

January 2012

# MOOLARBEN COAL

P R O J E C T S T A G E 2

Preferred Project Report

VOLUME 1



Hansen Bailey  
ENVIRONMENTAL CONSULTANTS

  
**MOOLARBEN COAL**  
[www.moolarbencoal.com.au](http://www.moolarbencoal.com.au)

# MOOLARBEN COAL PROJECT STAGE 2

## PREFERRED PROJECT REPORT

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January 2012

*For:*

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## PREFERRED PROJECT REPORT STATEMENT

### Submission of Preferred Project Report (PPR)

Under Section 75H of the *Environmental Planning and Assessment Act 1979*

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**Prepared by**

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In Respect Of

Moolarben Coal Project Stage 2

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Proponent Name

Moolarben Coal Mines Pty Limited

Proponent Address

PMB 8, Ulan Road,

MUDGEE NSW 2060

Land to be Developed

See **Appendix 1A** of the Stage 2 EA.

Proposed Development

Development and operation of Stage 2 of the Moolarben Coal Project and associated activities as outlined in **Section 3** of this PPR.

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Environmental Assessment

The environmental assessment of the Moolarben Stage 2 Preferred Project is contained in this PPR.

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Certification

I certify that I have read and am aware of the terms of the *Expert Witness Code* of the Land & Environment Court of NSW. I further certify that I have prepared the contents of this EA, and to the best of my knowledge:

- It is in accordance with Sections 75E and 75F of the *Environmental Planning and Assessment Act 1979*;
- It contains all available information that is relevant to the environmental assessment of the activity to which the statement relates; and
- The information contained in the statement is neither false nor misleading.

Signature



Name

James Bailey

Director

Date

24 January 2012

## EXECUTIVE SUMMARY

### BACKGROUND

Moolarben Coal Mines Pty Limited operates Stage 1 of the Moolarben Coal Project located in the Western Coalfields of NSW, approximately 40 km north of Mudgee. Stage 1 operates under Project Approval 05\_0117 (as modified) and comprises three open cut mines: Open Cut 1, Open Cut 2, and Open Cut 3; a longwall underground mine: Underground 4; and mining related infrastructure (including coal processing and transport facilities). Stage 1 was approved by the Minister for Planning in September 2007.

In 2008, Moolarben Coal Mines Pty Limited lodged Project Application (08\_0135) under Part 3A of the *Environmental Planning & Assessment Act 1979* seeking major Project Approval for the development and operation of Stage 2 of the Moolarben Coal Project. Stage 2 comprises an open cut mine: Open Cut 4; two underground coal mines: Underground 1 and Underground 2; and some additional associated infrastructure. These will be developed adjacent to Stage 1 and will operate in conjunction with and utilise the Stage 1 infrastructure (including the Stage 1 approved coal processing and transport facilities). The application seeks to develop and operated Stage 2 for a period of 24 years.

In conjunction with the Stage 2 project application, Moolarben Coal Mines Pty Limited has also applied to modify Stage 1 (Project Approval 05\_0117) to enable Stage 1 and Stage 2 to be operated as an integrated mining complex – the Moolarben Coal Complex. It is proposed that employees, equipment, infrastructure and facilities will be shared across the mining complex. The Stage 1 modification application seeks approval for Stage 1 to accept, process and export Stage 2 coal for up to 24 years.

An Environmental Assessment for Stage 2 and the modification of Stage 1 (05\_0117 MOD 3) was exhibited between 18 March 2009 and 29 April 2009 (Wells Environmental Services and Coffey Natural Systems 2009).

Since exhibiting the Stage 2 Environmental Assessment, Moolarben Coal Mines Pty Limited has made changes to the proposed layout and design of Stage 2. These changes are required (i) to address issues raised by the Department of Planning and Infrastructure and its independent technical reviewers in their assessment of the Stage 2 Environmental Assessment; (ii) to introduce additional impact avoidance measures for the Project; and (iii) to enable the effective integration of Stage 2 with Stage 1, following Stage 2 project amendments and recent approved Stage 1 infrastructure layout changes. The changes to Stage 2 include:

- A revised disturbance footprint and open cut mine sequence, including relocating Out-of-Pit emplacement areas to reduce Stage 2 related impacts;
- Relocating Stage 2 Run of Mine coal handling facilities to be adjacent to Open Cut 4 and replacing truck haulage of Open Cut Run of Mine coal from Open Cut 4 to the Stage 1 Run of Mine coal handling facilities with a dedicated overland conveyor; and
- Relocating Stage 2 surface facilities and site access to be closer to the northern end of Open Cut 4.

As a result of these changes, Moolarben Coal Mines Pty Limited has revised and updated:

- The Stage 2 project description;
- A number of the technical impact assessment reports; and
- Its Statement of Commitments.

These Stage 2 project changes are described in the accompanying Preferred Project Report, which has been prepared at the request of the Director General of Department of Planning and Infrastructure under Section 75H 6(b) of the *Environmental Planning & Assessment Act 1979*.

This Preferred Project Report replaces specific studies conducted for the Stage 2 Environmental Assessment including: air quality; noise; groundwater and site water balance. Additionally, further information or clarification is provided in response to issues raised in public and regulatory submissions on the Stage 2 Environmental Assessment, including: Biodiversity Offsets; Rehabilitation; Diversion design of Murrumbidgee and Eastern Creeks; Subsidence; and Aboriginal Archaeology and Cultural Heritage.

Moolarben Coal Mines Pty Limited also seeks approval under Section 133 of the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* for Stage 2. The Project was determined to be a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* and is being assessed under an accredited assessment process between the State and Federal Governments.

This Preferred Project Report provides additional information to enable the Project Application 08\_0135 and Environment Protection and Biodiversity Conservation Referral (No 2008/4444) to be determined as per State and Federal requirements.

On 1 October 2011, Part 3A of the *Environmental Planning & Assessment Act 1979* was repealed. Notwithstanding, Schedule 6 of the Act and Part 1A of the *Environmental Planning and Assessment Regulations 2000* provides transitional provisions for project applications made under Part 3A of the Act, prior to that part being repealed. Consequently, Project Application 08\_0135 and the modification application to Project Approval 05\_0117 will still be assessed and determined under the (now repealed) provisions of Part 3A.

Where there is any inconsistency between the Stage 2 Environmental Assessment and the Preferred Project Report, then this document will take precedence for the purposes of the intent of the inconsistency.

## PREFERRED PROJECT

The purpose of this Preferred Project Report is to support the application for Project Approval for Stage 2 of the Moolarben Coal Project and its integration with Stage 1 operations under Part 3A of the *Environmental Planning and Assessment Act 1979*. Approval of the Preferred Project is sought to enable the development of a 24 year open cut and underground coal mine and its associated infrastructure.

Specifically, the Preferred Project will consist of:

- The construction and operation of an open cut mining operation (Open Cut 4) extracting up to 12 Million tonnes per annum Run of Mine coal and up to 13 Million tonnes per annum combined rate with the Stage 1 open cut mines;
- The construction and operation of two underground mine operations (Underground 1 and Underground 2) extracting up to 4 Million tonnes per annum Run of Mine coal cumulative with the Stage 1 underground mine;
- The construction and operation of the Stage 2 Run of Mine coal facility;
- Extension of the use of the existing approved Stage 1 Coal Handling and Preparation Plant to Year 24 of Stage 2 and increased throughput of up to 17 Million tonnes per annum Run of Mine coal (13 Million tonnes per annum open cut and 4 Million tonnes per annum underground);
- The development of the Northern Out-of-Pit emplacement area;

- The construction and operation of two conveyors and associated facilities between the Stage 2 Run of Mine coal facility and Stage 1 Coal Handling and Preparation Plant;
- The construction and operation of a Mine Access Road;
- The construction and operation of administration offices, workshops and related facilities;
- The diversion of Murragamba and Eastern Creeks;
- The construction and operation of water management infrastructure; and
- The installation of supporting power and communications infrastructure.

### **IMPACTS AND MITIGATION**

The following sections are provided as an overview of the technical assessments of the Preferred Project and where applicable, the cumulative impacts of the Moolarben Coal Complex.

#### **Air Quality**

The independent consultant PAEHolmes completed an Air Quality Impact Assessment for the Preferred Project which replaces in full the Stage 2 Environmental Assessment air quality assessment.

To assess the effect that dust emissions will have on existing air quality, the dispersion model predictions for the indicative worst case modelled years (Year 2, Year 7, Year 12, Year 16 and Year 24) have been compared with relevant air quality criteria.

The results from the dispersion modelling indicate that the Moolarben Coal Complex considered alone, and with other sources (e.g. adjacent mines), is predicted to contribute to some exceedances of air quality criteria at a number of private residences or over more than 25% of a contiguous vacant private landholding.

The Air Quality Impact Assessment concludes that relevant assessment criterion for annual average total suspended particulates or annual depositional dust for the Preferred Project alone and on a cumulative basis will not be exceeded at any private residence. While one private residence is predicted to experience 24 hour PM<sub>10</sub> levels greater than the relevant criterion and two private landholdings are predicted to experience annual average PM<sub>10</sub> levels greater than the relevant criterion, air quality criteria will not be exceeded at any privately owned property which is not already subject to acquisition upon written request under the existing Stage 1 Project Approval (05\_0117).

In addition to the mitigation and management measures proposed in the Stage 2 Environmental Assessment, the Preferred Project will further contribute to minimising the environmental impacts.

Air quality management and minimisation practices will be implemented to ensure that the Moolarben Coal Complex does not exceed relevant air quality criteria at any other privately owned property.

#### **Greenhouse Gas**

PAEHolmes completed a Greenhouse Gas Assessment for the Preferred Project. Scope 1, scope 2 and scope 3 emissions were considered in the assessment of carbon dioxide, methane, nitrous oxide and other relevant gases.

Greenhouse gas emissions from the Preferred Project including mining, transporting to the Port of Newcastle and end use of the coal are predicted to be 23,701,709 tonnes of carbon dioxide equivalent per annum. The greenhouse gas assessment in Section 5.2 of the Stage 2 Environmental Assessment predicted combined Scope 1, 2 and 3 annual emissions of 29,585,000 (t CO<sub>2</sub>-e).

The 5,883,291 (t CO<sub>2</sub>-e) reduction in CO<sub>2</sub>-e emissions from the Preferred Project results from the use of site specific methane data, an improved resource definition, and from enhanced the mitigation and management measures adopted for the Preferred Project.

Moolarben Coal Mines Pty Limited will implement all feasible and reasonable measures to minimise the greenhouse gas emissions of the Preferred Project and ensure it is energy efficient. It will also contribute to research into low emission coal technologies, improved energy use and efficiency and ensure that preventative maintenance is undertaken on plant equipment. From 1 July 2012, Moolarben Coal Mines Pty Limited will need to comply with the requirements of the (Commonwealth) *Climate Change Authority Act 2011*.

### **Noise**

Global Acoustics Pty Ltd conducted a Noise Impact Assessment which replaces in full the noise assessment carried out for the Stage 2 Environmental Assessment and includes consideration of construction and operational mining noise, road traffic noise, sleep disturbance and low frequency noise for the Moolarben Coal Complex.

Predicted noise levels at receivers for construction as well as operations using indicative mine plans for Year 2, Year 7, Year 12, Year 16, Year 19 and Year 24 of the Moolarben Coal Complex were calculated using Renzo Tonin and Associates Technology's Environmental Noise Model. The noise model for the Moolarben Coal Complex was specifically calibrated against measured noise levels from existing Stage 1 operations.

The calibrated noise model was then used to refine the proposed sequence of mine operations across the Moolarben Coal Complex to ensure noise emissions from the site will be minimised to the greatest extent practically possible, ensuring viable mining operations are maintained.

Model iterations were run to consider variations in operational equipment, bund heights, strip orientation, and various day and night time operational scenarios with Stage 1.

In total, the calibrated noise model predicts minor (i.e. 1 to 2 dB) exceedances at 16 private residences, moderate (i.e. 3 to 5 dB) exceedances at 11 private residences and significant (i.e. > 5 dB) exceedances at two private residences, above Stage 1 Project Specific Noise Criteria under worst case meteorological conditions (i.e. noise enhancing conditions) due to Moolarben Coal Complex operations. In addition, seven private properties have been predicted to receive noise levels less than 5 dB above Project Specific Noise Criteria and two private properties have been predicted to receive noise levels in excess of 5 dB above Project Specific Noise Criteria over more than 25% of the contiguous landholding.

Moolarben Coal Mines Pty Limited has committed to develop a Noise Management Plan for the Moolarben Coal Complex for consideration by the relevant regulators prior to the determination of Project Approval for the Preferred Project. The Noise Management Plan will incorporate all the noise management and mitigation related commitments outlined in the Preferred Project Report, including limiting coal extraction and coal haulage in approved Stage 1 Open Cut 2 and Open Cut 3 to the day period only.

Moolarben Coal Mines Pty Limited has also continued to engage with surrounding private landowners predicted to experience noise emissions from the Moolarben Coal Complex above Project Specific Noise Criteria in order to communicate the predictions of the noise modelling and provide detail on the mine's commitments to minimise noise emissions from the Moolarben Coal Complex at these residences.

When compared to the Project assessed in the Stage 2 Environmental Assessment, the Moolarben Coal Complex, incorporating the Preferred Project, provides for improved noise impact assessment and mitigation and management through use of a calibrated noise model.

## **Blasting**

Global Acoustics conducted a Blast Impact Assessment for the Moolarben Coal Complex. This assessment replaces in full the blast assessment carried out for the Stage 2 Environmental Assessment.

The Blast Impact Assessment reviewed overpressure and blast vibration monitoring data recorded for Stage 1 operations to provide an indication of the likelihood of achieving ongoing compliance for the Moolarben Coal Complex. Notwithstanding, the location of blasting in Open Cut 4 will be further removed from private residences than currently exists for Stage 1 operations.

The Blast Impact Assessment predicts there will be no exceedance of blasting criteria at any private residence.

## **Groundwater**

RPS Aquaterra has revised the Stage 2 Environmental Assessment Groundwater Impact Assessment to account for the Preferred Project, recent approvals for the Ulan and Wilpinjong coal mines, the Stage 1 Regional Groundwater and Surface Water Study (Aquaterra 2009), previous Stage 2 Environmental Assessment Response to Submissions and issues raised in the independent peer review of the Stage 2 Environmental Assessment. The groundwater assessment replaces in full the Groundwater Impact Assessment carried out for the Stage 2 Environmental Assessment.

The most significant impacts to groundwater levels are predicted to occur within the Permian coal measures, specifically within the Ulan Seam.

Drawdowns of 5 m or more due to the Moolarben Coal Complex are predicted to extend to approximately 13 kilometres in the lower Permian, and 8 to 9 kilometres in the middle and upper Permian to the north and east of the Stage 1 Underground 4 mine at the completion of mining. The groundwater assessment found that the Moolarben Coal Complex will not impact on the Drip.

A number of existing groundwater users have been identified within a 10 kilometre radius of the Moolarben Coal Complex. Five registered bores completed in the Triassic are predicted to experience small impacts from the Moolarben Coal Complex, the maximum predicted drawdown being 0.6 m.

The groundwater model predicts a decrease in baseflow to Wilpinjong Creek in areas adjacent to Open Cut 4. Baseflows in Wilpinjong Creek upstream of the Murragamba Creek confluence are predicted to reduce by 16.8 megalitres per annum, of which 6.2 megalitres per annum is predicted to be attributable to the Moolarben Coal Complex.

Goulburn River, Moolarben Creek and Lagoon Creek baseflow impacts were addressed in the Stage 1 Environmental Assessment. No additional baseflow impacts on these water sources are predicted to occur as a result of the Preferred Project.

Over the life of the Moolarben Coal Complex, groundwater inflows into all mine voids is predicted to vary from a minimum of 204 megalitres in Year 2 to a maximum of 1,037 megalitres in Year 24.

Modelling of groundwater level recovery shows water levels in the Ulan Seam and overlying Permian formations will recover to at least, and in many cases above, present (2011) levels. After a recovery period of 100 years, groundwater levels in all the main hydrogeological units are predicted to recover to at least (and often higher than) the levels prevailing at the start of mining the Preferred Project.

There are no additional groundwater bores on private land predicted to be impacted by the Moolarben Coal Complex when compared to the approved Stage 1 Environmental Assessment and Stage 2 Environmental Assessment. No additional impacts are predicted to Groundwater Dependent Ecosystems and there are negligible changes to groundwater inflow to that predicted in the Stage 2 Environmental Assessment.

## Water Balance

WorleyParsons has completed supplementary surface water investigations including water balance modelling for the Preferred Project.

An analysis of the site water usage for Stage 1 has been used to develop a Run of Mine factor for the Moolarben Coal Complex based on Stage 1 operating conditions. A maximum deficit of 1,990 megalitres is predicted for the conservative dry weather climate scenario and a maximum surplus of 220 megalitres is predicted for the above average climate scenario with the inclusion of pumping from the Stage 1 approved Northern borefield.

Since exhibiting the Stage 2 Environmental Assessment, Moolarben Coal Mines Pty Limited has entered into a Water Sharing Agreement with Ulan Coal Mines Limited. This Agreement is for a minimum transfer of 1,000 megalitres of mine water per annum from the Ulan Coal Mine to the Moolarben Coal Complex. The agreement does not specify a maximum limit and Moolarben Coal Mines Pty Limited expects that it will be able to transfer additional mine water from the Ulan Coal Mine under the agreement for the foreseeable future. The Environmental Assessment for the Ulan Continued Operations Project (Umwelt 2009) indicated the minimum predicted annual mine water surplus for the Ulan Coal Mine is 3,001 megalitres. Notwithstanding other demands on this surplus water make, this clearly illustrates that an adequate water surplus is available at the Ulan Coal Mine to supplement the water demands of the Moolarben Coal Complex under the Water Sharing Agreement.

When considering available sources, there is sufficient water in all years under all modelled climate scenarios.

## Creek Realignment

A preliminary design for the proposed diversion of Murragamba and Eastern Creeks has been completed for the Preferred Project by WorleyParsons.

This design has been prepared at the request of the Department of Planning and Infrastructure following exhibition of the Stage 2 Environmental Assessment. No standalone creek realignment report was prepared for the Stage 2 Environmental Assessment.

Changes to the mine layout associated with the Preferred Project result in the avoidance of 2.7 kilometres of Murragamba Creek proposed to be disturbed in the Stage 2 Environmental Assessment. The avoidance of this section of creek also allows for the conservation of additional Aboriginal heritage sites and avoidance of clearing a Critically Endangered Ecological Community proposed to be impacted in the Stage 2 Environmental Assessment.

Moolarben Coal Mines Pty Limited will prepare and implement a Creek and Aquatic Rehabilitation Plan for the realignment of the creeks based on the design criteria outlined in the creek realignment report. This plan will describe the completion criteria for the creek realignments and the measures to be implemented for erosion and sediment control, flood management, remediation, and post-realignment monitoring.

## Biodiversity Offset Strategy

Cumberland Ecology has prepared a biodiversity offset strategy for the Preferred Project. This strategy replaces in full the biodiversity offset strategy proposed as part of the Stage 2 Environmental Assessment.

The Preferred Project will result in a disturbance footprint of approximately 1,546 hectares. This includes approximately 779 hectares of remnant native vegetation (non-threatened) and an additional 123 hectares of Box Gum Woodland and Derived Native Grassland listed as an Endangered Ecological Community under State legislation and (Critically) Endangered under Commonwealth legislation. The remaining areas of disturbance comprise secondary grasslands and heavily modified or existing cleared areas.

Moolarben Coal Mines Pty Limited proposes to offset these direct native vegetation clearing impacts by conserving approximately 3,074 hectares of native vegetation, of which approximately 568 hectares is Box Gum Woodland and Derived Native Grassland on three properties removed from mining impacts.

With the inclusion of additional land within the Project Boundary, a total of approximately 3,516 hectares of native vegetation, of which 620 hectares is comprised of Box Gum Woodland and Derived Native Grassland will be provided as an offset to Preferred Project impacts. This results in an overall offset of 3.9:1 for native vegetation and 5:1 for the (Critically) Endangered Ecological Community. This does not include mined land that will be rehabilitated back to native woodland, which equates to a further 1,546 hectares.

Compared to the Stage 2 Environmental Assessment, the Preferred Project will avoid impacts to a further 33.5 hectares of Box Gum Woodland and Derived Native Grassland (Critically) Endangered Ecological Community along with other reduced impacts to remnant vegetation, as well as a significantly enhanced Biodiversity Offset Strategy.

### **Subsidence**

Subsidence Engineering Consultants has revised the Stage 2 Environmental Assessment Subsidence Impact Assessment to account for Project changes and issues raised in the independent peer review of the Stage 2 Environmental Assessment.

The revised report for the Preferred Project replaces in full the Subsidence Impact Assessment in the Stage 2 Environmental Assessment. Surface subsidence predictions from that shown in the Stage 2 Environmental Assessment have not changed as a result of the Preferred Project.

The Preferred Project requires the Northern Out-of-Pit emplacement area, Stage 2 Run of Mine coal facilities and the conveyors between Stage 2 and Stage 1 Run of Mine coal facilities to be located above the Underground 1 mine.

A vertical subsidence of approximately 1.9 m is predicted following longwall mining at the natural surface under the Northern Out-of-Pit emplacement area. Additional settlement of the spoil emplacement of up to about 3 m due to the consolidation and lateral shifting of spoil material is further predicted following undermining of the Northern Out-of-Pit emplacement area.

Natural features located within the subsidence footprint of the Underground 1 and Underground 2 mines include low order drainage lines, rock outcrops, small cliff formations and vegetated steep slopes. Varying degrees of subsidence will impact these features causing additional ponding, fracturing of bedrock, rock fall and slope and gully erosion.

