Planning & Environment
Resources Regulator

Klay Marchant
MACH Energy Australia Pty Ltd
GPO Box 94
BRISBANE QLD 4001

Our ref: DOC18/762019

10 October 2018

Dear Mr Marchant

ML1645, ML1708, ML1709, ML1713, ML1750, MACH Energy Australia Pty Ltd – Approval of Mining Operations Plan Amendment A

NOTICE OF APPROVAL

Pursuant to Condition 3 of Mining Lease (ML) 1645, 1708, 1709, 1713 and 1750, the Mining Operations Plan Amendment A (MOP) that was submitted to the Department of Planning and Environment – Resources Regulator (the Department) on 30 August 2018 (Department Reference: DOC18/635606) is approved for the period from the date of this approval until **30 June 2019**.

This approval is conditional upon the conditions set out below. These conditions relate to this approval and are in addition to those attached to Mining Lease (ML) 1645, 1708, 1709, 1713 and 1750. A breach of conditions is an offence under the *Mining Act 1992*.

- the next MOP is to provide a greater level of scrutiny into all foreseeable risks to successfully rehabilitating Mount Pleasant Operations than those contained in the MOP subject to this approval.

It is the responsibility of the Authorisation Holder to ensure that all mining and mining related operations described in this MOP are as approved within the relevant Project Approval or Development Consent and all necessary approvals, consents or permits required under the relevant NSW or Commonwealth regulations have been obtained prior to carrying out the operations.

It is the responsibility of the Authorisation Holder to fulfil their obligations and commitments to the rehabilitation outcomes and performance standards as approved by the relevant consent authority to ensure the rehabilitation outcomes identified are achieved.

DEFINITIONS

In this letter, words have the meaning given to those terms in the *Mining Act 1992*, unless otherwise specified below.

Department means the NSW Department of Planning and Environment.

Authorisation Holder means the holder of the relevant authorisation(s).

Mining Operations Plan means the project, mining and mining related operations described in the *Mount Pleasant Operation Mining Operations Plan and Rehabilitation Management Plan Amendment A* prepared by MACH Energy Australia Pty Ltd and dated 30 August 2018.

If you have any questions, please contact Jeremy Arnott on (02) 4063 6669.

Yours sincerely,

Catherine Lewis
A/Manager and Principal Inspector Environment
Resources Regulator
NSW Department of Planning and Environment
Signed under delegation from the Secretary of the NSW Department of Planning and Environment (ML1645) and the Minister for Resources (ML1708, ML1709, ML1713, and ML1750)

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MOUNT PLEASANT OPERATION

MINING OPERATIONS PLAN

AND

REHABILITATION MANAGEMENT PLAN

Document ID:	MP001-0000-ENV-PLN-0010		
Company	MACH Energy Australia Pty Ltd		
Effective Date:	30 June 2018	**Status:**	Issued for Use
Approved By:	Richard Bailey	**Revision Number:**	01 (Amendment A)

MOUNT PLEASANT OPERATION MINING OPERATIONS PLAN	
Name of Mine:	Mount Pleasant Operation
MOP Commencement Date:	30 June 2018
MOP Completion Date:	30 June 2019
Mining Authorisations (Lease/Licence No):	ML 1645, ML 1713, ML 1708, ML1709 and ML 1750
Name of Authorisation Holder:	MACH Energy Australia Pty Ltd
Name of Mine Operator:	MACH Energy Australia Pty Ltd
Name and Contact Details of Environmental Representative:	Name: Klay Marchant Phone: 0400 239 291 Email: klay.marchant@machenergyaustralia.com.au
Name of Authorisation Holder Representative:	Richard Bailey
Title of Authorisation Holder Representative:	Acting General Manager Operations
Signature of Authorisation Holder Representative:	
Date:	30 August 2018
Version:	01 (Amendment A)

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Domain Selection	Section 5.1	Table 5-1	Plan 3
Rehabilitation Phases	Section 5.3	Table 5-3	N/A
Performance Indicators and Completion Criteria	Section 6.0	Tables 6-1 to 6-5	N/A
Proposed Disturbance and Rehabilitation Activities during the MOP Term	Section 7	Table 7-1	Plan 3
Summary of Rehabilitation Areas during the MOP Term	N/A	Table 7-2	N/A

1 INTRODUCTION

This Mining Operations Plan and Rehabilitation Management Plan (MOP) provides an outline of the proposed construction, operation and environmental management activities for the Mount Pleasant Operation (MPO) from 30 June 2018 until 30 June 2019. This MOP has been prepared to fulfil the relevant requirements of:

- The MPO Development Consent (Development Consent DA 92/97). Development Consent DA 92/97 (as modified) is provided in Appendix 1.
- Mining Leases (MLs) 1645, 1713, 1708, 1709 and 1750. The conditions for the relevant MLs are provided in Appendix 2.
- Any subsequent ML that is granted.

Schedule 3 of Development Consent DA 92/97 requires, where relevant, the preparation and implementation of the following objectives, strategies and/or plans which relate to the overall rehabilitation strategy for the MPO[1]:

- Rehabilitation Objectives – Schedule 3, Condition 53;
- Rehabilitation Strategy – Schedule 3, Condition 54;
- Progressive Rehabilitation – Schedule 3, Condition 55; and
- Rehabilitation Management Plan (RMP) – Schedule 3, Condition 56.

This MOP has been developed based on *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013 (ESG3)* (Department of Trade and Investment, Regional Infrastructure and Services, 2013) (MOP Guideline).

The MPO is located in New South Wales (NSW), approximately three kilometres to the north-west of Muswellbrook (Plan 1A).

1.1 PREVIOUS VERSIONS

The previous version of this MOP was approved on 21 October 2016 and covered a MOP term from 21 October 2016 to 31 December 2017.

The previous version of the MOP had three approved amendments (Amendment A, B & C). These MOP Amendments were prepared to address comments received from the Muswellbrook Shire Council (MSC), to incorporate minor design changes within MOP domains and planned rehabilitation, and to extend finalisation of the MOP term from 31 December 2017 to 30 June 2018.

1.2 CURRENT VERSION

This MOP has been prepared to replace the previous version of the MOP referenced in Section 1.1 and has a MOP term of 30 June 2018 to 30 June 2019. This MOP includes contemporary information on the MPO's current mine planning, including construction, mine development, topsoil management and rehabilitation. This MOP has been amended (MOP Amendment A) following the approval of Modification 3 (MOD 3), to allow for the extension of mining operations into areas approved as part of determination of MOD 3.

[1] Rehabilitation is defined by the NSW *Mining Act 1992* as the treatment or management of disturbed land or water for the purpose of establishing a safe and stable environment.

1.3 HISTORY OF OPERATIONS

The proponent of the MPO is MACH Energy Australia Pty Ltd (MACH Energy). MACH Energy purchased the MPO from Coal & Allied Pty Ltd (Coal & Allied) in January 2016 and the sale was completed in August 2016.

1.3.1 State Development Consent

The application for Development Consent for the MPO was made in 1997. This was supported by an Environmental Impact Statement (1997 EIS) prepared by ERM Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied. This allowed for the "Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities" at the MPO. The consent allowed for the extraction of 197 million tonnes of run-of-mine (ROM) coal over a 21 year period, at a rate of up to 10.5 million tonnes per annum (Mtpa).

Environmental Dam 1 (ED1) and an associated gravel access track were constructed in 2004. In November 2005, a high level spillway was added to ED1 to accommodate larger rainfall events.

Prior to MACH Energy acquisition, activities undertaken on-site were largely limited to routine agricultural management activities such as weed and pest control, fence maintenance, fire break and fire trail maintenance, and seed harvesting. Since the Development Consent was granted, regular monitoring of a range of baseline environmental aspects has been undertaken in the vicinity of the MPO, including noise, air quality, surface water and groundwater monitoring.

The MPO Modification (MOD 1) was submitted for approval on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010), with the following changes proposed:

- The provision of an infrastructure envelope for siting the mine infrastructure.
- The provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line.
- Modification of the existing Development Consent DA 92/97 boundaries to accommodate the optional conveyor/service corridor and minor administrative boundary changes.

MOD 1 was approved on 19 September 2011.

The MPO South Pit Haul Road Modification (MOD 2) was submitted for approval on 30 January 2017 with a supporting EA prepared by MACH Energy Australia Pty Ltd (MACH Energy) (MACH Energy, 2017a). MOD 2 proposed to realign an indicative internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO. MOD 2 was approved on 29 March 2017.

MOD 3 was submitted for approval on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 proposed the following key changes:

- Extension to the time limit on mining operations from 22 December 2020 to 22 December 2026.
- Extensions to the South Pit Eastern Out of Pit Emplacement to better align with the underlying topography.
- Removal of the existing MPO rail loop and associated infrastructure.

MOD 3 was approved on 24 August 2018.

1.3.2 Commonwealth Approval

A Referral of the Proposed Action for the MPO was submitted to the then Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) on 16 December 2010, pursuant to the Commonwealth *Environment Protection and Biodiversity Conservation Act,* 1999 (EPBC Act). The DSEWPC determined, on 4 February 2011, that the Proposed Action required assessment under the EPBC Act through a Public Environment Report.

Following a public exhibition period, the Commonwealth approved the MPO under the EPBC Act on 29 February 2012, inclusive of a significant biodiversity offset package. The approval has effect until 28 October 2035.

1.3.3 Mining Leases

ML 1645 was granted for the MPO in 1992. In 2015, ML 1713, ML 1708 and ML 1709 were also obtained for the MPO, as well as ML 1750 in 2017. The locations of these MLs are shown on Figure 1.

1.4 CURRENT CONSENTS, AUTHORISATIONS AND LICENCES

The key approvals held by MACH Energy for the MPO are detailed in Table 1-1.

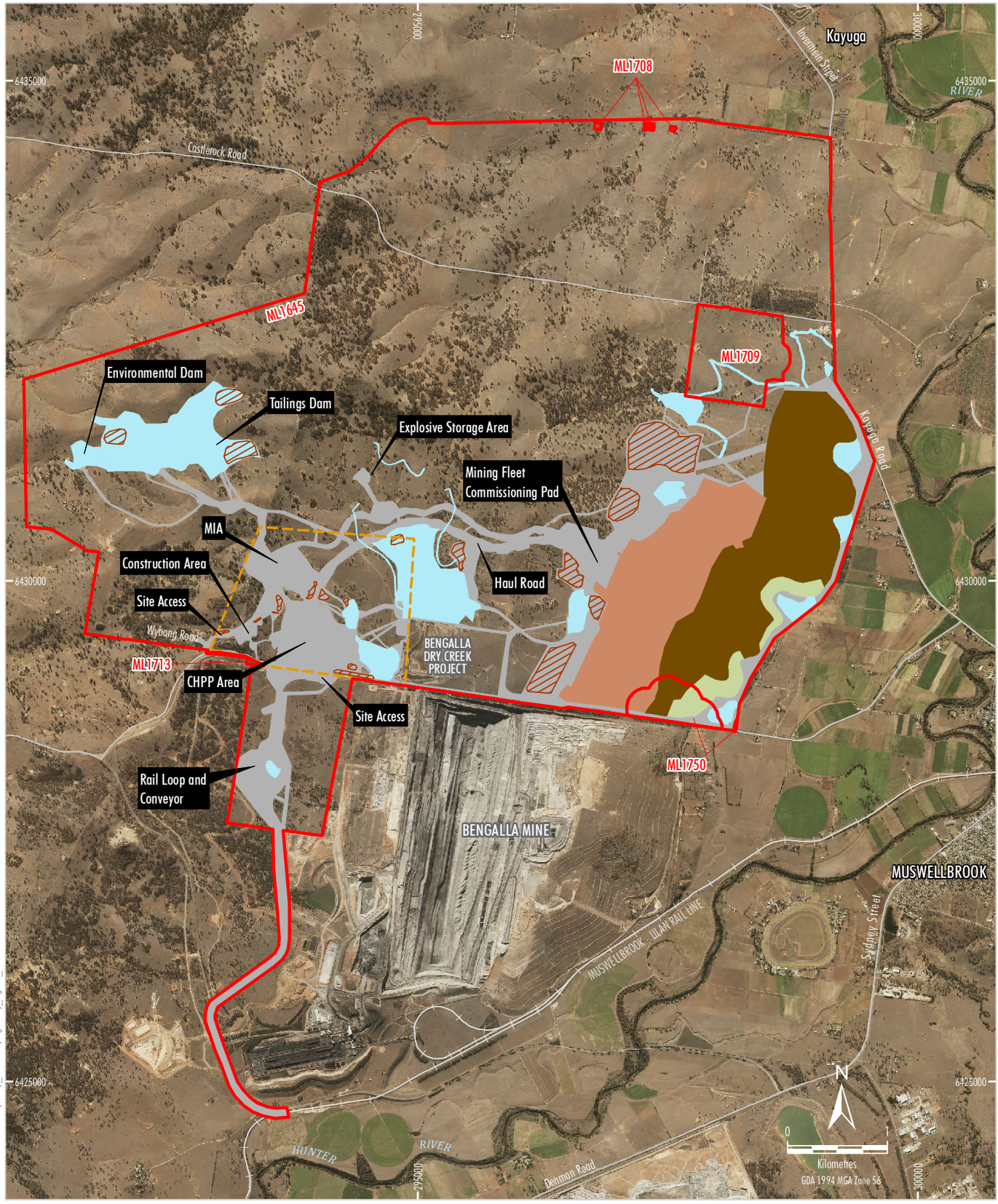
Table 1-1
Approvals for the Operation

Approval Number	Description	Issue Date	Expiry Date
DA 92/97	State Development Consent for Mount Pleasant Coal Mine (as modified)	19/09/2011	22/12/2026
EPBC 2011/5795	Commonwealth approval of the Mount Pleasant Coal Mine	29/02/2012	28/10/2035
Environment Protection Licence (EPL) 20850	NSW Environment Protection Authority (EPA) Licence for Mount Pleasant Operation	24/11/2016	-

The mining titles held by MACH Energy for the MPO are detailed in Table 1-2.

The MPO is a Level 1 mine as defined in the MOP Guidelines. The MPO was approved under Part 4 of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act) in December 1999 by development consent under Division 4 of Part 4 of the Act (relating to State Significant Development). The Minister for Planning is the consent authority for State Significant Developments under Part 4 of the EP&A Act.

Water Access Licences (WALs) held by MACH Energy are summarised in Table 1-3.



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LEGEND

- Mining Lease Boundary
- Infrastructure Area Envelope
- Active Mining Area
- Active Overburden Emplacement Area
- Initial Rehabilitation
- Topsoil Stockpile
- Water Management
- Infrastructure and Access Roads

Source: NSW Land & Property Information (2015); NSW Department Resources & Energy (2018); MACH Energy (2018)
Orthophoto: MACH Energy (Jul 2018)

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MOUNT PLEASANT OPERATION

Activities during the MOP Term

Figure 1

Table 1-2
MPO Mining Titles

Title	Type	Purpose	Grant Date	Expiry Date	Status
AUTH 459	Authorisation	Prospecting	07/04/1992	08/04/2015	Renewal pending
ML 1645	Mining Lease	Prospecting and Mining Coal	17/12/2010	16/12/2031	Granted
ML 1713	Mining Lease	Prospecting and Mining Coal	02/02/2015	02/02/2036	Granted
ML 1708	Mining Lease	Prospecting and Mining Coal	02/02/2015	02/02/2036	Granted
ML 1709	Mining Lease	Prospecting and Mining Coal	02/02/2015	02/02/2036	Granted
ML 1750	Mining Lease	Prospecting and Mining Coal	03/03/2017	03/03/2038	Granted

Table 1-3
MPO Water Access Licences

Water Sharing Plan	Water Source	Licence Number	Entitlement (ML)
Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources, 2009	Hunter Regulated River Alluvial Water Source	18253	74
		18266	68
		18206	24
		18199	5
		18122	33
		18131	60
		21503	21
	Muswellbrook Water Source	23935	41
	Hunter Regulated River Water Source	879	224
		880	124
		1113	366
		973	3
		974	210
		975	8
		988	156
		989	8
		1307	37.5
		1229	480
		1230	8
		1259	33.2
		1227	99
		1258	5
		992	75
		7808	36
		702	267

Table 1-3 (Continued)
MPO Water Access Licences

Water Sharing Plan	Water Source	Licence Number	Entitlement (ML)
Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources, 2009 (continued)	Hunter Regulated River Water Source (continued)	1260	4.8
		993	265
		1308	15.1
		604	183
		605	8
		677	24
		1338	17.5
		662	275
		663	16
		10775	243
		41438	420

Note: ML = Megalitres.

1.5 LAND OWNERSHIP AND LAND USE

The site is situated directly north of the existing Bengalla Mine, with the Mt Arthur Mine further south. Dartbrook Mine and the village of Kayuga are situated beyond the northern boundary of the site, with the township of Aberdeen further north again. Agricultural land and the town of Muswellbrook are located to the east of the site. Land to the west of the site is generally used for grazing.

