therefore required MCM to prepare an addendum to the water balance report, which:

- provides a revised water balance for the approved and proposed modified Stage 1 operations only; and
- incorporates the surface water infrastructure upgrades proposed around the rail loop and CHPP areas into the water balance.

A copy of the addendum is included in **Appendix H**.

The revised water balance indicates that the proposed modification would increase the site water demand by 200 ML/year (on average) as a result of additional dust suppression demand. The maximum annual imported water requirement for the Stage 1 operations and the modification is approximately 1,850 ML/year. This includes water requirements for use in the CHPP, dust suppression, potable water use and water use in the underground mining area.

MCM currently has access to the following external water sources:

- surplus water from the Ulan Coal Mine through a water sharing agreement (UWSA) which requires MCM to take a minimum of 1,000 ML/year with no defined upper limit;
- water from advanced dewatering of the northern borefield at UG4 – up to 2,400 ML/year; and
- water from the southern borefield in the vicinity of the existing CHPP and the Red Hills Property – up to 450 ML/year.

WRM indicates that the small increase in site water demand as a result of the modification can be satisfied by the current water sources. It is noted that MCM currently holds a licence under Part 5 of the *Water Act, 1912* to take 2,850 ML/year of water from the borefields.

The Department is satisfied that the additional water demand associated with the proposed modification is small and that the existing water sources will meet the additional water demand, while still retaining some flexibility and redundancy in the surface water management system. MCM is required to update the existing approved Site Water Balance to reflect the revised water balance within three months of approval of this modification.

Surface Water
The Stage 1 mine is located within the upper Goulburn River catchment, which covers an area of 2,600 ha. Moolarben Creek is a tributary of this catchment, which flows in a northerly direction along the western project area boundary and joins Sportsman's Hollow Creek at the settlement of Ulan to form the headwater of the Goulburn River.

The local drainage network in the vicinity of the mine is shown in **Figure 13**. The majority of the Stage 1 mining operations, including OCs 1-3, are located in the Moolarben Creek catchment. The proposed extension areas are located between 100 meters and 1 kilometre to the east of Moolarben Creek. The Stage 1 surface infrastructure area including the CHPP, product stockpile pad and the rail loop, are located within the Bora Creek Catchment. Bora Creek is a small tributary that flows directly into the Goulburn River. The proposed upgrades to the surface water infrastructure are located in this catchment.