Public utilities located within or surrounding the area of potential subsidence disturbance include rail, roads, drainage culverts and power and telecommunication services. The Gulgong-Sandy Hollow rail line is located approximately 330 m from the northern end of Underground 1 and is therefore outside the area predicted to be affected by surface subsidence effects. There are no sealed roads within the area that will be impacted by surface subsidence. Murragamba Road runs over the northeast part of Underground 1 and will be used as the main access road to Open Cut 4. All other roads potentially impacted by the underground mines (including Carrs Gap Road which crosses over Underground 1) are either unused or unsealed access roads used by local land owners.

Murragamba and Carrs Gap roads will need to be closed to the public to permit mining of the Preferred Project. There is one low voltage powerline that passes over Carrs Gap above Underground 1. This is an unused powerline that will need to be decommissioned to permit mining of the Preferred Project.

A Subsidence Management Plan (or contemporary equivalent) including subsidence monitoring will be developed to ensure that the effects of subsidence on natural features are mitigated and that built features remain safe and serviceable during the operation of the Preferred Project.

## Aboriginal Heritage

An Aboriginal Archaeological and Cultural Heritage Impact Assessment was carried out by Archaeological Risk Assessment Services as part of the Stage 2 Environmental Assessment. A review of this Stage 2 assessment was undertaken by AECOM for the Preferred Project, including field validation.

Moolarben Coal Mines Pty Limited has continued to consult with all Aboriginal community stakeholders that have a registered interest in the Preferred Project to ensure that the Aboriginal community stakeholders are aware of the proposed changes to the Stage 2 Project.

A search of the Aboriginal Heritage Information Management System determined there were 415 archaeological sites within the Stage 2 Project Boundary and 56 in the immediate vicinity, a total of 471 archaeological sites. As the Project Boundary encompasses part of Stage 1, 144 of these sites were identified during the Stage 1 assessment and are managed through the existing approved Stage 1 Aboriginal Heritage Management Plan.

The Preferred Project will have a direct impact on 148 archaeological sites (including ten identified Stage 1 archaeological sites) and has the potential to indirectly impact a further 11 sites.

A total of 312 sites will be preserved, with 62 of these located in four proposed Management Areas, including a high significance grinding groove site (S2MC261), a high significance grinding groove and artefact scatter site (S2MC151), and a high significance artefact scatter site with potential archaeological deposit (S2MC200).

As a consequence of the design changes for the Preferred Project there will be a reduction in impacts to 14 archaeological sites from the Stage 2 Project. Changes to the management measures of a small number of sites have also been made.

When compared to the Stage 2 Environmental Assessment, the Preferred Project further minimises impacts to Aboriginal heritage and provides an opportunity for increased preservation of archaeological sites, specifically along Murragamba Creek.

## Rehabilitation

A Rehabilitation strategy was outlined in the Stage 2 Environmental Assessment. Rehabilitation commitments are consistent with those provided in the Stage 2 Environmental Assessment.

Additionally, in response to a request from Department of Planning and Infrastructure, Moolarben Coal Mines Pty Limited has prepared a Rehabilitation Strategy for the Preferred Project. The Rehabilitation Strategy outlines the rehabilitation objectives and principles to be applied to the Preferred Project.

## CONCLUSION

The Stage 2 Environmental Assessment reported on the Socio-economic benefits that would be derived from the development and operation of the Stage 2 Project, as part of the Moolarben Coal Complex, including:

- Construction expenditure of \$120 Million (in 2008 dollar values);
- The construction of Stage 2 will stimulate additional regional production and consumption of \$260 Million, providing a total benefit to the region of \$584 Million;
- Annual revenue of \$780 Million from the Moolarben Coal Complex when Stage 2 is operating at full capacity will stimulate further regional production and consumption of approximately \$731 Million, providing a total annual benefit of \$1.5 Billion;

- Tax revenues during the construction of the Moolarben Coal Complex will be approximately \$54 Million. This will consist of \$29 Million of income tax, \$9 Million from indirect taxes, \$8 Million from company tax and payroll tax of approximately \$8 Million. This is 2.8 times greater than the 2006 estimated benefit of Stage 1 alone;
- When Stage 2 is operating at full capacity, it is estimated that Federal Government tax revenue from the Moolarben Coal Complex will be \$98 Million. This will consist of \$60 Million of income tax, \$19 Million from indirect taxes and \$20 Million from company tax;
- State Government revenue from payroll tax is estimated to be \$17 Million and coal royalties approximately \$47 Million. The total public sector benefit will therefore be approximately \$146 Million;
- Over the life of the mine, Stage 2 will increase the expected total of tax revenue by 55% compared to Stage 1 alone and will provide an approximate three-fold increase in royalty revenues;
- Employment opportunities, focusing on opportunities for locals, which will generate wealth impacts allowing individuals and families to enhance their quality of life;
- The Moolarben Coal Complex will directly employ 220 construction workers. A further 184 full-time positions will be indirectly generated through increased production and consumption;
- At the peak of the operational phase, Stage 2 will potentially generate an additional 120 full time positions (in addition to Stage 1 positions). In total, the Moolarben Coal Complex will employ up to 439 people directly. Additional regional production and consumption will generate a further 847 and 585 jobs respectively, an induced employment benefit of 1,432 jobs; and
- Payments to Mid-Western Regional Council of \$1.365 Million for the Preferred Project, in addition to the \$4.55 Million committed under Stage 1, under the proposed Voluntary Planning Agreement will offset any increase in the demand for its services.

The Preferred Project will deliver economic benefits at regional, state and federal levels as well as to other stakeholders which equate to a total annual benefit of \$1.5 Billion (Stage 2 Environmental Assessment 2009).

This Preferred Project Report provides a detailed analysis of the changes proposed to Stage 2. The material environmental outcome improvements achieved by the Preferred Project, as compared to Stage 2 are as follows:

- Amendments to the footprint of Open Cut 4 to minimise impacts to the Box Gum Woodland and Derived Native Grassland (Critically) Endangered Ecological Community;
- Relocation of two proposed southern Out-of-Pit emplacements to a northern location, thereby significantly reducing impacts to the Box Gum Woodland and Derived Native Grassland (Critically) Endangered Ecological Community;
- Deferral of the timing of and reduction to the extent of the relocation of Murragamba Creek thereby materially reducing impacts on the creek;
- Relocation of the Stage 2 Run-of-Mine coal facilities to a location adjacent to Open Cut 4 and using conveyors to transfer coal and rejects to / from the existing Coal Handling and Preparation Plant reducing noise and dust; and
- Other minor amendments to locations of items of infrastructure within a defined Project Disturbance Boundary.

The exhibition and assessment of the Stage 2 Environmental Assessment identified a number of residual environmental issues. These issues have been addressed by this Preferred Project resulting in a number of material environmental enhancements and reductions in environmental effects.

In assessing the Preferred Project, key environmental impact assessments were revisited and reconsidered in the context of the Preferred Project. Further, the potential cumulative effects of the operation of the Moolarben Coal Complex in an environment that now includes cumulative impacts potentially arising due to recent planning approvals at the adjacent Ulan Coal Mine and Wilpinjong Coal Mine have been considered.

The Preferred Project has been designed and assessed in accordance with the principles of 'ecologically sustainable development' being 'intergenerational equity', 'value pricing', maintenance of 'biodiversity' and the 'precautionary principle'.

This Preferred Project Report demonstrates that the changes made in response to regulators and community submissions on the Stage 2 Environmental Assessment, have minimised its environmental impacts and provides for improved environmental outcomes.

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# 1 OVERVIEW

## 1.1 INTRODUCTION

Moolarben Coal Mines Pty Limited (MCM) operates the Moolarben Coal Project (MCP) (Stage 1) located in the Western Coalfields of NSW. Stage 1 operates under Project Approval (PA) 05\_0117 (as modified) and comprises three open cut (OC) mines OC1; OC2; and OC3; a longwall underground mine (UG4); and mining related infrastructure including coal processing and transport facilities. Stage 1 was approved by the Minister for Planning in September 2007.

In 2008, MCM lodged PA 08\_0135 under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act) seeking major project approval for the development and operation of Stage 2 of the MCP (Stage 2). Stage 2 comprises an open cut (OC4); and two underground coal mines (UG1 and UG2); and some additional associated infrastructure. These will be developed adjacent to the Stage 1 mines and will operate in conjunction with and utilise the Stage 1 infrastructure, including the Stage 1 approved coal processing and transport facilities. The Stage 2 application also contemplates changes to Stage 1 to enable Stage 2 to integrate with Stage 1. In addition, the application seeks approval for MCM to construct and operate Stage 2 for 24 years.

In February 2009, MCM lodged application 05\_0117 MOD 3 to modify Stage 1. This will enable the integration of Stage 1 and Stage 2 to form an integrated mining complex (the MCC), as contemplated in the application for Stage 2. It is proposed that employees, equipment, infrastructure and facilities will be shared across the mining complex. The Stage 1 modification application seeks approval for Stage 1 to accept, process and export Stage 2 coal for up to 24 years.

An Environmental Assessment (EA) for Stage 2 and the modification of Stage 1 (05\_0117 MOD 3) was exhibited between 18 March 2009 and 29 April 2009 (Wells Environmental Services and Coffey Natural Systems 2009).

Following public exhibition of the EA, the Department of Planning (now the Department of Planning and Infrastructure – DP&I) received 177 public and government authority submissions on Stage 2 and the modification of Stage 1. The DP&I also sought independent technical review of the surface water (including water balance and creek design), groundwater, subsidence and rehabilitation aspects of the EA. Further detail in relation to submissions is discussed in **Section 2.1.4**.

The issues raised in public and government authority submissions on the EA have been addressed in two separate reports: Response to Submissions Report – Part A (Coffey Natural Systems 2009a) and Response to Submissions Report – Part B (Coffey Natural Systems 2009b), which have been made publicly available on the DP&I's website.

MCM has also made changes to the proposed layout and design of Stage 2. These changes are required (i) to address issues raised by the DP&I and the independent technical reviewers in their assessment of the Stage 2 EA; (ii) to introduce additional impact avoidance measures for the project; and (iii) to enable the effective integration of Stage 2 with Stage 1, following Stage 2 project amendments and recent approved Stage 1 infrastructure layout changes. The key Stage 2 project changes include:

- A revised disturbance footprint and open cut mine sequence, including relocation of the Northern Out of Pit (OOP) emplacement area, to reduce impacts;
- Relocating Stage 2 Run-of-Mine (ROM) coal facilities adjacent to OC4 and relocated out of pit emplacement area;

- Replacing truck haulage of open cut ROM coal from OC4 to the Stage 1 ROM coal handling facilities with a dedicated overland conveyor located at the relocated Stage 2 ROM coal handling facility; and
- Relocating Stage 2 surface facilities and site access closer to the northern end of the open cut pit.

These changes avoid impacts to 33.5 ha of endangered woodland communities previously proposed to be cleared; avoids the requirement to divert up to 2.7 km of Murragamba Creek previously proposed to be impacted by open cut mining; and generally a better environmental outcome by minimising overall MCC disturbance impacts.

As a result of these changes, MCM has revised and updated the project description; a number of the more critical technical impact assessment reports; and its statement of commitments for the amended Stage 2 project, which are described herein.

MCM has further modified the Stage 1 Approval (05\_0117 MOD 4, 05\_0117 MOD 5, 05\_0117 MOD 6 and 05\_0117 MOD 7), enabling: (i) a change in the rail loop layout (from a figure-eight to a balloon loop); (ii) development of a water sharing pipeline (from the Ulan Coal Mine to the infrastructure area); (iii) relocation of run-of-mine (ROM) coal and rejects facilities (to a location closer to the main infrastructure area); and (iv) development of surface infrastructure to support the approved Northern Borefield.

The proposed amendments to Stage 2 allow for the effective integration of Stage 2 with these Stage 1 layout changes.

On 1 October 2011, Part 3A of the EP&A Act was repealed. Notwithstanding, Schedule 6 of the EP&A Act and Part 1A of the *Environmental Planning and Assessment Regulations 2000* (EP&A Regs) provides transitional provisions for project applications made under Part 3A of the Act, prior to that part being repealed.

Consequently, Project Application 08\_0135 and the modification application to PA 05\_0117 will still be assessed and determined under the (now repealed) provisions of Part 3A.

Further, the names and functions of a number of NSW government agencies have changed. The Department of Planning (DoP) is now the DP&I; the Department of Environment and Climate Change (DECC) is now the Office of Environment and Heritage (OEH); the Department of Primary Industries (DPI) is now part of the Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS); and the water licensing component of the Department of Water and Energy (DWE) is now the NSW Office of Water (NOW), part of DTIRIS.

In December 2009, Felix Resources Limited, (the owner of MCM) was acquired by Yancoal Australia Limited (Yancoal).

## 1.2 DOCUMENT PURPOSE

### 1.2.1 Environmental Planning & Assessment Act 1979 (NSW)

This Preferred Project Report (PPR) in respect of Project Application 08\_0135 has been prepared in response to a request from the Director General of DP&I under Section 75H 6(b) of the EP&A Act (see correspondence in **Appendix B**).

This PPR proposes changes to Stage 2 as described in **Section 3** which will address issues raised in the public exhibition and assessment of the Stage 2 application.

As shown in **Table 1**, this PPR replaces specific studies conducted for the Stage 2 EA including:

- Air quality;
- Noise;
- Groundwater; and
- Site water balance.

Additionally, further information or clarification is provided for public and regulatory submissions issues including:

- Biodiversity offsets;
- Rehabilitation;
- Diversion design of Murragamba and Eastern Creek;
- Subsidence; and
- Aboriginal archaeology and cultural heritage.

As such, this PPR addresses and incorporates the Director-General's Environmental Assessment Requirements (DGRs) and MCM's Responses to Submissions (RTS) Part A and B (Coffey Natural Systems; 2009a and b) submitted following public display of the Stage 2 EA and assessment of it by DP&I.

The proposal for Stage 2 with changes described in this report is hereafter referred to as the 'Preferred Project'. The Preferred Project is within the Stage 2 Project Boundary as shown on **Figure 1** which is as described in the Stage 2 EA. This PPR should be reviewed in conjunction with the Stage 2 EA.

The Preferred Project involves changes to the Stage 2 proposal which do not materially change the scale, nature and character of the originally proposed Stage 2.

The changes manage environmental effects such that the net benefits to the community from the operation of the MCC as now proposed are enhanced. If there is any inconsistency between the Stage 2 EA and the PPR then this document will take precedence for the purposes of the intent of the inconsistency.

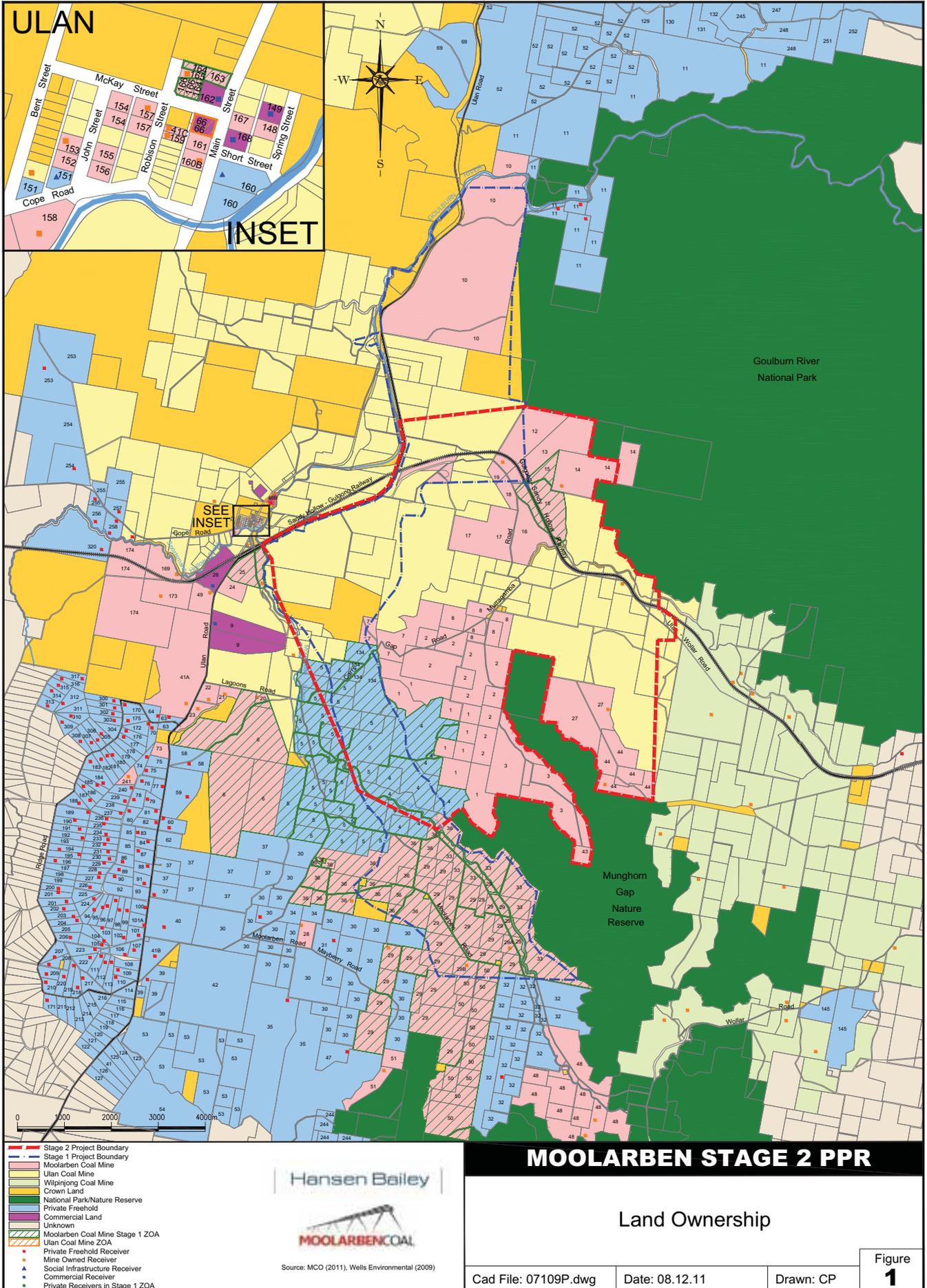
**Table 1** lists sections of the Stage 2 EA how each is affected by this PPR.

**Table 1**  
**Stage 2 EA and PPR Assessments**

EA Aspect	Where Addressed
<b>Stage 2 EA</b>	
Introduction:	
Location and Setting	Refer Section 1.3 of the Stage 2 EA
Background	Refer Section 1.4 of the Stage 2 EA
Preliminary risk assessment	Refer Section 1.11 of the Stage 2 EA
Project approval framework	Refer Section 2 of the Stage 2 EA
Stakeholder and community consultation	Refer Section 3 of the Stage 2 EA and <b>Section 2.3</b> of this PPR
Project description	Replaced in full in <b>Section 3</b> of this PPR
Impact assessment:	
Air Quality	Replaced in full in <b>Section 4.1</b> and <b>Appendix C</b> of this PPR
Greenhouse Gas	Replaced in full in <b>Section 4.2</b> and <b>Appendix C</b> of this PPR
Spontaneous Combustion*	Refer Section 5.1.8 of the Stage 2 EA
Noise	Replaced in full in <b>Section 4.4</b> and <b>Appendix D</b> of this PPR
Blasting	Replaced in full in <b>Section 4.5</b> and <b>Appendix D</b> of this PPR
Groundwater	Replaced in full in <b>Section 4.6</b> and <b>Appendix E</b> of this PPR
Surface Water	Refer Section 5.5 and Appendix 7 of the Stage 2 EA

<b>EA Aspect</b>	<b>Where Addressed</b>
Water Balance	Replaced in full in <b>Section 4.8</b> and <b>Appendix F</b> of this PPR
Creek Realignment	Replaced in full in <b>Section 4.9</b> and <b>Appendix G</b> of this PPR
Ecology*	Refer Section 5.7 and Appendix 7 of the Stage 2 EA
Biodiversity Offset Strategy	Replaced in full in <b>Section 4.10</b> and <b>Appendix H</b> of this PPR
Subsidence	Replaced in full in <b>Section 4.12</b> and <b>Appendix I</b> of this PPR
Aboriginal Archaeology and Cultural Heritage	Refer Section 5.9 and Appendix 9 of the Stage 2 EA, and <b>Section 4.12</b> of this PPR
Non-Aboriginal heritage	Refer Section 5.10 and Appendix 10 of the Stage 2 EA
Soils and Land Capability*	Refer Section 5.11 and Appendix 11 of the Stage 2 EA
Transport*	Refer Section 5.12, Appendix 12 and Appendix 13 of the Stage 2 EA
Visual Amenity and Landscape*	Refer Section 5.13 and Appendix 14 of the Stage 2 EA
Social and Economic	Refer Section 5.14 and Appendix 15 of the Stage 2 EA, and <b>Section 4.18</b> of this PPR
Hazardous and Risks*	Refer Section 5.15 and Appendix 16 of the Stage 2 EA
Waste*	Refer Section 5.16 Appendix 17 of the Stage 2 EA
Land Use*	Refer Section 5.17 and Appendix 11 of the Stage 2 EA
Rehabilitation*	Refer Section 5.18 of the Stage 2 EA and <b>Appendix K</b> of the PPR
Mine Closure	Refer Section 5.19 of the Stage 2 EA
Statement of Commitments	Replaced in full in <b>Section 5</b> of this PPR
Project Justification	Refer <b>Section 6.6</b> of this PPR
<b>Submissions and Technical Reviews</b>	
Response to Submissions	Addressed as required in this PPR
Independent Technical Peer Reviews:	
Galvin and Associates (Subsidence)	Addressed in full in <b>Section 4.12</b> and <b>Appendix I</b> of this PPR
Kalf and Associates Pty Ltd (Groundwater)	Addressed in full in <b>Section 4.6</b> and <b>Appendix E</b> of this PPR
Global Soil Systems (Rehabilitation)	Addressed in full in <b>Section 4.22</b> and <b>Appendix K</b> of this PPR
Gilbert and Associates (Surface Water Management Strategy)	Addressed in full in <b>Appendix F</b> of this PPR
Gilbert and Associates (Preliminary Design for Proposed Diversions of Murrumbidgee & Eastern Creeks)	Addressed in full in <b>Section 4.9</b> and <b>Appendix G</b> of this PPR

*\*Mitigation and management measures also summarised in this PPR.*



The Preferred Project described in **Section 3** (replacing Section 4 of the Stage 2 EA) was developed to address issues raised as to the environmental effects of the originally proposed Stage 2 in submissions made following the public exhibition of Stage 2 as originally proposed and subsequently assessed by DP&I.