The land uses in the vicinity of the MPO are predominantly agricultural and residential, with the area within the ML predominantly used for cattle grazing.

A schedule of land ownership on, and adjacent to, the MPO mining titles is contained in Appendix 1 of the Development Consent (Appendix 1) and shown on Plan 1C. The majority of freehold land within the ML boundary is owned by MACH Energy.

1.6 STAKEHOLDER CONSULTATION

1.6.1 Community Consultative Committee

The Community Consultative Committee (CCC) was formed in 2004, and has since met regularly. The CCC is an important communication and engagement tool, as the group acts as the point of contact to provide feedback between MACH Energy and the community. The CCC is made up of community members, and has previously contained Council representatives.

Coal & Allied presented rehabilitation concepts to the CCC on 3 March 2012. Feedback provided by the CCC included support for the use of analogue (reference/control) sites to assess rehabilitation success and concerns regarding interactions between the MPO and the Bengalla Mine. The use of analogue sites has been incorporated into the completion criteria for the MPO's rehabilitation domains (Section 6). Potential interaction between the MPO's rehabilitation and neighbouring land uses (including the Bengalla Mine) has been risk assessed (Section 3.1), and appropriate action and responses have been developed (Section 9). The CCC has also been provided with an opportunity to comment on the various Modifications submitted for the MPO as part of the public exhibition process.

Members of the community have indicated their preference for a landform that integrates with the surrounding landscape (i.e. does not form the shape of a 'bread loaf'). This is discussed further in Section 4.2.1.

This MOP was provided to the CCC for the purposes of consultation on 1 May 2018.

1.6.2 Muswellbrook Shire Council

MACH Energy met with MSC on 9 August 2016. At the meeting, MSC indicated that its key rehabilitation focus is the design of the eastern emplacement and its consistency with the surrounding landscape. The redesign of the final landform, in consideration of comments provided by MSC, is discussed in Section 4.2.1.

MSC also provided comments regarding tree plantings for visual screens, final void minimisation and dust management.

This MOP was provided to MSC for the purposes of consultation on 1 May 2018.

1.6.3 Aboriginal Groups

The MPO Aboriginal Heritage Management Plan (AHMP) provides for comprehensive protective and mitigative management measures and methodologies to be implemented for the MPO. The AHMP was prepared in accordance with Condition 36, Schedule 3 of Development Consent DA 92/97, and approved on 5 July 2017.

Development activities at the MPO require assessment and Aboriginal Heritage Impact Permits under Part 6 of the *National Parks and Wildlife Act 1974*. MACH Energy maintains a list of Registered Aboriginal Parties (RAPs) from consultation throughout the lifetime of the MPO. MACH Energy conducts frequent meetings with the RAPs to discuss Aboriginal issues, and encourages the RAPs to assist in Aboriginal works undertaken on-site.

2 PROPOSED MINING ACTIVITIES

2.1 PROJECT DESCRIPTION

Development Consent DA 92/97 (as modified) allows for the extraction of 197 million tonnes of ROM at a rate of up to 10.5 Mtpa. Development Consent DA 92/97 allows for mining until 22 December 2026.

Two open cuts (i.e. Pit A and Pit D) have commenced in the south eastern corner of ML 1645, and will progress during the MOP term. Pit A is partly located in ML 1750. The initial portion of the Overburden Emplacement will be constructed between the boxcuts and the eastern boundary of the lease, within the footprint approved by the Development Consent. The Overburden Emplacement is a short haul from the initial open cuts, and will develop into a bund that assists to control the potential environmental impacts of the operation. Mining will initially progress northwards before developing to the west throughout the remaining mine life, in accordance with Development Consent DA 92/97.

Major infrastructure development commenced on-site during the previous MOP term. This infrastructure development included construction of:

- the Mine Infrastructure Area (MIA) (including the construction of offices, a workshop, tyre and fuel bay, bath-houses, a sewage treatment plant, car park and water tanks);
- the Magazine/Reload Facility;
- portions of the Coal Handling and Preparation Plant (CHPP), including the construction of offices, a car park, temporary and permanent buildings, a reclaim tunnel, an overland conveyor, a Train Load-Out Facility and temporary construction of the pad/laydown area;
- the Light Vehicle/Medium Vehicle Access Road, the Mine Haul Road and other various access roads; and
- various other infrastructure, including within the MPO Rail Spur and Loop, the Hunter River Pump Station and Pipeline, water management and electrical infrastructure.

Construction will progress during the MOP term, with continued of construction of major infrastructure elements (i.e. the Tailings Dam) and the finalisation of other elements (i.e. the Rail Loop and Spur, and the CHPP).

A detailed description of the proposed mining and construction activities associated with the MPO is provided in the 1997 EIS and the MOD 1 EA.

2.2 ASSET REGISTER

In accordance with the MOP Guideline, the main assets expected to be in each domain at the end of the MOP term are listed in Table 2-1.

Table 2-1
MPO Asset Register

Primary Domain	Size at Start of MOP term (ha)	Size at End of MOP term (ha)	Major Assets at End of MOP Term	Decommissioning Activities
Infrastructure Area	310	472	• Workshop and administration buildings and car park. • Sewage treatment plant. • Explosives magazine. • Coal handling areas and conveyors. • CHPP. • Rail loop and train-load out infrastructure. • Bengalla Link Road Bridge. • Electrical and phone services. • Water supplies. • Fuel storage facilities. • Access and haul roads.	No decommissioning activities to be undertaken during MOP term. At the end of the mine life, all surface infrastructure will be decommissioned and removed (except where to be retained with approval of relevant regulatory authorities).
Tailings Storage Facilities	82	82	• Pipelines, pumps and related tailings infrastructure. • The MPO Tailings Dam. • Water diversions. • Access roads.	No decommissioning activities to be undertaken during MOP term. At the end of the mine life, all relevant infrastructure to be decommissioned and removed from the Tailings Storage Facilities.
Water Management Areas	100	132	• Pipelines, pumps and related water management infrastructure. • Mine water and sedimentation dams. • Water diversions. • Access roads.	No decommissioning activities to be undertaken during MOP term. At the end of the mine life, all relevant infrastructure to be decommissioned and removed from the water management areas.
Active Void[1]	54	198	• Mining fleet. • Support equipment.	No active mining fleet will remain at the decommissioning phase.
Overburden Emplacement Area	65	279	• Overburden Emplacement mining fleet. • Support equipment.	No decommissioning activities to be undertaken during MOP term. At the end of the mine life, all plant and equipment will be dismantled, decommissioned and removed from the overburden emplacement area.

ha = hectares.

[1] Active void has been calculated based on the extent of the open cut pits at the end of the MOP term, assuming no rehabilitation has been completed.

2.3 ACTIVITIES OVER THE MOP TERM

The activities to be undertaken over the MOP term are summarised in Sections 2.4 to 2.10.

2.4 EXPLORATION

Prior to MACH Energy acquisition, the MPO coal resource was defined by a series of drilling programmes undertaken between 1992 and 2010. These programmes comprised of core drilling (31 per cent) and open hole drilling (69 per cent). Coring was predominantly undertaken using a HQ3-sized bit (63 millimetres [mm]) and open hole drilling to an equivalent hole diameter size. A number of large diameter holes have also been drilled (200 mm).

A pre-production drilling program was commenced in the previous MOP period and was completed in February 2018. The program was undertaken to increase geological confidence to support the commencement of production. As part of the program, a total of 140 boreholes were drilled in MLs 1645 and 1750. Drilling was undertaken using the water injection method, which generates minimal dust and noise emissions. The majority of boreholes were located within the open cut/overburden emplacement area footprint and involved open hole (non-core) drilling.

A subsequent drilling program is scheduled to be undertaken during the MOP term, and will generally be consistent with the approach undertaken in the pre-production drilling program. The aim of this drilling program will be to maintain an adequate knowledge of geology for the subsequent 3 years of mining. All necessary approvals (e.g. a Review of Environmental Factors, if required) will be obtained prior to commencement of the drilling program.

2.5 CONSTRUCTION

The following sub-sections summarise the construction activities that are proposed to occur during the MOP period.

Demountable buildings will be used to assist with mobilisation for construction.

2.5.1 Roads

2.5.1.1 Mine Service and Construction Roads

Mine service and construction roads will continue to be constructed during the MOP term, including all required access roads, for example:

- roads to all sediment and environmental dams;
- ring roads around infrastructure (e.g. CHPP);
- roads to mine water dams;
- roads to the Tailings Dam;
- roads to the explosive storages;
- roads to the open cuts and initial Overburden Emplacement; and
- the service road access under the relocated 66 kilovolt (kV) line.

These roads will typically be service roads for light vehicles and construction plant only.

The indicative location of mine service and construction roads is provided on Figure 1. The final location of the roads is subject to detailed design, including consideration of required erosion and sediment controls.

2.5.2 Water Management Infrastructure

Water management infrastructure will continue to be designed and constructed in accordance with the principles and guidelines outlined in the approved MPO Water Management Plan (WMP), or contemporary versions of these guidelines.

The dams to be built and/or maintained during the MOP term are shown conceptually on Figure 1.

The Mine Water Dam (MWD), currently under construction, will be the main water storage dam and will supply water for dust suppression and plant operation. Construction water (e.g. for dust suppression) may also be sourced from other dams and/or bores. Water would be transported around the site by various means, including, for example water carts and/or a network of pipelines.

MWD is located in the Dry Creek catchment upstream of Wybong Road and upstream of the Bengalla Mine's Clean Water Dam 1. Clean Water Dam 1 forms part of Bengalla Mine's diversion of Dry Creek. Clean water from the catchment south of MWD will continue to flow to Bengalla Mine's Clean Water Dam 1. Appropriate erosion and sediment controls will be established downstream of MWD. A clean water diversion will be constructed north of MWD during this MOP period (Figure 1). Site erosion and sediment controls are discussed further in Section 3.2.6.

Water collected in each of the dams will be used for dust suppression and fire protection requirements. Water needs will be supplemented by a pumped supply from the Hunter River via the constructed Hunter River Pump Station and Pipeline, in accordance with MPO's licensing requirements.

2.5.3 Construction Area

A construction area (Figure 1) will continue to be maintained while construction proceeds. The construction area includes:

- security fence and boom gate security-controlled entry;
- an administration building;
- parking for private vehicles;
- bathhouse facilities;
- a pad for assembly of earthmoving and civil plant;
- light vehicle wash facilities;
- fuel bays;
- water tanks for the supply of potable water;
- generators; and
- borrow and stockpiling areas.

2.5.4 Rail Infrastructure and Conveyor

The Stage 1 rail line (comprising a spur and balloon loop) will continue to be constructed during the MOP term. The rail line will extend approximately 4 km from the existing Muswellbrook-Ulan mainline, with the rail spur alignment located immediately west of the existing Bengalla mine (Figure 1). Construction of the Rail Spur and Loop will finish in the MOP term in order for coal transport off-site to commence.

2.5.5 Tailings Dam

At the commencement of the MOP period, clearing has commenced in the Fines Emplacement Area within the south-western extent of the MPO area (Figure 1), access roads to the Area have been established and an end wall has been constructed. During the MOP term, construction of the Tailings Dam will further progress, and tailings from the CHPP will be transported via pipeline to be deposited in the Tailings Dam.

2.5.6 66 kV Power Line Relocation

During the MOP term, a 66 kV power line and associated infrastructure which currently runs south-west of ML 1709 will be relocated. The power line will be relocated to the north of its current position to reflect the northern extension of the Overburden Emplacement.

2.5.7 Rehabilitation of Construction Areas

Ancillary disturbance areas associated with construction/earthworks are progressively rehabilitated as construction is completed. Ancillary disturbance areas are rehabilitated within 6 months of construction being completed. Where this isn't practical, interim/temporary rehabilitation (such as seeding with non-persistent cover crops) is undertaken for a period of time to temporarily mitigate visual impacts, minimise dust generation and erosion and to contribute organic matter for future rehabilitation.

Where practical, vegetation species consistent with those cleared for construction works are used in the rehabilitation of ancillary disturbance areas, in consideration of *Managing Urban Stormwater – Soils and Construction Volume 1 4th Edition* (Landcom, 2004).

2.6 MINING OPERATIONS

2.6.1 Mine Sequencing

Mining at the MPO has commenced in the south-east of the deposit and will gradually develop north and west over the mine life. Truck and excavator/shovel excavation will initially commence in a terrace mining sequence to reduce haul profiles, increase coal quality variability and reduce overall operating costs.

2.6.2 Overburden and Interburden Material

Mining will involve open pit surface mining methods (i.e. conventional truck and excavator/shovel excavation removing prestrip and overburden sequences and coal seam interburden materials, hauling ex-pit and in-pit to overburden emplacements). Dozer push may also be utilised where practical.

To minimise the impact of the operation on Muswellbrook, night shift waste dumping will be on benches some 10 metres (m) below the top level of the eastern face of the Overburden Emplacement.

The surface topography at the MPO is undulating, with gullied areas that contain small amounts of unconsolidated deposits. Excavation will require removal of a thin topsoil layer (which will be stockpiled, see Figure 1), the area will then be prepared for drilling and blasting of the weathered layer of overburden. In some areas there may be small quantities of unconsolidated material that can be removed without blasting. These are likely to be small in area and exist in gully lines on the lower slopes.

Ground preparation for blasting will generally be required on the steeper slopes encountered at the MPO. This will be undertaken with large mine dozers. The dozers will be used to bench working pads that are suitable to maintain drill stability.

2.6.3 Coal

As the blasting process excludes blasting of coal, a small percentage of coal seams may require ripping by dozers. Coal will be extracted by either an excavator/hydraulic shovel or loader, depending on seam thickness and equipment scheduling requirements. Coal will be loaded onto a fleet of mine haul trucks for transport to the CHPP.

ROM coal will be trucked to a ROM dump hopper and transferred to the sizing station and stacker by conveyors. ROM coal may be temporarily stockpiled in the active mining area prior to being trucked to the ROM dump hopper.

During the early stages of the MOP term, a temporary crushing facility located within the MIA will be used to crush bypass coal for rail transport. This will occur temporarily (i.e. <6 months), to allow staged commissioning of elements of the CHPP. No trucking of the crushed coal product will occur (i.e. the crushed bypass coal will be transported via temporary and permanent conveyors and the approved rail loadout systems).

Due to the variable nature of the resource and variations in productivity on thick and thin seam sequences, excess ROM coal will be stockpiled in the CHPP area to maintain consistency in plant feed.

2.6.4 Rehabilitation

No rehabilitation has been undertaken prior to the commencement of this MOP term. Rehabilitation will commence during this MOP term, and will involve the commencement of dump profiling, contouring and topsoil placement on areas on the eastern side of the Overburden Emplacement (Plan 3). Dozers will be used to reshape the area before topsoiling and contouring occurs. Topsoil will be placed on the Overburden Emplacement at a depth of approximately 100 mm.

Temporary rehabilitation, including hyromulching and seeding of temporary landforms (e.g. mine access roads etc.), will continue to be undertaken across the site to minimise erosion and sediment management. Temporary rehabilitation will be undertaken within 6 months of the areas becoming available.

Regular visual inspections (i.e. at least quarterly) will be undertaken on the temporary rehabilitation areas within the MPO. These inspections will assess the stability of temporary rehabilitation landforms and the establishment of seeded areas. Initial replanting of losses and reseeding of failed areas will occur where necessary on seeded areas. An annual application of fertiliser and/or macro or micronutrients may also occur where required.

Rehabilitation of the Overburden Emplacement will progress during future MOP terms as areas become available within the mine plan. Once areas become available for rehabilitation, dozers will be used to reshape the area before topsoiling, contouring and reseeding takes place. The MPO rehabilitation strategy will focus on progressive rehabilitation to reduce the visual impact of operations on the town of Muswellbrook.

Estimated volumes of topsoil used for rehabilitation during the MOP term are outlined in Table 3-9.

2.7 WASTE ROCK MANAGEMENT

2.7.1 Mining Overburden and Interburden

Overburden is the general name of the material that extends from below the topsoil layer to the upper coal seam. Interburden is the material that separates all subsequent coal seams. At the MPO, the overburden and interburden materials vary in physical and geochemical properties, in accordance with the geology of the area and the extent of exposure to weathering.

Overburden will initially be placed in an Overburden Emplacement to the east of the open cuts (Figure 1). As part of the planned routine mining operations, overburden will then also be placed behind the advancing mining operation to permit the extraction of coal. Overburden will generally be removed using truck and shovel methods.

2.7.2 Coarse Reject

Coarse reject will consist predominantly of fine grained sedimentary rock types with minimal quantities of carbonaceous material. Coarse reject contains no energy and is of no current commercial use, and has little propensity for spontaneous combustion. This material has similar properties to overburden material in contact with coal seams.

