Peabody ENERGY

SECTION 7

SUMMARY OF MANAGEMENT, MITIGATION, MONITORING AND REPORTING

CONTENTS

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7 SUMMARY OF MANAGEMENT, MITIGATION, MONITORING AND REPORTING

This Section provides a consolidated summary of proposed Project environmental management, mitigation measures, monitoring and reporting.

7.1 PROJECT ENVIRONMENTAL MANAGEMENT

Section 4 of this EIS outlines proposed environmental management, mitigation, monitoring and biodiversity offset measures.

These include measures relating to noise, air quality, blasting and vibration, spontaneous combustion, groundwater, surface water, biodiversity, Aboriginal heritage, historical heritage, land resources, road transport, visual character, socio-economic impacts, greenhouse gas emissions, hazards and risk.

Where relevant, Project-specific environmental monitoring programmes are also proposed in Section 4.

Section 5 of this EIS describes how surface disturbance areas would be rehabilitated and presents the Project Rehabilitation Strategy.

The integrated environmental management systems at the Wilpinjong Coal Mine include various environmental management strategies, plans and programmes that have been developed and implemented since operations commenced at the Wilpinjong Coal Mine (Section 2.1.9).

WCPL would continue to implement the existing strategies, plans and programmes and where necessary, review, revise and build on them. A summary of these strategies, plans and programmes and the associated reporting is provided in Table 7-1.

The existing monitoring programmes would also be augmented to address the Project extensions to the Wilpinjong Coal Mine.

It is recognised that changes to the Project environmental management, mitigation, monitoring and reporting proposed in this EIS may be considered necessary during further consultation with government agencies in the assessment and approval process of the Project.

Project environmental management, mitigation, monitoring and reporting would be conducted in accordance with finalised Development Consent conditions and associated licences and approvals, with the final monitoring details (locations, parameters and frequencies) to be provided in the relevant management plans and monitoring programmes.

The Wilpinjong Coal Mine website within the Peabody Energy web domain (http://www.peabodyenergy.com) would continue to be maintained for the public to keep up to date with the operations of the Wilpinjong Coal Mine incorporating the Project.

The Wilpinjong Coal Mine dedicated community hotline (1300 606 625) would also be maintained for residents to contact WCPL with any questions or concerns they may have regarding the Wilpinjong Coal Mine incorporating the Project.

7.2 KEY SPECIFIC ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

Key environmental management measures and commitments to be implemented for the Project include:

- management of operational noise emissions associated with the Project and augmentation/revision of the existing noise management practices/plan;
- management of air quality emissions of the Project and augmentation/revision of the existing air quality management practices/plan;
- management of blasting and vibration associated with the Project and augmentation/revision of the existing blasting management practices/plan;
- continuation of the existing spontaneous combustion management practices/plan;
- management of water resources including augmentation/revision of associated existing water management practices/plans;

Table 7-1
Summary of Project Management, Mitigation, Monitoring and Reporting

Proposed Management, Monitoring and Reporting	Key EIS Sections and Appendices
Management and Monitoring	
Environmental Management Strategy	Section 2.1.9
Noise Management Plan[1]	Sections 4.3 and 4.14 and Appendix A
Air Quality Management Plan[1]	Section 4.4 and Appendix B
Blast Management Plan[1]	Sections 4.4 and 4.5 and Appendix A
• Blast Fume Management Strategy	Sections 4.4 and 4.5 and Appendix A
Spontaneous Combustion Management Plan[1]	Sections 2.10.5 and 4.6
Water Management Plan	Sections 4.7 and 4.8 and Appendices C and D
• Groundwater Monitoring Program	Section 4.7 and Appendix C
• Surface and Groundwater Response Plan	Sections 4.7 and 4.8 and Appendices C and D
• Site Water Balance	Section 4.8 and Appendix D
• Erosion and Sediment Control Plan	Section 4.8 and Appendix D
• Surface Water Management and Monitoring Plan	Section 4.8 and Appendix D
• Cumbo Creek Relocation Plan	Sections 2.1.6 and 4.8
Biodiversity Management Plan[1]	Section 4.9 and Appendix E
Aboriginal Cultural Heritage Management Plan[1]	Section 4.10 and Appendix G
Waste Management Plan[1]	Section 2.15 and Appendix K
• Life of Mine Tailings Strategy[1]	Section 2.11 and Appendix K
MOP	Section 5
• Rehabilitation Management Plan	Section 5
Reporting Requirements	
Annual Review and AEMR and MOP	Section 6.4.1
Independent Environmental Audit	Section 7.4.3
Development Consent, Licences and Approvals	Section 6 and Attachments 5 and 6
Greenhouse Gas Reporting	Sections 3.2.5, 4.18 and 6.4.2
NPI Reporting	Section 3.2.5

Note 1: Monitoring programme included in management plan.

- management of biodiversity in the Project disturbance areas and the biodiversity offset areas and augmentation/revision of the biodiversity management practices/plan;
- management of Aboriginal and historical heritage at the Project;
- population and community infrastructure management measures; and
- progressive rehabilitation of Project disturbance areas, including the reinstatement of agricultural and key ecological values, and implementation of a mine closure strategy.

These management measures and commitments are described further below, with reference to the relevant sections of this EIS where further detail is available.

In addition, separate Construction Environmental Management Plans may be prepared to address construction activities associated with specific linear infrastructure (e.g. relocation of the TransGrid Wollar to Wellington 330 kV ETL). As these activities would be short-term and may be undertaken by a third party contractor, environmental management and monitoring measures specific to the construction activity may be documented in a separate targeted management plan.

7.2.1 Operational Noise

Section 4.3.3 describes the Project noise management measures. Key components of the proposed Project noise management regime are described below.

Operational Noise Mitigation Measures

WCPL would implement the most cost-effective combination of the following noise management and mitigation measures to achieve the outcome of maintaining noise levels at or below relevant Development Consent noise criteria at nearby privately-owned dwellings under applicable adverse meteorological conditions, including:

- operational controls (i.e. shutdowns) based on real-time noise monitoring; and
- noise attenuation of mobile equipment (e.g. located in Pit 8), as required.

WCPL would also continue to implement its proactive property strategy.