This PPR contains an environmental assessment of the Preferred Project for Stage 2 and its operation as part of the MCC cumulatively with the operation of Stage 1.

This PPR demonstrates that the Preferred Project addresses issues raised as to environmental effects of the originally proposed Stage 2, and that with appropriate controls and management will result in identified and acceptable environmental and social effects of the operation of the MCC.

To take into account the changes proposed in this PPR, MCM proposes revised management and mitigation measures and a revised Statement of Commitments (replacing Section 6 of the Stage 2 EA).

### **1.2.2 Environment Protection and Biodiversity Conservation Act 1999**

MCM also seeks approval under Section 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for Stage 2. The Project was determined to be a 'controlled action' under the EPBC Act and is being assessed under an accredited assessment process between the State and Federal Government.

This PPR also supports the Section 133 Application under the EPBC Act.

This PPR provides additional information to enable the Project Application 08\_0135 and EPBC Referral (No 2008/4444) as sought to be determined as per State and Federal requirements.

## **1.3 DOCUMENT STRUCTURE**

Volume 1 of this PPR is structured as follows:

- **Section 2** provides relevant background to the Stage 2 Project including regulatory requirements and the surrounding environment;
- **Section 3** describes the Preferred Project for Stage 2 for which approval is sought;
- **Section 4** includes impacts, management and mitigation for environmental and social impacts identified from the Preferred Project;
- **Section 5** presents a revised Statement of Commitments;
- **Section 6** provides a conclusion; and
- **Sections 7 to 9** list abbreviations, references and the study team.

**Volume 1** also includes: a summary table of submission issues and where each is generally addressed in this PPR, stakeholder consultation materials utilised, the Air Quality Impact Assessment and the Environmental Noise Assessment.

**Volume 2** of this PPR includes the revised Groundwater Impact Assessment.

**Volume 3** of this PPR includes various revised technical reports, further information or clarification for the Preferred Project and includes:

- Supplementary Surface Water Investigations Including Water Balance Modelling;
- Conceptual Design for Proposed Diversions of Murragamba and Eastern Creeks;
- Biodiversity Offsets Strategy;
- Aboriginal Archaeology and Cultural Heritage;
- Subsidence Impact Assessment; and
- Rehabilitation Strategy.

## 2 BACKGROUND

This section provides relevant updated background for the Stage 2 application including regulatory requirements, stakeholder consultation and land ownership details relevant to the Preferred Project.

### 2.1 STAGE 2 APPLICATION

#### 2.1.1 Project Application and the EP&A Act

MCM applied to the Minister for Planning on 14 July 2008 under Part 3A of the EP&A Act for major project approval for the construction and operation of Stage 2 and for the modification of the already held Stage 1 approval to enable the integration of the operation of the MCC Stage 2 including the following:

- *Employment of an additional 122 staff above the 317 approved under Stage 1;*
- *Extension of the mining life and employment of the Moolarben Coal Project to 27-28 years;*
- *Increase mining to recover 13 Mtpa of product coal (approximately 17 Mtpa ROM) from Stage 1 and Stage 2;*
- *Open Cut 4 within the Murragamba Valley;*
- *Underground No 1 and Underground No 2;*
- *Supporting facilities and infrastructure that integrates with those approved in Stage 1;*
- *Relocation of Ulan-Wollar Road;*
- *The partial relocation of Murragamba and Eastern Creeks;*
- *The rehabilitation and revegetation of disturbance areas; and*
- *Offset of impacts to threatened biodiversity.' (MCM 2008).*

A Preliminary Environmental Assessment (MCM 2008) was submitted to support PA 08\_0135 in accordance with Section 75E of the EP&A Act.

As discussed in **Section 1.1** on 1 October 2011, Part 3A of the EP&A Act was repealed. Notwithstanding, Schedule 6 of the EP&A Act and Part 1A of the EP&A Regs provides transitional provisions for project applications made under Part 3A of the Act, prior to that part being repealed. Consequently, Project Application 08\_0135 and the modification application to PA 05\_0117 will still be assessed and determined under the (now repealed) provisions of Part 3A.

The Preferred Project does not change the substance of the essential elements of the Project Application, however the mine life now proposed is 24 years (which is shorter than proposed in the Project Application), and the Carrs Gap and Murragamba roads (which do not provide access to any private properties) will be closed.

#### 2.1.2 Director General's Environmental Assessment Requirements

DGRs issued under Section 75F of the EP&A Act for PA 08\_0135 on 11 September 2008 were addressed in the Stage 2 EA and considered further in the preparation of this PPR.

#### 2.1.3 Environmental Assessment

The Stage 2 EA was prepared to support PA 08\_0135.

#### 2.1.4 Submissions and Independent Peer Reviews

The Stage 2 EA was exhibited between 18 March 2009 and 29 April 2009 which resulted in 177 submissions from public and regulatory authorities.

DP&I also sought independent technical peer reviews as follows:

- Subsidence Assessment review by Galvin and Associates;
- Groundwater Assessment review by Kalf and Associates Pty Ltd;
- Rehabilitation review by Global Soil Systems (GSS);

- Surface Water Management Strategy review by Gilbert and Associates; and
- Preliminary Design for Proposed Diversions of Murrumbidgee & Eastern Creeks review by Gilbert and Associates.

MCM addressed the issues raised in the public and government authority submissions in two separate reports: Response to Submissions Report – Part A (Coffey Natural Systems 2009a) and Response to Submissions Report - Part B (Coffey Natural Systems 2009b).

These reports have been submitted to the DP&I and made publicly available on its website. The issues raised by the independent technical reviewers have been addressed in this PPR and detailed in the appended technical reports.

**Appendix A** presents a list of issues raised during exhibition of the Stage 2 EA and indicates where each of these has generally been addressed in this PPR. A summary of peer review comments is included as relevant in technical reports.

### 2.1.5 Preferred Project Report

Section 75H of the EP&A Act provides for a PPR. **Table 2** indicates requirements and where each is addressed in this PPR.

The Director General of DP&I requested a PPR be developed pursuant to Section 75H of the EP&A Act by letter dated 25 March 2010 (see **Appendix B**). The PPR has been developed in support of PA 08\_0135.

**Table 3** indicates his requirements in that regard and where those are addressed in this PPR.

**Table 2**  
**Section 75H PPR Requirements**

	Requirement	Where Addressed in PPR
(6)	The Director-General may require the proponent to submit to the Director-General: ... (b) a preferred project report that outlines any proposed changes to the project to minimise its environmental impact, and	<b>Section 3</b> and <b>Section 4</b>
	(c) any revised statement of commitments.	<b>Section 5</b>
(7)	If the Director-General considers that significant changes are proposed to the nature of the project, the Director-General may require the proponent to make the preferred project report available to the public.	-

**Table 3**  
**DP&I PPR Requirements and Where Addressed in PPR**

Requirement	Where Addressed in PPR
Demonstrate all reasonable and feasible measures have been taken to avoid impacts on State and Commonwealth Endangered Ecological Communities (EECs), paying particular attention to the proposed emplacement areas	<b>Section 4.10</b>
Include a clear proposal to offset the residual biodiversity impacts	<b>Section 4.10</b>
Include a clear mine plan with detailed maps and figures, that consolidates all the changes that have been made to both stages of the project during the assessment process	<b>Section 3</b>
The Report should be a stand-alone document	<b>This PPR</b>

## 2.2 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

### 2.2.1 Application Under Section 67, 68 and 75

The Referral Application (MCM 2008) was submitted to the Minister for the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) as a proposal under Section 68 of the EPBC Act on 4 September 2008 as the 'Action' (Project) was determined likely to have a significant impact on a Matter of National Environmental Significance (MNES). EPBC Referral (No 2008/4444) was issued.

The Referral Application as submitted described the Action as 'The Development of Stage 2 of the Moolarben Coal Project, consisting of an open cut mine, two underground mines with associated infrastructure.' The site covers approximately 40.6 km<sup>2</sup> within Exploration Licence (EL6288) as shown on Figure 1 in the Referral Application. The Action is described as increasing production for the MCC to 17 Million tonnes per annum (Mtpa) ROM coal and to operate in conjunction with Stage 1.

The Minister deemed the Project as a 'controlled action' in accordance with Section 75 of the EPBC Act on 2 October 2008. The relevant provisions of the EPBC Act (for the purposes of Section 67 of the EPBC Act) for the Project are:

- Sections 20 and 20A – listed migratory species (Regent Honeyeater; Swift Parrot); and
- Sections 18 and 18A – listed threatened species and communities (White Box Yellow Box Blakely's Redgum Woodland (Box Gum Woodland) and derived grasslands Critically Endangered Ecological Community (CEEC), Large-eared Pied Bat, Greater Long-eared Bat, Brush-tailed Rock Wallaby, and Spotted-tailed Quoll).

SEWPaC advised that it determined that the Project be 'assessed under the bilateral agreement with the NSW Government'.

### 2.2.2 Varied Proposal Under Section 156B

The PPR changes the Project such that it is required that the 'original proposal' made to the Minister for the Environment through his department SEWPaC for approval under the EPBC Act be changed as is contemplated by Section 156A of the EPBC Act.

Section 156A (1) of the EPBC Act states that:

"(1) If:

- (a) a proposal (the original proposal) by a person to take an action has been referred to the Minister under Division 1 of Part 7; and
- (b) after the referral is made, the person wishes to change the original proposal;

the person may, subject to subsection (2), request the Minister to accept a variation (a varied proposal) of the original proposal."

Accordingly the Minister for SEWPaC may, subject to Section 156A(2), consider a request to change the 'original proposal' and accept, subject to Sections 156B and 156C a 'varied proposal' by the processes and with the effects provided in Sections 156 (C, D and E).

None of the circumstances in Section 156A (2) apply.

MCM has requested that the Minister accept a 'varied proposal' to reflect the changes made to the Project by the PPR.

Under Section 156A (3) of the EPBC Act states that:

"(3) A request under subsection (1) must:

- (a) Be made in a way prescribed by the regulations; and
- (b) Include the information prescribed by the regulations."

**Table 4** identifies the information that the request to accept the 'varied proposal' must contain and where each is addressed in this PPR (SEWPaC 2010).

**Table 4**  
**Matters for Consideration by Minister for SEWPaC**

Requirement	PPR Section
Details of the proposed variation to the action	3
The reasons for the proposed variation	2
How the impacts of the proposed variation on MNES compare with those of the original proposal	4.10
If applicable, the impacts of the proposed variation on MNES not considered in the referral or assessment of the original proposal	4.10
If applicable, alternatives, mitigation measures and offsets to compensate for additional impacts on MNES	4.10

Section 156B (1) of the EPBC Act states that the:

*“Minister must decide whether or not to accept a varied proposal (1) Within 20 business days after receiving a request under subsection 156A(1) to accept a varied proposal to take an action, the Minister must decide whether or not to accept the varied proposal.”.*

Section 156B (2) states that:

*‘The Minister must not decide to accept the varied proposal unless the Minister is satisfied that the character of the varied proposal is substantially the same as the character of the original proposal’.*

Section 156B (3) further states:

*“In considering for the purposes of subsection (2), whether or not the character of the varied proposal is substantially the same as the character of the original proposal, the Minister must have regard to the change (if any) in:*

- (a) The nature of the activities proposed to be carried out in taking the action; and*
- (b) The nature and extent of the impacts (if any) the action:
 
  - i. Has or will have; or*
  - ii. Is likely to have;**

*on the matter protected by each provision of Part 3.”*

Section 156C (1) states that:

*“(1) If the Minister believes on reasonable grounds that a request under subsection 156A (1) to accept a varied proposal to take an action does not include enough information for the Minister to decide whether or not to accept the varied proposal, the Minister may request the person proposing to take the action to provide specified information relevant to making the decision.”*

The ‘original proposal’ was by Referral Application submitted under Section 68 of the EPBC Act on 4 September 2008 and was allocated Referral No 2008/4444 and described the following ‘Proposed Action’ in Section 1.1 and Section 2.1 respectively:

*‘The Development of Stage 2 of the Moolarben Coal Project, consisting of an open cut mine, two underground mines with associated infrastructure.’*

*‘... extend the previously approved coal mine and associated infrastructure by the establishment of an open cut coal mine in the adjoining Murragamba Valley (OC4) and 2 additional underground mines. These mines will utilise aspects of the surface infrastructure facilities approved under Stage 1.’ ... ‘Stage 2 will operate in conjunction with Stage 1 to constitute the MCP which will operate as a single mining complex comprising three underground and four open cut coal mines with surface facilities comprising coal handling, preparation, raw and product coal stock piling*

*and rail loading at the currently approved facilities.' ... 'The application seeks approval to increase production from the whole of the MCP to 17 Mtpa of ROM coal producing approximately 12-13 Mtpa of product coal. Figure 3 illustrates the general arrangement of Stage 2.' ...*

*'... Ulan Seam, which ranges from around 11 m to about 13 m in thickness, will be mined with the full seam recovered in the open cut mines by the use of truck and excavator method and a partial section in the underground mines by the use of the longwall extraction method. Both domestic and export thermal coal will be produced.'*

The Preferred Project continues to comprise an open cut mine in the Murrumbidgee Valley, two underground mines and associated infrastructure. The Preferred Project will still operate in conjunction with Stage 1 as a single mining complex, extracting up to 17 Mtpa ROM coal. The general arrangement shown in Figure 3 in the Referral Application is within the Project Boundary shown on **Figure 2** in this PPR.

The Preferred Project maintains the essential character of the Project as originally proposed. The environmental effects from the Project remain the same in character but are diminished in a number of respects as a result of the review undertaken.

Importantly, from the perspective of the EPBC Act, the 'varied proposal' resulting from the Preferred Project, will result in a reduction of the ecological impacts of the Project including, particularly those ecological impacts relevant to the EPBC Act. Consequently the 'varied proposal' will result in less impact than the 'original proposal'.

This assessment has established that it is open for the Minister to "decide to accept the varied proposal" as he can be "satisfied that the character of the varied proposal is substantially the same as the character of the original proposal" as is required by Section 156B (2)."

### 2.2.3 Decision Under Section 133

SEWPaC has been provided with an opportunity to review this PPR to assist in determining whether an 'Approval Decision' can be made under Section 133 of the EPBC Act. A summary of the revised Offsets for the Preferred Project is described in **Section 4.10** and **Appendix H**.

Section 156E requires the Minister to give a Notice of Decision and states as follows:

- "(1) Within 10 business days after deciding under subsection 156B (1) whether or not to accept a varied proposal to take an action, the Minister must give written notice of the decision to:*
- (a) the person proposing to take the action; and*
  - (b) the designated proponent of the action (if the designated proponent of the action is not the person proposing to take the action).*
- (2) If:*
- (a) the request to accept the varied proposal related to an action that is to be taken in a State or self-governing Territory; and*
  - (b) a controlling provision for the action is in Division 1 of Part 3 (which deals with matters of national environmental significance); and*
  - (c) the Minister decided to accept the varied proposal;*
- the Minister must also, within the period referred to in subsection (1), give written notice of the decision to the appropriate Minister of the State or Territory.*
- (3) If the Minister decided to accept the varied proposal, the Minister must, within the period referred to in subsection (1), publish the request to accept the varied proposal and notice of the decision in accordance with the regulations."*

## 2.2.4 Required Post - Approvals

**Table 5** provides a summary of the licences, leases and approvals which will (at least) be required under NSW and Commonwealth legislation to enable the construction and the operation of the Preferred Project.

## 2.3 STAKEHOLDER CONSULTATION

As part of the Stage 2 EA a detailed stakeholder consultation program was undertaken including land access protocols, community information sessions, newspaper articles, newsletters and one-on-one discussions. MCM engages with the existing Community Consultation Committee (CCC) on a regular basis to provide an open forum for discussion between representatives, near neighbours, the wider community, Mid-Western Regional Council (MWRC) and other stakeholders on issues directly relating to the construction and operation of Stage 1.

As part of the development of the PPR, a revised Consultation Engagement Program was conducted with individual near neighbours, MCM's CCC, Aboriginal community groups, relevant neighbouring mines, industry and relevant state and federal regulators. Further details on consultation with the Aboriginal community are provided in **Section 4.12**.

A newsletter was distributed to over 40 neighbours and regulators in May and June 2011 and is reproduced in **Appendix B**.

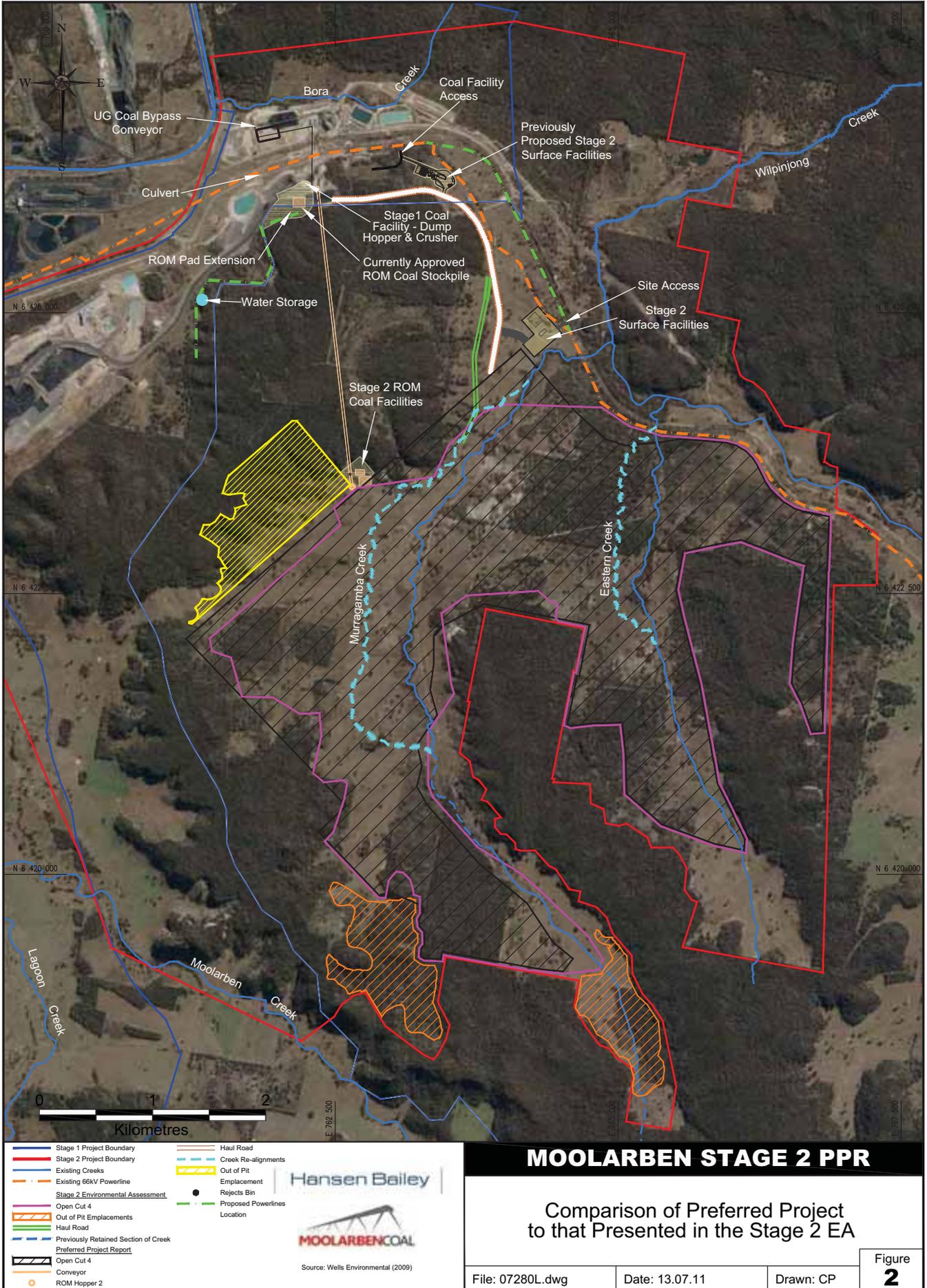
Commitments to MCM's ongoing social engagement program in relation to the Preferred Project are described further in **Section 4.18**. Individual meetings were held in April and May 2011 with over 30 community members where various issues were raised in relation to the Preferred Project.

Key stakeholders relevant to the Preferred Project, the engagement methods adopted for each, issues raised and comments for each issue where they have been addressed in the PPR are summarised in **Table 6**.