2.7.3 Fine Reject

Fine reject (tailings) will be thickened into a solid's density of approximately 20% to 30% by weight and will predominantly be fine rock and clay with some coal and flocculent. The fine reject will be wet with moderate conductivity. Additional and/or alternate tailings processing technologies may also be undertaken during the MOP term, which may result in increased densities.

2.8 WASTE MANAGEMENT

2.8.1 Total Waste Management System

The approved MPO Waste Management Plan (WasteMP) describes the measures that will be implemented to avoid, minimise, reuse and recycle all waste streams generated during the construction stage of the MPO.

Wastes generated on-site will be segregated at source and stored and transported appropriately. The segregation of wastes ensures different waste streams are appropriately managed based on their level of risk to the environment, and in accordance with any legal requirements. Segregation at source reduces the contamination of waste streams, improves the ease of storage, handling, disposal and tracking, and reduces the potential disposal costs for some items. Labelled and numbered bins will be provided at the point where wastes are produced to improve segregation.

There will be no landfill developed on-site, however, some inert waste material (e.g. wood, steel and wire from demolition) may be disposed of in the Overburden Emplacement, in accordance with the MPO WasteMP. Larger quantities of waste will be stored in secure locations on-site until they can be removed. Adequate containment, such as bunding, will be provided to prevent leaching from wastes onto the ground which could affect surface water quality or cause soil contamination. Wastes will also be managed to ensure that they are safe from likely ignition sources, and that the risk of fire is minimised. The disposal of tyres in the backfilled open cuts would be undertaken in accordance with EPL 20850 (Section 1.2).

Regulated wastes as classified under Schedule 1 of the *POEO (Waste) Regulation 2005* will be managed in line with these regulations, ensuring compliance with tracking and recording requirements.

2.8.2 Sewage Waste

The MPO requires the construction of sewage management facilities. The ongoing design and construction of these facilities will continue to comply with the conditions of the Development Consent, the requirements of MSC and any applicable legislation.

2.9 EXISTING INFRASTRUCTURE AND DECOMMISSIONING

Existing infrastructure constructed during the previous MOP term is outlined in Section 2.1. Existing major infrastructure constructed on-site by MACH Energy is shown on Figure 1 and summarised in Section 2.1.

The Bengalla Infrastructure Area, while located within the southern portion of the MPO Development Consent boundary, is owned and operated by Bengalla Mine and does not form part of the MPO. This infrastructure area will not be decommissioned as part of the MPO and does not form a domain within this report. It has been identified solely because it falls within the Development Consent boundary.

Bengalla Mine's existing Clean Water Dam 1, which is located within the MPO Development Consent Boundary, will not be decommissioned in the MOP term and is discussed further in Section 2.5.2.

ED1 (and associated access track) was constructed in 2004 by Coal & Allied as part of the MPO.

No decommissioning of MPO related infrastructure will be undertaken during the MOP term.

2.10 PROGRESSIVE REHABILITATION AND COMPLETION

A summary table of planned disturbance and rehabilitation over the MOP term is provided in Table 7-1.

2.11 MATERIAL PRODUCTION SCHEDULE

The estimated Material Production Schedule for the MOP term is described in Table 2-2.

Table 2-2
Estimated Material Production Schedule

Material	Unit	Year 1 (30 June 2018 to 30 June 2019)
Stripped Topsoil	Mbcm	0.7
Rock/Overburden	Mbcm	16.7
ROM Coal	Mt	7.3
Reject Material	Mt	1.5
Product	Mt	5.8

Mbcm = million bank cubic metres.

Mt = million tonnes.

3 ENVIRONMENTAL ISSUES MANAGEMENT

3.1 ENVIRONMENTAL RISK ASSESSMENT

The key risks associated with site rehabilitation, biodiversity and land management have been assessed using the likelihood ratings, maximum reasonable consequence ratings, risk matrix and risk classifications listed in Table 3-1, Table 3-2, Table 3-3 and Table 3-4, respectively.

Table 3-1
Likelihood Ratings

Class	Likelihood	Likelihood Description	Frequency
A	Almost certain	Recurring event during the life – time of the operation/project.	Occurs more than twice per year
B	Likely	Event that may occur frequently during the life – time of an operation/project.	Typically occurs once or twice per year
C	Possible	Event that may occur during the life – time of an operation/project.	Typically occurs in 1-10 years
D	Unlikely	Event that is unlikely to occur during the life – time of an operation/project.	Typically occurs in 1-100 years
E	Rare	Event that is very unlikely to occur during the life – time of an operation/project.	Greater than 100 year event

Table 3-2
Maximum Reasonable Consequence Ratings

		Environmental – On Site
1	Minor	Near source confined and promptly reversible impact.
2	Medium	Near source confined and short term reversible impact.
3	Serious	Near source confined and medium term recovery impact.
4	Major	Impact that is confined and requiring long term recovery, leaving residual damage.
5	Catastrophic	Impact that is widespread-unconfined and requiring long –term recovery, leaving major residual damage (typically years).

Table 3-3
Risk Matrix

Likelihood	Consequence				
	1 – Minor	2 – Medium	3 – Serious	4 – Major	5 – Catastrophic
A – Almost Certain	Moderate	High	Critical	Critical	Critical
B – Likely	Moderate	High	High	Critical	Critical
C – Possible	Low	Moderate	High	Critical	Critical
D – Unlikely	Low	Low	Moderate	High	Critical
E – Rare	Low	Low	Moderate	High	High

Table 3-4
Risk Classification

Risk Class	Risk Management Response
Critical	Risks that significantly exceed the risk acceptance threshold and need urgent and immediate attention.
High	Risks that exceed the risk acceptance threshold and require proactive management. Includes risks for which proactive actions have been taken, but further risk reduction is impracticable. However active monitoring is required and the latter requires the sign-off from business unit senior management.
Moderate	Risks that lie on the risk acceptance threshold and require active monitoring. The implementation of additional measures could be used to reduce the risk further.
Low	Risks that are below the risk acceptance threshold and do not require active management. Certain risks could require additional monitoring.

Table 3-5 outlines the key identified risks and associated risk ratings for site rehabilitation. The ratings assume that the risks are untreated (i.e. have not been addressed by specific risk mitigation measures other than routine design and operational practice).

Table 3-5
Key Risks Associated with Site Rehabilitation, Biodiversity and Land Management

Risk	Likelihood Rating	Consequence Rating	Risk Classification
Inappropriate bushfire management regime leading to widespread failure of revegetation or continued sustainability of mine rehabilitation areas.	D	3	M
Major storm event resulting in flooding, geotechnical instability, major erosion and/or widespread damage to rehabilitated area.	D	3	M
Severe and/or prolonged drought leading to widespread failure of revegetation/rehabilitation.	D	3	M
Inadequate or insufficient topsoil to create/enhance the desired ecological communities in mine rehabilitation areas.	E	2	L
Inadequate weed and pest animal control leading to widespread failure of revegetation or continued sustainability of rehabilitation area ecosystems.	D	3	M
Insect attacks (e.g. locusts and beetles) leading to failure of rehabilitation or continued sustainability of mine rehabilitation area ecosystems.	E	2	L
Inappropriate planting and/or direct seeding techniques resulting in a failure of rehabilitation.	D	3	M
Inappropriate fertiliser application (type and/or rate) leading to failure of revegetation or rehabilitation.	C	2	M
Frost leads to high mortality rates of revegetation and rehabilitation.	D	3	M
Incompatible neighbouring land owner practices (including interactions with the Bengalla Mine) leading to failure of rehabilitation and revegetation works.	C	2	M

Table 3-5 (Continued)
Key Risks Associated with Site Rehabilitation, Biodiversity and Land Management

Risk	Likelihood Rating	Consequence Rating	Risk Classification
Planning - insufficient provision of financial, human and equipment resources leading to failure to meet completion criteria, including increased maintenance costs and timeframe.	E	3	M
Inadequate or insufficient (incorrect species mix/quality) seed/seedlings for rehabilitation works.	D	3	M
Incorrect acid forming material management procedures results in rehabilitation failure.	C	2	M

3.1.1 Environmental Management System

The approved Environmental Management System (EMS) for the MPO is designed to:

- effectively manage environmental issues;
- ensure compliance with regulatory requirements;
- continually improve environmental performance; and
- satisfy the expectations of stakeholders and the local community.

The EMS forms the basis of environmental management at the MPO and includes procedures, standards and management plans to ensure all regulatory requirements are met. The EMS will continue to operate during, and following, mine closure to ensure all environmental (including monitoring and management) and social responsibilities are met for up to five years after mine closure, or as approved by relevant regulators.

The list of approved Environmental Management Plans and the EMS are provided in Table 3-6.

Table 3-6
MPO Management Plans

Plan	Relevant Development Consent DA 92/97 Condition	Approval Date
Noise Management Plan (NMP)	Schedule 3, Condition 9	15 February 2018
Air Quality and Greenhouse Gas Management Plan (AQGGMP)	Schedule 3, Condition 23	31 January 2018
Aboriginal Heritage Management Plan (AHMP)	Schedule 3, Condition 36	5 July 2017
Water Management Plan (WMP)	Schedule 3, Condition 28	16 March 2018
Blast Management Plan (BMP)	Schedule 3, Condition 17	3 August 2017
Landscape Management Plan (LMP)[1]	Schedule 3, Condition 47	23 July 2012
Waste Management Plan (WasteMP)	Schedule 3, Condition 52	29 September 2017
Rehabilitation Strategy	Schedule 3, Condition 54	23 July 2012
Biodiversity and Rehabilitation Management Plan (Biodiversity portion only)[1]	Schedule 3, Condition 32	23 July 2012
Environmental Management Strategy	Schedule 5, Condition 1	18 September 2017

[1] MACH Energy is currently reviewing these plans (and revising them where necessary) to develop a contemporary suite of management plans.

As the MPO continues to grow, additional procedures and instructions associated with operational controls will be maintained and/or prepared and implemented, including:

- Environmental Compliance Register;
- Environmental Aspects and Impacts Register;
- Supervisors Induction;
- Ground Disturbance Permit Procedure;
- Ground Disturbance Permit Form;
- Ground Disturbance Toolbox Talk;
- Spontaneous Combustion Management Plan;
- Topsoil Stripping Management Plan;
- Topsoil Management Register;
- Bushfire Management Plan;
- Rehabilitation Procedure;
- Site Contamination and Prevention Control;
- Weed Control Work Instruction;
- Flora and Fauna procedure;
- Non-Routine Environmental Monitoring form; and
- Rehabilitation Record Form.

3.1.2 Environmental Reporting

An Annual Review is produced for the MPO to fulfil the reporting requirements of the Development Consent, and is provided to appropriate parties. This report compiles monitoring results and discusses trends, system changes and responses to any potential issues identified during monitoring.

3.2 MANAGEMENT OF RISKS RELATING TO REHABILITATION

3.2.1 Geology and Geochemistry

Overburden and mine coal reserves will be removed at the MPO progressing north and west, with the overburden and interburden initially being placed in an Overburden Emplacement to the west of the open cuts before being placed behind the advancing open cuts.

Supplementary Report 1 of the 1997 EIS provides a description of the geochemical characterisation of the overburden and interburden materials that are present at the MPO. The sampling program associated with Supplementary Report 1 identified that some of the materials sampled produced leachate that is acidic, saline or sodic on weathering. These are characteristics that are known to produce adverse growing conditions for vegetative growth and an elevated risk of soil erosion and sedimentation, and need to be managed accordingly.

In order to understand the selective handling of materials, characterisation of soils and overburden will be undertaken throughout the development of the mine. Topsoil and subsoil characterisation will be undertaken in order to:

- identify any physical or chemical deficiencies or limiting factors (particularly alkalinity, salinity and sodicity) which may affect vegetation establishment, landform stability and propensity for spontaneous combustion; and
- develop selective placement strategies and/or develop suitable amelioration techniques.

Overburden characterisation is important for similar reasons, and more specifically to:

- identify material for use in the root zone, which is capable of supporting sustainable vegetation establishment;
- identify materials that limit plant growth or which may contaminate surface or ground water, and hence may require special handling, treatment or disposal; and
- identify any propensity for spontaneous combustion.

3.2.2 Material Prone to Spontaneous Combustion

Occurrences of spontaneous combustion are infrequent at the neighbouring Bengalla Mine due to the inert nature of the strata and proactive stockpile management. The environmental risk associated with spontaneous combustion at the Bengalla Mine has been assessed as low to moderate (Hansen Bailey, 2016). Therefore, it is anticipated that the risk of spontaneous combustion at the MPO will be low to moderate and can be managed using appropriate stockpiling practices.

Spontaneous combustion at the MPO will be managed in accordance with the following objectives:

- ensure that spontaneous combustion outbreaks are minimised;
- endeavour to identify potential areas that may be prone to spontaneous combustion before an outbreak occurs;
- provide for all carbonaceous material to be placed in such a manner that reduces the possible occurrence of spontaneous combustion;
- where longer term spontaneous combustion problems occur, instigate a management plan to deal with these; and
- creation of final rehabilitation that is free from spontaneous combustion.

3.2.3 Material Prone to Generating Acid Mine Drainage

Geochemical characteristics of the overburden material were tested by the Department of Mineral Resources Development Laboratory (Mountford and Wall, 1995). The only acid forming leachate occurred in samples obtained from the Wynn Seam. Material balance calculations undertaken for the 1997 EIS indicated that dilution and neutralisation will negate any acid forming potential.

Therefore, due to the predicted small proportion of potentially acid forming material, it is expected that operational blending during ROM dumping will produce a non-acid forming material within the Overburden Emplacement and back-filled open cuts. The management strategy for the MPO will provide that no zones of poorly blended, potentially acid forming material are exposed in the final surface of the Overburden Emplacement and back-filled open cuts. This will be achieved by excluding the material identified as potentially being acid forming (i.e. non-economic coal and identified coal seam roof and floor rock from the Wynn Seam) from the final face of the Overburden Emplacement with a minimum cover of 10 m of inert material overlying the potentially acid forming material.

Locations of potentially acid forming materials have been identified on-site. The mine plan includes sequencing of mining and emplacing of potentially acid forming material to ensure the material is separated from non acid forming material. Potentially acid forming material will be emplaced on the Overburden Emplacement away from gullies and drainage lines, and away from the outer slopes. Where possible, potentially acid forming material will be emplaced in-pit.

3.2.4 Mine Subsidence

No subsidence impacts will occur as a result of the operations planned at the MPO, as mining operations are open cut. Minor historical underground workings exist on the northern and southern parts of ML 1645, and parts of ML 1750.

3.2.5 Voids, Highwalls and Endwalls – Slope Management

The final void, lowwalls and ramps cannot be rehabilitated progressively over the mine life as they are required up to the end of production for accessing coal and related infrastructure services. All areas of the site, with the exception of the final voids and their surrounding catchments, will be free draining. This will allow effective catchment contribution and yield to the Hunter River, following the cessation of mining.

The final void landform will be rehabilitated with vegetation species and diversity that are appropriate for the complex landform. The highwall will also be rehabilitated using the best reasonable and feasible rehabilitation technologies available and re-vegetated with species that are appropriate for its steepness and aspect.

Design alternatives for the final void will be continually evaluated and will be prepared as part of the closure planning process at the MPO. Regardless of the final design alternative selected, the location of the final void will be outside the 100-year recurrence interval flood prone area of the Hunter River. Appropriate measures will be used to limit access to steep areas around the final void to restrict cattle, pedestrian and vehicle access. These measures may include large rock placement, landform shaping, or fencing, as agreed with relevant government authorities prior to closure.

3.2.6 Erosion and Sediment Control

An Erosion and Sediment Control Plan (ESCP) has been developed in accordance with Condition 28(b), Schedule 3 of Development Consent DA 92/97. The ESCP is included in Appendix A of the MPO WMP. The ESCP describes the management of potential erosion impacts as well as implementation of a monitoring program to provide early detection of potential issues and to monitor the effectiveness of controls.

A detailed construction ESCP has also been prepared to meet internal MACH Energy planning requirements.

In order to reduce the potential for degradation within the MPO area and adjoining lands, there are two zones of focus that will be adequately managed during the construction phase:

- areas disturbed by construction and initial mining activities; and
- undisturbed areas.

The following measures will be adhered to in all areas of the site where disturbance from construction and/or initial mining activities occurs:

- relevant internal approvals and permits will be obtained before commencement of surface disturbance in the construction stage (e.g. Ground Disturbance Permits);
- the extent of disturbance (including trafficable areas) will be minimised and identified using appropriate pegging, barriers or signage;
- appropriate erosion and sediment controls will be approved and established prior to land disturbance and will remain in place until exposed areas are stabilised;
- clean water runoff from undisturbed catchments will be diverted around the disturbance areas via diversion drains and banks to discharge into natural watercourses, where practical;
- runoff from disturbed areas will be diverted into sediment dams;
- drains, diversion banks and channels will be stabilised and scour protection will be provided as necessary;
- temporary erosion and sediment control measures will be used on-site and may include silt fences, hay bales, jute mesh, check dams, cross banks, contour banks, armouring and straw mulching; and
- topsoil will be stockpiled for reuse and all stockpiles will be managed as described in Section 3.2.7.