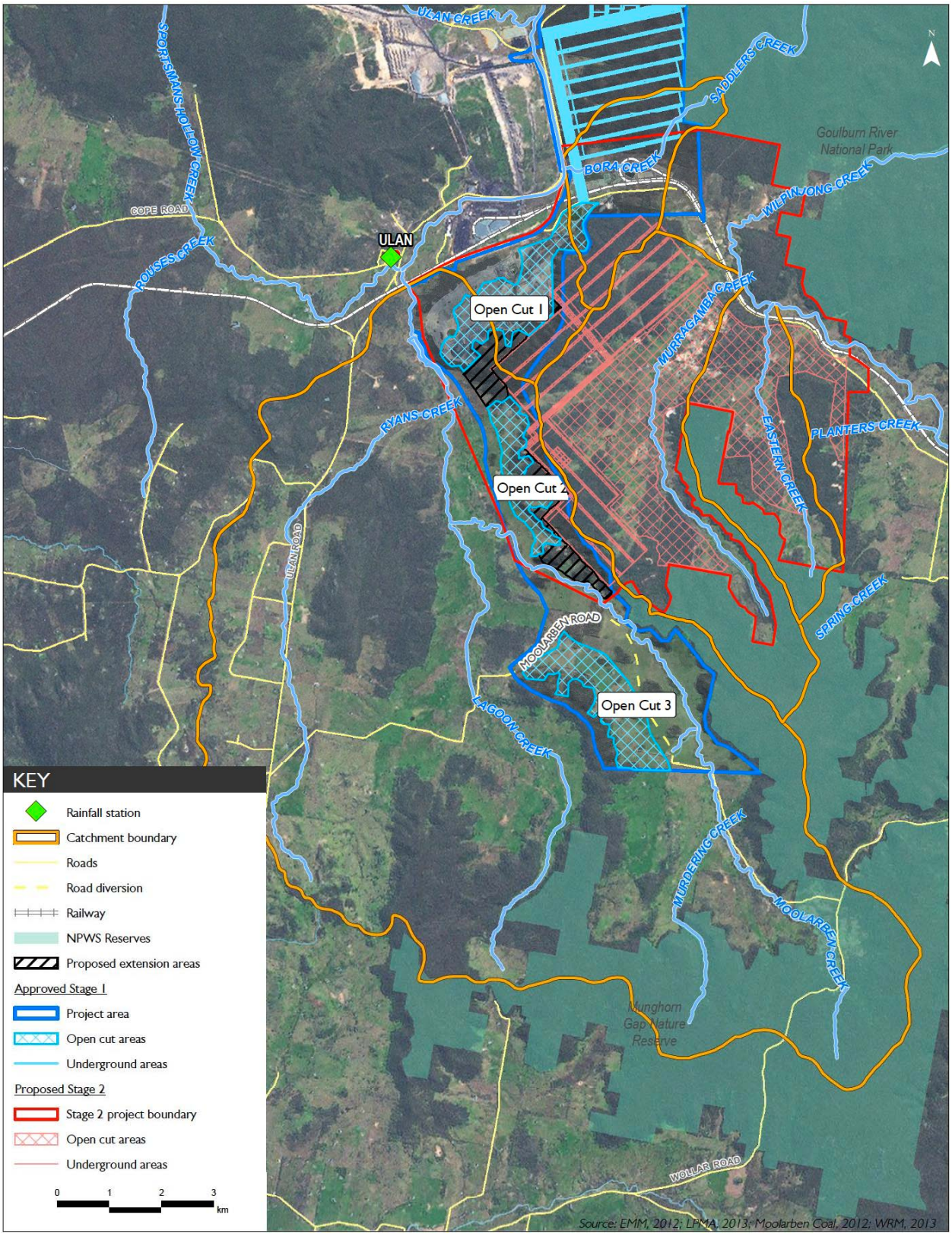


Figure 13: *Local Drainage Network*

Both Moolarben and Bora Creeks are ephemeral creek systems that only flow in response to recent rainfall. Baseline water quality monitoring indicates that receiving waters in the vicinity of the project area are slightly acidic, generally fresh (with electrical conductivity levels generally ranging from 1-2,520µS/cm), with nutrient and turbidity levels generally higher than ANZECC trigger values. WRM indicate that almost all of the water quality parameters at the monitoring locations upstream of the Moolarben mining operations are elevated in comparison to other locations, indicating that the existing operations are not adversely affecting the quality of receiving waters.

However, as indicated in Section 2.0, MCM's operations have resulted in significant breaches of their EPL discharge limits on two occasions in the past due to failure of the water management system. Numerous public and special interest group submissions raised water quality issues as a concern, and indicated the general lack of confidence in MCM's ability to manage surface water associated with the existing and proposed operations.

WRM indicates that the proposed modification has the potential to impact on surface water resources by:

- reducing the catchment area draining to Moolarben Creek; and
- reducing water quality due to runoff from disturbed areas.

WRM indicate that the proposed extension areas will result in the capture of runoff from an additional 140 ha of the Moolarben Creek catchment (which equates to 1.1% of the total Moolarben Creek catchment area). This corresponds to an average annual runoff loss of about 35 ML/year. WRM indicate that such a small reduction in catchment area will have a negligible impact on the flow characteristics of Moolarben Creek.

The Department accepts that this runoff loss is small, and notes that MCM is exempt from a requirement to obtain a water access licence in respect of this capture of surface runoff, pursuant to clause 10(1) of the Water Management (General) Regulation, 2011.

The surface water impact assessment (and the addendum) includes a review of the sites water management system, and proposes significant upgrades to the system to minimise the likelihood of unauthorised discharges of sediment laden water from the mine site and to fulfil the requirements of the EPA's PRPs. The proposed upgrades are described in detail in Section 2.0 and illustrated in **Figures 7** and **8**.