**Table 5**  
**Licences and Approvals Required for the Preferred Project**

Approval	Legislation	Authority	Detail
Major Project Approval	Section 75J of Part 3A of the EP&A Act *	The approval authority under Part 3A of the EP&A Act	
Mining Lease	<i>Mining Act 1992</i>	Minister for Minerals and Energy (DME)	Section 75V EP&A Act requires the grant of mining lease consistent with a Part 3A approval *
Mining Operations Plan	Condition of a Mining Lease	Director General DTIRIS	
"Controlled Action" Approval	EPBC Act (Commonwealth)	Minister for Environment (Commonwealth)	Section 87 of the EPBC Act
Environmental Protection Licence	Chapter 3 of the <i>Protection of the Environment Operations Act 1997</i>	Office of Environment and Heritage (OEH)	Section 75V EP&A Act requires the issue of an EPL consistent with the Part 3A approval *
Consent to carry out a work in on or over a public road	<i>Roads Act 1993</i>	RTA / Mid Western Regional Council (MWRC)	Section 75U EP&A Act requires the issue of a consent following Part 3A approval *
Construction & Occupation Certificates	EP&A Act	MWRC	
Approval for works over Crown land	<i>Crown Lands Act 1989</i>	Department of Lands and Property Management	

\* Applicable under the Transitional Provisions (see Section 2.1.1)



**Table 6**  
**PPR Stakeholders, Engagement Method and Issues Raised**

Stakeholder	Engagement Method	Issues Raised	Where Addressed in PPR
<b>Community Stakeholders</b>			
Individual Near Neighbours	<ul style="list-style-type: none"> <li>PPR newsletter including Offer of Briefings</li> <li>Face to face briefings with neighbours predicted to be affected by noise as described in <b>Section 4.4</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Potential for additional traffic on Ulan Road (interaction with existing community including high beams, flashing lights, traffic volume, speed and state of the road)</li> <li>Property values</li> <li>Dust and / or noise</li> <li>Visual amenity</li> <li>Loss of social cohesion around Ulan</li> <li>Blasting impacts</li> <li>Tank water quality</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.18</b></li> <li><b>Section 4.18</b></li> <li><b>Section 4.1 and 4.4</b></li> <li><b>Section 4.17</b></li> <li><b>Section 4.18</b></li> <li><b>Section 4.4</b></li> <li><b>Section 4.1</b></li> </ul>
CCC	<ul style="list-style-type: none"> <li>PPR Newsletter</li> <li>Presentation at meeting of 14 December 2010</li> <li>Presentation at meeting of 15 February 2011</li> <li>Detailed briefing at meeting of 19 April 2011</li> </ul>	<ul style="list-style-type: none"> <li>Offsets</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.10</b></li> </ul>
Aboriginal Community	<ul style="list-style-type: none"> <li>Notification letter dated 22 March 2011</li> <li>Group Meeting on 7 April 2011</li> <li>Summary letter dated 10 May 2011</li> </ul>	<ul style="list-style-type: none"> <li>Management measures for two individual sites</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.12 and Appendix J</b></li> </ul>
Neighbouring Mines	<ul style="list-style-type: none"> <li>PPR Newsletter</li> <li>Offer of Briefing</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Regulatory Stakeholders</b>			
SEWPaC	<ul style="list-style-type: none"> <li>Project Briefing on 23 March 2011</li> </ul>	<ul style="list-style-type: none"> <li>Offsets</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.10</b></li> </ul>
DP&I	<ul style="list-style-type: none"> <li>Project Briefing September 2010</li> <li>Project Briefing on 21 December 2010</li> </ul>	<ul style="list-style-type: none"> <li>Clear Preferred Project description showing changes to the Project as shown in the Stage 2 EA</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 3</b></li> </ul>

Stakeholder	Engagement Method	Issues Raised	Where Addressed in PPR
	<ul style="list-style-type: none"> <li>Project Briefing on 6 April 2011</li> <li>PPR Newsletter</li> </ul>	<ul style="list-style-type: none"> <li>Noise</li> <li>Offsets</li> <li>Voluntary Planning Agreement</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.4</b></li> <li><b>Section 4.10</b></li> <li><b>Section 4.18</b></li> </ul>
OEH	<ul style="list-style-type: none"> <li>Project Briefing with NPWS September 2010</li> <li>Project Briefing on 6 April 2011</li> </ul>	<ul style="list-style-type: none"> <li>Offsets</li> <li>Requirement for Discharge water</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.10</b></li> <li><b>Section 4.8</b></li> </ul>
MWRC	<ul style="list-style-type: none"> <li>Project Briefing 30 May 2011</li> </ul>	<ul style="list-style-type: none"> <li>Voluntary Planning Agreement</li> </ul>	<ul style="list-style-type: none"> <li><b>Section 4.18</b></li> </ul>

## 2.4 REVISED LAND OWNERSHIP

The present land ownership within and surrounding the Stage 2 Project Boundary is listed in **Table 7**, providing each land owner with a unique identifying number. **Figure 1** illustrates the current land ownership within and surrounding the Stage 2 Project Boundary and should be read in conjunction with **Table 7**. Agreements with neighbours predicted to be impacted by noise (see **Section 4.4.3**) from the MCC are in various stages of consultation and are indicated in **Table 7**.

The land within and surrounding the Stage 2 Project Boundary is largely covered by six key land ownership categories, including: private freehold land, commercial land, Crown land, Moolarben Coal Mine owned, Ulan Coal Mine and Wilpinjong Coal Mine owned and National Park / Nature Reserve. Land listed as MCM owned is in joint ownership of MCM, Sojitz Moolarben Resources Pty Ltd and Kores Australia Moolarben Coal Pty Ltd.

Additionally, since submission of the Stage 2 EA, a number of changes have occurred in relation to land ownership in the vicinity of the MCC, including the purchase of 14 properties by MCM. **Table 7** indicates where land which was represented as privately owned in the Stage 2 EA has subsequently been purchased by MCM.

Since the preparation of the Stage 2 EA, both Wilpinjong Coal Mine and Ulan Coal Mine have made planning approval applications. The application for the Wilpinjong Mining Rate Modification Project (PA05\_0021) was supported by *Wilpinjong Coal Mine Mining Rate Modification Environmental Assessment* (Wilpinjong EA) (Resource Strategies 2009).

The application for the Ulan Coal Continued Operation Project has sought a new Project Approval (08\_0184) and is supported by *Ulan Coal Continued Operations Environmental Assessment* (Ulan EA) (Umwelt 2009).

The environmental assessments supporting each of the Wilpinjong Coal Mine and the Ulan Coal Mine applications are considered in the environmental assessments provided in this PPR in relation to cumulative impacts, as relevant.

**Table 7**  
**Land Ownership**

ID	Name	ID	Name	ID	Name
1	Moolarben Coal Mines Pty Limited (Previously M Carlisle)	29A	Moolarben Coal Mines Pty Limited (Previously E Mayberry)^#	59	G & GM Szymkarczuk
2	Moolarben Coal Mines Pty Limited (Previously SE Birt & KM Hayes)	29B	Moolarben Coal Mines Pty Limited (Previously E Mayberry)^#	60	CL Rayner & DM Munday
3	Moolarben Coal Mines Pty Limited (Previously BH Best)	30	RB Cox	62	RC Menchin
4	MJ Swords^	31	MB Cox	63	BF & B Whiticker
5	MJ & PM Swords^	32	DJ & JG Stokes	64	JW Goninan & TL Boland
6	Moolarben Coal Mines Pty Limited (Previously KS Thompson)	33	Moolarben Coal Mines Pty Limited (Previously K & R Mayberry)^#	66	Rostherne Pty Limited**
7	Moolarben Coal Mines Pty Limited (Previously BJ & MR Wallis)	34	J Asztalos	69	EH Elward
8	Moolarben Coal Mines Pty Limited (Previously C & H Davies)	35	PR Johnson & MS & GJ Thompson & PH & FH Debreczeny (Perpetual Lease)	70	DJ & A Coventry
9	ICI Australia Operations Pty Limited^^	36	Moolarben Coal Mines Pty Limited - (Previously DJ & Y Rayner)^#	73	Moolarben Coal Mines Pty Limited (Previously RL Philpot)#
10	Moolarben Coal Mines Pty Limited (Previously J Westwood)	37	J Szymkarczuk (Perpetual Lease)	74	LR Walsh*
11	JE Mullins & CD Imrie	39	RM & DJ Sprigg	75	P Ban
12	Moolarben Coal Mines Pty Limited (Previously M & T Transport)	40	JM Devenish	76	SR & PC Carbone
13	Moolarben Coal Mines Pty Limited (Previously PF Renshaw)	41	PP Libertis	77	GJ & JM Mulholland
14	Moolarben Coal Mines Pty Limited (Previously Splitters Hollow Pty. Ltd.)	41A	Moolarben Coal Mines Pty Limited (Previously PP Libertis)#	78	B & FV Power
15	Moolarben Coal Mines Pty Limited (Previously L Green)	41B	PP Libertis (Perpetual Lease)	79	PTJ & SE Nagle
16	Moolarben Coal Mines Pty Limited (Previously DJ Little & AK Salter)	41C	Moolarben Coal Mines Pty Limited (Previously PP Libertis)	80	W & DI Sebelic
17	Moolarben Coal Mines Pty Limited (Previously T & N Simpson)	42	CE & LD Schmidt	81	TK Germent & CA McIntyre
18	Moolarben Coal Mines Pty Limited (Previously J & S Borrowdale)	43	Moolarben Coal Mines Pty Limited (Previously DH Wooby)	82	SC Hungerford & MC Clemens
19	Moolarben Coal Mines Pty Limited (Previously D Herring)	44	Moolarben Coal Mines Pty Limited (Previously E, D & C Power)	83	CF & CR Wall
20	Moolarben Coal Mines Pty Limited (Previously AJ & NN Williamson) ^#	46B	North Eastern Wiradjuri Wilpinjong Community Fund Limited**	84	DS Sebelic
21	Moolarben Coal Mines Pty Limited (Previously IR & AM Smith) #	47	SF & MR Andrews	85	J & Z Nikolovski
22	Moolarben Coal Mines Pty Limited (Previously A Aiton)#	48	Moolarben Coal Mines Pty Limited (Previously JG & JW O'Sullivan)#	86	NW Harris
23	Moolarben Coal Mines Pty Limited (Previously A & E Woodhead) #	49	Moolarben Coal Mines Pty Limited (Previously AM Brooks)	87	BJ & K Howe
24	Moolarben Coal Mines Pty Limited (Previously LK Hoare)	50	Moolarben Coal Mines Pty Limited (Previously C Mayberry)^#	88	BC Meyers
25	Moolarben Coal Mines Pty Limited (Previously GG Tuck-Lee & SH Symons)^#	51	Moolarben Coal Mines Pty Limited (Previously KO Bishop)	89	MV & HM Glover & E & BJ Tomlinson
26	Forty North Pty Limited^^	52	JT Williams	90	SA Powell
27	Moolarben Coal Mines Pty Limited (Previously GC & JK Helm)	53	WD & MS Bryant	91	HM Graham
28	Moolarben Coal Mines Pty Limited (Previously D Chinner )	54	MA & C Harris	92	VA Pulicino & J & S & G Bonnici
29	Moolarben Coal Mines Pty Limited (Previously E Mayberry)^#	58	ML & JLM Bevege	93	F & M Fenech

ID	Name	ID	Name	ID	Name
94	LK Mittermayer	126	MP Julian	171	AD & SA McGreggor
95	BJ Withington	127	BKT & SA Bracken	172	AJ & TM Kimber*
96	D Lazicic	128	AW Sims	173	Moolarben Coal Mines Pty Limited (Previously H & M Richter)
97	DJ & MD Smith	129	MJ Yelds	174	Moolarben Coal Mines Pty Limited (Previously R Tinker)
98	ME & JJ Piper	130	GP McEwen	175	MG Vale
99	DE Jenner & WB Jensen	131	GR & RA King	176	VJ Wakefield
100	A Kapista	132	N Atkins	177	PL & CM Mobbs
101	RD & DMZ Hull	134	MJ & H Swords^	178	PR Stone
101A	PJ Kearns	145	JR & BM Evans	179	MJ Stutsel
102	KA Roberts	148	Moolarben Coal Mines Pty Limited (Previously EM Loughrey )	180	CD & LL Barrett
103	SB Burnett & SL Grant	149	Mid Western Regional Council^^	181	SM Forster
104	RA & LA Deeben	151	AI Cunningham (Land entrusted to the Catholic Church in the Dioceses of Bathurst)	182	J Dutoitcook
105	DJ & N Katsikaris	152	Moolarben Coal Mines Pty Limited (Previously AR Buchanan )	183	R & EA Steines
106	TB & JH Reid	153	Moolarben Coal Mines PTty Limited (Previously PE Newton )	184	LA Stevenson
107	ZJ & M & AA Raso	154	Moolarben Coal Mines Pty Limited (Previously JM Cashel )	185	LA Stevenson
108	R Varga	155	Moolarben Coal Mines Pty Limited (Previously JA Tortely )	186	RW & IJ Adamson
109	DA Evans	156	Moolarben Coal Mines Pty Limited (Previously JA Knox )	187	BT & KM Feeney
110	JT Thompson & HT Evans	157	Moolarben Coal Mines Pty Limited (Previously MJ & JM Power )	188	KR & T Fielding
111	GJ & NJ McEwan	158	Moolarben Coal Mines Pty Limited (Previously KE & RA Carlisle)	189	MEH & DI & MT & AC Goggin & JR & AR & PA & RA Hyde
112	MJ & LM Croft	159	Moolarben Coal Mines Pty Limited (Previously NA Power )	190	T & LK Sahyoun
113	CPG Ratcliff	160	Minister for Education and Training^^	191	BW & TS Lasham
114	TF & K Holland	160B	Moolarben Coal Mines Pty Limited (Previously Minister of Education )	192	D Williams
115	AK & BH Ouinn	161	Moolarben Coal Mines Pty Limited (Previously S Palmer )	193	DJ Moloney
116	DJ & SM Reid	162	DM Harrison	194	PM & K Potts
117	JM Dick	163	Moolarben Coal Mines Pty Limited (Previously CM & JJ Key )^	195	R Cottam
118	A Scott	164	Moolarben Coal Mines Pty Limited (Previously JJ Key )^	196	F Saxberg & M Weir
119	PJ Kearns	165	Moolarben Coal Mines Pty Limited (Previously RJ Andrew )	197	PGG & I Nielsen
120	PS & DR Ord	166	Moolarben Coal Mines Pty Limited (Previously CM Key)^	198	GR & ME Metcalfe
121	EJ Cullen	167	Moolarben Coal Mines Pty Limited (Previously F Boyd)	199	PGG & I Nielsen
123	ND Sullivan	168	PJL Constructions Management Co Pty Limited	200	VK Grimshaw
124	WJ & HE Bailey	169	Moolarben Coal Mines Pty Limited (Previously EH & RJ Tinker)	201	KR & GM Towerton
125	DB McBride	170	HW & CL Montgomery*		

ID	Name	ID	Name	ID	Name
202	H & VF Butler	227	WP & JA Hughes	256	RC Campbell
203	DJ Miller	228	PP Libertis	257	W & LG Cap
204	RB & JE Donnan	229	JJ & BA Lowe	258	PM & CD Elias
205	DW Sparrow & M Tallan	230	DA Hoole & DT Rawlinson	300	CM Collins & CY Marshall
206	CA Marshall & R Vella	231	T Morrison & SM Benny	301	AW & SC Stewart*
207	AA & DM Smith	232	L & JA Haaring	302	DJ & KS Hamilton
208	SA & CR Hasaart	233	TJ & LA Wilcox	303	HJ Ungaro
209	F Mawson	234	B Stammers & BJ Elphick	304	G Balajan
210	JM & AM Tebbutt	235	LM & RS Wilson	305	L Barisic & M Aul
211	SA McGregor & WJ Gray	236	RG & CA Donovan	306	E Armstrong
212	E & M Lepik	237	A Puskaric	307	M Chant & NK Young
213	D & J Parsonage	238	BF Powell	308	NA Dower
214	RK & EG O'Neill	239	JE Delarue	309	GS Maher
215	SG & PM Green	240	GJ & DM Hartley	310	KI Death
216	G Holland & FA Handicott	241	Moolarben Coal Mines Pty Limited (Previously H & DL Danson)#	311	BJ & LC Williamson
217	RP & JL Patterson	244	YR Jones	312	MS & JJ Ioannou
218	GF & GEL Soady	245	MP & KLE Cresham	313	NJ & BDE Pracy
219	T & S Riger	247	J & H & K Batshon	314	SL Ford
220	SJ Rusten & NJ Smith	248	G Boustani	315	WJ Richards & BJ Uzelac
221	The State of NSW^^	250	GC Eldridge	316	CR Vassel & CM Williams
222	BJ Purtell	251	NF Potter & CE Selley	317	RJ Hore & V Bingham
223	EW Palmer & JM Stewart	252	GA & RM Johnston	320	R & KA Clifford
224	RS & PCC Dupond	253	SJ Highett		
225	G & RF Doualetas	254	W & MP Marshall		
226	LAA & FC Muscat	255	HJ & H Schmitz		

\*Agreement in place with MCM.

\*\* In Ulan or Wilpinjong ZOA.

^ In existing Stage 1 ZOA.

^^ Commercial Property or Government land.

# Purchased by MCM since the Stage 2 EA.

### 3 THE PREFERRED PROJECT

#### 3.1 OVERVIEW

This section provides a description of the Preferred Project as well as a comparison of the Preferred Project with the Stage 2 EA.

The proposed changes to the Stage 2 Project were undertaken to address issues raised in the public exhibition and assessment of the Stage 2 application.

Key changes include amendments to the OC4 coal extraction boundary and overburden emplacement location to avoid impacts to ecology (primarily C/EEC) and minor infrastructure variations as summarised in **Table 8** and shown in **Figure 2**.

The Preferred Project supersedes the Project as described in **Section 4** of the Stage 2 EA.

**Table 8**  
**Comparison of Preferred Project to that Presented in the Stage 2 EA**

Stage 2 EA	PPR	Beneficial Outcome
OC4 mine plan commencing in the south-east, progressing generally north and west, then east and south	OC4 commences in the north-west and progressing as described in <b>Section 3.2.1</b>	<ul style="list-style-type: none"> <li>Relocation of the OOP emplacement area (to avoid 33.5 ha threatened species and nine Aboriginal heritage sites)</li> <li>Relocation of OOP emplacement to north avoids OOP emplacement area adjacent to Munghorn Gap Nature Reserve</li> <li>Avoidance of the relocation of 2.7 km of Murragamba Creek</li> </ul>
OC4 footprint 1,250 ha	Extension of OC4 to the north to increase recoverable coal adjacent to the underground mine plan Coal extraction area of approximately 1,280 ha	<ul style="list-style-type: none"> <li>Avoidance of impacts to threatened species and Aboriginal heritage sites</li> <li>Adjustment of mineable areas in higher strip ratio to compensate against areas avoided</li> </ul>
Southern and South-western OOP emplacement areas with a combined area of 122 ha	Construction of a Northern OOP emplacement area (total area 93 ha) and removal of the Southern and South-western OOP emplacement areas to avoid threatened species and Aboriginal heritage sites	<ul style="list-style-type: none"> <li>Consolidation of OOP emplacement area to subsidence area of UG1, minimising collective impacts to a single location</li> <li>Avoidance of threatened species and nine Aboriginal heritage sites</li> </ul>
Realignment of a section of Murragamba Creek	Changing the timing of the realignment of Murragamba Creek and avoidance of 2.7 km of Murragamba Creek	<ul style="list-style-type: none"> <li>Mining completes earlier in the relocation path which allows for the re-established creek to be utilised earlier</li> <li>Avoidance of the relocation of 2.7 km of Murragamba Creek</li> </ul>
Development of Stage 2 ROM coal facilities	Relocate Stage 2 ROM coal facilities	Crushed coal stockpile will facilitate a reduction of mobile equipment use for coal rehandle resulting in localised reductions to noise emissions, air quality impacts, greenhouse gas emissions; and financial costs
Use of excavators in OC4	Use of electric or diesel excavators or rope shovel in OC4	Allowance for future upgrades of equipment to allow for rope shovel option

Stage 2 EA	PPR	Beneficial Outcome
Truck transfer OC4 ROM coal via haul road to Stage 2 ROM coal facility	Two transfer conveyors from Stage 2 ROM coal facility to Stage 1 ROM coal facility Retain option of haul road for light vehicle access, mobile equipment maintenance and haulage during conveyor maintenance / outages Truck ROM coal to relocated Stage 2 ROM coal facility located at north-western extent of OC4	Improvements to noise emissions, air quality impacts, greenhouse gas emissions; and financial costs
ROM pad adjacent to existing Stage 1 ROM coal facility	Minor extension of ROM pad adjacent to existing Stage 1 ROM coal facility	<ul style="list-style-type: none"> <li>• Practical allowance for road and stockpile changes to facilitate the integration of the overland conveyor option</li> <li>• Mine safety is also enhanced with improved accesses and work areas</li> </ul>
70 m wide OC4 haul road disturbance corridor	80 m wide OC4 haul road disturbance corridor to allow for effective drainage controls	Aid in effective drainage and reduce runoff to undisturbed areas
Site access from Ulan-Wollar Road to OC4 site facilities	Additional site access from Ulan-Wollar Road to relocated OC4 site facilities	<ul style="list-style-type: none"> <li>• Practical inclusion to aid mine safety and cost. Travel distances within mine are reduced, achieving operational efficiencies and reducing potential for dust emissions.</li> </ul>
Disturbance Boundary not previously consolidated on one figure	Consolidation of Disturbance Boundary of approximately 1,532 ha	Facilitate construction of clean water diversions and minor infrastructure such as water pipelines as well as assist in developing an adequate Biodiversity Offset Strategy
66kV Power line adjacent to Gulgong-Sandy Hollow Rail Line and relocated Ulan-Wollar Road	Relocation of 66kV Power line adjacent to Gulgong-Sandy Hollow Rail Line and relocated Ulan-Wollar Road	Provide separation between the haul road and overhead power for safety
Not proposed	Underground 66kV Power line to UG1 located adjacent OC1 highwall	Power access to UG mines with minimal disturbance
Not proposed	Culvert under Ulan Wollar Road for underground coal bypass conveyor	Practical inclusion for clarification of coal transport
Not proposed	Fire water storage adjacent OC1 highwall	To meet statutory fire safety requirements
Not proposed	Provision of bulk explosives storage / explosives magazine within the Stage 2 Disturbance Boundary	Practical inclusion for clarification of safe storage of explosive materials
Ecological offsets strategy	Revised Biodiversity Offset Strategy	Provide Biodiversity offsets for impacts to ecology, particularly C/EEC
42 properties owned by MCM represented on Stage 2 EA land ownership figure	56 properties owned by MCM represented on <b>Figure 1</b>	Purchase of 14 properties resulting in improved environmental and social outcome for impacted residents

The Preferred Project will generally be undertaken within the Stage 2 Disturbance Boundary as illustrated in **Figure 3** and **Figure 4**.