Drainage considerations will be incorporated into the landform design plan to slow and direct water flow and minimise erosion. Diversion drains will be constructed as per the design plans.

3.2.7 Soil Types and Suitability

Soil management is fundamental in successful land management and rehabilitation of the MPO. The key objectives for managing the soil landscape (in context of vegetative cover and soil stability) include:

- minimising bare soil patches, which could potentially be affected by wind and water movement; and
- favourable nutrient, infiltration and stability characteristics.

Data derived from the 1997 EIS demonstrates the suitability of the soils of the MPO area for use as growing media and the stripping depth. Table 3-7 summarises the distribution of each soil type across the MPO area.

Table 3-7
Summary of Soil Types

Soil Types	Characteristics
Alluvial – Floodplain Soils	Uniform medium or fine textured clay profile, consisting of clay loams, silty clay loam or light clay topsoils. Slightly to highly dispersive.
Drainage Flat/Drainage Line Soils	Brown solonised soils and brown and yellow solidic soils. Slightly dispersible topsoils and highly dispersible subsoils.
Hillslope Soils	Topsoils are stable though occasionally highly dispersible. Subsoils are highly dispersible.
Sandy Hillslope Soils	Sandy parent material. Topsoil in two layers: • Light sandy clay loam, loam fine sandy or fine sandy clay loam. • Clayey sand, sandy loam or light to fine sandy clay loam. Subsoil is sandy to light medium clay – slightly to highly dispersible.
Volcanic Hillslope Soils	Uniform structured clay soils. Topsoil is fine sandy clay loam or light clay. Subsoils consist of silty to light medium clays. Slight to moderate dispersibility.

Source: ERM Mitchell McCotter (1997).

The suitability of these soils for use as top dressing, and their stripping depth, is summarised in Table 3-8.

Table 3-8
Summary of Soil Suitability for Use in Rehabilitation

Soil Unit Type	Suitable Stripping Depth
Alluvial Soils	Approximately the top 0.5 m of this soil unit is suitable for topsoil, while all remaining material down to at least 2.5 m is suitable for subsoil.
Drainage Flat/Drainage Line Soils	Surface layer is suitable for topsoils. Stripping depth to 0.2 m – though this is dependent on site specific soil characteristics. Soil below these layers is unsuitable due to unsuitable pH, dispersion characteristics, and structure.
Hillslope Soils	Surface soil material can be stripped down to a pale coloured (A2) horizon or in places down to a brighter coloured subsoil clay layer.
Sandy Hillslope Soils	Surface layers are only suitable for topsoil, usually to a depth of 0.1 m. Some areas not suitable due to high sand, gravel content or sandy texture.
Volcanic Hillslope Soils	Topsoil suitable to depths of 0.2 m. Some areas not suited due to shallow soils or high content of gravel or rock.

Source: ERM Mitchell McCotter (1997).

Topsoil Stripping

Topsoil stripping activities will be undertaken in accordance with the ESCP, to minimise erosion potential.

Topsoil will be stripped and salvaged to maximise its value for re-use in rehabilitation, this process will be guided by soil mapping and the suitable soil stripping depths described in Table 3-8. The areas cleared in advance of mining will be minimised to reduce air quality impacts and potential impacts to fauna. Where practicable, soil will be stripped when moist (but not saturated).

Topsoil Budgeting

Rehabilitation planned during this MOP term is described in Section 2.6.4. A detailed topsoil budget for the MOP term is provided in Table 3-9 below.

Table 3-9
Topsoil Budget

Topsoil Budget – MOP Term (30 June 2018 – 30 June 2019)	
Topsoil stockpiled at start of MOP term (m^3)	510,367
Stripped Topsoil during MOP term (m^3)	855,432
Topsoil used for Rehabilitation during MOP term (m^3)	95,000
Topsoil stockpiled at end of MOP term (m^3)	1,270,799

m^3 = cubic metre.

Topsoil is collected and stored on-site with an aim to stockpile sufficient topsoil to rehabilitate the entire final landform. MACH Energy currently estimates that 1,431,000 m^3 of topsoil is required for final landform rehabilitation and therefore, MACH Energy is aiming to stockpile this amount prior to mine closure.

Topsoil Management

Where possible, topsoil will be transported directly to rehabilitation areas. Where this is not possible, topsoil stockpiles will be established separate to the subsoil and away from active transport corridors. The stockpiles will be managed to maintain seed reserves and microbial soil associations. Topsoil stockpile management options, which may be undertaken where necessary, are summarised in Table 3-10.

Indicative topsoil stockpile areas are shown on Figure 1. Final topsoil stockpiles locations may vary and may also be located in Infrastructure and Borrow/Stockpile areas.

Table 3-10
Topsoil Management Options

During Soil Stripping and Stockpiling	Stockpiled Soil Awaiting Use in Rehabilitation Works	During the Rehabilitation Program
• Minimisation of vegetation clearance. • Selective stockpiling of soil according to pre-disturbance vegetation communities, soil type and salinity. • Stockpiling of soils in a manner that does not compromise the long-term viability of the soil resource. • Vehicle movement will be kept to a minimum on the soils to be stripped. Traffic will be excluded from soils that are sensitive to structural degradation. • Construction of stockpiles with a "rough" surface condition to reduce erosion hazard, improve drainage and promote revegetation. • Stockpiles will be no more than three metres in height in order to minimise problems with anaerobic conditions. • Stockpiles will be set out in windrows to maximise surface exposure and biological activity.	• Implementation of measures to provide for long-term viability of soil resources. • Stockpiles that are to remain inactive for extended periods are to be fertilised if required and seeded with appropriate seed mix to maintain soil structure, organic matter and microbial activity (stockpiles will be shaped prior to seeding). • Installation of silt fences around stockpiles to control potential loss of stockpiled soil through erosion prior to vegetative stabilisation. • Stockpiles may be deep-ripped to establish aerobic conditions, prior to reapplication of stockpiled soil for rehabilitation. • Where necessary, an appropriate soil ameliorant will be applied to dispersive soil stockpiles. • Implement appropriate weed control strategies, particularly for any noxious weeds, or plants identified as Key Threatening processes. Immediate revegetation will provide vegetative competition to assist with control of undesirable plant species. • Stockpiles will be appropriately sign-posted to identify the area, the source of the soil (i.e. native vegetation community or pasture and minimise the potential for unauthorised use or disturbance). • Topsoil stockpiles will be located away from mining, traffic areas and watercourses. • Level or gently sloping areas where available will be selected as stockpile sites to minimise erosion and potential soil loss.	• Topsoil conditioning involving the addition of lime, gypsum or fertiliser will be used where required. • Soil ameliorants such as gypsum, wood and hay mulch, biosolids, municipal waste composts and other organic wastes are utilised based on availability of supply or Waste Regulation 1996 guidelines and are incorporated by ripping, plough or rotating hoe. The use of soil ameliorants is designed to prevent surface crusting, increase moisture and organic content, and buffer surface temperatures to improve germination. • Compacted soil is ripped to a depth of 30 centimetres (cm) along the contour prior to the application of topsoil and rock raking. • Topsoil will not be respread when wet, to avoid excessive compaction. • At all times, topsoil respreading must be undertaken so that dust is managed. • Where possible, topsoil is dumped at the top of the slope and spread down slope to a depth of 10 cm. • Topsoil is to be used where available to promote species recruitment from direct soil return. • All contractor machinery used to handle and transport topsoil are to be cleaned down both prior to and at the completion of works to minimise the risk of transfer of weeds. • On completion of landform contouring, topsoiling and erosion and sediment control works, a vegetative cover will be applied as soon as practicable. Depending on the proposed post-mining landuse, this will involve direct seeding of selected shrub, grass and tree species.

3.2.8 Flora and Fauna

The floristics and vegetation structure across the site and the surrounding areas have been extensively modified since European settlement. Grassland is the most common vegetation community on the site and is used for beef cattle grazing. Other than grassland, the landscape includes scattered patches of open woodland of various sizes, ages and condition.

The impacts of the MPO on biodiversity are summarised in the 1997 EIS and the MOD 1 EA. The threatened species, populations and endangered ecological communities recorded within the MPO area are summarised in Table 3-11.

Table 3-11
Threatened Species, Populations and Ecological Communities Recorded within MPO Area

Threatened Species/Populations/Communities	TSC Act	EPBC Act
Fauna Species		
Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*)	V	-
Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)	V	-
Speckled Warbler (Chthonicola sagittata)	V	-
Black-chinned Honeyeater (eastern subspecies) (*Melithreptus gularis gularis*)	V	-
Squirrel Glider (*Petaurus norfolcensis*)	V	-
Eastern Freetail Bat (*Mormopterus norfolkensis*)	V	-
Yellow-bellied Sheathtail bat (*Saccolaimus flaviventris*)	V	-
Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*)	V	-
Diamond Firetail (*Stagonopleura guttata*)	V	-
Varied Sittella (*Daphoenositta chrysoptera*)	V	-
Spotted-tailed Quoll (*Dasyurus maculatus*)	V	E
Grey-headed Flying Fox (*Pteropus poliocephalus*)	V	V
Eastern False Pipistrelle (*Falsistrellus tasmaniensis*)	V	-
Southern Myotis (*Myotis macropus*)	V	-
Greater Broad-nosed Bat (*Scoteanax rueppellii*)	V	-
Populations		
Tiger Orchid (*Cymbidium canaliculatum*) – Endangered Population in the Hunter Catchment	E	-

Table 3-11 (Continued)
Threatened Species, Populations and Ecological Communities
Recorded within MPO Area

Threatened Species/Populations/Communities	TSC Act	EPBC Act
Ecological Communities		
Hunter Lowland Redgum Forest in the Sydney Basin and NSW North Coast bioregions	E	-
Central Hunter Ironbark-Spotted Gum-Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions[1]	E	-
White Box Yellow Box Blakely's Red Gum Woodland	E	CE
Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	V	CE

Source: Biodiversity and Rehabilitation Strategy Management Plan (Coal and Allied, 2012).

V – Vulnerable.

E – Endangered.

CE – Critically Endangered.

TSC Act = NSW *Threatened Species Conservation Act, 1995*.

EPBC Act = *Environment Protection and Biodiversity Conservation Act, 1999.*

[1] As discussed in the MPO MOD 1 Ecological Assessment (Cumberland Ecology, 2010), the community conforms to the TSC Act listed EEC Central Hunter Ironbark – Spotted Gum – Grey Box Forest (NSW Scientific Committee, 2009) but does not conform to the Commonwealth or State listed EECs due to the lack of *Eucalyptus albens* (NSW Scientific Committee, 2004; Threatened Species Scientific Committee, 2006).

Pre-clearing surveys will be undertaken (in conjunction with the ground disturbance permit process) to identify potential habitat features (and active threatened fauna) prior to commencing clearing works in any given area and determining appropriate management (i.e. depending on the habitat feature or threatened species identified). The pre-clearance survey would also target the identification of weed infestations that may need treatment prior to, or during disturbance, and/or pest species that may require control prior to disturbance. The pre-clearance survey will be conducted by an appropriately trained and suitably qualified ecologist.

Management actions for identified potential habitat features or active threatened fauna will be determined on a case by case basis, but may include selective clearing of non-habitat features/vegetation to encourage self relocation. Where necessary, an appropriately trained and suitably qualified ecologist will be used to attempt removal of remaining fauna from the area should they not leave of their own accord.

As part of the mine plan, vegetation clearing and topsoil stripping activities will be undertaken throughout the year, however, they may be undertaken on a campaign basis.

Proposed use of felled timber will follow current leading practice and may include salvaging habitat features such as hollows, harvesting of brush material that is laden with fruit/seed, mulching and incorporating understorey and saplings into stripped topsoil, collection of timber for fencing, the installation of stag trees and respreading coarse timber residue onto re-contoured land.

Rehabilitation of woodland will focus on flora species endemic to the local area, while acknowledging that seed supply may be a limiting factor. In this case, other appropriate native species that have performed well in the region will also be considered. Based on seed supply and suitability, flora species to be used in rehabilitation may also include those typical of the NSW listed *White Box Yellow Box Blakely's Red Gum Woodland* endangered ecological community.

The rehabilitation program at the MPO will focus on research and management practices that are designed to enhance rehabilitation success. Exotic grass species may also be used to provide early groundcover while native woodland species develop. Use of exotic grass species would be undertaken in consultation with a suitably qualified ecologist/specialist.

Where relevant, management practices described in the *Draft National Recovery Plan – White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Department of Environment, Climate Change and Water NSW, 2010) (i.e. community equivalent to the NSW White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community) have been used as the basis for the development of the RMP. This information has provided the framework for the development of the criteria, performance measures and indicators for ecosystem and land use establishment.

Details pertaining to the management of visual screens are provided in the MPO LMP.

3.2.9 Weeds and Pest Species

The key weed and pest species on the MPO landscape include: African Boxthorn (*Lycium Ferocissimum*); St John's Wort (*Hypericum perforatum*); feral dogs; foxes; and feral pigs. Ongoing management activities are undertaken to control the presence of these species.

Weed management at the MPO will be undertaken in accordance with advice from the Upper Hunter Weeds Authority, and in accordance with the *Biosecurity Act 2015*. The MPO also has a weed management procedure which will be implemented across the MOP area. The procedure includes a description of the Weeds of National Significance, noxious and environmental weed species which pose a threat to the site. Monitoring of weed presence, extent and other factors which may contribute to growth/decline of populations will occur regularly.

As described in the MPO Biodiversity Management Plan, weed management measures that may be undertaken at the MPO include (but are not limited to):

- Regular inspections of MACH Energy-owned lands to identify areas requiring the implementation of weed management measures.
- Regular inspections and maintenance of topsoil stockpiles.
- Management of cattle movement to mitigate the risks associated with the control of weeds in manure, around stockyards, and key access corridors.
- Consultation with neighbouring land owners and the relevant government stakeholders, such as the Upper Hunter Weeds Authority, regarding regional weed management strategies.
- Implementation of appropriate weed management measures, which may include mechanical removal, application of approved herbicides and biological control.
- Control of noxious weeds, or plants identified as key threatening processes on MACH Energy-owned land in accordance with the relevant Department Primary of Industries control category and the regional Weed Management Plan.
- Identification of weed infestations adjacent to or within the proposed disturbance area during pre-clearance surveys.
- Follow-up inspections to assess the effectiveness of the weed management measures implemented and the requirement for any additional management measures.

The outcomes of these weed and pest management activities will be reported in the Annual Review.

3.3 MANAGEMENT OF OTHER ENVIRONMENTAL RISKS

3.3.1 Overburden Characterisation

The geochemical characteristics relevant to waste rock are discussed in Section 3.2.1.

3.3.2 Slopes and Slope Management

The design and management of the highwalls, endwalls and final void are described in Section 3.2.5.

The slope design of the outer batters of the Overburden Emplacement is addressed in Table 5-2 and Table 6-2.

3.3.3 Air Quality

Air quality management and monitoring will be conducted in accordance with the approved MPO AQGGMP.

Air quality monitoring results will be documented in the Annual Review.

3.3.4 Surface Water

A WMP has been developed in accordance with Development Consent DA 92/97. The approved WMP includes information on surface water management and erosion and sediment control requirements.

The MPO site water management system generally aims to separate clean water from water that has been in contact with coal.

3.3.5 Groundwater

Potential impacts on groundwater are managed in accordance with the approved Groundwater Management Plan, developed in accordance with Development Consent DA 92/97.

3.3.6 Contaminated Land

Land contamination is managed through the MPO site contamination prevention and control procedure and non mineral waste management procedures.

Prior to the cessation of mining activities, an assessment will be undertaken to determine whether potential contamination issues exist and remediation is required. Issues expected to be addressed by this assessment will include, but not be limited to, decontamination of areas such as those impacted by carbonaceous material (e.g. coal spillage, coal storage), by hydrocarbon spillage (e.g. workshops, fuel storage areas) or by sedimentation (e.g. dams that have directly received pit water).

3.3.7 Hazardous Materials

Hazardous substances will be managed through the MPO EMS procedures for site contamination prevention and control. Additionally, the MPO will register all chemicals used on-site in a central database. The central database will contain all information in the Safety Data Sheets (SDS) and an inventory of chemicals held on-site. The information will be accessible at any computer terminal within the Operation, and will provide guidance on storage, use and disposal.