It is noted that as a result of a request from the EPA, the RTS incorporated significant additional water management system upgrade works in the vicinity of the surface infrastructure area. In addition, in order to ensure a conservative approach as recommended by the EPA, MCM has committed to construct all new sediment dams with volumes of sufficient capacity to capture a 95th percentile 5-day rainfall duration.

WRM indicates that the proposed water management system will have sufficient capacity to contain all mine water on site without uncontrolled releases.

The EPA and the Department are satisfied that the upgrades are necessary and would result in a significantly improved surface water management system. MCM will be required to up date the existing approved Surface Water Management Plan to reflect the revised water management system within three months of approval of this modification.

Groundwater

The hydrological system in the vicinity of the site has been extensively monitored and is well defined. The regional rock strata comprise an extensive sequence of Permain coal measures, which dip to the north-east across the project area and contain the Ulan Coal Seam which MCM is currently mining in OC1. The sequence is overlain by Triassic and more recent sedimentary rocks, which have been eroded and incised by current-day surface drainage and commonly form the upland plateaus of the project area.

The Ulan Seam contains the principal aquifer, which is exploited via boreholes throughout the region, as well as via numerous seeps and springs which feed several local dams. The pumping of groundwater for dewatering at Ulan Coal Mine has already extensively impacted groundwater levels within these coal measures. Monitoring associated with the existing Moolarben mining operations has not detected any significant depressurisation from current mining operations in OC1.

The AGE groundwater impact assessment for the proposed modification relies on previous impact assessments [including Stage 1 (Dundo 2006) and Stage 2 (RPS Aquaterra, 2011)] and recently collected groundwater monitoring data to assess the impacts associated with the proposed modification. AGE indicates that the groundwater data collected to date is within the ranges predicted in the previous studies, which verifies the soundness of the studies and negates the need to conduct further remodelling as part of this modification. NOW agrees with this conclusion.

AGE indicates that groundwater regime in the immediate vicinity of the proposed modification comprises the following two aquifer systems:

- porous and/or fractured consolidated sedimentary rock aquifers of the Permian Coal Measures and overlying Triassic sequence; and
- alluvial aquifers associated with Moolarben Creek and Lagoon Creek.

AGE indicates that, based on the extent, storage capacity, quality and yield of groundwater in these two aquifer systems, both aquifers in the vicinity of the proposed modification are not highly productive and are “less productive aquifers” according to the *Aquifer Interference Policy* (AIP) (NOW, 2012).

AGE indicates that the proposed modification has the potential to impact on groundwater resources by:

- increasing mine inflows and associated groundwater drawdowns;
- reducing baseflows to local creeks;
- impacting groundwater quality; and
- impacting goundwater dependent ecosystems.

In relation to mine inflows, AGE indicates that the proposed modification will result in a negligible increase in seepage rates to the mine and correspondingly ‘nil’ impact on the surrounding groundwater regime. This conclusion was reached based on available data which indicates that the mined sequence is essentially “dry” in a large area of the proposed modification, either naturally or from historical dewatering at the Ulan Coal Mine. It is noted that there have not been any measurable inflows of groundwater to OC1 during current operations.

MCM currently holds a mine dewatering licence under the *Water Act, 1912* for 150 ML/year to account for the predicted maximum inflows for the approved Stage 1 and proposed Stage 2 operations. This is considered adequate to account for any incidental inflows associated with the proposed modification.

AGE indicates that there are 130 registered bores and wells within 10km of the project area. The closest of these bores is located to the west and south-west are installed within groundwater bearing strata distant to and hydraulically not connected to the proposed extension areas. It was therefore concluded that no privately owned bores would have the potential to be impacted by the modification.

In relation to baseflows, AGE indicate that proposed extension areas would not intersect any alluvium associated with Moolarben Creek. The extension areas have greater than 170 meters separation from alluvium to the west and greater than 300 meters separation from alluvium to the south. AGE therefore concludes that the there would be negligible alluvial water take from the proposed modification.