Outside the Disturbance Boundary, minor additional disturbance associated with ancillary works will be required, including: firebreaks, water diversion structures, minor contour banks, tracks along pipelines, explosives storage facilities, power supply for rope shovel, powerlines, fences and sediment and erosion control structures.

These mining related activities will occur within the Project Boundary, as required and will be undertaken in accordance with the Land Disturbance Protocol described in **Section 4.10**.

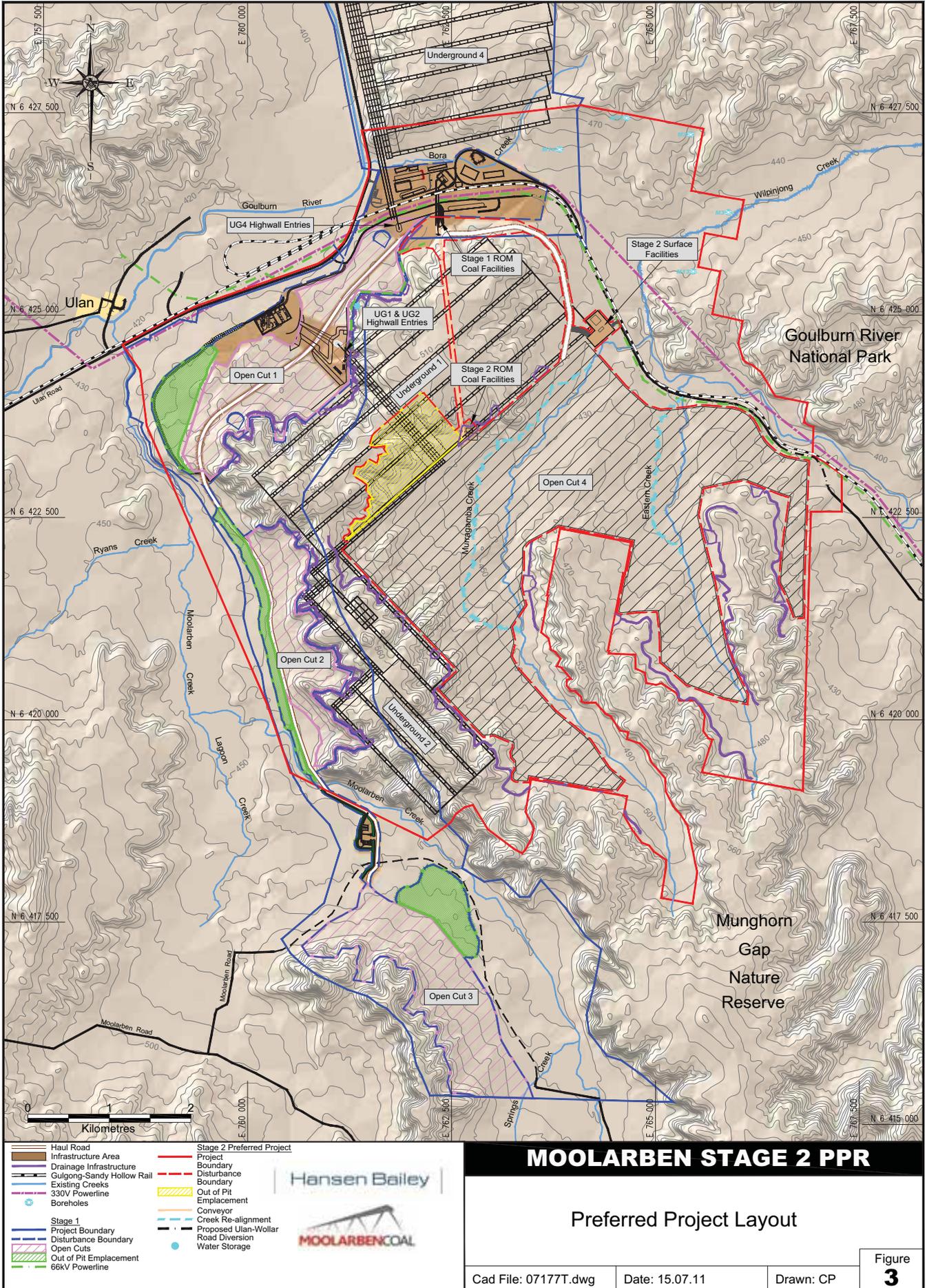
The utilisation of Stage 1 facilities including CHPP and supporting infrastructure will continue to be required.

**Table 9** provides a summary of the Preferred Project.

**Table 9**  
**Stage 2 Preferred Project Summary**

Aspect	Description
Project life	24 years
OC 4	<ul style="list-style-type: none"> <li>Maximum pit depth of 90 m with approximately 1,280 ha of coal extraction disturbance</li> <li>Overburden and coal will be blasted where necessary and removed using excavator or rope shovel and truck operations</li> <li>Up to 12 Mtpa ROM coal will be mined from OC4</li> </ul>
Blasting	<ul style="list-style-type: none"> <li>Blasting across the MCC will be limited to nine blast events per week (averaged over any 12 month period) and a maximum of two blast events per day between the hours of 9:00 am to 5:00 pm Monday to Saturday</li> </ul>
UG 1 and UG 2	<ul style="list-style-type: none"> <li>Two underground mines (UG1 and UG2 – depth 50 m to greater than 100 m) will be mined at a maximum combined rate of up to 4 Mtpa ROM coal</li> <li>Coal will be recovered using a longwall shearer and transferred to the surface by conveyor</li> <li>UG1 highwall entry will be in the eastern highwall of OC1</li> <li>UG2 entry will be through UG1</li> </ul>
Coal handling and preparation facilities; including waste rock, coarse rejects and tailings	<ul style="list-style-type: none"> <li>OC4 ROM coal will be transferred to the Stage 2 ROM coal facility (which includes rejects bin, ROM hopper, 200,000 t stockpile, crusher and associated infrastructure ) at the north-western extent of OC4 via haul truck, prior to transfer to the Stage 1 ROM coal facility or ROM stockpile primarily via conveyor</li> <li>OC4 ROM coal will only be transferred via haul truck to the Stage 1 ROM coal facility or ROM coal stockpile during conveyor maintenance / outages</li> <li>ROM coal from UG1 and UG2 will be transferred to a 100,000 t stockpile at the UG portal</li> <li>UG ROM coal will be transferred via haul truck to the Stage 1 ROM coal facility or ROM stockpile, prior to transfer to the CHPP</li> <li>All MCC ROM coal will be delivered to the Stage 1 ROM coal facility</li> <li>MCC CHPP throughput will be up to 17 Mtpa and output up to 13 Mtpa of product coal</li> <li>Product coal will be transported using up to five trains a day</li> <li>Northern OOP emplacement area and backfilling behind active operations</li> <li>Coarse rejects and tailings will be emplaced with overburden in the open cut void</li> <li>Continuation of use of Stage 1 emergency tailings dam</li> </ul>

Aspect	Description
Mine access	Two site entries from Ulan–Wollar Road
Support facilities and utilities	<ul style="list-style-type: none"> <li>• Offices, bathhouses, workshops and fuel storages (where required) will be established at the northern most extent of OC4. Temporary facilities will be established in advance of mining at OC4</li> <li>• Relocation of associated UG4 pit top facilities to the northern part of OC1</li> <li>• Construction and use of explosives facility and magazine</li> <li>• A network of internal roads to enable coal haulage and access around the site</li> <li>• Power supplied from the Stage 1 66/11 kV substation</li> <li>• Construction of fire water tank adjacent OC1 highwall for UG1</li> </ul>
Water demand and supply	Water will be supplied from the mine inflows, surface water capture, recycled process water, groundwater borefield and water sharing with adjoining mines, where required
Waste	<ul style="list-style-type: none"> <li>• Coarse rejects and tailings will be delivered to the Stage 1 rejects bin for back hauling or conveying and emplacement in Stage 1 and Stage 2 open cut pits respectively</li> <li>• The throughput of rejects for the MCC will increase to 4 Mtpa</li> <li>• Rejects will be returned to OC4 via conveyor and Stage 1 as currently approved</li> </ul>
Hours of operation	Operation 24 hours a day, 7 days a week
Employment	Up to 122 full time personnel additional to the approved 317 Stage 1 approved employees
Rehabilitation	<ul style="list-style-type: none"> <li>• All disturbed areas not required for life of mine operations will be progressively rehabilitated</li> <li>• Realignment of a section of Murragamba and Eastern Creeks will be rehabilitated prior to release of flows into realigned sections</li> <li>• A Biodiversity Offsets Strategy will be implemented for Stage 2 to mitigate impacts to ecology as described in <b>Section 4.10</b></li> </ul>





## 3.2 OPEN CUT 4 CONCEPTUAL MINE PLAN

### 3.2.1 Mine Layout

OC4 will be developed and operated concurrently with the Stage 1 open cut mines, such that the total amount of open cut ROM coal extracted across the mining complex (Stage 1 and Stage 2 combined) in any year will not exceed 13 Mt (up to 8 Mt from OC1, OC2 and OC3 combined; and up to 12 Mt from OC4).

**Figure 5 to Figure 10** illustrate the conceptual mine plan layouts for Years 2, 7, 12, 16, 19 and 24 respectively. The timing of the staged mine plans are indicative worst case only and have been included for modelling purposes and may vary due to the ultimate production levels achieved in the period in question. These stages of the mine plan have been selected for modelling as they represent a combination of mining at the extremities of the Project mine life and the greatest intensities of mining.

Operations are proposed to commence in the north-western extent of OC4 and progress towards the south-west to the most western limit of the pit at approximately Year 6. Operations are proposed to relocate and remobilise in the north-west progressing to the most northern boundary to facilitate establishment of the Murrumbidgee Creek realignment. Operations are then anticipated to turn towards the south-eastern extent of the pit and progress up both valleys over the life of the mine. Material will be backhauled from Eastern Creek valley to the southern extent of Murrumbidgee Creek valley to eliminate the need for a final void adjacent to Munghorn Gap Nature Reserve. A final void will remain in the eastern most extent of OC4. The conceptual final landform is described and shown in **Section 4.22**.

During the early years of operation, the Northern OOP emplacement area is proposed to be developed to the north-west of OC4. The Northern OOP emplacement area is anticipated to be fully developed up to a Reduced Level (RL) not exceeding 535 m.

### 3.2.2 Mining Schedule and Methods

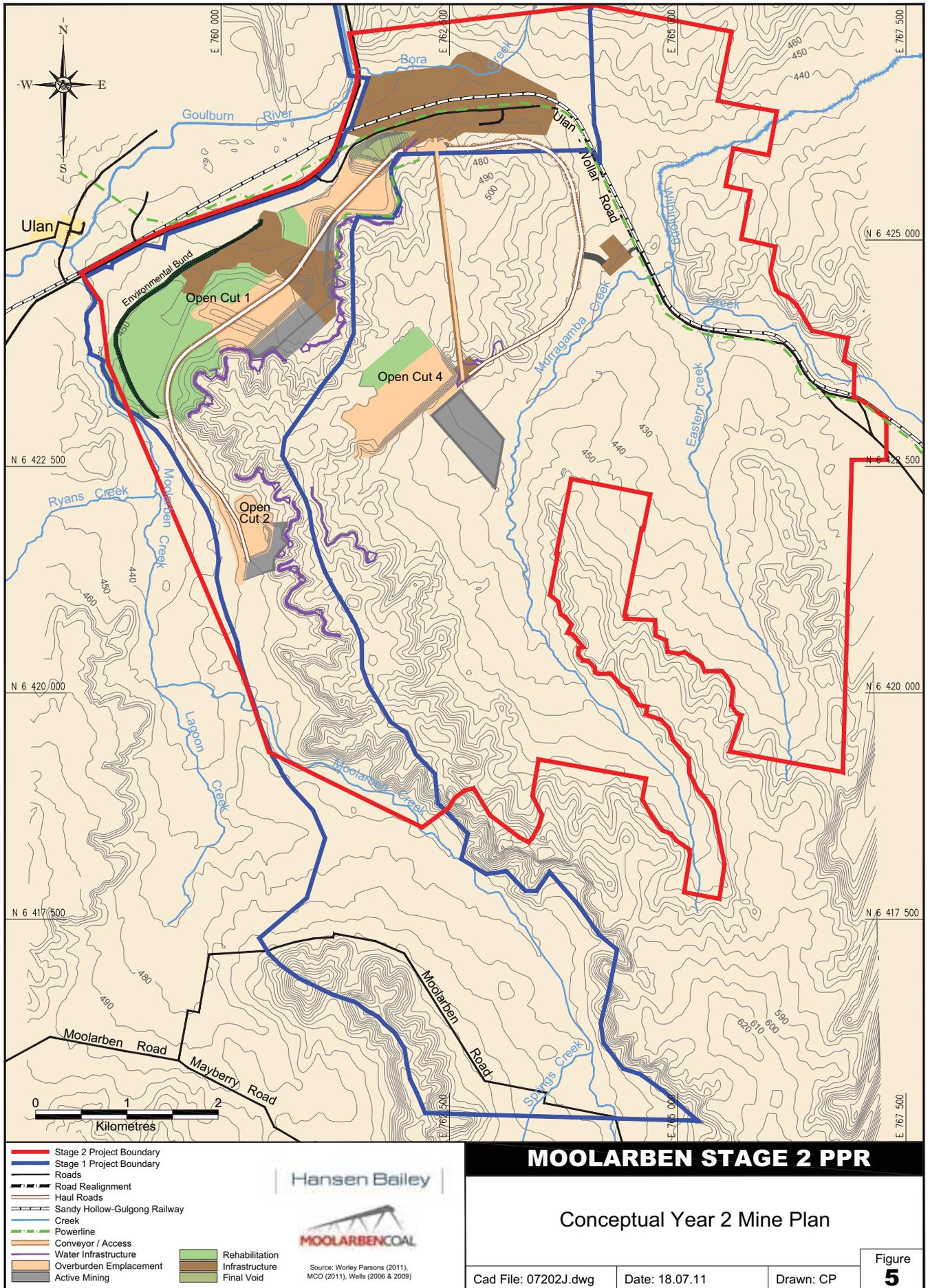
The operational mining years discussed in this PPR refer to the Preferred Project, not the MCC. Stage 1 has been operational since 2009 and as such, assuming Mine Year 1 of the Preferred Project is 2013, this equates to Mine Year 4 of the MCC.

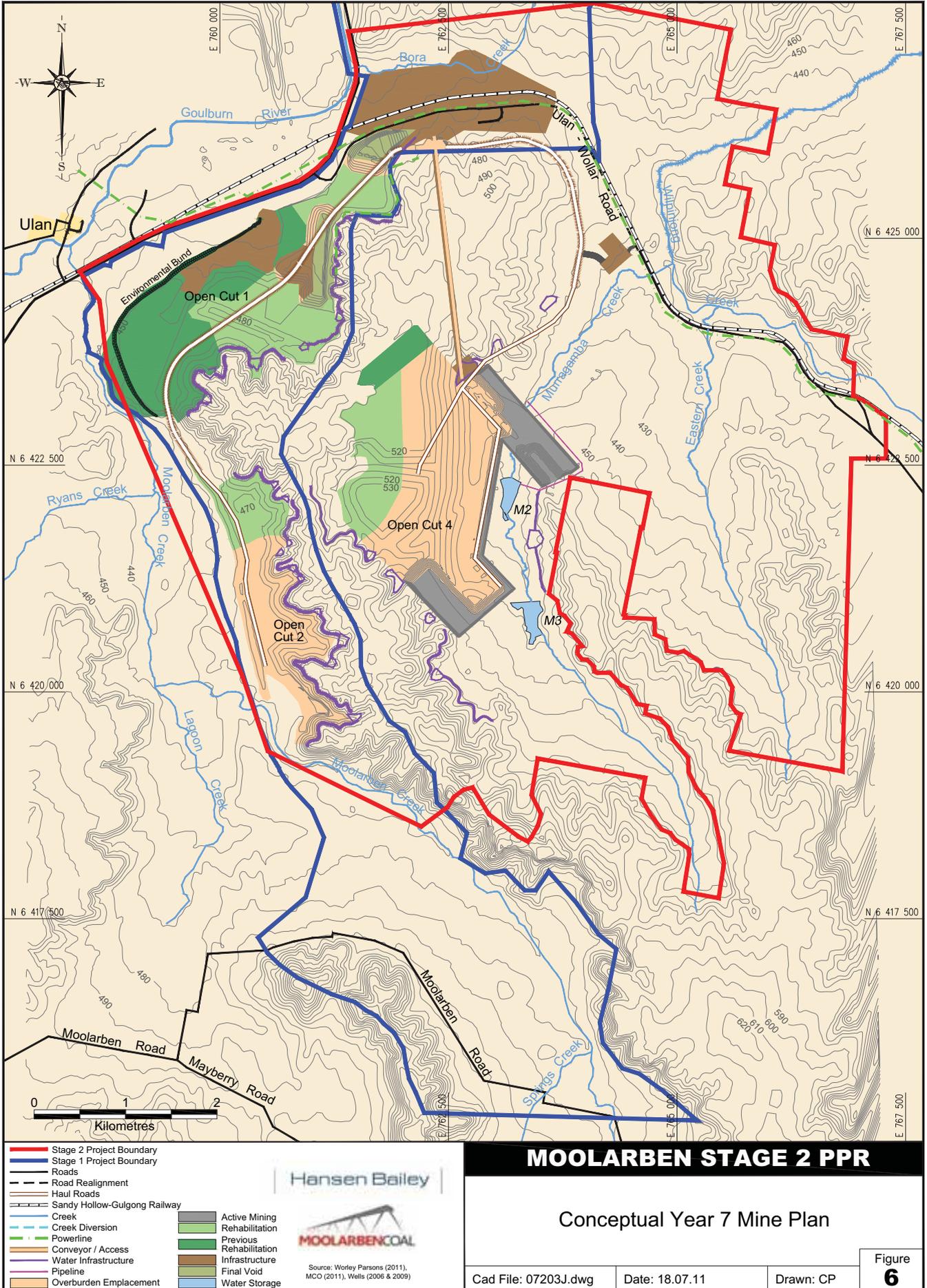
An indicative Stage 2 open cut mining schedule is presented in **Table 10**. The Preferred Project will generally utilise an excavator (or rope shovel) supported by a fleet of trucks. Typical of standard excavator (or rope shovel) and truck mining methods, topsoil is initially stripped from the mining area and either respread directly on available rehabilitation areas and / or stockpiled for later use. Overburden is then blasted prior to being removed by the excavator (or rope shovel) into rear dump trucks before coal extraction can commence. The fleet then progresses through the sequence to uncover and extract each coal seam within the mining sequence.

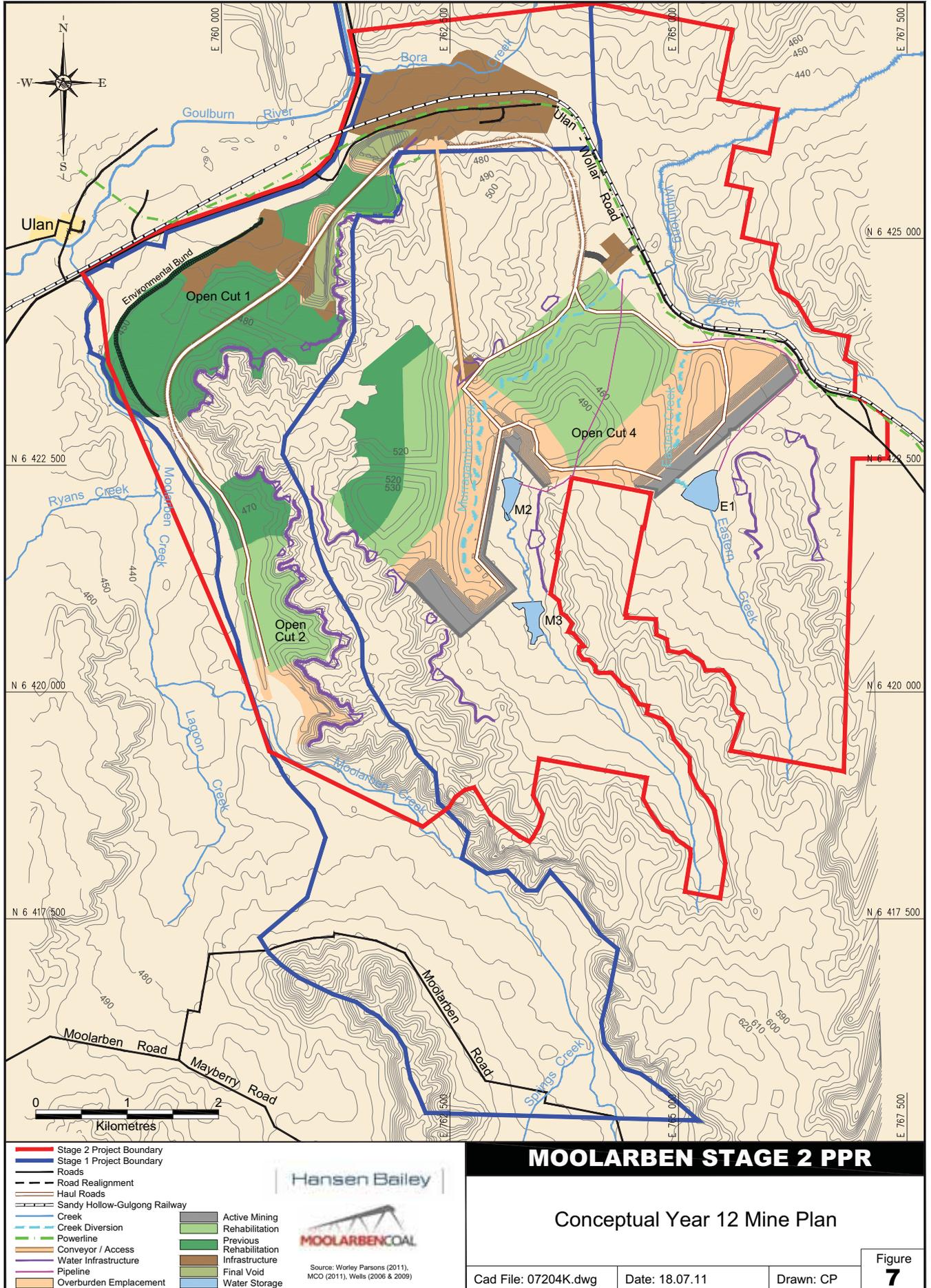
Various minor infrastructure supporting day to day activities will be constructed within the Stage 2 Project Disturbance Boundary as required. This is likely to include: topsoil stockpiles, erosion and sediment control structures, power supply sub-lines and substations, water reticulation systems, in-pit fuelling areas, truck parking area, fire breaks, crib facilities, access tracks, fencing and storage areas.