Hazardous and explosive materials will be transported and stored on-site in accordance with the NSW *Work Health and Safety Act 2011* and *Work Health and Safety (Mines and Petroleum Sites) Act 2013,* as well as the NSW *Explosives Act 2003* and supporting *Explosives Regulation 2005*.

The procedures and controls will minimise the potential for land and water contamination from the handling, storage and disposal of hazardous substances. These controls will include storage within properly sealed containers and controlled areas, bunded for medium to long-term storage requirements. These storage and waste receival areas will be isolated from clean water catchments to minimise the risk of land or water pollution should an unplanned spill occur.

The response to any accidental spills or ground contamination will be assessed on a case-by-case basis, and remediated using biodegradable spill absorbent. Emergency response procedures will also be enacted as required in accordance with the relevant environmental procedures. Hydrocarbon or chemical spills will also be reported in the mine site incident reporting and management system with corrective and preventative measures taken as appropriate.

Hydrocarbon spills are managed using bioremediation of the contaminated soils within a bioremediation facility located adjacent the open cut pit (in accordance with the Mount Pleasant Bioremediation Procedure). Following a spill, the contaminated soil is transported to the facility (generally via loader) and the details of the incident are recorded in the MPO Bioremediation Tracking Spreadsheet. Routine testing is undertaken on contaminated soils stored within the facility, until the soils reach a level where they are deemed safe for storage. The soils are then disposed of in-pit (with placement to target areas as low in the pit as possible).

Notwithstanding the above, the treatment of hydrocarbon spills is assessed on a case-by-case basis and is dependent upon the nature and scale of the spill. Should bioremediation not be an appropriate treatment for a spill, other options may include land farming (in accordance with the EPA's *Best Practice Note: Landfarming* [2014]) or transporting the contaminated soils off-site for treatment at a treatment facility.

3.3.8 Greenhouse Gases, Methane Drainage and Venting

In accordance with Condition 19, Schedule 3 of Development Consent DA 92/97, MACH Energy implements all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site. These measures are detailed in the MPO AQGGMP.

Methane drainage and venting is not applicable to the MPO.

3.3.9 Acid Mine Drainage

The management of material prone to generating acid mine drainage is described in Section 3.2.3.

3.3.10 Blasting

Blasting activities commenced in late 2017, and have been undertaken in accordance with the approved BMP, prepared in accordance with Condition 17, Schedule 3 of Development Consent DA 92/97.

Blast monitoring results are documented in the Annual Review.

3.3.11 Noise

Noise management and monitoring will be conducted in accordance with the approved NMP.

Noise monitoring results are documented in the Annual Review.

3.3.12 Visual and Lighting

Visual amenity at the MPO is managed under the approved MPO LMP, which was developed to address potential visual impacts that may affect local and regional visual receptors.

3.3.13 Heritage

Aboriginal Cultural Heritage

The management of Aboriginal archaeology and cultural heritage is managed in accordance with AHIP #C0002053 and AHIP #C0002092 for works undertaken as described in the MOP. Consultation with the Aboriginal community in relation to the management of Aboriginal archaeology and cultural heritage at the MPO is undertaken through the AHMP, conditions within Development Consent DA 92/97, the *NSW National Parks and Wildlife Regulation, 2009* and the NSW Office of Environment and Heritage (OEH) policy *Aboriginal cultural heritage consultation requirements for proponents 2010*.

Historic Heritage

In 2014 detailed recording of historic heritage sites on the MPO MLs was undertaken and, where warranted, specific archaeological management measures for specific sites were developed. Where appropriate, these works will be conducted with the participation of interested community members, such as representatives from local historical societies.

3.3.14 Spontaneous Combustion

The management of material prone to spontaneous combustion is described in Section 3.2.2.

3.3.15 Bushfire Management

The main objectives of bushfire management are to minimise the risk of bushfires and to rapidly control any outbreaks that might occur. Control measures are in place to protect people, property, assets, places of heritage value, threatened flora and fauna and to minimise the potential spreading of bushfires in and around the MPO.

The control measures implemented to prevent and manage bushfires focus on minimising the amount of fuel available at the MPO and its surrounding land. These measures include:

- slashing of vegetation along roads and internal tracks which are used as fire trails and assist in dividing the site into control zones;
- the use of livestock to reduce pasture based fuel loads on land suitable for grazing; and
- a network of water supply points to assist the NSW Rural Fire Service with logistical support.

In the event of a bushfire at the MPO, emergency response procedures will be enacted.

4 POST-MINING LAND USE

4.1 REGULATORY REQUIREMENTS

The regulatory requirements specific to post-mining land use and rehabilitation outcomes at the MPO are summarised in Table 4-1.

Table 4-1
Regulatory Requirements for Post-Mining Land Use and Rehabilitation

Document	Commitment Summary
DA 92/97 as modified, Schedule 3, Condition 32	The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must: (a) be prepared in consultation with OEH and Council, and be submitted to the Secretary for approval prior to carrying out any development on site; (b) include: • a description of the short, medium, and long term measures that would be implemented to: – manage the remnant vegetation and habitat on the site and in the offset area/s (if and when applicable); and – implement the offset strategy (if and when applicable), including detailed performance and completion criteria; • a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for: – implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata; – maximising salvage and beneficial use of resources in areas that are to be impacted, including vegetative, soil and cultural heritage resources; – protecting vegetation and soil outside the disturbance areas; – rehabilitating creeks and drainage lines on the site, to minimise net loss of stream length and aquatic habitat; – managing salinity; – conserving and reusing topsoil; – undertaking pre-clearance surveys; – managing impacts on fauna; – landscaping the site and along public roads to minimise visual and lighting impacts; – collecting and propagating seed; – salvaging and reusing material from the site for habitat enhancement; – salvaging, transplanting and/or propagating threatened flora and native grassland; – controlling weeds and feral pests; – managing grazing and agriculture on site; – controlling access; and – bushfire management; • a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;

Table 4-1 (Continued)
Regulatory Requirements for Post-Mining Land Use and Rehabilitation

<table>
<tr><th>Document</th><th>Commitment Summary</th></tr>
<tr><td>DA 92/97 as modified, Schedule 3, Condition 32 (continued)</td><td>

a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and
details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.
</td></tr>
<tr><td>DA 92/97 as modified, Schedule 3, Condition 53</td><td>
The Applicant must rehabilitate the site to the satisfaction of DRG. This rehabilitation must be generally consistent with the conceptual final landform depicted in Figure 4 in Appendix 2, and comply with the objectives in Table 11.

Table 11: Rehabilitation Objectives
<table>
<tr><th>Feature</th><th>Objective</th></tr>
<tr><td>All areas of the site affected by the development</td><td>• Safe, stable & non-polluting
• Fit for the intended post-mining land use/s</td></tr>
<tr><td>Areas proposed for native ecosystem re-establishment</td><td>• Restore self-sustaining native woodland ecosystems characteristics of vegetation communities found in the local area, as shown conceptually in Figure 4 in Appendix 2.
• Establish areas of self-sustaining:
– Riparian habitat, within any diverted and/or re-established creek lines and retained water features;
– Potential habitat for threatened flora and fauna species; and
– Wildlife corridors, as far as is reasonable and feasible, and as shown conceptually in Figure 4 in Appendix 2.</td></tr>
<tr><td>Areas proposed for agricultural land</td><td>• Establish/restore grassland areas to support sustainable agricultural activities
• Achieve the nominated land capability classification</td></tr>
<tr><td>Other land affected by the development</td><td>• Restore ecosystem function, including maintaining or establishing self-sustaining ecosystem comprised of local native plant species (unless DRG agrees otherwise)</td></tr>
<tr><td>Final Landform</td><td>• Stable and sustainable for the intended post-mining land use/s
• Integrated with surrounding natural landforms
• Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable
• Maximise surface water drainage to the natural environment (excluding final void catchment)</td></tr>
<tr><td>Final voids</td><td>• Designed as long term groundwater sinks to maximise groundwater flows across back filled pits to the final void
• Maximise to the greatest extent practicable:
– the size and depth of final voids;
– the drainage catchment of final voids;
– any high wall instability risk; and
– the risk of flood interaction</td></tr>
<tr><td>Surface infrastructure of the development</td><td>• To be decommissioned and removed, unless DRG agrees otherwise</td></tr>
</table>
</td></tr>
</table>

Table 4-1 (Continued)
Regulatory Requirements for Post-Mining Land Use and Rehabilitation

<table>
<tr><th>Document</th><th>Commitment Summary</th></tr>
<tr><td>DA 92/97 as modified, Schedule 3, Condition 53 (continued)</td><td>
<table>
<tr><td>Rehabilitation materials</td><td>• Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources, to the greatest extent practicable</td></tr>
<tr><td>Water quality</td><td>• Water retained on the site is fit for the intended post-mining land use/s
• Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation</td></tr>
<tr><td>Community</td><td>• Ensure public safety
• Minimise the adverse socio-economic effects associated with mine closure</td></tr>
</table>
</td></tr>
<tr><td>DA 92/97 as modified, Schedule 3, Condition 54</td><td>By the end of January 2019, unless otherwise agreed by the Secretary, the Applicant must prepare a Rehabilitation Strategy for the development to the satisfaction of the Secretary. This strategy must:
(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
(b) be prepared in consultation with DRG and Council;
(c) build upon the Rehabilitation Objectives in Table 11 and the conceptual final landform depicted in Figure 4 in Appendix 2, including identification of opportunities for increasing the areas of woodland and habitat connectivity within the rehabilitated landscape;
(d) include details of the canopy, sub-canopy, understory and ground strata species to be established in the rehabilitation areas, with a particular focus on ensuring the achievement of an appropriate level of diversity and mix of functional groups within each target community; and
(e) include an indicative schedule for the staged rehabilitation of the development.
The Applicant must implement the approved strategy as approved from time to time by the Secretary.</td></tr>
<tr><td>DA 92/97 as modified, Schedule 3, Condition 55</td><td>The Applicant must rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.
Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development.</td></tr>
<tr><td>DA 92/97 as modified, Schedule 3, Condition 56</td><td>By the end of January 2019, unless otherwise agreed by the Secretary, the Applicant must prepare a Rehabilitation Management Plan for the development to the satisfaction of DRG. This plan must:
(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
(b) be prepared in consultation with the Department, DoI Water, OEH, DPI, and Council;
(c) be prepared in accordance with any relevant DRG Guideline;
(d) describe how the rehabilitation of the site would achieve the objectives identified in Table 11 and the outcomes described in the Rehabilitation Strategy referred to in condition 54;
(e) include a detailed plan for the reinstatement and review of the proposed:
(f) agricultural land capability of grassland areas in the final landform, including a protocol for periodic trials to demonstrate that the land capability is being achieved; and</td></tr>
</table>

Table 4-1 (Continued)
Regulatory Requirements for Post-Mining Land Use and Rehabilitation

Document	Commitment Summary
DA 92/97 as modified, Schedule 3, Condition 56 (continued)	(g) rehabilitated woodland areas and fauna habitat, including a protocol for periodic trials to demonstrate that the target vegetation community is being achieved; (h) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and for triggering remedial action (if necessary); (i) describe measures to be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform (including final voids), final land use/s and water management in the final landform; (j) include procedures for the use of interim stabilisation and temporary vegetation strategies, where reasonable to minimise the area exposed for dust generation; (k) include a program to monitor, independently audit and report on the effectiveness of the measures in condition 56(g), and progress against the detailed performance and completion criteria in condition 56(f); (l) to the maximum extent practicable build on and integrate with the other management plans required under this consent; and (m) include detailed scheduling for progressive rehabilitation to be initiated, undertaken and/or completed over the next three years. The Applicant must implement the approved management plan as approved from time to time by DRG.
EPBC Act approval reference 2011/5795 Approval Condition 12	The Re-establishment Plan must provide for commitments and activities to deliver the increase in the spatial extent and improvement in the condition of the existing remnants by at least 677 ha within 5 years of **commencement of construction**, and for the establishment of self sustaining functional 'remnant vegetation' community, with the capacity to provide habitat for the species identified in condition 2.
EPBC Act approval reference 2011/5795 Approval Condition 19	The person undertaking the action must, within 12 months of the **commencement of construction**, submit to the **Minister** for approval a Mine Site Rehabilitation Plan for the progressive rehabilitation and revegetation of no less than 1000 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and derived Native Grassland Ecological Community on the project area (as identified in Appendix A).
EPBC Act approval reference 2011/5795 Approval Condition 21	The person undertaking the action must submit to the Minister for approval the Mine Closure Plans, at least 6 months prior to the mine closure. The approved Plan must be implemented.
MLs 1750, 1713, 1708 and 1709[1]	Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.
	a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.

Table 4-1 (Continued)
Regulatory Requirements for Post-Mining Land Use and Rehabilitation

Document	Commitment Summary
MLs 1750, 1713, 1708 and 1709 (continued)	b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which: i. Identifies areas that will be disturbed; ii. Details the staging of specific mining operations, mining purposes and prospecting; iii. Identifies how the mine will be managed and rehabilitated to achieve the post mining land use; iv. Identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and v. Reflects the conditions of approval under; 1. The *Environmental Planning and Assessment Act 1979;* 2. The *Protection of the Environment Operations Act 1997;* and 3. Any other approvals relevant to the development including the conditions of this mining lease. c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-andforms/pgf/environmental-guidelines d) The lease holder may apply to the Minister to amend an approved MOP at any time. e) It is not a breach of this condition if: i. The operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the *Environmental Planning and Assessment Act 1979,* the *Protection of the Environment Operations Act 1997*, the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* or the *Work Health and Safety Act 2011*; and *Work Health and Safety Regulation 2011;* and ii. The Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out. f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must: i. Provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP; ii. Be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and iii. Be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-andforms/pgf/environmental-guidelines *Note: The Rehabilitation Report replaces the Annual Environmental Management Report.*

[1] Note that the ML 1645 condition has not been included as it is superseded by the more contemporary MOP conditions (2013) included in MLs 1750, 1713, 1708 and 1709 for the MPO.

4.2 POST-MINING LAND USE GOAL

4.2.1 Final Landuse

The final land use goals for the MPO are based on the following:

- successful design and rehabilitation of landforms to ensure structural stability, revegetation success and containment of wastes; and
- post-mining land use compatible with surrounding land uses.

The conceptual final landform if mining is completed at 2026 is shown in Appendix 2 of Development Consent DA 92/97 (Appendix 1). This conceptual final landform (and associated landform design) is currently under review in consultation with MSC, Division of Resources and Geoscience (DRG), OEH, Department of Industry – Water (DoI Water), Department of Primary Industries (DPI) and DPE.

The conceptual final landform across the MPO is an undulating, free draining landform with an optimum post-mining land capability that supports grassland and woodland. The MSC, the community and other stakeholders have indicated their preference for a landform that further integrates with the surrounding landscape.

Accordingly, MACH Energy is considering several options to improve the design of its final landforms so that they align more closely with the surrounding natural landforms. For example, work is being undertaken with regard to the design of the eastern edge of the Overburden Emplacement, as it will be more visible to the township of Muswellbrook than other parts of the landform.

Once the revised conceptual final landform is developed, it will be included in future revisions of the MOP.

A Rehabilitation Strategy has been prepared and approved in accordance with Schedule 3, Condition 54 of Development Consent DA 92/97. The approved Rehabilitation Strategy includes the following for the conceptual final landform:

- proposed future uses for former infrastructure areas, final voids, rehabilitated mining areas and unmined lands;
- key steps in the rehabilitation process; and
- performance criteria.

Where relevant, the proposed future uses for rehabilitated areas have informed the rehabilitation objectives for the MPO domains (Sections 5.1 and 5.2).

The key steps in the rehabilitation process described in the approved Rehabilitation Strategy are consistent with the rehabilitation phases in this MOP where relevant (Section 5.3).

The performance criteria in the approved Rehabilitation Strategy have been used to inform the performance indicators and completion criteria in Section 6, where relevant. The ‘Justification Source’ columns in Tables 5-1 to 5-5 include references to the approved Rehabilitation Strategy where appropriate.

As required by Condition 54, Schedule 3 of Development Consent DA 92/97, the approved Rehabilitation Strategy will be reviewed and updated to reflect the outcomes of the final landform revision described above. This would include a review of the rehabilitation objectives, the inclusion of details of target species to be established in rehabilitation areas and an indicative schedule for staged rehabilitation.