In addition, general noise management procedures would include:

- noise monitoring on-site and in the vicinity of the Wilpinjong Coal Mine, including real-time monitoring;
- prompt response to any community complaints or concerns;
- refinement of on-site noise mitigation measures and operating procedures where practicable;
- implementation of reasonable and feasible acoustical mitigation at receivers (which may include measures such as enhanced glazing, insulation and/or air conditioning), in consultation with the relevant landowner, where noise monitoring shows noise levels which are 3 to 5 dBA above Project-specific noise criteria; and
- continued investigation of the potential to reach negotiated agreements between WCPL and relevant private landholders in accordance with the Voluntary Land Acquisition and Mitigation Policy.

The above procedures would continue to be documented in the Noise Management Plan and would form part of the adaptive management approach to Project noise management that would include real-time noise monitoring and meteorological forecasting.

Noise Management Plan

The Noise Management Plan would, as relevant, be revised for the Project to include the following (subject to the conditions of any Development Consent for the Project):

- The Project reasonable and feasible noise mitigation and operational management measures.
- Revised locations for continuous operational noise monitoring to assist with noise management and operator attended compliance monitoring as mining progresses.
- Details of triggers for the Project real-time monitoring and management system. This would include trigger-based protocols incorporating review of prevailing meteorological conditions, identification of on-site noise levels and shutdown of relevant noise sources, where necessary, to achieve the relevant Development Consent noise criteria.
- Details of any required revisions to the predictive meteorological forecasting system used as part of proactive management in conjunction with the real-time monitoring and management system.

7.2.2 Air Quality

Section 4.4.3 describes the Project air quality management measures. WCPL would revise the existing Air Quality Management Plan for the Project (subject to the conditions of any Development Consent for the Project).

The existing Wilpinjong Coal Mine air quality management measures (Table 4-8) would be revised and implemented during construction and operation of the Project, including:

- specific dust suppression measures to be implemented during Project construction/ development activities (e.g. road diversions), such as minimisation of disturbance areas and watering of trafficked areas; and

- continued implementation of best-practice management through the use of the real-time monitoring and management system.

7.2.3 Blasting

Section 4.5.3 describes the Project blasting management measures. WCPL would revise the existing Blast Management Plan to address changes to blasting practices required by the Project (subject to the conditions of any Development Consent for the Project).

WCPL would continue to implement the existing blast and blast fume management measures at the Wilpinjong Coal Mine (Sections 4.4.2 and 4.5.1), including varying the MIC (or other relevant blasting parameters) of blasts over the life of the Project according to the location of the blast, to manage blasting effects at nearby privately-owned receivers, proximal infrastructure features and Aboriginal rock shelter sites with art.

Temporary closures of Ulan-Wollar Road and the Sandy Hollow Gulgong Railway would continue to be conducted when blasting is carried out in proximity to them (e.g. within 500 m), in accordance with the Blast Management Plan.

7.2.4 Spontaneous Combustion

Section 4.6.3 describes the Project spontaneous combustion management measures. WCPL would revise the existing Spontaneous Combustion Management Plan for the Project (subject to any Develop Consent conditions for the Project).

WCPL would continue to implement the existing spontaneous combustion management measures (Sections 2.10.5 and 4.6.1), and extend the spontaneous combustion propensity testing program to Pit 8.

7.2.5 Water Resources

Sections 2.12.2, 4.7.3 and 4.8.3 describe the Project water management measures. Key components of the proposed Project water management are summarised below.

Up-catchment Diversions

The existing surface water runoff controls to prevent up-catchment runoff water from entering open cut mining areas would be generally retained for the Project. Details of additional up-catchment runoff diversion structures to be developed for the Project are described in Section 2.12.2.

Permanent up-catchment diversion bunds/drains would remain around final voids to minimise their drainage catchment so far as is reasonable and feasible.

Concentrate Management

Concentrate from the reverse osmosis plant (part of the water treatment facility) would continue to be managed in accordance with the existing measures at the Wilpinjong Coal Mine, which are described in Section 2.12.5.

Water Quality Management

The Project water management system would continue to maintain separation between runoff from areas undisturbed by mining and water generated within active mining areas. An objective of the on-site water management for the Wilpinjong Coal Mine is to operate such that there is no contained water storage overflow.

The water management system would include a combination of permanent structures (e.g. final void diversion bunds) that would continue to operate post-mine closure, and temporary structures that would only be required until the completion of the rehabilitation works (e.g. sediment dams).

Acid Rock Drainage Management

Existing Wilpinjong Coal Mine PAF waste rock management procedures would continue to be implemented for the Project.

The following geochemical characterisation and investigation would be undertaken for the Project:

- Development of a testing program to confirm the waste rock scheduled to be placed within the final outer surface of the backfilled mine voids (i.e. outer 2 m) and the approved elevated waste rock emplacement in Pit 2 (i.e. outer 5 m) is NAF.

- Continued pH monitoring of the decant water in the tailings dams. If acid generation is observed, alkali material (i.e. crushed limestone, agricultural lime) would be added to the surface of the tailings at an application rate adequate to neutralise the generated acid.
- Continued testing of the coarse rejects and tailings in accordance with the Life of Mine Tailings Strategy (within the Waste Management Plan) to confirm the geochemical characteristics of these materials and the co-disposal material.
- Inclusion of total alkalinity/acidity, As and Mo into the existing water quality monitoring regime for the Wilpinjong Coal Mine.

The existing Life of Mine Tailings Management Strategy would be generally retained with updates to reflect the management measures above.

Hydraulic Permeability Sampling

WCPL would opportunistically undertake core sampling and testing during appropriate drilling within or near the Wilpinjong Coal Mine. Where practicable, aquifer properties such as effective porosity, horizontal permeability and vertical permeability would be determined.

WCPL would create and maintain a database of testing data, which would be used to constrain and validate model parameters and guide any future groundwater assessments.

Numerical Model and Water Balance Review

The numerical model developed and used for the Groundwater Assessment (Appendix C) would be used as a management tool for the periodic review and calibration of predicted groundwater impacts throughout the life of the Project. Consistent with Dr Frans Kalf's recommendation, this review would be undertaken at least every five years over the life of the Project (Attachment 4).