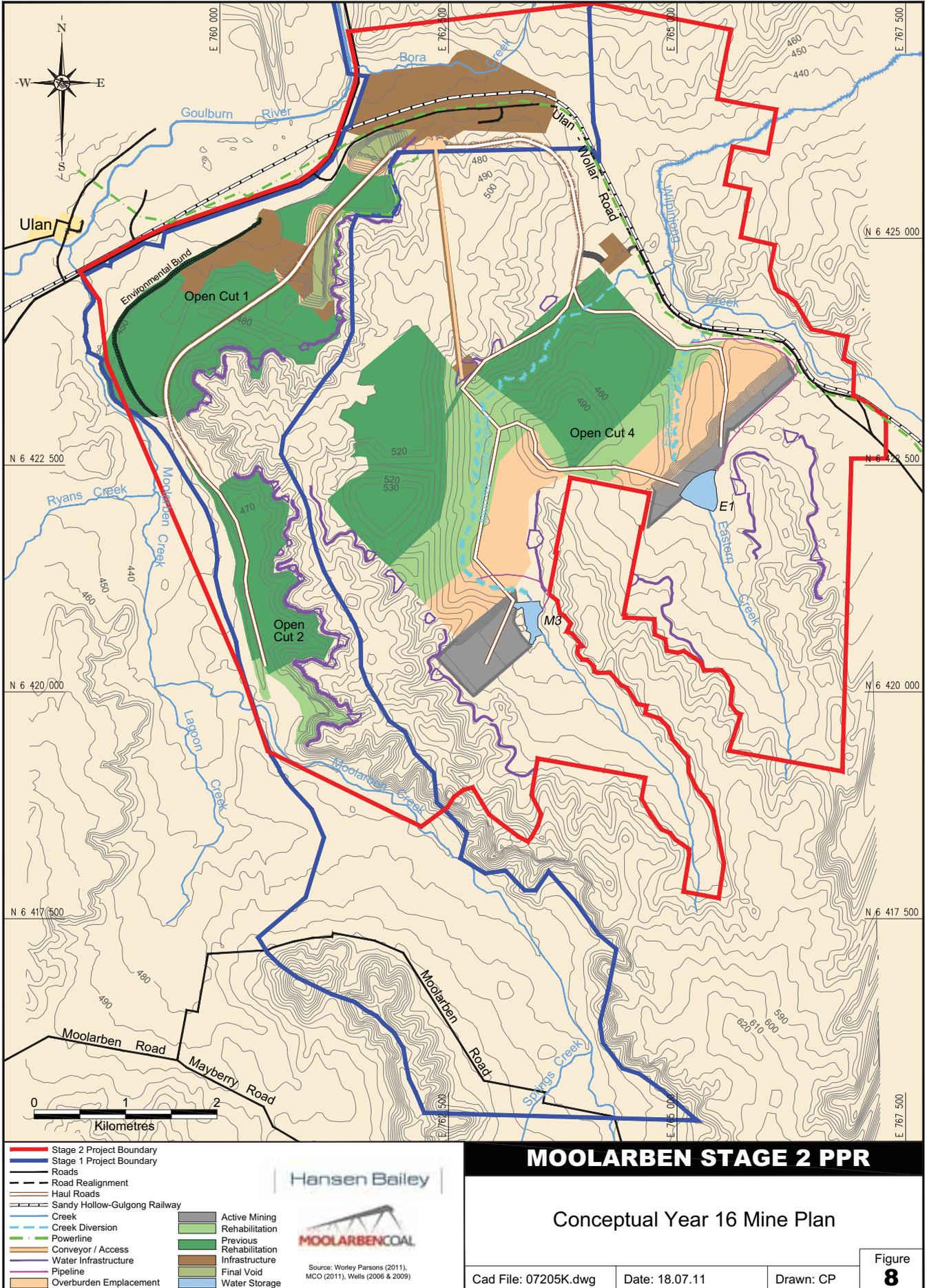
### 3.2.3 Blasting

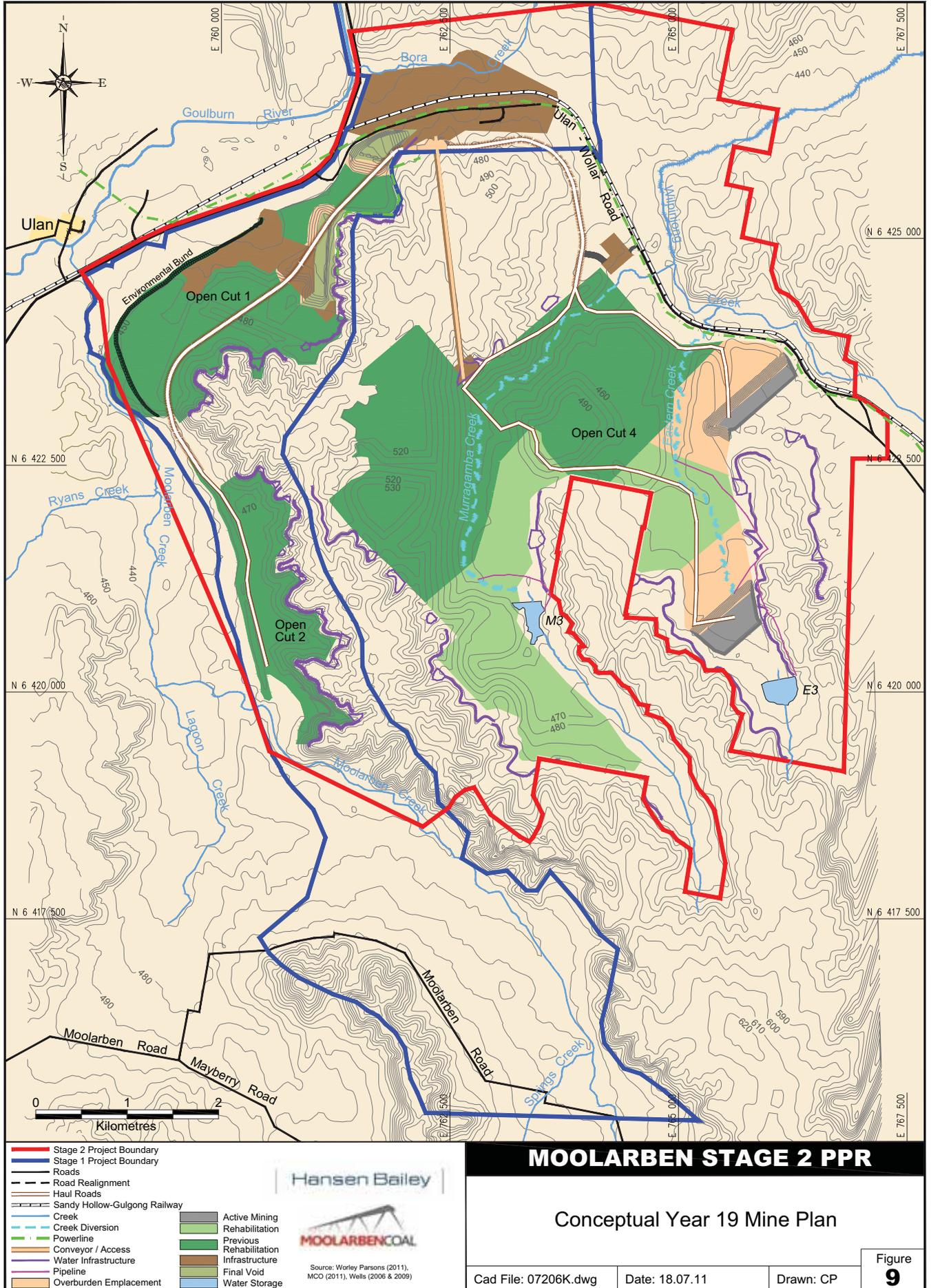
Blasting of overburden will be designed to achieve optimal fragmentation while protecting surrounding sensitive receivers, natural features and infrastructure (including culturally sensitive sites, roads, railways, transmission lines and buildings). Fragmentation of overburden will require large blasts with a maximum instantaneous charge (MIC) of approximately 1,788 kg (depending on the number of excavator passes). Blasting will also be undertaken of coal for fragmentation however at lower MIC's. Fragmentation of coal will typically require a MIC of approximately 240 kg (i.e. less than that for the overburden).

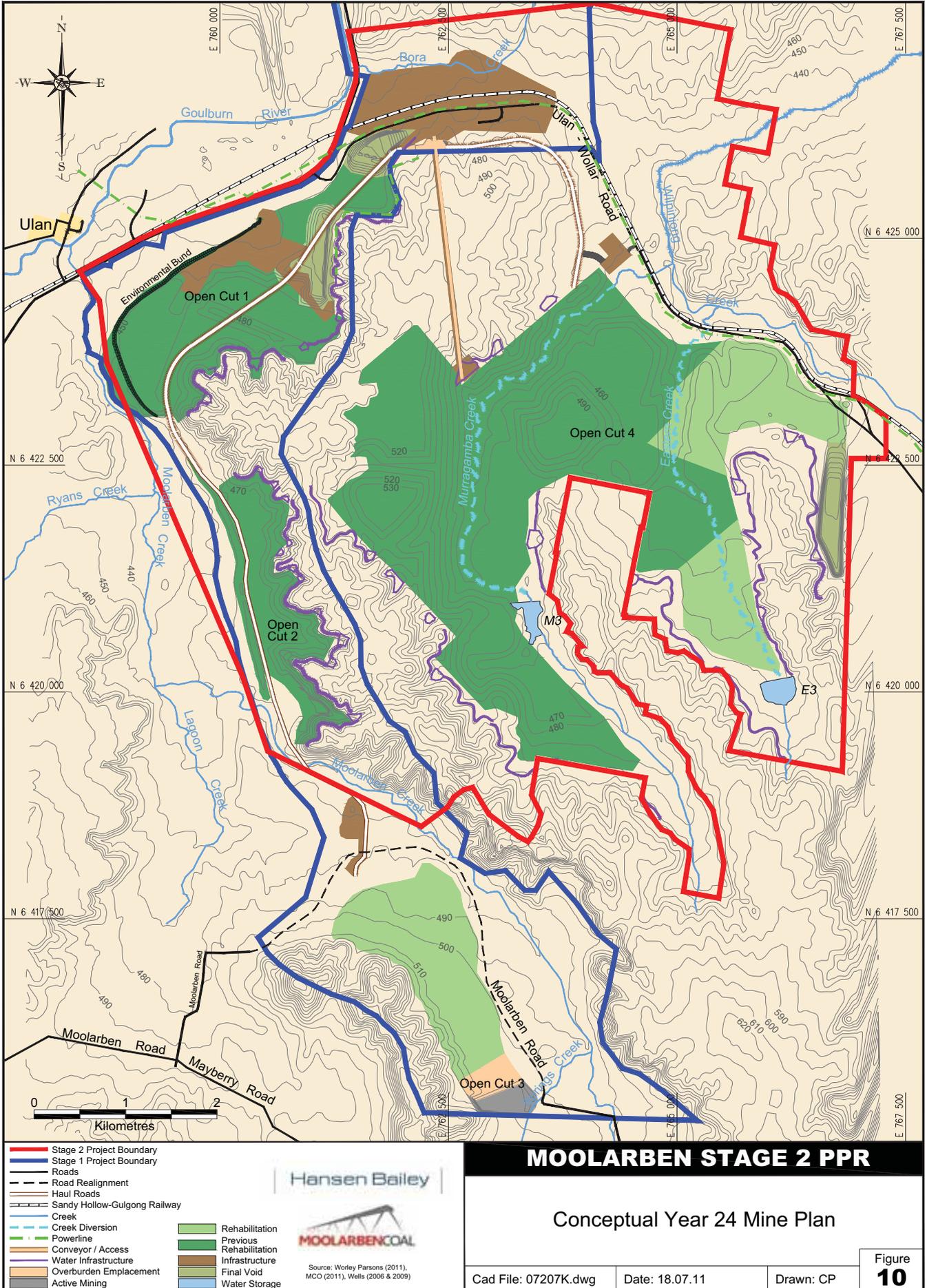












**Table 10**  
**Indicative Open Cut Mining Schedule for Modelled Years**

Preferred Project Mining Year	OC4 Overburden (Mbcm)	OC4 ROM coal (Mt)	Maximum MCC OC ROM coal (Mt)
2	10.0	4.5	13.0
7	47.0	12.0	13.0
12	47.0	12.0	13.0
16	41.0	11.5	13.0
19	55.0	12.0	13.0
24	0.0	0.0	3.5

Blasting will be conducted between the hours of 9:00 am to 5:00 pm Monday to Saturday unless otherwise approved by the relevant regulator. Blasting across the MCC will be limited to nine blast events per week (averaged over any 12 month period) and a maximum of two blast events per day.

Blasting in OC4 will be coordinated with Stage 1 and where practical with the adjoining Wilpinjong and Ulan coal mines. This will minimise the potential for simultaneous blasting and hence cumulative blasting impacts on surrounding receivers.

### 3.2.4 Indicative Equipment Fleet

The indicative Stage 2 open cut mining fleet and equipment is provided in **Table 11**. Both Stage 1 and Stage 2 open cut mining fleet and equipment will be used across the MCC to optimise open cut mining production and to proactively manage noise and dust across the MCC so that off-site emissions are minimised.

## 3.3 UNDERGROUND 1 AND UNDERGROUND 2 CONCEPTUAL MINE PLAN

### 3.3.1 Mine Layout

The Stage 2 underground mines (UG1 and UG2) will be developed generally consistent with the Stage 2 EA. The underground mine design and layout maximises the efficient extraction of the economically viable coal resource, without compromising the integrity of various natural and built surface features (i.e. cliff lines, native vegetation, archaeological features, roads, rail lines, etc).

UG1 and UG2 will be developed under the sandstone ridges between the Moolarben Creek and Murragamba Creek valleys (see **Figure 11**). The Stage 2 underground coal resource is estimated to be about 56 Mt. Not all of this coal will be mined, as coal pillars will be left in place to protect a range of surface features from mine subsidence effects.

Mining will extract the D working section (DWS) of the Ulan Seam with up to 3.2 m (2.8 to 3.2 m) of the seam to be recovered in UG1 and up to 3.0 m (2.2 to 3.0 m) in UG2. Longwall panels will range from about 1,700 m to 3,000 m in length and will be approximately 300 m wide. The panels in UG1 will be oriented generally north-east to south-west. The panels in UG2 will be oriented generally north-west to south-east.

Underground mining will progress at a rate of up to 4 Mtpa. Development of UG1 will occur first followed by UG2 (see **Figure 11**). The areal extent of the two underground mines and area of predicted surface subsidence is approximately 988 ha.

Entries to UG1 will be constructed in the eastern highwall of OC1 to enable access for workers, materials and the drift conveyor. Construction of the entries will commence at Year 2 of the Preferred Project, when the highwall is safely exposed. Access into UG2 will be through headings from UG1.

**Table 11**  
**Indicative Operating Equipment Required for OC4**

Equipment type	Capacity / Class	Number
Overburden Excavator (996) / Rope Shovel	1800 bcm/hour	4
Coal Excavator (RH200)	1800 – 2000 t/hour	1
Coal Trucks (830E)	200 t/load	8
Overburden Trucks (830E)	85 bcm/load	12
Dozers - dump	475A	4
Dozers - face	375A - 475A	6
Graders	16M – 24M	3
Water Carts	85,000 L	3
Wheel Loaders	WA1200	1
Rubber Tyred Dozers	WD900	1
OB Drill	60,000 - 75,000 lb	2
Coal Drills	60,000 lb	1
Coal Dozers	475A	3
Reject Trucks	830E	3
Rehab Dozer	475A	2
Other Ancillary Equipment	Various	Various

### Mining Schedule and Methods

UG1 and UG2 will generally be developed sequentially prior to Stage 1 underground mining (UG4) such that the total amount of underground coal extracted will not exceed 4 Mtpa ROM coal. Extraction of approximately 0.5 Mtpa ROM coal is anticipated during the initial development works.

The Stage 2 underground mines will be developed in the same manner as the Stage 1 UG4 mine (Wells Environmental Services 2006a and 2006b) which generally comprises:

- Construction of underground entries from OC1 highwall;
- Installation of ventilation;
- Installation of the drift conveyor;
- Development of main headings and gate roads including installation of associated conveyors and ancillary surface facilities (e.g. ventilation fans, groundwater drainage boreholes or other safety apparatus where required);
- Longwall mining and subsidence; and
- Transfer of ROM coal to a short-term stockpile adjacent to the highwall entries and then to the Stage 1 ROM coal stockpile via haul truck.



### 3.3.2 Longwall Mining and Subsidence

The underground coal will be mined using conventional longwall methods. It will then be transferred to a belt conveyor established along the gate road and main heading for transport to the surface (i.e. development, gate and drift conveyors). These conveyors will be capable of transferring coal at a rate of approximately 2,500 t/hour.

It is proposed that the sequence of mining will commence in UG1 at the furthest end of panel 1 (LW1), and will generally progress back to the south-west, toward the mine entrance (see **Figure 11**). The longwall shearer will then be relocated to the far end (north-east end) of LW2 with mining to continue to the south-west. LW3, LW4 and LW5 will be mined in a similar manner.

Following this, mining will recommence at the far end (south-west end) of LW6, with mining to progress along the panel to the north-east. LW7, LW8 and LW9 will be mined in a similar manner.

It is proposed that the sequence of mining will commence in UG2 at the furthest end of LW10 (south-east end), mining will then progress along this panel toward the north-west. LW11, LW12 and LW13 will be mined in a similar manner, except that the width of LW12 and LW13 will vary to leave a block of coal in situ. This in situ block of coal will protect a rock shelter containing Aboriginal art in the cliff line above these panels from the effects of mine subsidence.

## 3.4 COAL HANDLING AND PREPARATION FACILITIES

### 3.4.1 ROM Coal Handling

Stage 2 will include the development of the following coal handling infrastructure as shown on **Figure 4**:

- Open cut ROM coal handling, comprising:
  - Stage 2 ROM coal facility including rejects bin, ROM hopper, stockpile, crusher, belt press filters and associated infrastructure (located at OC4);

- Two conveyors to transport ROM coal to the Stage 1 ROM coal facility and return reject to the OC4 area;
- ROM coal stockpile (located at the Stage 1 ROM coal facility);
- Raw crushed coal stockpile and overhead conveyor (tripper);
- Raw coal reclaim conveyors and tunnels; and
- Transfer conveyors.
- UG1 and UG2 ROM coal handling, comprising:
  - 100,000 t short-term ROM coal stockpile; and
  - Coal bypass conveyor.

Additionally, the Stage 1 ROM coal facility (i.e. Stage 1 ROM coal hopper, crushers and raw coal transfer conveyors) will accept ROM coal from the Stage 2 ROM coal facility and UG1 and UG2 to enable the transfer of Stage 2 ROM coal to the CHPP. Further detail on each of the open cut and underground operations with the CHPP is provided below.

#### Open Cut 4

OC4 coal will be transferred to the Stage 2 ROM coal facility via haul truck where it will be stockpiled or transferred to the Stage 1 ROM coal facility via conveyor. Alternatively, during conveyor maintenance and outages OC4 ROM coal will be transferred via haul truck to the Stage 1 ROM coal facility or associated stockpile.

The Stage 1 ROM coal facility and CHPP accepts coal from Stage 1 approved mining operations. The existing Stage 1 ROM coal facility and CHPP will process ROM coal from Stage 2 also.

The Stage 1 ROM coal facility and CHPP throughput will increase to up to 17 Mtpa to enable processing of ROM coal from both Stage 1 and Stage 2 simultaneously. These facilities have been designed and built to accommodate the addition of Stage 2 coal at the proposed increased handling rate.

## Underground 1 and 2

Underground ROM coal will be transferred to the surface via the development, gate and drift conveyors where it will be delivered to the short-term ROM coal stockpile adjacent to the highwall entries.