4.3 REHABILITATION OBJECTIVES

The rehabilitation objectives for the MPO are to:

- meet the relevant requirements of the 1997 EIS, MOD 1 EA, MOD 3 EA and Development Consent DA 92/97;
- maximise likelihood of long-term landform stability and minimise erosion;
- remove, treat and/or contain hazardous or contaminated material;
- optimise final void dimensions;
- determine suitable vegetation for re-establishment aligned to proposed plant communities;
- return areas of rehabilitated mined lands to grassy woodland vegetation community;
- create a natural-looking landform and surface drainage system that, as far as practical, is compatible with the surrounding landforms when viewed from the township of Muswellbrook;
- establish a landform that supports a final land use that is compatible with surrounding land use;
- incorporate land use in terms of optimal social and economic benefit to the local and wider community;
- encourage sustainability and diversity of land use;
- develop performance criteria and proposed final land uses through stakeholder consultation;
- take into account local and regional initiatives;
- address the limitations of land capability;
- develop stable and permanent landforms;
- enhance the biodiversity values of the site;
- secure and safely contain waste substances; and
- avoid unacceptable pollution.

The focus of the rehabilitation program at the MPO will be the establishment of woodland and grassland areas. As described in the LMP (Coal and Allied, 2012), preference will be given to flora species endemic to the local area, although acknowledging that seed supply may be a limiting factor. In this case, other appropriate native species that have performed well in the region will also be considered. Based on seed supply and suitability, flora species to be used in rehabilitation may also include those typical of the NSW listed *White Box Yellow Box Blakely's Red Gum Woodland* endangered ecological community.

The rehabilitation program at the MPO will focus on research and management practices that are designed to enhance rehabilitation success. Where relevant, management practices described in the *Draft National Recovery Plan – White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Department of Environment, Climate Change and Water NSW, 2010) (i.e. community equivalent to the NSW *White Box Yellow Box Blakely's Red Gum Woodland* endangered ecological community) have been used as the basis for development of the RMP.

5 REHABILITATION PLANNING AND MANAGEMENT

5.1 DOMAIN SELECTION

The key domains for the MPO are outlined in Table 5-1.

Table 5-1
MPO Domains

Code	Primary Domains	Code	Secondary Domain
1	Infrastructure Area	A	Final Void
2	Tailings Storage Facilities	B	Water Management Area
3	Water Management Area	C	Rehabilitated Area – Exotic Pasture[1]
4	Active Void	D	Rehabilitated Area –Woodland/Grassland
5	Overburden Emplacement Area		

[1] Note that the ML 1645 condition has not been included as it is superseded by the more contemporary MOP conditions (2013) included in MLs 1713, 1750, 1708 and 1709 for the MPO.

Plans 2 & 3 show the primary rehabilitation domains relevant to the MPO.

The conceptual final landform if mining is completed at 2026 is shown in Appendix 2 of the MPO Development Consent DA 92/97. As described in Section 4.2, this conceptual final landform (and associated final landform design) is currently under review in consultation with MSC, DRG, OEH, DoI Water, DPI and DPE. The final landform, showing the relevant secondary domains is shown on Plan 4.

5.2 DOMAIN REHABILITATION OBJECTIVES

The rehabilitation objectives for the domains identified in Section 5.1 are described in Table 5-2.

Table 5-2
Domain Rehabilitation Objectives

Code	Domain	Objectives
Primary Domains		
1	Infrastructure Area	All surface infrastructure is decommissioned and removed (except where to be retained with approval of relevant regulatory authorities). Area to be rehabilitated in accordance with relevant Secondary Domain rehabilitation objectives.
2	Tailings Storage Facilities	Decommission and remove storage infrastructure (e.g. pumps). Area to be rehabilitated in accordance with relevant Secondary Domain rehabilitation objectives.
3	Water Management Areas	Clean water will be diverted around operational areas, where practical. Mine water dams and sediment dams are decontaminated prior to removal. Sediment dams and associated water management structures will remain in place until the catchment is rehabilitated and discharge water quality is similar to comparable undisturbed landforms. All mine water dams and sediment dams to be decommissioned and removed from the final landform. Area to be rehabilitated in accordance with relevant Secondary Domain rehabilitation objectives.

Table 5-2 (continued)
Domain Rehabilitation Objectives

Code	Domain	Objectives
Primary Domains (continued)		
4	Active Void	Backfilled open cut pit voids are safe, profiled for long-term stability and non-polluting.
5	Overburden Emplacement Area	Final landforms will be safe, stable, and non-polluting. Constructed slopes (low walls, ramps and drainage structures) to be limited to 10 degrees or lower as standard. Exceptions may include areas of local steepening required for drainage.
Secondary Domains		
A	Final Void	Final void is safe, stable and non-polluting. Final void design refined as required to ensure the final void does not spill. Final void land use to be developed as part of final void design and in consultation with relevant stakeholders. Final void shaped to be consistent with the surrounding natural environment and to avoid an engineered profile.
B	Water Management Area	Clean water diversion banks on overburden emplacements will be retained to divert water away from fill areas. Permanent water management structures will be designed and constructed prior to disturbance, in accordance with best practice guidelines, including Landcom (2004) *Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition* and DECC (2008) *Managing Urban Stormwater: Soils and Construction Volume 2*.
C	Rehabilitated Area – Exotic Pasture	Establish exotic pasture species on the final void, endwalls and highwalls. Landform is functional and indicative of a landscape on a self-sustaining trajectory.
D	Rehabilitated Area – Woodland/ Grassland	Establish native vegetation comparable to suitable reference/analogue sites. Landform is functional and indicative of a landscape on a self-sustaining trajectory. Habitat features are salvaged and re-used in rehabilitation areas to provide fauna habitat resources.

5.3 REHABILITATION PHASES

The MPO is a greenfield site and at the start of the MOP term, rehabilitation has not yet commenced. The rehabilitation phases for the MPO are summarised below and progress is shown diagrammatically in Table 5-3:

- Stage 1 – Decommissioning – removal of hard stand areas, buildings, contaminated materials, hazardous materials.
- Stage 2 – Landform Establishment – incorporates gradient, slope, aspect, drainage, substrate material characterisation and morphology.
- Stage 3 – Growing Media Development – incorporates physical, chemical and biological components of the growing media and ameliorants that are used to optimise the potential of the media in terms of the preferred vegetative cover.
- Stage 4 – Ecosystem and Land Use Establishment - incorporates revegetated lands and habitat augmentation; species selection, species presence and growth together with weed and pest animal control/management; and establishment of flora.

- Stage 5 – Ecosystem and Land Use Sustainability – Incorporates components of floristic structure, nutrient cycling recruitment and recovery, community structure and function, which are the key elements of a sustainable landscape.
- Stage 6 – Relinquished Lands – land use and landscape is deemed as suitable to be relinquished from the Mining Lease.

Table 5-3
Rehabilitation Phases

Rehabilitation Phases	Domain							
	1D – Infrastructure Area to be Rehabilitated to Woodland/Grassland	2C – Tailings Storage Facility to be Rehabilitated to Exotic Pasture	3B – Water Management Areas to be Retained Post-Mining	3D – Water Management Areas to be Rehabilitated to Woodland/Grassland	4A – Final Void	4C – Final Void Highwalls to be Rehabilitated to Exotic Pasture	4D – Backfilled Mine Pit to be Rehabilitated to Woodland/Grassland	5D – Overburden Emplacement to be Rehabilitated to Woodland/Grassland
Active	✓	✓	✓	✓	×	×	✓	✓
Decommissioning	×	×	×	×	×	×	×	×
Landform Establishment	×	×	×	×	×	×	×	×
Growing Media Development	×	×	×	×	×	×	×	×
Ecosystem and Land Use Establishment	×	×	×	×	×	×	×	×
Ecosystem and Land Use Sustainability	×	×	×	×	×	×	×	×
Rehabilitation Complete	×	×	×	×	×	×	×	×

✓ = To commence in this MOP term.

× = Will not commence in this MOP term.

Rehabilitation activities will commence in this MOP term as described in Section 2.6.4. The monitoring of rehabilitation performance will be reported in the Annual Review.

6 PERFORMANCE INDICATORS AND COMPLETION CRITERIA

Rehabilitation performance indicators and completion criteria have been developed in accordance with the 1997 EIS, MOD 1 EA, Director-General's Assessment Report for MOD 1 and Development Consent DA 92/97. Following the approval of MOD 3, Condition 56 of Development Consent DA 92/97 requires the preparation of detailed performance and completion criteria by January 2019. Once this process is complete, this MOP will be updated to reflect the outcomes.

The performance indicators and completion criteria, which provide the framework for the MOP, are underpinned by a range of documents that relate to land management, including industry standards and MPO management plans and procedures.

The objectives, performance indicators and completion criteria for each rehabilitation phase of each domain are outlined in Tables 6-1 to 6-5. For the domains where the final rehabilitation and post-mining land use objectives include alternative options that are still subject to consultation and agreement (e.g. decommissioning water management infrastructure or retaining for future use post-mining), the performance indicator will be to undertake the relevant consultation to determine the final rehabilitation and post-mining land use objective. The relevant completion criteria will then be updated in future MOPs once the post-mining land use is agreed for these domains.

Following finalisation of the final landform (Section 4.2.1), the rehabilitation performance indicators and completion criteria will be reviewed and updated to be specific to the revised landform. The updated performance indicators and completion criteria will utilise measurable data to demonstrate that proposed outcomes for the revised final landform are achievable and realistic (i.e. SMART principles). This review will also consider relevant outcomes from the monitoring and research described in Sections 8.1 and 8.2.

Prior to commencement of the MOP term, MACH Energy has undertaken a review of the final landform design as a result of preparation of Modification 3. This review has been undertaken in consultation with MSC, the community and other stakeholders. In conjunction with this review, MACH Energy has engaged qualified and experienced rehabilitation/biodiversity experts to review the MPO area and proposed final landform to identify appropriate final land uses and rehabilitation objectives.

The strategy for review of the MPO rehabilitation performance indicators and completion criteria would involve the following key steps:

- **Q3/4 2018**: Undertake field investigations to identify appropriate control/reference sites for each secondary rehabilitation domain and collect monitoring data from which completion criteria will be developed. Parameters to be investigated in the identified control/reference sites would be subject to input from a suitably qualified and experienced rehabilitation/biodiversity expert but may include:
  - Composition of key overstorey and ground cover species.
  - Recruitment and succession of long-lived and short-lived species.
  - Vegetation community structures.
  - Canopy cover.
  - Weed presence.
  - Water quality (where relevant).
  - Chemical properties of soil profile (e.g. pH, salinity, nitrogen, potassium, phosphorous).
  - Biological properties of soil profile (e.g. organic carbon, presence of A horizon).
- **Q4 2018**: Development of an appropriate monitoring programme and TARPs based on the SMART completion criteria developed.

Table 6-1
Decommissioning

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
Primary Domain 1 – Infrastructure Area						
All surface infrastructure is decommissioned and removed (except where to be retained with approval of relevant regulatory authorities).	Decommission and remove infrastructure.	All surface infrastructure has been demolished and removed from the site, including buildings and fixed plant, ROM and product stockpiles, bitumen carparks, waste oil/lubricant storage areas, rail load-out facility and rail loop.	Development Consent – Schedule 3, Condition 53	No	N/A	Not Commenced
		All demolition work has been carried out in accordance with AS2601-2001: *The Demolition of Structures* or its latest version.		No	N/A	Not Commenced
		Internal haul roads, access tracks and hardstands have been removed when no longer required.		No	N/A	Not Commenced
	Disconnect services.	All site services have been removed (e.g. electricity and communications).		No	N/A	Not Commenced
	Contamination Assessment.	A contamination assessment has been undertaken, and any contaminated areas have been remediated in accordance with recommendations of the contamination site assessment.		No	N/A	Not Commenced
Primary Domain 2 – Tailings Storage Facility						
Tailings storage facility infrastructure to be removed.	Decommission and remove infrastructure.	Pipelines, pumps and related tailings infrastructure removed.	Development Consent – Schedule 3, Condition 53	No	N/A	Not Commenced

Table 6-1 (Continued)
Decommissioning

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
Primary Domain 3 – Water Management Areas						
Mine water dams and sediment dams are decontaminated prior to removal.	Hazardous materials.	Sediments accumulated in mine water and sediment dams are removed from the dam floor and emplaced in the final void.	Development Consent – Schedule 3, Condition 53	No	N/A	Not Commenced
		Mine water dams are emptied and discharge water disposed of in final void.		No	N/A	Not Commenced
	Mine water structures are decommissioned.	All water management structures that are not required as part of the post-closure land use (including all dams - see below) have been decommissioned (i.e. dam walls removed, drained and decontaminated).		No	N/A	Not Commenced
Clean water diversion banks on overburden emplacements will be retained to divert water away from fill areas.	Refer to Secondary Domain B performance indicators in Table 6-2.	Refer to Secondary Domain B completion criteria in Table 6-2.	MPO Rehabilitation Strategy	No	N/A	Not Commenced
Primary Domain 4 – Active Void						
No active mining areas will remain at the decommissioning phase.	N/A	N/A	N/A	No	N/A	Not Commenced
Primary Domain 5 – Overburden Emplacement Area						
All mining plant and equipment associated with the construction of the Overburden Emplacement will be dismantled, decommissioned and removed from site.	Removal of plant and equipment.	All plant and equipment has been dismantled, decommissioned and removed from the overburden emplacement area.	Development Consent – Schedule 3, Condition 53	No	N/A	Not Commenced

Table 6-2
Landform Establishment

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
All Primary Domains						
Final landforms are safe, stable and non-polluting.	Slopes.	Constructed slopes (low walls, ramps and drainage structures) to be limited to 10 degrees or lower as standard. Exceptions, where angles of 10 degrees are required for stability etc. will include: • the highwall, lowwall, safety berm and top batter of the final void; and • local steepening of areas for drainage on the Overburden Emplacement.	Development Consent – Schedule 3, Condition 53	No	Section 9.2	Not Commenced
	Landform stability.	Reconstructed landforms are stable with no evidence of slumping.		No	Section 9.2	Not Commenced
	Non-polluting landform.	Runoff from rehabilitated landforms is equivalent to runoff from pre-mining and/or analogous catchments (when considering the natural range of values).		No	N/A	Not Commenced
	Free draining landform.	Landforms are free draining (excluding the retained final void).		No	N/A	Not Commenced
Final landform will be suitable for intended land use and consistent with surrounding landforms.	Landform compatibility.	Avoidance of straight lines and angular corners in profiles of final landforms. Drainage lines to be self-sustaining and predominantly constructed of natural materials. Visual screens comprising mounding or bunding are established as per the LMP. Elements such as water management areas, drainage paths, contour drains, ridgelines, and emplacements are shaped, where possible, in undulating informal profiles in keeping with natural landforms of the surrounding environment.	MPO Rehabilitation Strategy	No	N/A	Not Commenced

Table 6-2 (Continued)
Landform Establishment

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
Primary Domain 5 – Overburden Emplacement Area						
Final landforms are safe, stable and non-polluting.	Non-polluting landform.	Materials with a propensity to generate acid mine drainage (e.g. reject material and Wynn seam overburden material) are buried under inert material, with a minimum cover of 10 m.	Development Consent – Schedule 3, Condition 53	No	Section 9.2	Not Commenced
Secondary Domain A – Final Void						
Final void is safe, stable and non-polluting.	The void surrounds are safe (for humans and stray stock).	Perimeter bund constructed, is stable and vegetated with long-term cover crop.	Development Consent – Schedule 3, Condition 53	No	Section 9.2	Not Commenced
		Void fenced and warning signs posted along the fence, in a manner satisfactory to the Resource Regulator.		No	N/A	Not Commenced
	Slopes.	Low walls have been battered back to slopes less than 18 degrees, unless otherwise agreed with Resources Regulator.		No	Section 9.2	Not Commenced
	Non-polluting landform.	No carbonaceous materials are exposed in the final void floor/walls.		No	Section 9.2	Not Commenced
		Size and depth of final void is in accordance with the approved final void design.		No	Section 9.2	Not Commenced
	Stability.	The final void highwalls and low walls are constructed in accordance with an approved Final Void Geotechnical Design.	Development Consent – Schedule 3, Condition 53	No	Section 9.2	Not Commenced
		The final void highwalls and low walls have been assessed by a qualified geotechnical engineer to validate long-term stability.		No	Section 9.2	Not Commenced

Table 6-2 (Continued)
Landform Establishment

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
Secondary Domain B – Water Management Area						
Final landforms are safe, stable and non-polluting.	Final landform drainage design.	Final landform water management structures and storages have been designed and constructed in accordance with 'Blue Book' (i.e. Landcom [2004] *Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition* and DECC [2008] *Managing Urban Stormwater: Soils and Construction Volume 2*) requirements and the approved final landform drainage design.	Development Consent – Schedule 3, Condition 53	No	N/A	Not Commenced
		Use of permanent drop structures is avoided where practical (Section 4.3).		No	N/A	Not Commenced
Secondary Domain D – Rehabilitated Area – Woodland/Grassland						
Habitat features are salvaged and re-used in rehabilitation areas to provide fauna habitat resources.	Habitat features.	Horizontal placement of hollow logs or small piles of timber and rocks are installed across the site, creating habitat for small ground dwelling mammals and reptiles. Coarse woody debris and/or rocks are placed to optimise inter-connectivity across the landscape.	MPO Biodiversity Management Plan	No	N/A	Not Commenced