It is noted that previous groundwater modelling associated with the Stage 2 project (RPS Aquaterra, 2011) indicated that mining associated with the combined Stage 1 and Stage 2 projects would have a maximum effect of 5.5 ML/year reduction in baseflow to Moolarben Creek and a total maximum effect of 7ML/year for the Goulburn River water supply. MCM is in the process of purchasing a 9ML/year water licence under the *Water Management Act, 2000* for predicted baseflow reductions within the Upper Goulburn River Water Source. According to the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009* (HUAWSP), there are 1,661 unit shares (ML) in the Upper Goulburn River Water Source, which provides sufficient market depth to secure the required 7ML/a water licence, and allow for a 2 ML/year contingency to account for any minor loss of baseflow associated with the proposed modification.

In relation to groundwater quality, AGE indicates that previous studies have indicated that dewatering due to pit development is predicted to reduce the volumes of baseflow to local streams. This effectively reduces the discharges of more saline groundwater into the streams. It is therefore considered improbable that the proposed modification would increase stream salinity. NOW agrees with this conclusion.

In relation to groundwater dependent ecosystems, AGE indicates that the only significant seep/spring within the locality is ‘the Drip’. As indicated in Section 5.2, the proposed modification will not cause any impact on this feature as it is considered a perched aquifer system that would be “isolated” hydraulically from any drawdown effects due to mining in the long term.

NOW accepts that the proposed modification meets the Level 1 minimal impact consideration criteria of the AIP, as it:

- would not result in a decline of more than 2 m in the water table or water pressure at any water supply work (ie. bore); and
- would not increase by more than 1% average salinity in a highly connected surface water source.

As the proposed modification meets the Level 1 minimal impact considerations of the AIP, the groundwater impacts are defined as acceptable.

NOW has also indicated that the existing groundwater monitoring network, which consists of approximately 60 bores, is considered sufficient to monitor the groundwater levels and quality effects of the proposed modification.

Both NOW and the Department are satisfied that the groundwater impacts associated with the proposed modification are negligible, and that any minor mine inflows or reductions in baseflows can be offset by existing licences.

Conclusion
The Department are satisfied that proposed modification would not significantly impact local and regional groundwater and surface water resources.

The EPA and the Department are satisfied that implementation of the upgraded surface water management system is necessary and would result in a significantly improved surface water management system.

MCM is required to update the existing approved Water Management Plan to reflect the proposed modification within three months of approval of this modification.

5.4 Other Issues

The project is likely to generate a range of other environmental impacts – including air quality, blasting, Aboriginal and cultural heritage, visual, transport, socio-economic, greenhouse gases and waste. However, as indicated in **Table 6**, these impacts are not predicted to be significant, and the Department is satisfied that they can be controlled, mitigated or managed through existing and/or additional conditions of approval.

Table 6: *Assessment of Other Impacts*

Issue	Consideration and Assessment	Recommendation
Air Quality	• The EA includes an Air Quality & Greenhouse Gas Impact Assessment (AQIA), which was undertaken by Todoroski Air Sciences. An addendum to this AQIA was prepared as part of the RTS to assess the potential air quality impacts associated with the construction of the surface water management infrastructure upgrades in the vicinity of the rail loop and CHPP areas. • In order to present the worst-case air quality predictions, the AQIA (and the addendum) included the proposed Stage 2 operations as well as the existing Stage 1 and proposed Stage 1 modifications into the modelling. • Several public and special interest group submission questioned the validity of the model given the different results when compared to the Stage 2 predictions. In its response, MCM note that the differences are due to the use of more advanced modelling approach for the modification, which better represents winds blowing along valleys and winds that are blocked by terrain. EMM indicated that the approach used represents the most up to date and accurate method for modelling dust effects. The EPA did not raise any concerns in relation to the modelling methodology used for the modification. • UCML raised concerns relating to cumulative 24-hour impacts for receptors to the west of Moolarben. In its response, MCM indicated that it is almost impossible for the two mines (Ulan and Moolarben) to have an impact in the one location on the same day, as the mines would be along different wind axes on the same day. The Department agrees with this response. • The AQIA indicates that the dust levels predicted for the modification are below all the existing approved dust emission criteria for the mine. The addendum indicates that there would be no discernable change in these predictions at any sensitive receptors as a result of the surface water infrastructure upgrade works. • Ambient air quality monitoring results from the existing air quality monitoring network [which includes 2 high volume air samplers, 3 tapered element oscillating microbalances (TEOMs) and 9 dust deposit gauges] shows that no exceedances of any air quality criteria have been recorded since the commencement of operations at Moolarben. • The EPA notes that PM_{10} maximum 24-hour average concentrations above 30 $\mu g/m^3$ have historically triggered concerns from residents in the Ulan area. The AQIA predicts several residents will experience PM_{10} cconcentrations above this level throughout the life of the mine. To minimise impacts, MCM committed to continuing to implement best practice dust management and mitigation measures for the modification inline with the existing approved Air Quality Management Plan. It is noted that the AQMP has recently been updated to include an additional TEOM to the south-west of the mine, in accordance with EPA's recommendation. • The Department is satisfied that the modification would not result in significant increases in dust levels beyond those already approved and that these can be managed appropriately under the existing AQMP.	Update existing conditions to reflect contemporary conditions.
Blasting	• The EA includes a Noise & Vibration Impact Assessment (NVIA), which was undertaken by EMM and includes a blasting assessment of the proposal. • The NVIA indicates that the distances from the OC1 and OC2 extension areas to the locations that were assessed in previous studies (which showed compliance with existing criteria) are representative, and therefore the blast criteria and impacts associated with the modification would be unchanged to those already approved.	Update existing conditions to reflect contemporary conditions.