Coal extracted from UG1 and UG2 will be conveyed to a short-term ROM coal stockpile on the floor of OC1 adjacent to the highwall entries. The short-term ROM coal stockpile will have a typical operating capacity of 100,000 t. Dozers will be used to manage coal on the ROM coal stockpile. Coal from this stockpile will be loaded onto haul trucks using a front end loader and transported to the Stage 1 ROM coal facility.

### 3.4.2 Tailings and Rejects Management

The operation of Stage 2 will generate up to an additional 2 Mtpa of coarse reject and tailings (4 Mtpa in total from Stage 1 and Stage 2 combined) as a result of the increase in coal throughput at the CHPP. Reject material will continue to be transferred from the CHPP via the Stage 1 rejects conveyor to the rejects bin adjacent to the Stage 1 ROM coal facility (see **Figure 4**).

Rejects will generally be transferred via conveyor to OC4 for co-disposal with overburden in the pit void. Alternatively rejects will be backhauled during conveyor maintenance / outages.

## 3.5 RAIL SPUR AND LOOP

The transportation of all Stage 2 product coal will be via the existing rail facilities. The maximum production of saleable coal in any one calendar year from the MCC will be 13 Mtpa. At maximum production, five trains in each 24 hour day will be required to transport product coal to market.

## 3.6 MINE ACCESS

The main entry point for employees, contractors and visitors to the Administration and CHPP facilities will be via the Stage 1 mine access point off Ulan–Cassilis Road (Wells Environmental Services 2006a).

This intersection was designed in consultation with the NSW Roads and Traffic Authority (RTA) and MWRC and complies with standard RTA design criteria.

The entry point for employees to the Stage 1 ROM coal facilities will be via the Ulan–Wollar Road. Two sections of Ulan–Wollar Road will be realigned around the Stage 2 operations (see **Figure 4**). This includes a 2 km section that begins approximately 2.8 km east of the intersection with Ulan–Cassilis Road (to avoid the Stage 2 ROM coal facility) and a 1 km section that commences approximately 7.5 km east of the intersection (to avoid OC4).

An additional site access intersection for employees to access the Stage 2 surface facilities will be located approximately 4.7 km east of the junction between Ulan–Cassilis and Ulan–Wollar roads. This intersection has been designed consistent with the above described entry point and comply with standard RTA design criteria.

## 3.7 POWER AND COMMUNICATION

The Wilpinjong 66kV power line is adjacent to Ulan–Wollar Road and will require relocation to the southern side of the Gulgong–Sandy Hollow rail line as shown on **Figure 4**.

At least one 66kV power line will also be located along the eastern highwall of OC1 to provide power to UG1 and UG2 via the UG1 access.

A Country Energy 11 - kV power line runs in an easterly direction over Carrs Gap. This line will be terminated at the last user in the Moolarben Creek valley.

## 3.8 MINE INFRASTRUCTURE AREA

The Stage 2 office and workshop facilities area will be located to the north of OC4 (see **Figure 4**). The office and workshop facilities area will contain an administration office and vehicle parking area, crib room, bathhouse, workshops, hardstand areas (for mine vehicle parking), equipment stores, and fuel and lubrication stores. It will be accessed from the Ulan–Wollar Road.

Relocatable facilities will be developed in or adjacent to OC4 due to the distance between the office and workshop facilities and some working areas of OC4. These facilities will comprise satellite offices, crib room, bathhouse, temporary workshop, fuel storage, service areas and heavy vehicle parking.

The Stage 2 office and workshop facilities will service the open cut mine. There will be employee and visitor parking areas with sufficient capacity to accommodate the MCC.

A hardstand area will be located adjacent to the workshops for the assembly and parking of heavy vehicles and associated equipment. A fuel and lubrication store area will contain up to five above-ground 110,000 L diesel-storage tanks that will be bunded appropriately. These tanks will have the ability to be relocated within OC4, consistent with mine progression.

Fuel will be delivered to this facility on a daily basis indicatively by semi-trailer or B-Double tankers. Hydraulic oils, engine oils and all other lubricating oils will be stored within above-ground tanks and drums within bunded storage areas.

### 3.9 WATER MANAGEMENT

Stage 2 water management will be integrated with Stage 1 water management. An overview of the water management strategy is described in **Section 4.7**.

A number of water management structures will be required to manage water held onsite. There will be a number of other sedimentation structures required throughout the life of the Preferred Project.

These will be located within the Project Boundary and designed to capture runoff from rehabilitation areas in accordance with the requirements of Managing Urban Stormwater Guidelines (Landcom Guideline) (Landcom 2004).

### 3.10 OPERATIONAL HOURS AND MANNING

At full production, Stage 2 open cut and associated activities will require the employment of approximately an additional 120 direct employees (above Stage 1's 317 personnel).

Stage 2 open cut operations will be carried out 24 hours a day, 7 days a week. Indicative open cut shift hours include 12 hour shifts during the day (from 7:00 am) and 12.5 hour night shifts commencing 6:30 pm. Shift change over will be outside school bus hours and offset where practical from shift change over at the Ulan Coal Mine and Wilpinjong Coal Mine.

It is anticipated that the same employees will be utilised for both Stage 1 and Stage 2 underground operations. As such no additional mine personnel will be required for Stage 2 underground operations.

Underground operations will typically be carried out 24 hours a day, 5 days a week, with 2 days' maintenance each week. However, at times underground mining will operate 24 hours a day for 7 days a week. Shift change over will be outside school bus hours and offset where practical from shift change at the Ulan and Wilpinjong coal mines.

### 3.11 CONSTRUCTION SCHEDULE

Stage 2 construction will generally comprise: Stage 2 ROM coal facility including rejects bin, ROM hopper, stockpile, crusher and associated infrastructure; conveyors; haul road access to the Stage 1 ROM coal facilities; Stage 2 raw coal stockpile and reclaim conveyors, Stage 2 open cut office and workshop facilities, temporary relocatable OC4 facilities (office, crib room, bathhouse, etc) and underground mine (UG1 and UG2) access and office facilities.

The Stage 2 ROM and raw coal stockpiles and office and workshop facilities will generally be constructed first. Construction of temporary relocatable OC4 facilities will commence as required for mining in OC4.

Construction of underground infrastructure and facilities will commence after the eastern highwall of OC1 is safely exposed (**Section 3.2.2**).

With the exception of UG1 and UG2 access and office facilities, Stage 2 construction activities will be carried out to the east of the Stage 1 ROM coal facility and will be located further from sensitive receivers than Stage 1 operations.

### **3.12 ENVIRONMENTAL MANAGEMENT STRATEGY**

MCM is committed to the construction and operation of the MCC being undertaken in an environmentally responsible manner, ensuring regulatory compliance and in consideration of government agencies and the immediate local community expectations.

To assist MCM in achieving this, an Environmental Management System (EMS) has been developed for Stage 1 operations. The existing Stage 1 EMS will be revised and extended to incorporate the Stage 2 Project. The EMS will comprise a number of Environmental Management Plans including monitoring programs (EMP), associated operating procedures and standards, and requirements to report on MCM's performance. The Environmental Management Plans and the management and mitigation measures required as part of Stage 2 are discussed further in **Section 4**.

## 4 IMPACTS, MANAGEMENT AND MITIGATION

This section provides a summary of the environmental and social impacts predicted as a result of the Preferred Project. Where no changes to the predicted impacts are proposed, this section provides reference to the appropriate section of the Stage 2 EA. Technical studies which have been revised include:

- Air quality and greenhouse gas;
- Noise;
- Murrumbidgee and Eastern creek diversions;
- MCC water balance;
- Groundwater;
- Offsets;
- Subsidence; and
- Rehabilitation.

Revised management and mitigation measures to be implemented are also described. Minor amendments or clarifications as a result of the RTS are also included where relevant. Where there is an inconsistency between the PPR and the Stage 2 EA, this document will take precedence.

### 4.1 AIR QUALITY

#### 4.1.1 Background

PAEHolmes conducted an air quality impact assessment which is presented in full in **Appendix C** and has been prepared in consideration of the Preferred Project, recent approvals for Ulan Coal Mine and Wilpinjong Coal Mine and all relevant RTS subsequent to the submission of the Stage 2 EA.

This section and **Appendix C** replace in full the Air Quality Impact Assessment carried out for the Stage 2 EA.

The air quality modelling has been prepared following the procedures outlined in the OEH (formerly DECCW) *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC 2005) (Approved Methods) and *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining* (Katestone 2010). The air quality assessment included a quantitative assessment of the potential air quality impacts of the MCC, including:

- Consideration and incorporation of all air quality commitments in the RTS;
- Meteorological and climatic conditions and the existing air quality conditions within the region;
- A review of air quality monitoring data undertaken to determine the existing background air quality conditions;
- Methods used to estimate dust emissions from the MCC for selected future years;
- Predicted dust dispersion patterns due to emissions from the MCC and cumulative impacts from other sources including Ulan Coal Mine and Wilpinjong Coal Mine; and
- Management and mitigation measures, as required.

In addition to the above described quantitative assessment, a review was undertaken of the EA's of the neighbouring Ulan Coal Mine and Wilpinjong Coal Mine to ensure the most recent predictions were used from each mine to enable accurate cumulative impacts to be predicted. A summary of the air quality assessment is provided below.

#### 4.1.2 Methodology

##### Meteorological Data

Meteorological data are currently collected by MCM from two sites (WS1 (Admin – formerly known as Ulan Village, relocated in May 2009) and WS2 (Rayner).

The meteorological station WS1 previously known as "Ulan" was installed in Ulan Village in July 2005 and relocated to the Administration building of Moolarben Coal in May 2009. WS2 was installed in December 2004.

A detailed analysis of the data showed that there are a significant number of calm periods (that is, windspeeds less than 0.5 m/s). These "calm" periods have often been recorded for extended periods of time (sometimes greater than two months) and do not satisfy the specified OEH requirements for dispersion modelling.

Therefore, representative meteorological monitoring data used for air quality modelling purposes was obtained from the adjacent Ulan Coal Mine Limited (UCML) meteorological station located approximately 500 m to the north-west of the Preferred Project. UCML meteorological monitoring data has been utilised for the Preferred Project to ensure consistency with the UCML EA when determining potential cumulative impacts. An analysis of annual and seasonal windroses from July 2007 to June 2008 indicates that the most frequent winds prevail from the south-west and east quadrants.

This pattern of winds is similar for autumn and to a lesser extent spring periods. The summer windrose shows a high percentage of winds from the east and the winter windrose shows dominate winds originating from the south-west and west south-west.

Local meteorological data has been entered into a computer-based dispersion model (Gaussian dispersion model) along with an estimate of dust emissions to predict the concentration and deposition rates of particulate matter from the MCC and other mines expected to be operating concurrently with the MCC.

### Background Air Quality

MCM conducts air quality monitoring within the vicinity of the Project Boundary and consists of:

- PM<sub>10</sub> measured every sixth day using two High Volume Air Samplers (HVAS);

- PM<sub>10</sub> measured in real time using three Tapered Element Oscillating Microbalances (TEOM); and
- Deposited dust at nine representative monitoring locations.

To assess impacts against all the relevant air quality standards and criteria, it is necessary to have information or estimates on existing background dust concentration and deposition levels in the area in which the Preferred Project is likely to contribute to these levels.

A detailed review of all suitable existing monitoring data was completed and is provided in **Appendix C**.

The review concluded that:

- 24-hour PM<sub>10</sub> concentrations remain below the OEH air quality criterion of 50 µg/m<sup>3</sup>, with the exception of periods where dust storms and bushfires occur across NSW;
- Annual average PM<sub>10</sub> concentrations remain well below the OEH criterion of 30 µg/m<sup>3</sup>;
- Total Suspended Particulates (TSP) concentrations (although not part of the existing monitoring program) have been estimated from the PM<sub>10</sub> measurements by assuming that 40% of the TSP is PM<sub>10</sub>. Estimated TSP concentrations remain well below the OEH criterion of 90 µg/m<sup>3</sup>; and
- Annual average deposited dust levels at all monitoring locations remain well below the OEH criterion of 4 g/m<sup>2</sup>/month.

### Assessment Criteria

**Table 12** and **Table 13** summarise the OEH air quality assessment criteria relevant to the MCC. Generally, these air quality criteria relate to the total dust burden in the air and not just the dust generated by the Preferred Project. As such, consideration of background levels needs to be made when using these criteria to assess impacts. In addition to the consideration of possible health impacts, airborne dust also has the potential to cause nuisance impacts by depositing on surfaces.

**Table 12**  
**Particulate Matter Assessment Criteria**

Pollutant	Criteria ( $\mu\text{g}/\text{m}^3$ )	Averaging Period	Agency
Total Suspended Particulates	90	Annual mean	National Health and Medical Research Council
PM <sub>10</sub>	50	24-hour maximum*	OEH
	30	Annual mean	OEH long term reporting goal

Source: DEC, 2005.

\* Applies for each of i) MCC alone and ii) Cumulative, provided the Project is implementing best practice dust controls.

**Table 13**  
**Dust Deposition Assessment Criteria**

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Levels ( $\text{g}/\text{m}^2/\text{month}$ )	Maximum Total Deposited Dust Levels ( $\text{g}/\text{m}^2/\text{month}$ )
Deposited Dust	Annual mean	2	4

**Table 13** shows the maximum acceptable increase in dust deposition over the existing dust levels. The criteria for dust fallout levels are set to protect against nuisance impacts on a cumulative basis from all dust sources (DEC 2005).

#### Air Quality Modelling

The air quality assessment utilised the Approved Methods (DEC 2005) these being the most contemporary guidelines for the modelling and assessment of air pollution sources using dispersion models.

The model package used for the assessment was a modified version of the US EPA ISCST3 model (ISCMOD). Conceptual worst-case mine plans for Years 2, 7, 12, 16, 19 and 24 of the MCC (see **Figure 5** to **Figure 10**) were modelled. These mine plans represent potential worst case impacts arising from a range of coal and overburden production rates and mining activities in various locations for the MCC.

Coal and reject transfer between OC4 and the CHPP was modelled for two options:

- Use of overland conveyors between OC4 and the CHPP; and

- Use of a haul road between OC4 and the CHPP.

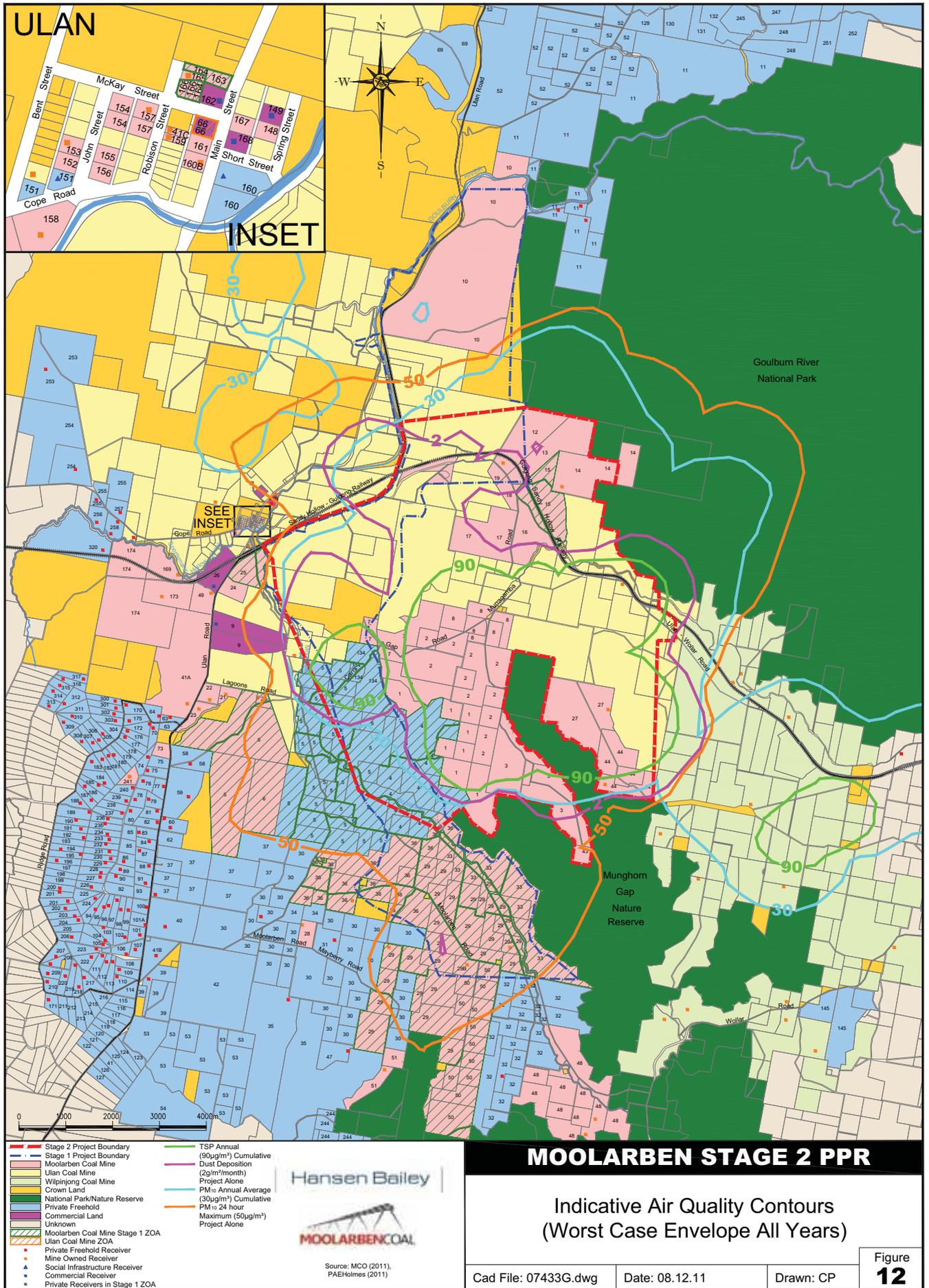
The modelling exercise considered the potential cumulative impacts of neighbouring mining operations including Ulan Coal Mine and Wilpinjong Coal Mine as well as other local sources of dust.

The background dust levels for the area were estimated from available monitoring data. The MCC model results were added to predicted levels of annual average TSP, PM<sub>10</sub> and dust deposition due to emissions from other mines. In addition, the contribution of other non-modelled mines and dust sources in the area was included through the use of a constant background level for annual average TSP, PM<sub>10</sub> and dust deposition.

#### 4.1.3 Impact Assessment

##### Air Quality Predictions

**Figure 12** illustrates the predicted worst case MCC air quality contours (consolidating results from the modelled mine plans) for predicted annual average TSP concentrations, annual average PM<sub>10</sub> concentrations, maximum 24 hour PM<sub>10</sub> concentrations (MCC alone) and annual average dust deposition in relation to neighbouring private receivers.



The maximum 24 hour PM<sub>10</sub> contour presents the maximum air quality levels predicted from the worst case operation of the MCC. With the proactive management of operations utilising real-time monitoring equipment, these maximum predicted levels are not likely to be experienced as a result of the MCC.

The results from the dispersion modelling indicate that the Preferred Project considered alone (and with other sources) is predicted to contribute to exceedances of air quality criteria at the receivers as summarised in **Table 14**. Where receivers are predicted to exceed at both the residence and over 25% of a contiguous block, these have not been duplicated in **Table 14**. All air quality impacted properties are also predicted to exceed relevant noise criteria as described in **Section 4.4**.

PM<sub>10</sub> concentrations at a particular location are dependent on both the activities taking place in the area and the meteorology at the time. As detailed in **Section 7.3.1** of **Appendix C**, continuous PM<sub>10</sub> monitoring data were not available that matched the period of time used for the meteorology in the dispersion modelling. Therefore it was not possible to complete a cumulative assessment in accordance with the Approved Methods.

As such, a statistical approach (Monte Carlo simulation) was completed using all available monitoring data to randomly select a different background 24-hour PM<sub>10</sub> from the real background dataset to combine with the predicted 24-hour average PM<sub>10</sub> concentration due to MCC operations and determine the probability of cumulative 24-hour average PM<sub>10</sub> concentrations exceeding the 50 µg/m<sup>3</sup> criterion at neighbouring receivers.

The results show there is no increase in PM<sub>10</sub> concentrations above 50 µg/m<sup>3</sup> levels at any private receiver locations due to cumulative mine related short-term dust emissions. However exceedance of the PM<sub>10</sub> criteria of 50 µg/m<sup>3</sup> is probable as the background data already includes values exceeding these levels.

On this basis, the actual number of exceedances per year cannot be predicted precisely, however will be contributed to by MCC activities, weather conditions and increases in background levels in the future. The greatest increase above background is predicted at Receptor 46b (which is conservatively representative of residences 151 and 162) which shows minor annual exceedances of the PM<sub>10</sub> criteria of 50 µg/m<sup>3</sup> in most years.

#### **Operational Discussion**

There are no private receivers predicted to experience air quality levels that exceed the OEH assessment criterion for annual average TSP for the MCC alone or on a cumulative basis. Similarly there are no private receivers predicted to experience annual average dust deposition levels that exceed the OEH assessment criterion due to the MCC alone or on a cumulative basis.

In addition, PM<sub>10</sub> annual average levels from MCC alone or PM<sub>10</sub> 24 hour criteria is not predicted to be exceeded at any privately owned receiver which is not already within an existing ZOA subject to acquisition upon written request under the existing Stage 1 Project Approval PA 05\_0117.

No additional non mine owned properties have been predicted to experience PM<sub>10</sub> annual average dust levels exceeding the relevant criteria over more than 25% of the property area that are not already within an existing ZOA subject to acquisition upon written request under the existing Stage 1 PA 05\_0117.