The results of the groundwater monitoring program would inform progressive refinement of the numerical model as each of the open cut mining areas are developed. Revised outputs from the numerical model would be reported in the Annual Review, as relevant over the life of the Project and used to inform regular site water balance reviews.

Contingency Measures

Consistent with the requirements of the NSW *Aquifer Interference Policy*, WCPL would continue to implement appropriate contingency measures for Project related drawdown greater than 2 m at a privately-owned groundwater bore.

Water Management Plan

The existing Water Management Plan, which comprises the Site Water Balance, the Erosion and Sediment Control Plan, the Surface Water Management and Monitoring Plan, the Groundwater Monitoring Plan and the Surface and Groundwater Response Plan would be revised to reflect the Project and the requirements of any associated water licences (subject to the conditions of any Development Consent for the Project).

Site Water Balance

Review and progressive refinement of the site water balance would continue to be undertaken annually over the life of the Project to record the status of inflows (water capture), storage and consumption (e.g. CHPP usage, return water from co-disposal areas and dust suppression) and to optimise water management performance.

The results of the site water balance reviews would be reported in the Annual Review.

Erosion and Sediment Control Plan

The Erosion and Sediment Control Plan would be reviewed and updated for the Project subject to the conditions of any Development Consent for the Project.

Surface Water Management and Monitoring Plan

The Surface Water Management and Monitoring Plan would be reviewed and updated for the Project subject to the conditions of any Development Consent for the Project.

Surface and Groundwater Response Plan

The Surface and Groundwater Response Plan would be reviewed and updated for the Project subject to the conditions of any Development Consent for the Project.

The Surface and Groundwater Response Plan would describe any additional measures and procedures that would be implemented over the life of the Project to respond to any potential exceedances of surface water related criteria and contingent mitigation, compensation, and/or offset options if downstream surface water users (of which there are none on Wilpinjong Creek, Cumbo Creek or Wollar Creek downstream of the Wilpinjong Coal Mine) or riparian vegetation are adversely affected by the Project.

Cumbo Creek Relocation Plan

WCPL will prepare a Cumbo Creek Relocation Plan prior to works associated with the relocation of the creek and mining of the existing alignment. The plan will detail the final alignment of the relocated creek and required water management infrastructure, hydrological and ecological baseline conditions, design specifications, performance and completion criteria and associated monitoring.

7.2.6 Biodiversity

Sections 4.9.3 and 4.9.4 describe the proposed management of biodiversity and the biodiversity offset strategy for the Project. Key components are summarised below.

Biodiversity Management Plan

The Biodiversity Management Plan would, as relevant, be revised for the Project (subject to the conditions of any Development Consent for the Project). The existing biodiversity impact avoidance and mitigation measures (Table 4-22) would be retained and the following additional biodiversity impact avoidance and mitigation measures would be included (Section 4.9.3):

- delineation of areas to be cleared near *Ozothamnus tesselatus* to avoid accidental clearance;
- germination trials for *Ozothamnus tesselatus*; and
- installation of a pipe to help maintain the opening of the historical mine adit.

Biodiversity Offset Strategy

The existing Biodiversity Offset Strategy for the Wilpinjong Coal Mine (Section 4.9.1) would be augmented with an additional Biodiversity Offset Strategy for the Project.

The Project Biodiversity Offset Strategy has been developed to address the potential residual impacts on biodiversity values associated with the proposal, such that biodiversity values of the region are maintained and improved in the medium to long-term.

The Project Biodiversity Offset Strategy has been developed in consideration of the requirements outlined in the following:

- NSW Offset Policy, along with the underlying *Framework for Biodiversity Assessment.*
- *Environment Protection and Biodiversity Conservation Act, 1999 Environmental Offsets Policy*, including the supporting *EPBC Act Offsets Assessment Guide*.

The Project offset areas (Figure 7-1) are strategically located next to the Goulburn River National Park and Munghorn Gap Nature Reserve, with the potential to increase the extent of these existing protected areas. The Project offset areas are 1,100 ha in size, comprising approximately 996 ha of native vegetation.

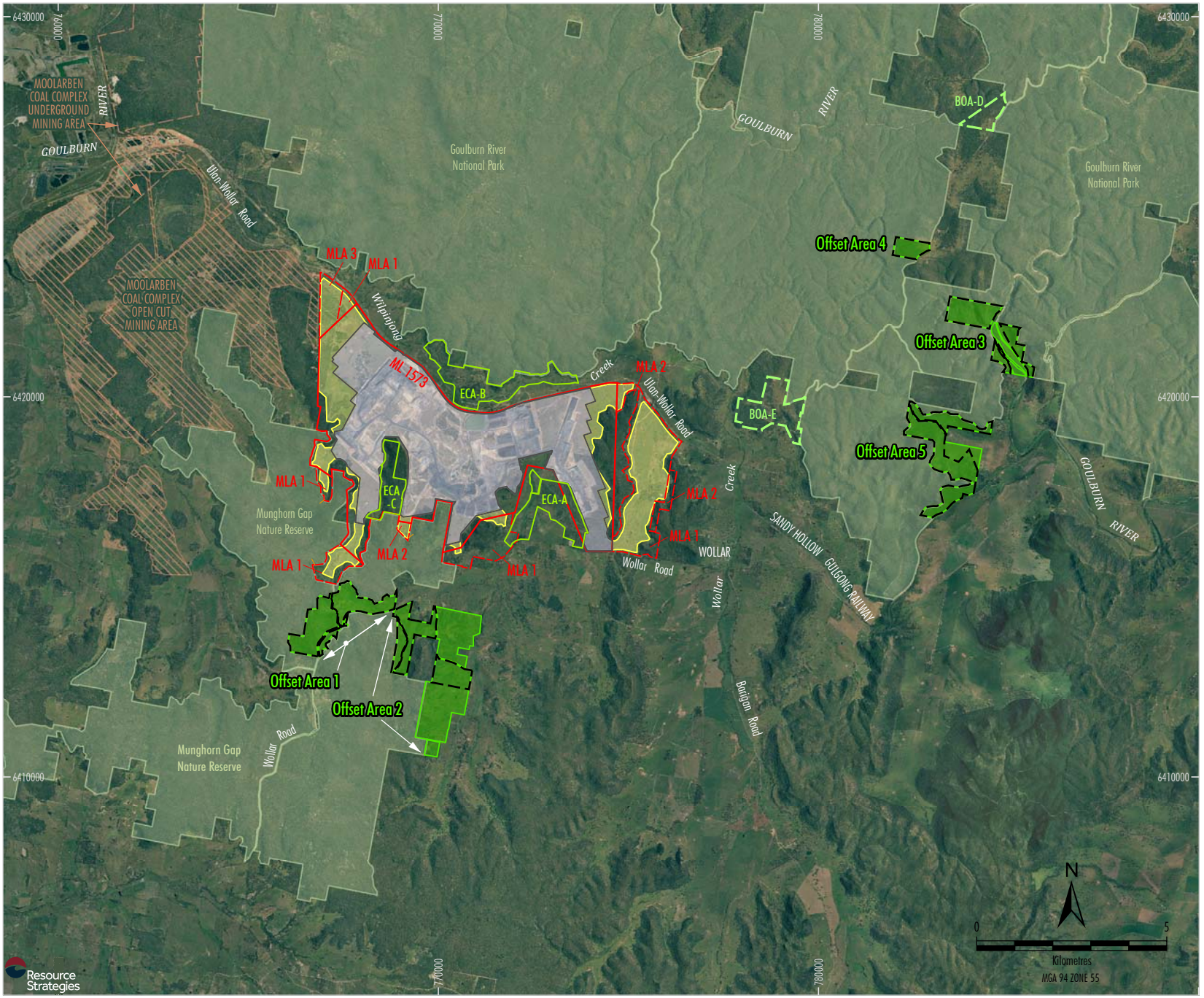
As a minimum, management of the existing and Project offset areas would include:

- weed control;
- feral animal control;
- progressive removal of livestock grazing;
- removal of disused infrastructure; and
- revegetation of exotic pasture/cultivation.

Mine site rehabilitation would also satisfy part of the NSW offset requirements by progressively establishing some 610 ha of woodland vegetation.

7.2.7 Heritage

Section 4.10.3 describes the Project Aboriginal heritage management measures. The existing Aboriginal Cultural Heritage Management Plan would be revised to reflect the Project in consultation with the Aboriginal community and the OEH (subject to the conditions of any Development Consent for the Project).



LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Approved/Existing Open Cut and Contained Infrastructure Area
- Proposed Open Cut Extension Area
- Enhancement and Conservation Area
- Existing Biodiversity Offset Area
- Proposed Biodiversity Offset Area
- Commonwealth Offset Area
- National Park/Nature Reserve

Source: WCPL (2015); NSW Dept of Industry (2015)
Orthophoto: WCPL (Jun 2015, 2011)

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WILPINJONG EXTENSION PROJECT

Project Biodiversity Offset Areas

Figure 7-1

For those areas where Aboriginal heritage sites may be subject to direct surface disturbance as a result of the Project, a number of mitigation measures and management strategies have been identified in consultation with the RAPs, including:

- systematic surface collection of artefacts from open artefact sites;
- subsurface investigations within a sample of areas of moderate to high heritage potential;
- salvage excavation and detailed recording of two sites; and
- additional surveys for potential direct disturbance areas that have not yet been subject to systematic survey sampling.

Section 4.11.3 describes the Project historical heritage management measures. A Heritage Management Plan would be developed for the Project and would include specific management measures for the historical heritage sites that would potentially experience direct or indirect impacts, including:

- archival recording of the features of the Historical Shale Oil Mine Complex prior to the commencement of any works associated with the open cut in Pit 8;
- test excavation would occur at the possible location of the Caretaker's Cottage; and
- avoidance of the Road Embankment would be considered during detailed design of the TransGrid Wollar to Wellington 330 kV ETL realignment.

7.2.8 Land Resources

Section 4.12.3 describes the Project land resources and agricultural production management measures. Key components of the proposed Project land resources and agricultural production management are summarised below.

Soils

General soil management practices would include the stripping and stockpiling of soil resources for use in rehabilitation.

Pre-disturbance soil investigations would be progressively conducted in disturbance areas to confirm soil characteristics, stripping depth and ameliorant requirements (e.g. ameliorant type, application rate and application methodology [i.e. application during stripping or during stockpiling]).

The MOP would be updated to describe the soil resource management measures that would be used during the Project life (subject to the conditions of any Development Consent for the Project).

Land Use – Agricultural Activities and Productivity

Agricultural land resource management at the Project would include the following key components:

- minimisation of disturbance to agricultural lands, where practicable;
- continued use of adjoining Peabody Energy-owned land within the Project Development Application area for agricultural uses, where practicable;
- management of soil resources at the Project site so that they can be used for rehabilitation; and
- inclusion of agricultural lands (i.e. low impact grazing lands) in the Project rehabilitation strategy (Section 5).

Bushfire Hazard

WCPL would continue to implement the existing bushfire management measures in the Bushfire Management Plan and consult with the Cudgegong Bush Fire Management Committee and the RFS, and provide assistance to these organisations as required.

7.2.9 Road Transport

New intersections on Ulan-Wollar Road would be designed in accordance with Austroads guidelines. Signage and road markings associated with the relocated railway level crossing would be undertaken in accordance with AS 1742.7 *Manual of Uniform Traffic Control Devices*.

No other specific management or mitigation measures are considered to be warranted for the Project (noting that upgrading of Ulan Road is underway irrespective of the Project).

Notwithstanding, staff and drivers would continue to be made aware of safe driving behaviour through site-specific inductions and staff education programs, and would continue to be encouraged to participate in the Wilpinjong Coal Mine carpool reimbursement scheme.

7.2.10 Social and Community Infrastructure

WCPL has developed strategies to mitigate the Project's potential social and community infrastructure impacts and maximise the Project benefits for the region, including:

- continue consultation and information dissemination including via the Wollar Progress Association, Wilpinjong Coal Mine CCC, blast notifications, Project updates, Project community hotline, consultation regarding complaints and periodic advice regarding opportunities through the community investment program;
- investigate options for supporting an alternative postal service for the local community in the event that WCPL funding for the local shop is discontinued;
- maintain local advertisement of employment opportunities;
- continue consultation with the MWRC and regional service providers regarding the Project; and
- continue support of selected community and cultural events, both in the local area and in support of regional community values (in consultation with local stakeholders and MWRC).