Issue	Consideration and Assessment	Recommendation
	• The NVIA also indicates that the blast elevation in the proposed extension areas is unlikely to increase vibration and overpressure levels, as elevated areas are typically set-back from the site boundaries nearest the assessment locations. • The Department notes that the Stage 1 operations have shown that blast vibration and overpressure levels can be readily managed to meet the applicable criteria by reducing maximum instantaneous charge and applying other standard blast management techniques. • The Department is satisfied that the modification would have similar impacts to those already approved and that these can be appropriately managed under the existing Blast Management Plan.	
Aboriginal and Cultural Heritage	• The EA includes an Aboriginal Cultural Heritage Assessment (ACHA), which was undertaken by South East Archaeology Pty Ltd (SEA). • The ACHA included additional field surveys of the proposed extension areas and consultation with the Aboriginal community, which was undertaken in accordance with the Interim Community Consultation Requirement for Applicant (DEC, 2044). • OEH requested clarification in relation to the consultation undertaken with the registered Aboriginal parties. This was provided in the RTS and MCM's supplementary response provided in **Appendix F**. • The ACHA did not identify any historically significant heritage items within the modification areas. • The ACHA identified a total of 33 Aboriginal sites, including PADs, in the extension areas. An additional 2 sites were identified in the surface water infrastructure area. All sites were open artefact sites or rock shelters. • The modification would either result in direct impacts to the sites from disturbance associated with mining or construction of the surface water infrastructure, or indirect impacts from associated activities such as blasting. • SEA identified all the sites as being of low regional and local significance, with the exception of two rock shelter sites with artefacts (S1MC331 and S1MC344) and one rock shelter with a PAD (S1MC343), which were assessed as being of moderate local significance. By extension, SEA indicated that the cumulative impacts of the proposed modification within a regional context would also be very low. • To minimise potential impacts, SEA recommended that one of the sites (SIMC331) be test excavated and potentially salvaged and that blasting impacts be assessed on another two sites (S1MC343 and S1MC344) and sub-surface testing and salvage be implemented if it is predicted that the sites would be affected. • SEA also recommended that an area of 10 ha (as identified on Figure 10 of Appendix F of the EA) of land within the OC1 extension area that was not surveyed, as well as areas adjacent to the extension areas that may be subject to indirect impacts due to blasting, be surveyed prior to any impacts occurring and appropriate management strategies be implemented for any previously unrecorded sites. • The Department has recommended conditions to ensure these management measures and surveys are implemented. • MCM committed to updating the existing Heritage Management Plan (HMP) to include the additional sites identified in the ACHA and the management measures recommended by SEA. • Several special interest group and one public submission expressed concerns about the cumulative destruction of Aboriginal sites in the region. The ACHA found that no specific aspect of the identified archaeological evidence and cultural values within the modification areas is rare or unique at a local or regional context. • The Department also notes that significant conservation areas in the vicinity of the project, including the Munghorn Gap Nature Reserve and the Goulburn River National Park, are likely to contain similar and representative heritage evidence to that identified within the modification areas. • The Department is satisfied that the proposed modification would not have a significant impact on the Aboriginal or cultural heritage values of the locality or region, and notes that MCM will be required to update the existing approved HMP to incorporate the appropriate management requirement for the additional Aboriginal sites identified.	MCM implemented the management measures and additional surveys recommended by SEA and that the existing conditions relating to heritage be updated to reflect contemporary conditions.
Visual	• The EA includes a comprehensive Visual Impact Assessment (VIA), which was undertaken by EMM. • The VIA assessed the level of visual and light impact at 12 viewpoints as a result of the proposed modification. • The VIA assessed the majority of the viewpoints as being slightly to moderately impacted by the modification. The residences located along the northern end of Ridge Road would experience the most significant visual impacts. These residences would have direct views to the extension areas, with no topographical or vegetative elements to assist in screening. • Views to the OC1 operations would be experienced for approximately 6 years, while views to the OC2 operations would be present for up 10 years. • MCM has committed to implementing a range of mitigation measures to reduce visual impacts associate with the modification. These include progressive rehabilitation of disturbed areas, building up out-of-pit emplacement areas to minimize direct views and screening in the form of foreground and mid-ground tree and shrub planting. Planting is proposed along the southern edge of Cope Road and at properties on Ridge Road, which would have direct views to the extension areas. • Several special interest group and public submissions raised concerns about the	Include conditions requiring MCM to implement mitigation measures, at residences that have significant direct views to the mine operations, to minimise visual impacts associated with the modification.