**Table 14**  
**Summary of Predicted Air Quality Exceedances**

ID	Receiver	PM <sub>10</sub>		TSP	Dust Deposition	
		24 Hour	Annual	Annual	Annual	
		MCC Alone (50 µg/m <sup>3</sup> )	MCC and other sources (30 µg/m <sup>3</sup> )	MCC and other sources (90 µg/m <sup>3</sup> )	MCC Alone (2 g/m <sup>2</sup> / month)	MCC and other sources (g/m <sup>2</sup> /month)
<b>RECEIVER</b>						
5	MJ & PM Swords*	Year 2 - 106 µg/m <sup>3</sup> Year 7 - 58 µg/m <sup>3</sup>	N/A	N/A	N/A	N/A
<b>25% CONTIGUOUS PROPERTY UNDER SINGLE OWNERSHIP</b>						
4	MJ Swords*	N/A	>30 µg/m <sup>3</sup> under worst case conditions	N/A	N/A	N/A
134	MJ & H Swords*	N/A	>30 µg/m <sup>3</sup> under worst case conditions	N/A	N/A	N/A

\* Subject to Acquisition upon request from Stage 1 Project Approval

#### 4.1.4 Management and Mitigation

MCM will develop a MCC Air Quality Management Plan in consultation with relevant regulators to the approval of DP&I which will include key dust mitigation assumptions included in the air quality model. It shall also incorporate practical leading practice, dust minimisation management measures, which will include (but not be limited to):

- Relocate TEOM02 to a more suitable location such as Ridge Road;
- Application of either water or a dust suppression product on all active coal and overburden haul roads to achieve a control level of 85%;
- Using a conveyor to transport ROM coal from OC4 ROM coal facilities to the CHPP to minimise coal haul distances as far as practicable;
- Dust suppression on conveyor system and transfer points;
- Using automated water sprays on ROM hopper and ROM pad;
- Utilisation of the largest practical haul truck size (220 t) for the MCC fleet;
- Minimise drop heights and utilise water on all active areas where equipment is in operation;
- Ensure that blasting is not undertaken during unfavourable weather conditions; and
- Implementation of best practice measures for the control of dust emissions (Katestone 2010) including:
  - Carry out a site specific Best Management Practice (BMP) determination for the MCC;
  - Disturb only the minimum area necessary for mining. Reshape, topsoil and rehabilitate completed overburden emplacement areas as soon as practicable after the completion of overburden tipping;
  - Minimising coal haul distances as far as practical;
  - The use of designated water carts;
  - Minimise overburden dump area to allow for increased rehabilitation;

- Designed to ensure rehabilitation of external faces is completed as soon as practical; and
- Completing rehabilitation as soon as practical after disturbance.

#### 4.1.5 Summary

The air quality assessment in Section 5.1 of the Stage 2 EA concluded “*Dust criteria are predicted to be exceeded at five privately-owned residences ... Dust (and/or noise) criteria were predicted to be exceeded at each of these premises in Stage 1 and as a result these land owners all have acquisition rights under the Stage 1 Project Approval.*”

**Section 4.1.3** of this PPR predicts that the air quality criteria will not be exceeded at any privately owned receiver which is not already subject to acquisition upon written request under the existing Stage 1 Project Approval PA 05\_0117.

Further to the mitigation and management measures proposed in the Stage 2 EA, modifications to the Project including use of conveyor transfer of ROM coal from OC4, increased dust suppression as well as implementation of improved best practice measures for control of dust emissions will contribute to minimising environmental impacts.

In consideration of the mitigation and management measures stipulated in **Section 4.1.4** when compared to the Project assessed in the Stage 2 EA, the Preferred Project minimises its environmental impact in relation to air quality.

## 4.2 GREENHOUSE GAS

PAEHolmes conducted a greenhouse gas assessment which is presented in full in **Appendix C** and has been prepared in consideration of the Preferred Project and all relevant RTS subsequent to the submission of the Stage 2 EA.

This section and **Appendix C** replace in full the Greenhouse Gas Impact Assessment carried out for the Stage 2 EA.

### 4.2.1 Methodology

The greenhouse gas assessment has been based upon the methods outlined in the following documents:

- The World Resources Institute / World Business Council for Sustainable Development Greenhouse Gas Protocol (WBCSD/WRI 2004);
- National Greenhouse and Energy Reporting (Measurement) Determination 2008; and
- The Australian Government Department of Climate Change and Energy Efficiency (DCCEE) National Greenhouse Accounts Factors 2010.

Three ‘scopes’ of emissions (scope 1, scope 2 and scope 3) are defined for greenhouse gas accounting and reporting purposes and have been considered in this assessment for the following gases:

- Carbon dioxide (CO<sub>2</sub>);
- Methane (CH<sub>4</sub>);
- Nitrous oxide (N<sub>2</sub>O);
- Synthetic gases (HFCs, SF<sub>6</sub>, CF<sub>4</sub>, C<sub>2</sub>F<sub>6</sub>); and
- Emission factors are standardised and expressed as a carbon dioxide equivalent (CO<sub>2</sub>-e). This is calculated by multiplying the individual gas emission factor by its respective Global Warming Potential (GWP).

A site specific emission factor for fugitive methane from the OC mining operations has been derived based on measurements of gas content for boreholes samples taken by GeoGas (GeoGAS 2010).

### 4.2.2 Impact Assessment

The main sources of greenhouse gas emissions from the Preferred Project have been identified as resulting from fugitive emissions of CO<sub>2</sub> and CH<sub>4</sub>, diesel usage, explosives usage, electricity consumption and the transport and end use of the product coal. The average annual emissions from these sources are summarised in **Table 15**.

**Table 15**  
**Estimated Annual Greenhouse Gas Emission**

Activity	Scope	Annual Emissions (t CO <sub>2</sub> -e)
Fuel Usage*	1	59,306
Fugitive Methane	1	48,019
Explosive Use	1	344
Electricity Consumption <sup>^</sup>	2	52,518
Transportation of coal (rail and ship)	3	771,891
End use of coal	3	22,769,631
<b>Total</b>		<b>23,701,709</b>

*\*Includes indirect Scope 3 emissions for the production and transportation of fuel*

*<sup>^</sup>Includes indirect Scope 3 emissions associated with the transmission and distribution losses from electricity supply.*

As shown in **Table 15**, emissions from the burning of product coal will be significantly greater than those associated with the extraction and processing of product coal from the MCC.

As such, it should be noted that MCM does not propose, nor does its application seek to burn any of the coal produced. It is noted that Scope 3 emissions from sources would still occur regardless of the MCC. The product coal would be sourced from other coal suppliers, with the end result being the same. Therefore, not proceeding with the Preferred Project would not reduce Scope 3 emissions.

#### 4.2.3 Management and Mitigation

Reasonable and feasible measures that will be implemented onsite to minimise the greenhouse gas emissions of the MCC to ensure it is energy efficient include:

- Improving energy use and efficiency and reducing greenhouse gas emission from the mining, processing and transport of coal;
- Investigation of the potential use of photovoltaic or wind turbines to supply power to offices and implement where feasible;
- Use of ROM coal transfer conveyors to minimise coal haul distances and associated diesel usage as far as practicable;
- Consideration of the use of alternative fuels where economically and practically feasible;

- Review of mining practices to minimise double handling of materials and ensuring that coal and overburden haulage is undertaken using the most efficient routes;
- Ensure that lighting and heating are only used when required;
- Ongoing scheduled and preventative maintenance to ensure that diesel and electrically powered plant operate efficiently;
- Develop targets for greenhouse gas emissions and energy use onsite and monitor and report against these;
- Active promotion of car pooling among mine employees;
- Investigate installation of heat pump hot water systems and air conditioners in lieu of standard electric systems;
- Investigate the use of LED lighting in any infrastructure associated with Stage 2; and
- Contributing, through Industry bodies, into the research and promotion of low emission coal technologies.

From 1 July 2012 MCM will be required to offset its Scope 1 emissions through the recently legislated carbon tax as per the provisions of the *Climate Change Authority Act 2011*.

#### 4.2.4 Summary

The greenhouse assessment in Section 5.2 of the Stage 2 EA predicted combined Scope 1, 2 and 3 annual emissions of 29,585,000 (t CO<sub>2</sub>-e).

**Section 4.2.2** of this PPR predicts, on the basis of the above assumptions, annual average emissions of 23,701,709 (t CO<sub>2</sub>-e). The 5,883,291 (t CO<sub>2</sub>-e) reduction in CO<sub>2</sub>-e emissions from the Preferred Project result not only from the use of site specific methane data and an improved resource definition but also from the mitigation and management measures stipulated in **Section 4.2.3** of this PPR.

#### 4.3 SPONTANEOUS COMBUSTION

Spontaneous Combustion is addressed in Section 5.1.8 of the Stage 2 EA. The mitigation and management measures from Section 5.1.8 of the Stage 2 EA are also included below.

MCM will develop a Spontaneous Combustion Management Plan (SCMP) for the MCC to prevent major spontaneous combustion events and minimise smaller incidences of spontaneous combustion occurring. The SCMP will include details on how potential spontaneous combustion issues can be appropriately mitigated including:

- Development of an adequate number of intake and return roadways to enhance ventilation in the underground workings;
- Ensure no loose coal will be stockpiled underground;
- Minimisation of coal fracturing, to avoid leakage paths and heating sites;
- Coal in stockpiles will be managed in accordance with current practices and as described in the internal Stockpile and Coal Wash Dump Management Procedure;
- The disposal of coal rejects in accordance with the current Reject Emplacement Management Plan as maintained by MCC;

- Goafs of worked out longwall panels will be unventilated and when the individual panels are completed the walls will be sealed off and the pressure around the seals equalised; and
- Longwall panels will initially be developed in discrete blocks that allow monitoring by atmosphere analysis.

#### 4.4 NOISE

##### 4.4.1 Background

Global Acoustics Pty Ltd (Global Acoustics) conducted a noise impact assessment for the MCC which is presented in full in **Appendix D**.

This section and **Appendix D** replace in full the noise impact assessment carried out for the Stage 2 EA.

The noise assessment included consideration of operational mining noise, road traffic noise, sleep disturbance and low frequency noise for the MCC.

The noise assessment is summarised below and has been undertaken in accordance with the NSW Industrial Noise Policy (INP) (EPA 2000) for operational noise.

##### 4.4.2 Methodology

###### Introduction

Predicted noise levels at receivers for construction as well as operations using indicative mine plans for Year 2, Year 7, Year 12, Year 16, Year 19 and Year 24 of the Preferred Project were calculated using Renzo Tonin and Associates Technology's *Environmental Noise Model* (ENM) and was calibrated against current noise emissions for the MCC under the Stage 1 approval. Construction of the overland conveyor has been modelled as occurring at the northern end and, simultaneously, at a point approximately where the conveyor is highest (crossing over the ridge). Activity at each of these locations is assumed to be preparing conveyor footings using a backhoe and concrete truck.

The worst case OC4 ROM construction scenario is assumed to be preparatory earthworks involving an excavator, a small dozer and two highway trucks.

Conveyor and ROM construction have been modelled as concurrent activities occurring only in the day period.

Year 2 and Year 24 operations scenarios were each divided into two secondary scenarios, representing day and evening/night operation. All known major noise sources including mobile and fixed infrastructure equipment were included. ENM is considered the most appropriate choice for situations involving complex terrain, propagation of noise over large distances, and where a detailed assessment of the effect of weather conditions on noise propagation is required.

The ENM model included six conservative operating scenarios for representative years, which were chosen to represent reasonable worst case noise levels to all receivers around the MCC. All operating scenarios included normal mining activities, coal handling and processing activities, operation of the rail loading facility and three locomotives operating at low speed on the loading loop.

Coal and reject transfer between OC4 and the CHPP was modelled for two options:

- Use of overland conveyors between OC4 and the CHPP; and
- Use of a haul road between OC4 and the CHPP.

To indicate a worst-case noise scenario, all results in the noise impact assessment are modelled based on the use of haul trucks to transfer material via a haul road around the north-eastern portion of the site. Two scenarios were run with each of an excavator scenario and a rope shovel for Year 2. The results obtained demonstrated a small reduction in noise impacts should a rope shovel be employed at the MCC. As such, the excavator option was used in all modelled years to ensure worst case impacts were obtained for MCC operations.

### Constraints Modelling

The final noise models used in this assessment were generated from a comprehensive iterative modelling process to determine mine operating plans that minimised site noise emission, whilst maintaining viable mining operations. Multiple noise models have been prepared to refine mine operations to ensure minimisation of noise emissions.

Model iterations considered various operational equipment, bund heights, strip reorientation, model validation and various day / night operational scenarios with Stage 1. These model iterations were also compared to actual monitored results at representative locations.

A study was undertaken on the 2010 mine plan utilising real time data from the site to calibrate the predictive model.

### Noise Criteria

#### *Project Construction and Operational Noise*

155 receptor locations were included in the environmental noise assessment. Project specific noise criteria (PSNC) were based on noise impact assessment criteria outlined in the MCC Stage 1 Project Approval and are reproduced in **Appendix D**.

#### *Road Traffic Noise*

Road traffic studies for Stage 2 and for planned expansions of UCML and WCM nearby have all shown the majority of traffic to and from the area travels along the road between Ulan and Mudgee. This assessment considers the impact of traffic expected to be generated by the proposal on residences along that road.

In accordance with the NSW Road Noise Policy (DECCW 2011) (RNP) the criteria relevant to the Preferred Project are 55  $L_{Aeq(1hr)}$  during the day and 50  $L_{Aeq(1hr)}$  during the night and apply to all traffic on the road including mine vehicles associated with the Preferred Project.

As there are numerous setbacks from the road to house facades, a conservative assessment of noise at the house nearest the road has been undertaken.

Where criteria is already exceeded, the RNP states: *"Where feasible and reasonable, existing noise levels should be mitigated to meet the noise criteria. Examples of applicable strategies include appropriate location of private access roads; regulating times of use; using clustering; using 'quiet' vehicles; and using barriers and acoustic treatments.*

*In all cases, traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dB."*

#### Sleep Disturbance

Sleep disturbance can occur when a short, sharp noise is clearly audible over the background noise level. Schedule 3, Table 2 of the MCC Stage 1 Project Approval contains an  $L_{A1}$  (1 min) criterion for the night period of 45 dB. This criterion has been adopted as the impact criterion in this assessment.

#### Cumulative Noise

Cumulative noise impacts may potentially be caused by simultaneous operation of the MCC, Ulan Coal Mine and Wilpinjong Coal Mine. Schedule 3, Conditions 4 and 5 of the MCC Stage 1 Project Approval outline cumulative noise criteria. Cumulative noise criteria adopted in this assessment includes:

- $L_{Aeq(11 \text{ hour})}$  50 dB(A)– Day;
- $L_{Aeq(4 \text{ hour})}$  45 dB(A) – Evening; and
- $L_{Aeq(9 \text{ hour})}$  40 dB(A) – Night.

To convert predicted results from  $L_{Aeq,15 \text{ minute}}$  to  $L_{Aeq,period}$  an adjustment of minus 2 dB has been made to levels calculated for the modelled operating scenarios. This is on the basis that the operating scenarios are representative of worst-case plant locations, which would not occur for the entirety of any period (day, evening or night).

#### Meteorology

Prevailing meteorological conditions, determined from data measured at the UCML meteorological station (as discussed in **Section 4.1.2**) are listed in **Table 16** as applied to the noise model.

UCML meteorological monitoring data has been utilised for the Preferred Project to ensure consistency with the UCML EA when determining potential cumulative impacts.

Results were calculated for prevailing meteorological conditions determined in accordance with INP guidelines. The INP defines prevailing conditions as those that occur more than 30% of any time period, in any season. Temperature inversion conditions are to be considered if there is more than 30% occurrence of stability classes F and G during winter nights (18:00 to 07:00). Temperature inversion conditions were included for the evening, as the time period for assessment of inversion conditions in winter is 18:00 to 07:00) which includes the evening period. Default values have been used for drainage flow wind speed as required.

#### 4.4.3 Impact Assessment

##### Preferred Project Construction Noise

Key construction assumptions utilised for the purposes of modelling and predicted noise levels for all receivers are presented in **Appendix D**.

The highest predicted construction noise level was  $L_{Aeq}$  24 dB at Receiver 4 (MCM owned).

As this result is more than 10 dB below the relevant criterion, it is not possible for the predicted construction noise in addition to any complying operational noise level to result in an exceedance. The logarithmic addition of noise levels more than 10 dB apart, provides no change to the higher value.

Construction noise should not influence predictions of operational noise affectation or compliance and is not discussed further.

### MCC Operational Noise

Key operational assumptions utilised for the purposes of modelling and detailed predicted noise levels for all receivers are presented in **Appendix D**. A summary where PSNC have been predicted to be exceeded at private receivers for each of the six modelled operating scenarios of the MCC (during all conditions) is presented in **Table 17**. All other private receivers are predicted to receive noise emission levels less than the intrusive criteria.

**Table 18** indicates where PSNC criterion is predicted to be exceeded over 25% of contiguous blocks in a single private ownership from the MCC.

No exceedances of PSNC from the MCC are predicted in Year 12 or Year 19. Exceedances of PSNC attributable to the operation of Stage 2 activities alone are predicted at 10 properties including: nine minor, one moderate and no significant impacts.

**Figure 13** and **Figure 14** shows the combined worst case predicted noise levels for the MCC for all scenarios modelled.

In total, 16 private receivers were predicted to receive minor exceedances, 11 private receivers are predicted to receive moderate exceedances, and two private receivers were predicted to receive significant exceedances above PSNC.

Two additional properties have been predicted to receive noise levels which exceed the PSNS by 5dB(A) over more than 25% of contiguous land in a single land ownership. Seven additional properties are predicted to receive exceeding noise levels of less than 5 dB(A) (above PSNC) over more than 25% of contiguous land in a single land ownership.

**Table 16**  
**Adopted Noise Assessment Meteorological Conditions**

Atmospheric Parameter	Day	Evening and Night *			
	Neutral	No Inversion, ENE wind	No Inversion, SW wind	Inversion SW Wind	Inversion Calm
Temperature (°C)	10	10	10	10	10
Relative Humidity (%)	80	80	80	80	80
Wind Speed (m/s)	0	3	3	0	0
Wind Direction	-	ENE	SW	SW	-
Temp Gradient (°C/100 m)	-0.65	-0.65	-0.65	3	3

\* Noise enhancing conditions.

**Table 17**  
**Predicted Noise Level Exceedance of PSNC Residences**

Receiver ID	Description	Intrusive Criteria	Predicted Noise Level (dBA LAeq,15min)					
			Year 2	Year 7	Year 12	Year 16	Year 19	Year 24
<b>Minor Exceedance 1 to 2 dB(A)</b>								
59	G & GM Szymkarczuk	35	37	-	-	-	-	-
76	SR & PC Carbone	35	37	-	-	-	-	-
77	GJ & JM Mulholland	35	37	36	-	-	-	-
78	B & FV Power	35	37	-	-	-	-	-
79	PTJ & SE Nagle	35	37	-	-	-	-	-
81	TK Germent & CA McIntyre	35	36	-	-	-	-	-
180	CD & LL Barrett	35	37	-	-	-	-	-

Receiver ID	Description	Intrusive Criteria	Predicted Noise Level (dBA L <sub>Aeq,15min</sub> )					
			Year 2	Year 7	Year 12	Year 16	Year 19	Year 24
181	SM Forster	35	<b>36</b>	-	-	-	-	-
182	J Dutoitcook	35	<b>36</b>	-	-	-	-	-
184	LA Stevenson	35	<b>36</b>	-	-	-	-	-
239	JE Delarue	35	<b>36</b>	-	-	-	-	-
240	GK & JM Hartley	35	<b>36</b>	-	-	-	-	-
257	W & LG Cap	35	<b>36</b>	-	-	-	-	-
258	PM & CD Elias	35	<b>36</b>	-	-	-	-	-
303	HJ Ungaro	35	<b>36</b>	-	-	-	-	-
320	D Clark	35	<b>37</b>	-	-	-	-	-
<b>Moderate Exceedance 3 to 5 dB(A)</b>								
30	RB Cox	35	-	-	-	-	-	<b>38</b>
58	ML & JLM Bevege	35	<b>40</b>	<b>38</b>	-	-	-	-
63	BF & B Whitticker	38/38/37	<b>41</b>	38	36	37	-	-
64	JW Goninan & TL Boland	38/38/37	<b>40</b>	38	-	37	-	-
70	DJ & A Coventry	35	<b>40</b>	37	-	36	-	-
74	LR Walsh	35	<b>38</b>	36	-	-	-	-
75	P Ban	35	<b>38</b>	36	-	-	-	-
172	AJ & TM Kimber	38/38/37	<b>40</b>	37	-	36	-	-
175	MG Vale	35	<b>38</b>	36	-	-	-	-
176	VJ Wakefield	35	<b>38</b>	36	-	-	-	-
177	PL & CM Mobbs	35	<b>38</b>	-	-	-	-	-
<b>Significant Exceedance &gt; 5 dB(A)</b>								
31	MB Cox	35	-	-	-	-	-	<b>44</b>
47	SF & MR Andrews	35	-	-	-	-	-	<b>42</b>

Day / evening / night criteria shown where not 35 / 35 / 35.

Bold text denotes where predicted noise levels exceed intrusive criteria.

- Less than intrusive criteria predicted

**Table 18**  
**Predicted Noise Level Exceedance of PSNC 25% Contiguous Property**

Minor to Moderate Exceedance 1 to 5 dB(A) over PSNC		Significant Exceedance >5 dB(A) over PSNC	
Property ID	Surname	Property ID	Surname
34	J Asztalos	32	DJ & JG Stokes
35	PR Johnson, MS & GJ Thompson, PH & FH Debreczeny	30	RB Cox
37	J Szymkarczuk		
170	HW & CL Montgomery		
178	VJ Wakefield		
179	MJ Stutsel		
304	G Balajan		