Reporting on these measures would be provided in the Annual Review.

7.2.11 Rehabilitation and Mine Closure

Section 5 describes the Project Rehabilitation Strategy and management of mine closure. Key components are summarised below.

The Project would require the incremental progressive removal of approximately 354 ha of native vegetation communities and approximately 668 ha of non-native vegetation and existing disturbed areas, in addition to the disturbance areas for the approved Wilpinjong Coal Mine.

The disturbance areas associated with the Project would be progressively rehabilitated with species characteristic of native woodland (approximately 1,550 ha inclusive of the approved Wilpinjong Coal Mine) and mixed woodland/pasture (approximately 1,342 ha inclusive of the approved Wilpinjong Coal Mine). Figures 7-2 and 7-3 illustrate the proposed Project final landforms, land use and revegetation of the Wilpinjong Coal Mine incorporating the Project.

Rehabilitation would be subject to regular review, including annual surveys by an appropriately qualified and experienced person to review the progress of rehabilitation and identify any additional measures required to achieve ongoing progression towards achieving rehabilitation criteria.

The MOP would be updated to include the Project in consultation with the relevant government agencies, and in accordance with the relevant DRE rehabilitation and mine closure guidelines.

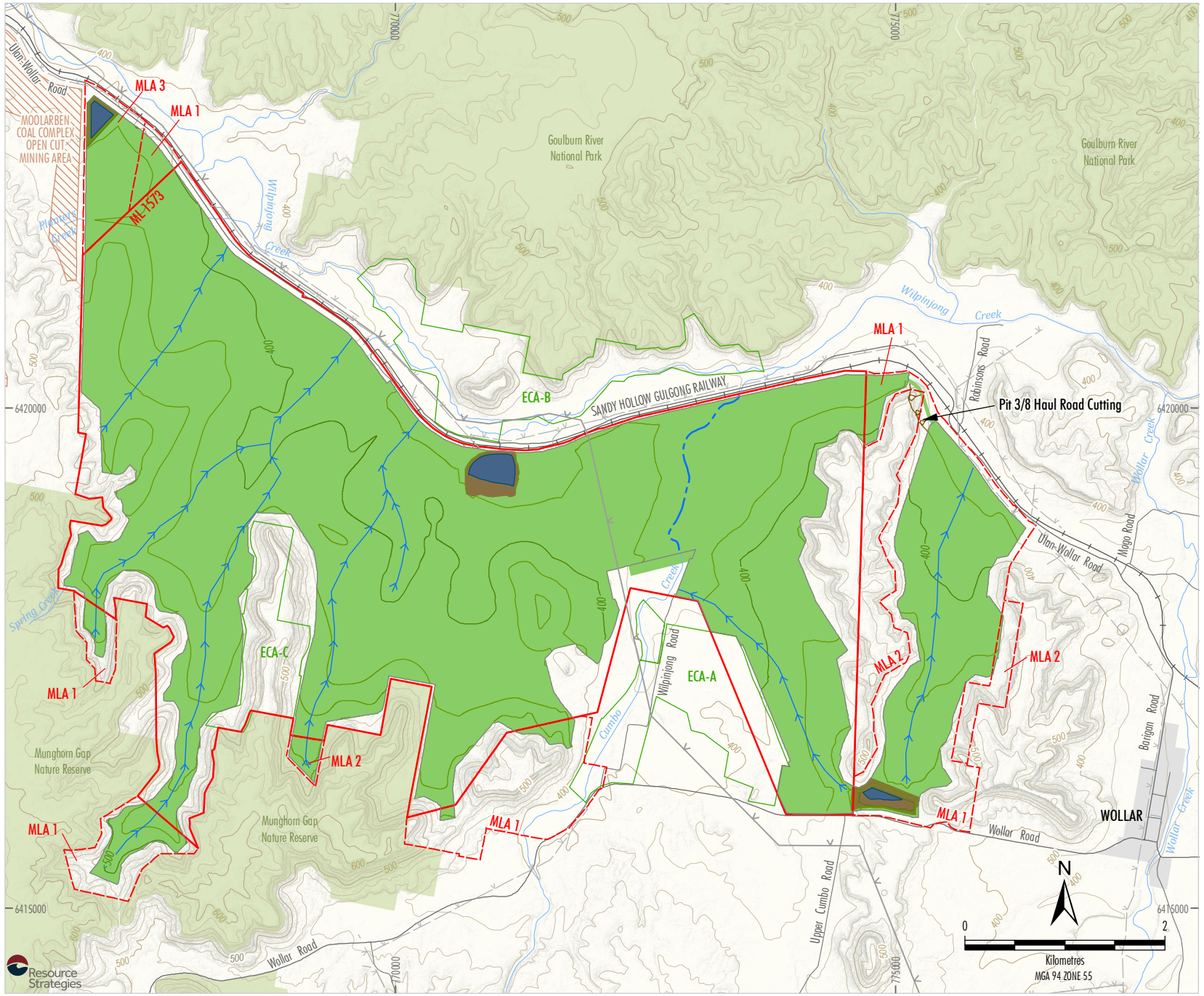
Specific rehabilitation parameters and completion criteria would be determined in consultation with relevant government agencies and documented in the MOP.

A Mine Closure Plan would be developed for the Project in consultation with the MWRC, the DP&E and the local community, and would include consideration of amelioration of potential adverse socio-economic effects due to the reduction in employment at Project closure.

7.3 ENVIRONMENTAL MONITORING

7.3.1 Continuation of Existing Monitoring

Environmental monitoring to be implemented for the Project is described in Section 4. Table 7-2 provides an overview of the Project environmental monitoring regime. Figures 7-4 and 7-5 show the locations of key existing environmental monitoring sites.



LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Established Rehabilitation
- Final Void
- Final Void Waterbody [1]
- Conceptual Cumbo Creek Realignment
- Drainage Line
- Existing Surface Contour
- Final Landform Contour
- Local ETL
- Realigned TransGrid 330 kV ETL
- Enhancement and Conservation Area

[1] Pit 8 Final Void is predicted to be dry during periods of low rainfall.