Table 6-3
Growing Media Development

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
All Domains						
Effective use of topsoil and subsoil to assist in improved rehabilitation.	Topsoil/subsoil spreading.	Topsoils are re-spread at a minimum depth of 100 mm. A combination of topsoil underlain with subsoil has been used where required.	MPO Rehabilitation Strategy	No	Section 9.2	Not Commenced
		Topsoiled areas are lightly ripped along the contour.		No	Section 9.2	Not Commenced
	Soil amelioration.	Appropriate soil ameliorants (e.g. gypsum, fertilisers, mulch) have been applied in accordance with specifications and recommendations of soil characterisation reports.		No	Section 9.2	Not Commenced
Suitability of topsoil, topsoil substitutes and subsoil for post-mining land use.	Topsoil/subsoil characterisation.	Physical properties (texture, structure and Emerson Aggregate assessment) of topsoils, topsoil substitutes and subsoils have been assessed for suitability for post-mining land use.		No	Section 9.2	Not Commenced
		Chemical properties (pH, salinity, nitrogen and phosphorus) of topsoils, topsoil substitutes and subsoils have been assessed for suitability for post-mining land use.		No	Section 9.2	Not Commenced
		Biological properties and organic content of topsoils, topsoil substitutes and subsoils have been assessed for suitability for post-mining land use.		No	Section 9.2	Not Commenced
Topsoils and subsoils are salvaged and managed to retain physical, chemical and biological properties.	Topsoil/subsoil salvaging.	Topsoil and subsoils are stripped and re-spread or stockpiled for later use in accordance with soil stripping and stockpiling procedures.		No	Section 9.2	Commenced
Erosion is minimised.	Erosion and sediment control structures.	Temporary erosion and sediment control structures are installed prior to topsoil respreading.		No	N/A	Not Commenced
		Topsoiled rehabilitation areas are sown with a non-persistent cover crop at recommended sowing rate/ha.		No	N/A	Not Commenced

Table 6-4
Ecosystem and Land Use Establishment

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
All Domains						
Weeds are controlled to appropriate levels.	Weed species presence and density.	Monitoring results indicate weed species presence and density is equivalent to reference sites or baseline survey (when considering the natural range of values). Weed control undertaken to manage noxious weeds in accordance with the *Biosecurity Act 2015*.	MPO Rehabilitation Strategy	No	Section 9.2	Not Commenced
Pest animal species are controlled to appropriate levels.	Pest animal density.	Pest animal populations are not causing significant damage to rehabilitation areas.	*Local Land Services Act 2013*	No	Section 9.2	Not Commenced
Minimise and manage risk of bushfire in rehabilitation areas.	Bushfire risk management.	Indicators as described in the MPO Bushfire Management Plan. Fire bans, as determined by the NSW Rural Fire Service, are adhered to. Firebreaks are established around the operations to prevent the spread of bushfires onto or from adjacent properties.	MPO Bushfire Management Plan	No	Section 9.2	Commenced
Secondary Domain C – Rehabilitation Area – Exotic Pasture						
Establish exotic pasture cover on the final void, endwalls and highwalls.	Exotic Pasture.	A cover of exotic pasture has been established on final void walls, endwalls and highwalls.	MPO Rehabilitation Strategy	No	Section 9.2	Not Commenced
Secondary Domain D – Rehabilitation Area –Woodland/Grassland						
Establish vegetation comparable to surrounding native vegetation.	Species composition.	Monitoring results indicate overstorey species characteristic of surrounding native vegetation are present.	MPO Biodiversity Management Plan	No	Section 9.2	Not Commenced
		Monitoring results indicate native ground cover species are on a self sustaining trajectory towards equivalent data from analogue sites.		No	Section 9.2	Not Commenced

Table 6-4 (Continued)
Ecosystem and Land Use Establishment

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
Secondary Domain D – Rehabilitation Area –Woodland/Grassland (continued)						
Establish vegetation comparable to surrounding native vegetation (continued).	Vegetation structure.	Monitoring results indicate that vegetation community structure (trees, shrubs, grasses and forbs) is on a self sustaining trajectory towards equivalent data from analogue sites.	MPO Biodiversity Management Plan	No	Section 9.2	Not Commenced
		Monitoring results indicate that overstorey and cover density are on a self sustaining trajectory towards equivalent data from analogue sites.		No	Section 9.2	Not Commenced

Table 6-5
Ecosystem and Land Use Sustainability

Domain Objective	Performance Indicator	Completion Criteria	Justification Source	Complete	Link to TARP	Progress at Start of MOP
All Domains						
Soil profile capable of supporting self-sustaining ecosystems.	Soil chemical and physical properties.	Soil chemical and physical properties are suitable for the establishment and maintenance of selected vegetation species.	MPO Rehabilitation Strategy	No	Section 9.2	Not Commenced
Secondary Domain C – Rehabilitation Area – Exotic Pasture						
Landform is functional and indicative of a landscape on a self-sustaining trajectory.	Exotic pasture cover.	Monitoring data indicates that pasture cover is equivalent to monitoring data collected at analogue sites (when considering the natural range of values).	MPO Biodiversity Management Plan	No	Section 9.2	Not Commenced
	Ecosystem health.	Monitoring results indicate exotic pasture species are healthy and on a self-sustaining trajectory.		No	Section 9.2	Not Commenced
Secondary Domain D – Rehabilitation Area –Woodland/Grassland						
Landform is functional and indicative of a landscape on a self-sustaining trajectory.	Species composition.	Monitoring data indicates that presence of trees, shrubs, grasses and forbs species are equivalent to monitoring data collected at analogous sites.	MPO Biodiversity Management Plan	No	Section 9.2	Not Commenced
	Vegetation structure.	Species representing each of the various stratums are present.		No	Section 9.2	Not Commenced
	Bare ground.	Landscape Function Analysis (LFA) Landscape Organisation Indicator (LOI) demonstrates a comparable coverage and/or trajectory towards it. Monitoring data comprising areas of bare ground are equivalent to monitoring data collected at reference sites.		No	Section 9.2	Not Commenced

7 REHABILITATION IMPLEMENTATION

7.1 STATUS AT MOP COMMENCEMENT

No rehabilitation has been undertaken prior to commencement of this MOP term.

7.2 PROPOSED REHABILITATION ACTIVITIES DURING THE MOP TERM

Rehabilitation is proposed to commence during the MOP term on areas of the Overburden Emplacement as they become available, as described in Section 2.6.4. The monitoring of rehabilitation performance will be reported in the Annual Review.

In accordance with the MOP Guideline, a summary of disturbance for the MOP term is provided in Table 7-1.

Table 7-1
Progressive Disturbance and Rehabilitation during MOP Term

Year	Total Disturbance Area (ha)	Total Rehabilitation Area (ha)	Comments/Explanation
Start of MOP Term	753.4	0	Disturbance associated with major infrastructure elements (MIA, CHPP, Magazine, light vehicle/haul roads, Rail Spur and Loop, water management infrastructure). Disturbance within Pits A and D.
Year 1 (30 June 2019)	901.0	31.1	Disturbance in the Tailings Dam and Overburden Emplacement Area. Rehabilitation of areas of the Overburden Emplacement, including shaping, contouring and applying topsoil.

7.3 SUMMARY OF REHABILITATION AREAS DURING THE MOP TERM

Table 7-2 summarises the changes in the size of rehabilitation areas in each domain for the duration of the MOP term. For the MPO, the following information is relevant:

- Construction of the Tailings Dam.
- The Active Mine Void has commenced in the south-east corner of the MPO area, and will move west steadily throughout the MOP term.
- Overburden Emplacement will increase over time. Progressive rehabilitation of the Overburden Emplacement will occur as areas become available for rehabilitation.

7.4 RELINQUISHMENT PHASE ACHIEVED DURING MOP TERM

No lands are proposed for relinquishment during the MOP term.

Table 7-2
Rehabilitation Data Table

Primary Domain	Secondary Domain	Code	Rehabilitation Phase	Area Start of MOP (ha)	Area End of MOP (ha)
Infrastructure (1)	Woodland/ Grassland (D)	1D	Active	310	472
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0
Tailings Storage Facility (2)	Exotic Pasture (C)	2C	Active	82	82
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0
Water Management Area (3)	Water Management Area (B)	3B	Active	0	0
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0
Water Management Area (3)	Woodland/ Grassland (D)	3D	Active	100	132
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0
Active Void (4)	Final Void (A)	4A	Active	0	0
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0

Table 7-2 (Continued)
Rehabilitation Data Table

Primary Domain	Secondary Domain	Code	Rehabilitation Phase	Area Start of MOP (ha)	Area End of MOP (ha)
Active Void (4)	Exotic Pasture (C)	4C	Active	0	0
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0
Active Void (4)	Woodland/ Grassland (D)	4D	Active	95	198
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	0
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0
Overburden Emplacement (5)	Woodland/ Grassland (D)	5D	Active	65	248
			Decommissioning	0	0
			Landform Establishment	0	0
			Growth Medium Development	0	31
			Ecosystem Establishment	0	0
			Ecosystem Development	0	0
			Rehabilitation Complete	0	0

8 REHABILITATION MONITORING AND RESEARCH

Rehabilitation is an iterative process which allows activities to be defined and improved upon throughout the lifetime of the mine. Monitoring of rehabilitation successes and failures will enable lessons learnt in early years of rehabilitation to be applied in subsequent and later years. It will also assist with continuous improvement in the site's performance in terms of landscape and land use. An example of an iterative, continual improvement approach to mine site rehabilitation which may be implemented is shown in Figure 2 (based on Nichols, 2005).

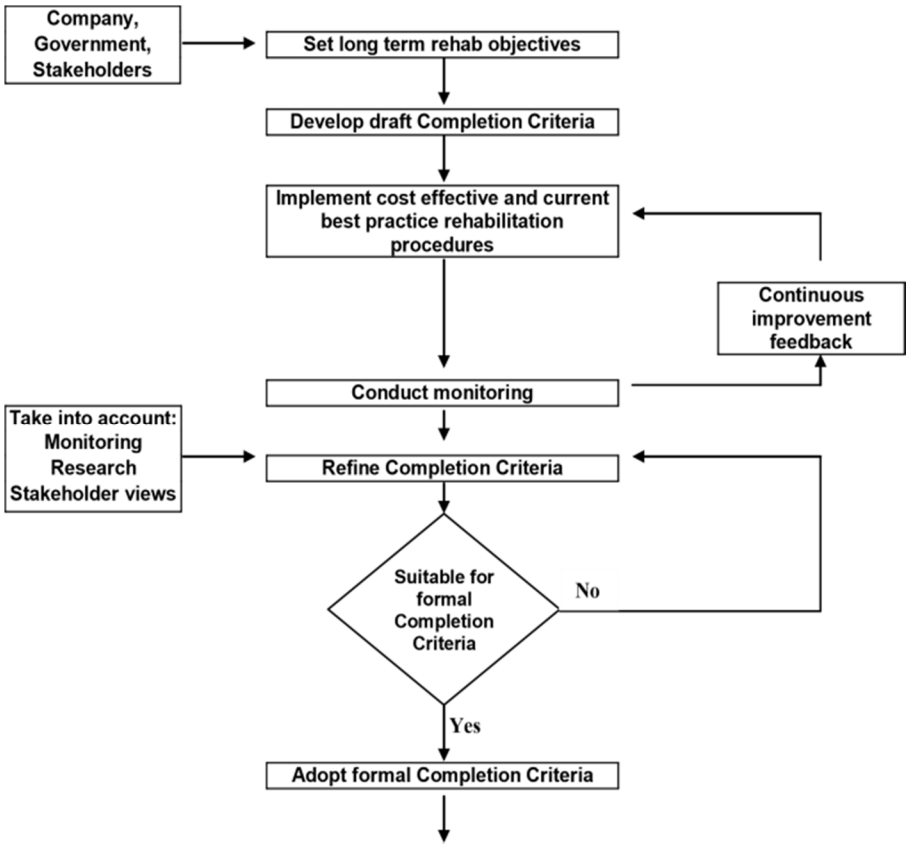

Figure 2: Continuous Improvement including Monitoring and Review Processes (Source: after Nichols, 2005)

8.1 MONITORING

A rehabilitation monitoring program will be implemented based on the performance indicators and completion criteria described in Section 6. The monitoring program described in this MOP will be the responsibility of the Environmental Superintendent (Table 11-1). Details of rehabilitation performance will be reported in the Annual Review.

Where necessary, rehabilitation procedures will be amended based on the monitoring results, to continually improve rehabilitation standards.

The rehabilitation monitoring program will be based on the following methodologies:

- Specifications for Ecosystem Functional Analysis (Section 8.1.1).
- Visual Assessment of Revegetated Areas (Section 8.1.2).

8.1.1 Ecosystem Function Analysis

The objective of this component of the monitoring program is to evaluate the progress of rehabilitation towards fulfilling long-term land use objectives and completion criteria. Monitoring of rehabilitation areas will be undertaken annually[2] to:

- compare monitoring results against rehabilitation objectives and targets;
- identify possible trends and areas for improvement;
- link to records of rehabilitation to determine causes and explain results;
- assess effectiveness of environmental controls implemented;
- where necessary, identify modifications required for the monitoring program, rehabilitation practices or areas requiring research;
- compare flora species present against original seed mix and/or reference sites;
- assess vegetation health;
- assess vegetation structure (upper, mid and lower storey); and
- where applicable, assess native fauna species diversity and the effectiveness of habitat creation for target fauna species.

Where necessary, rehabilitation procedures will be amended based on rehabilitation monitoring results to continually improve rehabilitation standards, or as more data becomes available regarding reference sites or the targeted vegetation community, completion criteria can be updated to ensure rehabilitation is improving on the right trajectory.

The methodology used to undertake this monitoring is Ecosystem Function Analysis (EFA). EFA consists of the LFA tool and vegetation assessment.

LFA assesses the landscape's ability to retain water and nutrients within the system. In terms of LFA, a soil landscape that is on a self-sustaining trajectory toward (in context of vegetative cover and soil stability) will have (Tongway and Hindley, 2004):

- A high Landscape Organisation Indicator (LOI) (i.e. a low number of bare soil patches, referred to as inter-patches, between obstruction components, referred to as patches, in the soil landscape).
- High Soil Surface Assessment indices, indicating that the site had favourable Nutrient, Infiltration and Stability characteristics.

Vegetation monitoring components are the other component of the EFA monitoring tool. This component is limited to the woodland areas, as woody vegetation is typically not represented within pasture areas.

[2] Monitoring may be undertaken at an alternative frequency if a suitably qualified and experienced person considers that annual monitoring is not required for a particular area of rehabilitation. For example, very early or advanced rehabilitation may not progress sufficiently on an annual basis to warrant annual formal monitoring.

An assessment of woody species density, species richness and canopy cover all contribute to the findings of the LFA in terms of available nutrients, soil stability and water infiltration. In terms of vegetation dynamics, a soil landscape that is on a self-sustaining trajectory in the context of vegetative cover will generally have:

- high percentage ground cover vegetation and/or leaf litter components with a corresponding low percentage of bare soil areas;
- high percentage canopy cover;
- high density of woody species; and
- high species richness (particularly pertinent to habitat complexity components).

Utilising the EFA method, scientifically robust data is provided on the rehabilitation sites which, when compared to the data collected from analogue sites, accurately reflects if the site is on a self-sustaining trajectory. The interpretation of this data enables the development of land management recommendations to address those sites having lower EFA rankings.

Permanent transects will be established in rehabilitation areas and in relevant undisturbed areas to provide analogue/reference sites. The analogue sites will be selected to represent the slope, aspect and proposed vegetation characteristics of the revegetation areas. The analogue sites will provide data on the long-term goal for the revegetation area.

8.1.2 Rapid Visual Assessment of Revegetated Areas

Following commencement of rehabilitation, MACH Energy will implement an annual[3] rehabilitation inspection to evaluate how successful the rehabilitation works have been. The scope of the inspection is to include all existing and recently completed rehabilitation areas on-site.

This annual inspection will be undertaken by a visual monitoring technique. Visual monitoring is a field-based rapid assessment tool that provides a quantitative assessment to various landscape contributors including:

- vegetation components (overstorey, understorey and ground cover where applicable);
- presence of exotic weed and feral animal species;
- surface stability and erosion issues;
- presence of available microhabitat; and
- disturbance factors.

Each of these subcomponents is awarded a score to generate an overall result for each site. This allows comparison between different sites and over time. It also allows the identification of areas requiring remediation as indicated by low scores. In terms of visual monitoring, a soil landscape that is on a self-sustaining trajectory will ideally have:

- diversity of overstorey and understorey vegetative components which are mature and reproducing;
- diversity of ground cover components with good soil coverage and leaf litter contribution;

[3] Monitoring may be undertaken at an alternative frequency if a suitably qualified and experienced person considers that annual monitoring is not required for a particular area of rehabilitation. For example, very early or advanced rehabilitation may not progress sufficiently on an annual basis to warrant annual formal monitoring.