Issue	Consideration and Assessment	Recommendation
	predicted visual impacts, and questioned the feasibility and the proposed mitigation measures. • The Department does not consider MCM's proposed mitigation measures to be adequate, and believe that MCM should also be required to implement additional visual impact mitigation measures (such as landscaping treatments or vegetation screens) at residences that have significant direct views of the mining operations and infrastructure, at the request of the landowner. • The Department has recommended a condition to ensure this occurs, and is satisfied that this would adequately reduce the visibility of the mining operations from the residences in the medium to longer term.	
Transport	• The EA indicates that the proposed extension of the mining areas would not result in an increase in the number of road or rail movements beyond those currently approved. • The RTS indicates that the proposed upgrades of the surface water management system would result in minor short-term increases in heavy and light vehicle movements during the 6 month construction period. The worst-case construction traffic would be an additional 14 heavy vehicle movements and 8 light vehicle movements per day, which attributes to a 1% increase in existing traffic volumes. • The Department is satisfied that this increase is negligible. • The Department notes that both Ulan and Wilpinjong Coal Mines are required under their Project Approvals to prepare and implement the Ulan Road Strategy (URS), in conjunction with MCM. The Director-General approved the URS in May 2013. Implementation of the URS involves upgrade of Ulan Road and the intersections and maintenance over a 20 year period. The works are to be jointly funded by the three mines and Council. The mines and Council are currently preparing a binding commercial agreement necessary to deliver the works.	MCM to implement to commercial agreement necessary to deliver the Ulan Road upgrade and maintenance works specified in the URS.
Socio-economic	• The EA indicates that the proposed modification would not change the existing number of full-time workers at the mine (currently 317), and that the proposal would therefore not place additional pressure on the existing infrastructure or services in the local area. • The EA includes an Economic Assessment, which was undertaken by Gillespie Economics Pty Ltd. The Economic Assessment includes a benefit cost analysis (BCA) which was undertaken in accordance with the NSW Government's draft *Guideline for the use of Cost Benefit Analysis in mining and coal seam gas proposals* (2012). • The BCA analysed the trade-off between the net production benefits of the proposed modification and the potential environmental impacts (including Stae 1 and Stage 2). The net production benefits of the proposed modification to Australia are estimated at $188M or $227M when non-market employment benefits are considered. • Several special interest group and community submissions contended that the Economic Assessment did not adequately assess the costs of the environmental impacts associated with the proposed modification. • In its response, MCM indicated that the water and groundwater assessments did not identify any significant decline in water quality or quantity as a result of the modification and that appropriate licences will be held to account for water take; the predicted biodiversity impacts would be offset in accordance with NSW government policy; and an economic value was placed on greenhouse gas emissions, visual and noise impacts. • The Department is satisfied that the proposed modification would result in the continued social and economic benefits to the Australian economy.	No additional conditions necessary.
Greenhouse Gases	• The EA includes an AQIA, which was undertaken by Todoroski Air Sciences. • The AQIA indicates that the annual contribution of greenhouse gas emissions from the proposed modification is approximately 0.09 $MtCO_2$-e. • This is equivalent to approximately 0.055% of the greenhouse emissions in NSW during 2009/2010 and 0.016% of the greenhouse emissions in Australia during 2011/2012. • The AQIA indicates that greenhouse gas emissions predicted to be generated by the modification is a very small proportion of the state and national emissions. • MCM commit continue to implement a range of measures to reduce greenhouse gas emissions associated with the modification, including improving energy usage and efficiency. • The Department notes that, as of 1 July 2011 MCM is required to offset its Scope 1 emissions through the recently legislated carbon tax as per the provisions of the *Climate Change Authority Act 2011*. • The Department accepts that the GHG emissions predicted to be generated by the project are minor, on a state and national scale and that they can be reduced appropriately under the existing AQMP.	Update existing conditions to reflect contemporary conditions.
Waste	• The EA includes an assessment of the non-mineral and mining wastes predicted to be generated by the modification. • The type of wastes generated and their management will not change under the proposed modification. • MCM has committed to continuing to implement a hierarchy waste management system, which focuses on avoidance, reduction, reuse and recycling of waste streams. MCM notes that the existing target to reuse and/or recycle a minimum of 70% of all general solid waste material generated during the operation of the project, will continue to apply under the proposed modification. • The Department is satisfied that the wastes generated by the modification can be appropriately managed under the existing Waste Management Plan.	No additional conditions necessary.