Source: WCPL (2015); NSW Dept of Industry (2015); NSW Land & Property Information (2015)

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WILPINJONG EXTENSION PROJECT

Conceptual Project Final Landform

Figure 7-2

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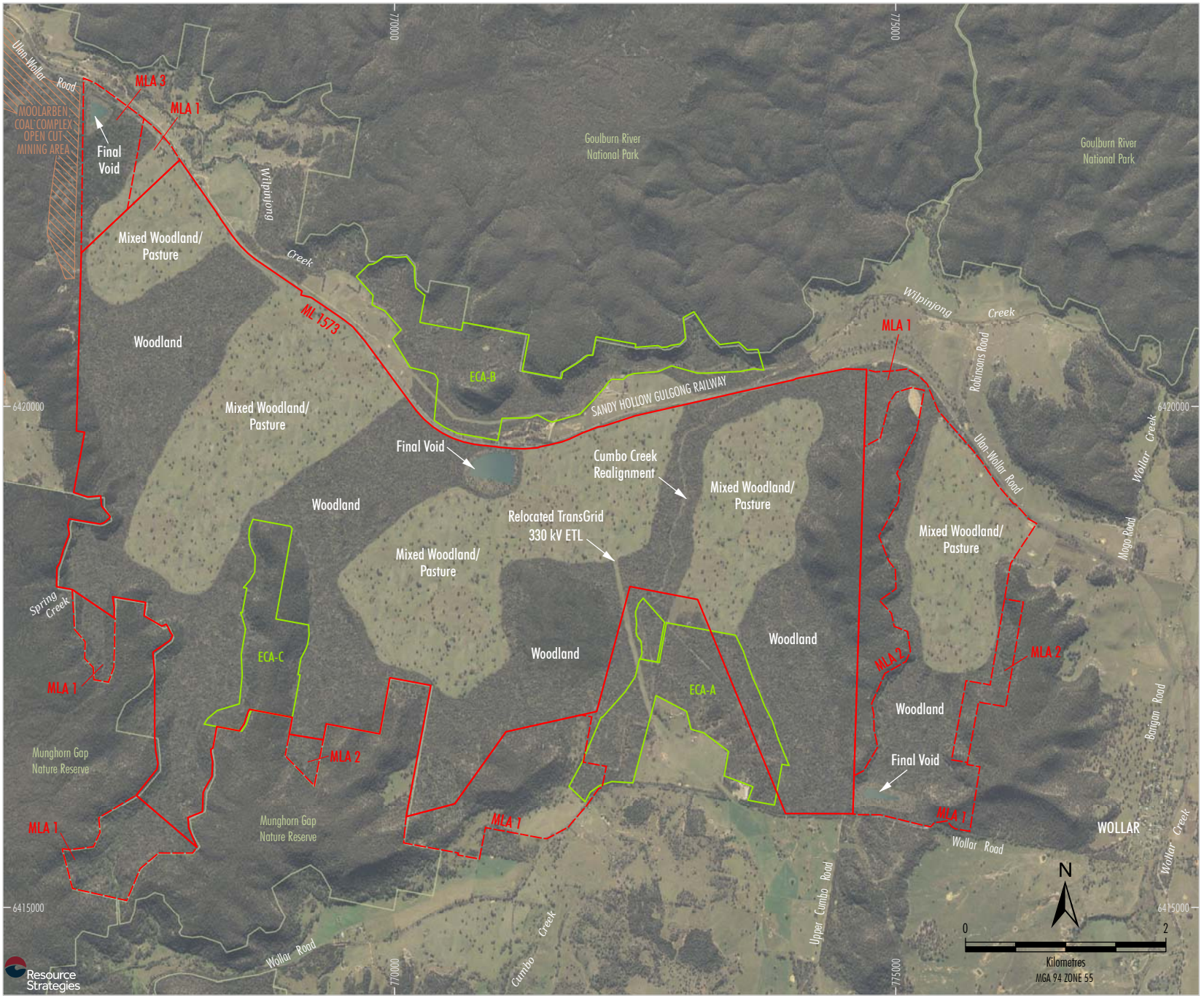

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Enhancement and Conservation Area

Source: WCPL (2015); NSW Dept of Industry (2015)
Orthophoto: WCPL (Jun 2015; Jun 2014)

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WILPINJONG EXTENSION PROJECT

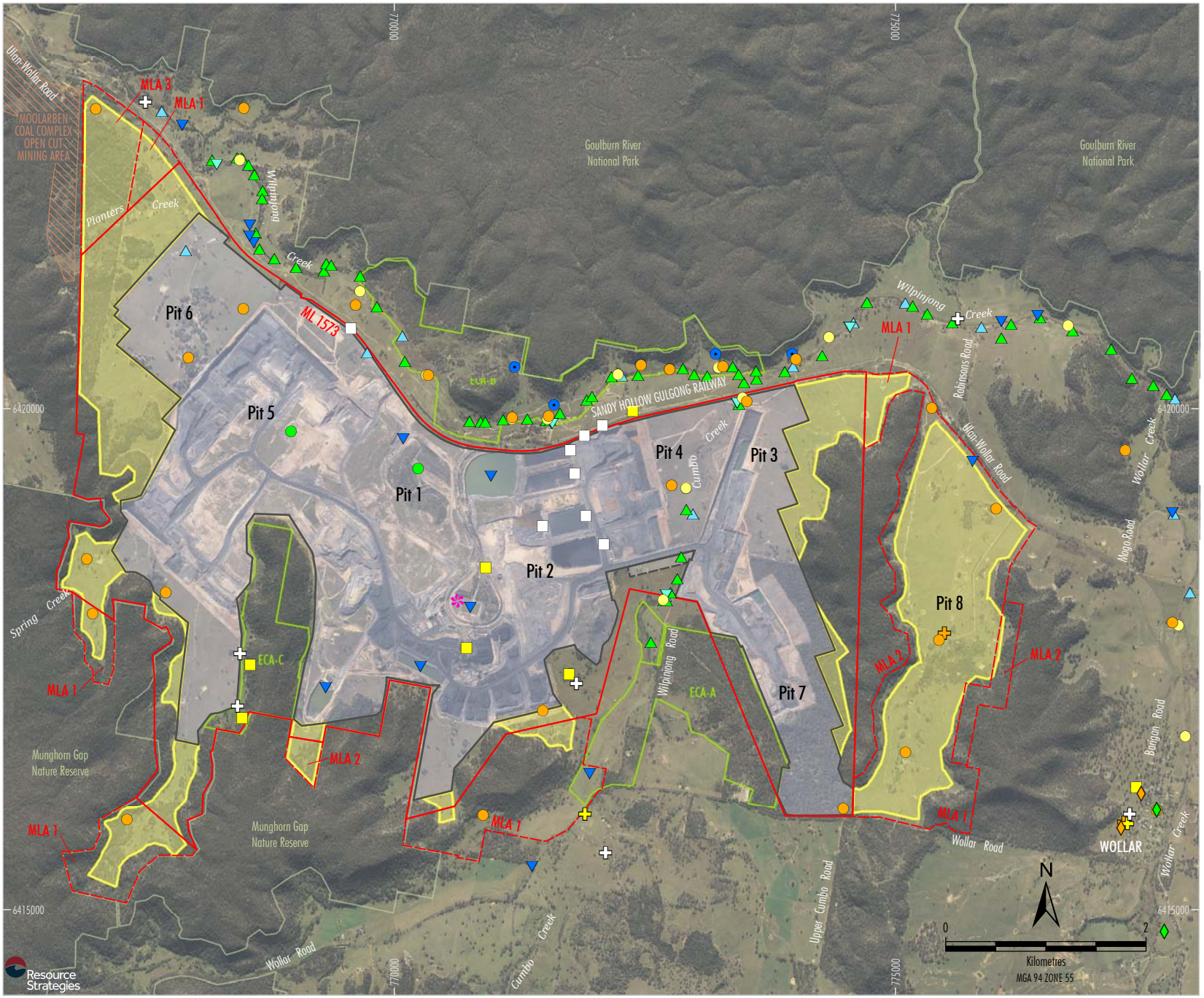
Conceptual Project Final Rehabilitation and Regeneration