6 RECOMMENDED CONDITIONS

The Department has drafted recommended conditions for the modification to address the recommendations made in Section 4 above. A copy of the notice of modification is provided in **Appendix I** and the consolidated version of the project approval as it is proposed to be modified is provided in **Appendix J**.

Although the existing approval has been modified on 8 occasions, it is out-of-date when compared with contemporary open cut and underground mining approvals. Consequently, the recommended conditions are quite extensive with the aim of modernising most aspects of the existing approval.

The Department has recommended that the existing conditions in relation to subsidence remain unchanged. It is proposed that conditions in relation to subsidence would be updated if the Stage 2 (and Stage 1 MOD3) project is approved.

MCM has reviewed and accepted the Department's proposed conditions.

7 CONCLUSION

The Department has assessed the modification application and associated EA in accordance with the relevant requirements of the EP&A Act, including the objects of the Act and the principles of ecologically sustainable development.

The Department is satisfied that approval of the modification would allow access to significant additional coal reserves (around 30 Mt which is equivalent to 23% of the total Stage 1 coal reserves) that are located within an approved mine, which is in the middle of one of the biggest mining complexes in the State outside the Hunter Valley.

In addition to maximizing resource utilisation, the modification would improve mining efficiencies and operations in the open cuts and to provide a longer life for the mine.

With the implementation of a significant biodiversity offset, the Department is satisfied that mining the extension areas can be undertaken with minimal impact on the environment or the community.

The Department is also satisfied that the proposed upgrades to the surface water management system are necessary and would result in significantly reduced risks of uncontrolled water discharges from the mine.

Finally, the Department is satisfied that the proposal would generate economic benefits for both the State and the region by ensuring continued direct employment for at least 317 employees, attracting total net production benefits of around $188 million, and generating significant royalties for the State Government.

Consequently, the Department is satisfied that the proposed modification is in the public interest and should be approved, subject to conditions.

8 RECOMMENDATION

It is RECOMMENDED that the Director, Mining & Industry, as a delegate to the Minister for Planning and Infrastructure:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approve** the application to modify the project approval, subject to conditions, under section 75W of the EP&A Act; and
- **sign** the attached notice of modification (**Appendix I**).