Figure 7-3

Table 7-2
Summary of Project Environmental Monitoring Regime

Environmental Aspect	Environmental Monitoring[1]
Air Quality	• *Static Dust Gauges* – DG4, DG5, DG8, DG10, DG11, DG15. • HVAS – HV1, HV3, HV4, HV5. HV3 measures TSP, while HV1, HV4 and HV5 measure PM_{10}. • *Real-time PM_{10}* - TEOM1, TEOM3, TEOM4. • *Rock Art Monitoring Site* – DG12, DG13, DG14. • *Meteorology* – on-site meteorological station and temperature inversion tower.
Groundwater	• *Groundwater levels and quality* – GWa1, GWa2, GWa3, GWa4, GWa5, GWa6, GWa7, GWa8, GWa9, GWa10, GWa11, GWa12, GWa14, GWa15, GWa16, GWa22, GWa32, GWa33, GWc1, GWc2, GWc3, GWc4, GWc5, GWc10, GWc11, GWc12, GWc14, GWc15, GWc16, GWc17, GWc18, GWc19, GWc20, GWc21, GWc22, GWc24, GWc25, GWc26, GWc27, GWc28, GWc29, GWc30, GWc31, GWc32, GWc33, GWc34, GWc35. • *Backfilled mine voids* – levels and/or quality (minimum three bores). • *Groundwater extraction* – sumps in open cut pits. • *Water supply bores (levels)* – GWs10, GWs11, GWs12, GWs14, GWs15.
Land Resources, Flora and Fauna	• *Weeds and feral pests* – all WCPL-owned land within the Project Development Application area. • *Rehabilitation monitoring* – rehabilitation areas.
Noise and Blasting	• *Attended Noise* – N6, N13, N14, N15, N16, N17, N18. • *Real time noise (fixed)* – Wollar Village, Araluen Rd, Wandoona. • *Real time noise (mobile)*. • *Blasting (fixed)* – Wollar Public School, Aboriginal Rock Art Site 72, Aboriginal Rock Art Site 152, Aboriginal Rock Art Site 153. • *Blasting (dependent on location of blast)* – Railway Line/Culvert, Ulan-Wollar Road, TransGrid Wollar to Wellington 330 kV ETL Towers, Tailings Dam 3, 4, 5 or 6.
Spontaneous Combustion	• *Visual Inspection* – all coal stockpiles, highwalls, active pits, CHPP rejects disposal areas, spoil dumps/out of pit dumps, rehabilitation areas and tailings emplacements. • *Thermal imaging surveys.*
Surface Water	• *Surface water quality and surface water flow* – WILGSD, WILGSU, CCGSD, CCGSU, Licensed Discharge Point No. 24. • *Surface water quality* – WIL-U, WIL-U2, WIL-1, WIL-PC, WIL-NC, WIL-D2, WIL-D, WIL-2, WILGSU, WILGSD, CC1, CC2, CC3, CC4, CC5, CCGSD, CCGSU, WOL1, WOL2, WOL3, Clean Water Dam, Recycled Water Dam, Pit 1 North, Pit 2 West, Ed's Lake, Slate Gully Creek (SGC-1), Licensed Discharge Point No. 24. • *Structural integrity of dams* – all on-site dams. • *Channel stability* – WCk 1, WCk 2, WCk 3, WCk 4, WCk 5, WCk 6, WCk 7, WCk 8, WCk 9, WCk 10, WCk 11, WCk 12, WCk 13, WCk 14, WCk 15, WCk 16, WCk 17, WCk 18, WCk 19, WCk 20, WCk 21, WCk 22, WCk 23, WCk 24, WCk 25, WCk 26, WCk 27, WCk 28, WCk 29, WCk 30, WCk 31, WCk 32, WCk 33, WCk 34, WCk 35, WCk 36, WCk 37, WCk 38, WCk 39, WCk 40, WCk 41, WCk 42, WCk 43, WCk 44, WCk 45, WCk 46, WCk 47, WCk 48, WCk 49. • *Stream health* – WC1, WC2, WC3, WC4, WC5, WC6, WC7, WC8, CC1, CC2, WO1, WO2, WO3.
Waste	• *General* – waste register, inspections of storage facilities and disposal sites. • *Rejects* – volumes of reject solids. • Refer to groundwater and surface water monitoring above.

1 As required by management plans under any Development Consent for the Project, EPL 12425, ML 1573, Water Licence conditions and on-site investigations.



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WILPINJONG EXTENSION PROJECT

Provisional Project Environmental Monitoring Sites

Figure 7-4

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Exploration Licence Boundary
- Authorisation Boundary
- Local Government Boundary
- NSW State Forest
- National Park, Nature Reserve or State Conservation Area
- Mining Operation

Environmental Monitoring Sites

- Alluvial Groundwater
- Hard Rock Groundwater
- Surface Water Quality
- Attended Noise
- Real-time Noise

Source: WCPL (2015); Geoscience Australia (2011); NSW Dept of Industry (2015)

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WILPINJONG EXTENSION PROJECT

Provisional Regional Project Environmental Monitoring Sites

Figure 7-5

The existing environmental monitoring network for the Wilpinjong Coal Mine (Section 2.1.9) is extensive and comprehensive. The network includes real-time monitoring of noise and air quality at a number of locations and as the existing monitoring programmes for most environmental parameters are considered adequate for the Project, these would generally continue.

Notwithstanding, real-time air quality and noise monitoring equipment and attended noise monitoring locations would continue to be relocated as required (in consultation with the EPA and DP&E) to monitor air quality and noise at the nearest privately-owned receivers to the Wilpinjong Coal Mine.

The Project would require some minor expansions or augmentation to the existing environmental monitoring network, as described further below.

7.3.2 Additional Monitoring for the Project

Groundwater

The existing groundwater monitoring network, as described in the Groundwater Monitoring Program, is considered adequate for providing information on the dynamics of the groundwater hydraulics and offers an adequate basis for groundwater model calibration and verification.

WCPL would resume water level and quality monitoring at two piezometers located to the north of the Pit 2 West Dam, and install and monitor an additional bore in the final landform north of the Pit 8 final void.

WCPL would also add Mo as a further parameter in the groundwater quality monitoring program.

Surface Water

The existing surface water monitoring program which is included in the Surface Water Management and Monitoring Plan of the Water Management Plan would be retained for the Project and updated subject to the conditions of any Development Consent for the Project.

The surface water monitoring program would be augmented to include the following additional water quality parameters:

- total alkalinity/acidity;
- As; and
- Mo.

Water quality monitoring would continue to be undertaken in accordance with the ANZECC and ARMCANZ (2000) guidelines and *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC, 2004b).

On-site meteorological monitoring (including on-site rainfall) would also continue.

Biodiversity Offset Areas

Monitoring programmes for the existing Wilpinjong Coal Mine biodiversity offset areas as described in the Biodiversity Management Plan would be expanded to include the Project biodiversity offset areas (subject to relevant security mechanisms).

The biodiversity offset area monitoring would include:

- weed and pest monitoring; and
- monitoring of the effectiveness of revegetation of exotic pasture/cultivation areas.

Rehabilitation

Existing rehabilitation monitoring programmes at the Wilpinjong Coal Mine would be expanded to include the Project disturbance areas.

The rehabilitation monitoring would include:

- recording germination success in woodland and woodland/pasture revegetation areas;
- recording pasture establishment success in mixed woodland/pasture areas and progression towards suitability for low impact grazing, including estimated stock carrying capacity;
- monitoring drains and rehabilitated mine landforms for localised failures or rilling and loss of topsoil after rainfall events;
- identifying potential threats to rehabilitated woodland and mixed woodland/pasture areas (e.g. weed invasion, pest species, erosion);
- monitoring the stability of rehabilitated mine landforms; and
- recording key rehabilitation information (e.g. taking photographic records, documenting rehabilitation LFA surveys).

Annual surveys of rehabilitation areas would be undertaken by an appropriately qualified and experienced person to review the progress of rehabilitation and identify any additional measures required to achieve ongoing progression towards achieving rehabilitation criteria. A monitoring report would be prepared annually that includes a summary of previous monitoring results, results of the current year's monitoring and any planned remedial works, if required.

7.4 REPORTING

7.4.1 Annual Review

WCPL would continue to produce an Annual Review of the environmental performance of the Project for the 12 month reporting period, in accordance with the content requirements of the Integrated Mining Policy Annual Review Guideline (DP&E and DRE, 2015). Copies of the Annual Review would be made available on the Peabody Energy website.

Environmental monitoring results would be compared against relevant statutory requirements, monitoring results of previous years and relevant predictions of this EIS.

Biodiversity management, biodiversity offsets and rehabilitation monitoring results and various environmental activities planned for the next 12 months would also be discussed in the Annual Review.

7.4.2 Development Consent Requirements

WCPL would provide regular reporting of environmental performance of the Project on the Peabody Energy website, in accordance with the reporting arrangements in any plans or programmes approved under the conditions of the Project Development Consent and associated licences and approvals.

7.4.3 Independent Environmental Audit

Consistent with existing reporting requirements, WCPL would commission an independent environmental audit of the Project every three years or at an alternative interval required by the Project Development Consent.

Upon completion of the independent environmental audit, WCPL would submit responses to the DP&E and where necessary, revise environmental management plans.

7.4.4 Other Reporting

Annual Return

A summary of monitoring required by EPL 12425 (including the recording of complaints) and a Statement of Compliance would continue to be reported in Annual Returns and submitted to the EPA.

Water Licences – Annual Reporting

WCPL would continue to report in accordance with the conditions of existing and any future water licences to DPI Water.

Greenhouse Gas Reporting

Under the requirements of the NGER Act, relevant sources of greenhouse gas emissions and energy consumption must be measured and reported on an annual basis, allowing major sources and trends in emissions/energy consumption to be identified.

Peabody Energy triggers the threshold for reporting under the NGER Act, and reports energy use and greenhouse gas emissions from its enterprises, including the Wilpinjong Coal Mine. This would continue for the Wilpinjong Coal Mine incorporating the Project.

NPI Reporting

WCPL would continue to provide annual NPI reports to the EPA. Emissions data for the Wilpinjong Coal Mine would be made publicly available on the Federal Government's NPI website (www.npi.gov.au) and would also be reported in the Annual Review.

Community Complaints Register

A community complaints register is maintained by WCPL. Complaints and subsequent actions undertaken are reported in the Annual Review and on the Peabody Energy website.

The Wilpinjong Coal Mine complaints register would continue to be maintained for the Project.