6/2/14

David Kitto
Director
Mining Projects

7.2.14

Chris Wilson
Executive Director
Development Assessment Systems & Approvals

APPENDIX A

ENVIRONMENTAL ASSESSMENT

Refer to the following Department of Planning & Infrastructure website link:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5983

APPENDIX B

SURFACE WATER INFRASTRUCTURE UPGRADES REPORT

Moolarben Coal Operations Pty Ltd Stage 1 Open Cut & CHPP Water Management Assessment and Upgrade Report (Arkhill Engineers, October 2012)

Refer to the following Department of Planning & Infrastructure website link:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5983

APPENDIX C

CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007 (Mining SEPP) requires the consent authority to consider number of matters prior to granting development consent:

1. Clause 7 (1) (b) of the Mining SEPP makes mining permissible with consent on any land where development for the purposes of agriculture or industry may be carried out (with or without development consent). Consequently, the proposed development is permissible with consent, and the consent authority may determine the application.
2. Part 3 of the Mining SEPP requires the consent authority to consider the following:
    a. compatibility of the proposal with other land uses;
    b. natural resource management and environmental management;
    c. resource recovery;
    d. road transport; and
    e. rehabilitation.

The Department has fully considered all of these matters in its merit assessment (see Section 5 of this report). Having considered these matters in detail, the Department is generally satisfied that the proposed modification can be undertaken in a manner that is generally consistent with the matters for consideration under Part 3 of the Mining SEPP.

SEPP (Infrastructure) 2007

The SEPP requires a consent authority to notify relevant public authorities about developments that may affect public infrastructure or public land. The Department has notified Roads and Maritime Services (RMS) and Mid-Western Regional Council. Neither of these authorities objected to the proposed modification, and any recommendations made by these authorities have been considered by the Department, and incorporated into the conditions of consent where appropriate. This satisfies the requirements of *SEPP (Infrastructure) 2007*.

SEPP No.33 – Hazardous and Offensive Development

The EA for the modification concluded that the project would not result in offsite hazardous impacts as all hazardous incidents would be confined and the location of open cut workings and site explosive magazines include a sufficient buffer from the site boundary.

Consequently, the Department is satisfied that the proposed modification does not pose a credible risk under SEPP 33 to surrounding land uses, and is therefore consistent with the aims, objectives, and requirements of SEPP 33.

SEPP No.44 – Koala Habitat Protection

The SEPP requires a consent authority to consider the presence of any core or potential koala habitat. The EA includes a detailed ecological impact assessment which found that there are no core koala habitat areas. However, there is potential koala habitat within the project area due to the presence of feed tree species. SEPP 44 does not prevent a consent authority granting consent to a development that is located in potential koala habitat.

In this case, the Department notes that the proposed development would not result in any significant impacts on potential koala habitat. As such, the proposed development is not inconsistent with the aims, objectives, and requirements of SEPP 44.

SEPP No.55 – Remediation of Land

The SEPP requires the consent authority to consider whether or not land associated with the project is contaminated. The EIS has identified that there are no known contamination issues affecting the project area. The Department notes that potential contamination may exist as a result of past land use activities. However, SEPP 55 does not prevent a consent authority granting consent to a development on land that may potentially be contaminated. The Department is satisfied that any contaminated land uncovered during the construction or operation stages of the project would be appropriately managed. The Department is therefore satisfied that the project is generally consistent with the aims, objectives, and provisions of SEPP 55.

APPENDIX D

SUBMISSIONS

Refer to the following Department of Planning & Infrastructure website link:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5983

APPENDIX E
RESPONSE TO SUBMISSIONS

Refer to the following Department of Planning & Infrastructure website link:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5983

APPENDIX F

NOISE REVIEWS

See attached CD ROM.

APPENDIX G

MCM's RESPONSE TO OEH's COMMENTS ON BIODIVERSITY

See attached CD ROM.

APPENDIX H

WATER BALANCE ADDENDUM

See attached CD ROM.

APPENDIX I

NOTICE OF MODIFICATION

APPENDIX J

CONSOLIDATED PROJECT APPROVAL