- lack of weeds and/or site disturbance associated with feral animal activity;
- stable surface nature with organic matter (i.e. topsoil with organic content);
- lack of features attributable to erosion;
- lack of soil compaction and slow to nil water runoff;
- available microhabitat components; and
- lack of disturbance factors, including unauthorised access, rubbish and physical disturbance, such as fire or vandalism.

8.2 RESEARCH

The rehabilitation program at the MPO will focus on research and management practices that are designed to enhance the woodland communities established across the rehabilitated landscape.

MACH Energy proposes to build on industry research results to re-establish woodland. Details of the research may include:

- Potential variables impacting on rehabilitation programs and causes of failure.
- Assessing rehabilitation strategies that have successful reinstated woodland communities (or rehabilitation with species typical of various communities) on other mine sites, including:
  - establishing appropriate soil substrate: direct application of topsoil; stockpiled native topsoil; raw overburden and interburden material plus addition of biosolids/organic growth medium; addition of other organic material;
  - establishment of the grassy understorey: grass species suitable for mine rehabilitation; low and high photosynthetic pathway species; establishing herbs and forbs;
  - establishing the shrubby understorey;
  - establishing the overstorey;
  - seed distribution methods: hand-broadcasting; brush-matting; hydro-mulching; spreading seed-bearing hay; direct seeding; air seeding; and
  - progressive rehabilitation strategy: pre-stripping requirements; sequence of rehabilitation strategies.

There have been proven successes in rehabilitating mined lands using similar techniques to those described above within the industry. The outcomes of any rehabilitation trial will be used to refine the rehabilitation program at the MPO.

Various ecological works have been undertaken at the MPO prior to the MOP term, including as part of the GDP process, and as part of flora surveys and assessments for the two recent modifications lodged with DPE (i.e. Modification 3 and Modification 4). These works included mapping vegetation communities, searches for threatened flora species, communities and populations, and detailed floristic data collection at numerous survey plots.

With the final landform design currently undergoing review and improvement (the subject of Modification 3 and planned submission of a State Significant Development application) MACH Energy is not yet in a position to select detailed analogue sites. Notwithstanding, in undertaking the ecological works referenced above, MACH Energy is building an extensive knowledge of the characteristics of the MPO site and surrounding area. As the design of the more accurate final landform is refined, MACH Energy will have a more accurate understanding of the type of analogue sites required to be monitored (i.e. in terms of flora species mix, vegetation types, landforms etc.).

9 INTERVENTION AND ADAPTIVE MANAGEMENT

9.1 THREATS TO REHABILITATION

As described in Section 3.1, a preliminary environmental risk assessment was conducted to identify and assess the environmental risks associated with the MPO. Management of the key risks to rehabilitation is discussed in Section 3.2.

9.2 TRIGGER ACTION RESPONSE PLAN

The following Trigger Action Response Plan (TARP) identifies the proposed contingency strategies in the event of unexpected variations or impacts to rehabilitation outcomes. A risk-based approach has been used to assess the potential consequences and mitigation measures in terms of the Consequence Category – Environment.

The key risks associated with site rehabilitation have been assessed using the likelihood ratings, maximum reasonable consequence ratings, risk matrix and classifications presented in Section 3.1.

Table 3-5 outlines the key identified risks and associated risk ratings. The ratings assume that the risks are untreated (i.e. have not been addressed by specific risk mitigation measures other than routine design and operational practice). Proposed mitigation measures to reduce the identified risks are outlined in Table 9-1.

Table 9-1
Proposed Mitigation Measures to Reduce Key Risks

Domain	Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
All	Inappropriate bushfire management regime leading to widespread failure of revegetation or continued sustainability of mine rehabilitation areas.	Occurrence of bushfire in rehabilitation area results in loss of revegetation.	Selection of fire-tolerant species for revegetation and rehabilitation and adoption of standard fire prevention measures. Mosaic burning and monitoring of areas following fires, with follow-up replanting/reseeding if indicated by monitoring results. Maintain contingency supplies of seed for key native species.	Regular visual inspection of rehabilitated areas and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Major storm event resulting in flooding, geotechnical instability, major erosion and/or widespread damage to rehabilitated area.	Rehabilitation monitoring indicates widespread damage to rehabilitation area as a result of major storm event.	Design final landforms, structures and revegetation to cope with major storm events. Monitoring of rehabilitation areas following a major storm and replanting/reseeding as necessary.	Regular visual inspection of rehabilitated areas and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Severe and/or prolonged drought leading to widespread failure of revegetation/rehabilitation.	Rehabilitation monitoring indicates revegetation species failure as a result of drought conditions.	Selection of drought-tolerant species within species mix for revegetation and rehabilitation. Monitoring of rehabilitation areas and replanting/reseeding as necessary. Maintain contingency supplies of seed for key native species.	Regular visual inspection of rehabilitated areas and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.

Table 9-1 (Continued)
Proposed Mitigation Measures to Reduce Key Risks

Domain	Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
All (continued)	Inadequate or insufficient topsoil to create/enhance the desired ecological communities in mine rehabilitation areas.	Rehabilitation planning and review of topsoil inventory indicates insufficient topsoil resources to create/enhance the desired ecological communities.	Develop procedures for topsoil management, overburden and substrate management and soil testing. Assess stripped topsoil for weed contamination and limit spread of weed contaminated topsoil on or near areas of good native groundcover. Soil type matched to enhanced or rehabilitated vegetation association. Subsoil material assessed for use as a suitable growing media. Identify soil ameliorants (e.g. biosolids) that could be used as a topsoil substitute.	Regular stocktake of topsoil inventory. Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Inadequate weed and pest animal control leading to widespread failure of revegetation or continued sustainability of rehabilitation area ecosystems.	Rehabilitation monitoring indicates revegetation failure as a result of significant weed infestation and/or pest animals.	Targeted weed management and control program developed and implemented. Pest animal management and control program developed and implemented. Educate persons undertaking weed control to the major weed threats in the area and on-site. Visual inspections/cleaning of vehicles entering sensitive areas to mitigate risk of weed dispersal. Consider restricting access to rehabilitation areas.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Insect attacks (e.g. locusts and beetles) leading to failure of rehabilitation or continued sustainability of mine rehabilitation area ecosystems.	Rehabilitation monitoring indicates failure as a result of significant insect attacks.	Planting to avoid insect prone periods. Use of endemic species that are suited to localised insect predation (where practical). Monitoring program results to identify if further plantings required.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.

Table 9-1 (Continued)
Proposed Mitigation Measures to Reduce Key Risks

Domain	Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
All (continued)	Inappropriate planting and/or direct seeding techniques resulting in a failure of rehabilitation.	Rehabilitation monitoring indicates die-back and/or poor growth.	Conduct site investigation and review active mining and rehabilitation methodology records for the area, to determine possible contributing factors. Implement mitigation measures relevant to identified contributing factors/cause.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Inappropriate fertiliser application (type and/or rate) leading to failure of revegetation or rehabilitation.	Rehabilitation monitoring indicates poor/slow growth and development of revegetation.	Review fertiliser application program consistent with revegetation requirements.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Frost leads to high mortality rates of revegetation and rehabilitation.	Rehabilitation monitoring indicates high mortality rates of revegetation and rehabilitation as a result of frost.	Monitoring program results to identify if further plantings required. Maintain contingency supplies of seed of key rehabilitation program species.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
	Incompatible neighbouring landowner practices (including interactions with the Bengalla Mine and adjoining private landholders) leading to failure of rehabilitation and revegetation works.	Rehabilitation monitoring indicates failure of rehabilitation and revegetation work, likely as a result of neighbouring land-owner practices.	Communicate the rehabilitation objectives and land use goals with neighbouring properties, the CCC and the local community.	Ongoing/follow-up communications with neighbouring land owners and the CCC.	Reporting in ML Rehabilitation Report and the Annual Review.

Table 9-1 (Continued)
Proposed Mitigation Measures to Reduce Key Risks

Domain	Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
All (continued)	Planning - insufficient provision of financial, human and equipment resources leading to failure to meet completion criteria, including increased maintenance costs and timeframe.	Rehabilitation planning indicates insufficient resources to meet completion criteria.	Budgetary allocation sufficient to cover requirements with resources available to implement rehabilitation objectives.	Internal rehabilitation planning procedures.	Internal notification procedures.
	Inadequate or insufficient (incorrect species mix/quality) seed/seedlings for rehabilitation works.	Rehabilitation planning indicates potential for insufficient seed/seedling resources.	Identify suitable alternate seed/seedling sources from within the general locality. Identify the requirement to engage a suitably qualified ecologist/specialist to review species lists, based on resources available.	Ongoing rehabilitation planning procedures.	Reporting in ML Rehabilitation Report and the Annual Review.
Primary Domain 5 – Overburden Emplacement Area	Incorrect acid forming material management procedures resulting in rehabilitation failure.	Rehabilitation monitoring and/or geochemistry monitoring indicates acid forming material is close to the outer surface of the emplacement, resulting in failure of rehabilitation area or revegetation.	Identify suitable non-acid forming material to adequately bury the potentially acid forming material. Consult with a specialist geologist and/or geochemist as required.	Ongoing rehabilitation planning procedures with input from a geologist and/or geochemist as required.	Reporting in ML Rehabilitation Report and the Annual Review.

10 REPORTING

The following reporting on rehabilitation performance will be undertaken in accordance with Development Consent DA 92/97 requirements, ML requirements and reporting requirements described in relevant approved management plans:

- Annual Review (in accordance with Schedule 5, Condition 3);
- Rehabilitation Report (in accordance with relevant ML conditions);
- Independent Environmental Audit (in accordance with Schedule 5, Condition 9); and
- Regular reporting on the environmental performance of the MPO on the MACH Energy website (in accordance with Schedule 5, Condition 8).

Incidents, complaints, non-compliances with statutory requirements and exceedances of the impact assessment criteria and/or performance criteria will be reported in the following locations:

- Annual Review;
- incident reporting mechanism;
- Independent Environmental Audits;
- CCC meetings; and
- the MACH Energy website.

11 REVIEW AND IMPLEMENTATION

11.1 REVIEW

This section describes the protocol for periodic review of the MOP. Reviews are conducted to assess the effectiveness of the procedures against the objectives of MOP. The MOP will be reviewed, and if necessary revised, within three months of the submission of an:

- Annual Review, which has been undertaken as per Schedule 5, Condition 3 of Development Consent DA 92/97;
- Incident report, which has been undertaken as per Schedule 5, Condition 7 of Development Consent DA 92/97;
- Independent Environmental Audit, which has been undertaken as per Schedule 5, Condition 9 of Development Consent DA 92/97; and
- Any modification to the conditions of Development Consent DA 92/97.

This MOP may be reviewed and, if necessary, revised due to:

- a change in the activities or operations associated with the MPO;
- deficiencies of mining and/or rehabilitation activities being identified;
- results from the monitoring and review program;
- recommendations resulting from the monitoring and review program;
- changing project approval requirements;
- significant improvements in knowledge or technology becoming available;
- a change in legislation; and
- risk assessment identifying the requirement to alter the MOP.

Any proposed amendments to the MOP will be undertaken in consultation with the DRG.

11.2 IMPLEMENTATION

Table 11-1 defines personnel who are responsible for the implementation and review of this MOP.

Table 11-1
Responsibilities

Title	Responsibility
Construction Phase	
Project Director	• Implement the construction and mining operations described in this MOP. • Undertake training in relevant Management Plans and procedures as required. • Provide required resources and support to implement these procedures.
Environmental Superintendent	• Prepare the relevant Management Plans. • Implement, monitor and review the programs and procedures linked to this MOP. • Consult with regulatory authorities as required. • Undertake monitoring as required. • Undertake maintenance as required. • Provide measures for continual improvement to this MOP and procedures. • Ensure all personnel undertaking works in relation to this MOP are trained and competent. • Report the progress of any rehabilitation in the Annual Review and ML Rehabilitation Report. • Provide support for the implementation of the Specialist Environment's responsibilities.
Operational Phase	
General Manager Operations	• Implement the mining operations and procedures referenced in this MOP. • Undertake training in relevant Management Plans and procedures as required. • Provide resources required and support to implement these procedures. • Allow for forward planning to prepare and bulk shape areas.
Environmental Superintendent	• Prepare the relevant Management Plans. • Implement, monitor and review the programs and procedures linked to this MOP. • Consult with regulatory authorities as required. • Undertake monitoring as required. • Undertake maintenance as required. • Provide measures for continual improvement to this MOP and procedures. • Ensure all personnel undertaking works in relation to this MOP are trained and competent. • Report the progress of any rehabilitation in the Annual Review and ML Rehabilitation Report.

12 REFERENCES

Coal and Allied (2012) *Biodiversity and Rehabilitation Strategy Management Plan*.

Cumberland Ecology (2010) *Mount Pleasant Project Modification Ecology Assessment.*

Department of Environment and Climate Change (2008) *Managing Urban Stormwater: Soils and Construction Volume 2*.

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Department of Trade and Investment, Regional Infrastructure and Services (2013) *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013.* Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy, Sydney.

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ERM Mitchell McCotter Pty Ltd (1997) *Mount Pleasant Mine Environmental Impact Statement for Coal & Allied Operations Pty Limited September 1997.*

Hansen Bailey (2016) *Bengalla Mine Annual Review 2015.*

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MACH Energy (2017a) *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification*.

MACH Energy (2017b) *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment.*

Mountford, R. and Wall, C. (1995) *Mount Pleasant Project Characterisation of Overburden and Interburden Materials*. Department of Mineral Resources Development Laboratory.

Nichols, O.G. (2005) *Development of rehabilitation completion criteria for native ecosystem establishment on mineral mines in the Hunter Valley.* Australian Centre for Minerals Extension and Research. ACARP Project No. C13048. Queensland.

NSW Environment Protection Authority (2014) *Best Practice Note; Landfarming.*

NSW Scientific Committee (2004) *White Box Yellow Box Blakely's Red Gum Woodland – Endangered Ecological Community Listing*, Department of Environment and Conservation (NSW) Hurstville, NSW.

NSW Scientific Committee (2009) *Central Hunter Ironbark – Spotted Gum – Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions – Endangered Ecological community listing,* Department of Environment and Climate Change, Hurstville, NSW.

Threatened Species Scientific Committee (2006) Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Ecological Communities under the *Environment Protection and Biodiversity Conservation Act 1999* – White Box – Yellow Box Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands (EPBC Act).

Tongway, D. J. & Hindley, N. L. (2004) *Landscape Function Analysis: Procedures for monitoring and assessing landscapes, with special reference to minesites and rangelands*, CSIRO, Canberra.

13 PLANS

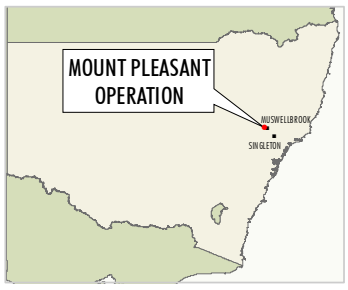
The following plans have been prepared in consideration of the Plan requirements in the MOP Guidelines and are attached:

- Plan 1A – Pre-mining Environment – Project Locality.
- Plan 1B – Pre-mining Environment – Natural Environment.
- Plan 1C – Pre-mining Environment – Built Environment.
- Plan 2 – Mine Domains at Commencement of MOP.
- Plan 3 – Mining and Rehabilitation Year 1 (30 June 2019).
- Plan 4 – Final Landform (30 June 2019) (refer below).
- Plan 5 – Open Cut and Overburden Emplacement Cross-sections.

The conceptual final landform if mining is completed at 2026 is shown in Appendix 2 of the MPO Development Consent DA 92/97. As described in Section 4.2, this landform is currently under review in consultation with MSC, DRG, OEH, DoI Water, DPI and DPE. Accordingly, the final landform shown on Plan 4 applies only to the activities within the MOP period (i.e. if the site was to be rehabilitated at the end of this MOP period). Once the review process is complete, a revised final landform showing the relevant secondary domains will be included as Plan 4 in future revisions of the MOP.

MOP PLANS

MAC-16-01 MOP-RMP V2 (2018)_AMEND A Aug2018_Plans_206A



LEGEND

- Mining Operation
- Proposed Mining Operations (Application Lodged)
- Mining Lease Boundary (Mount Pleasant Operation)
- Mining Lease Boundary (Bengalla Coal Mine)
- Railway
- Local Government Boundary
- State Forest
- National Parks and Wildlife Estate

Source: Geoscience Australia (2006); NSW Department Resources & Energy (2018); Office of Environment and Heritage NSW (2016)

I, the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

30-08-18

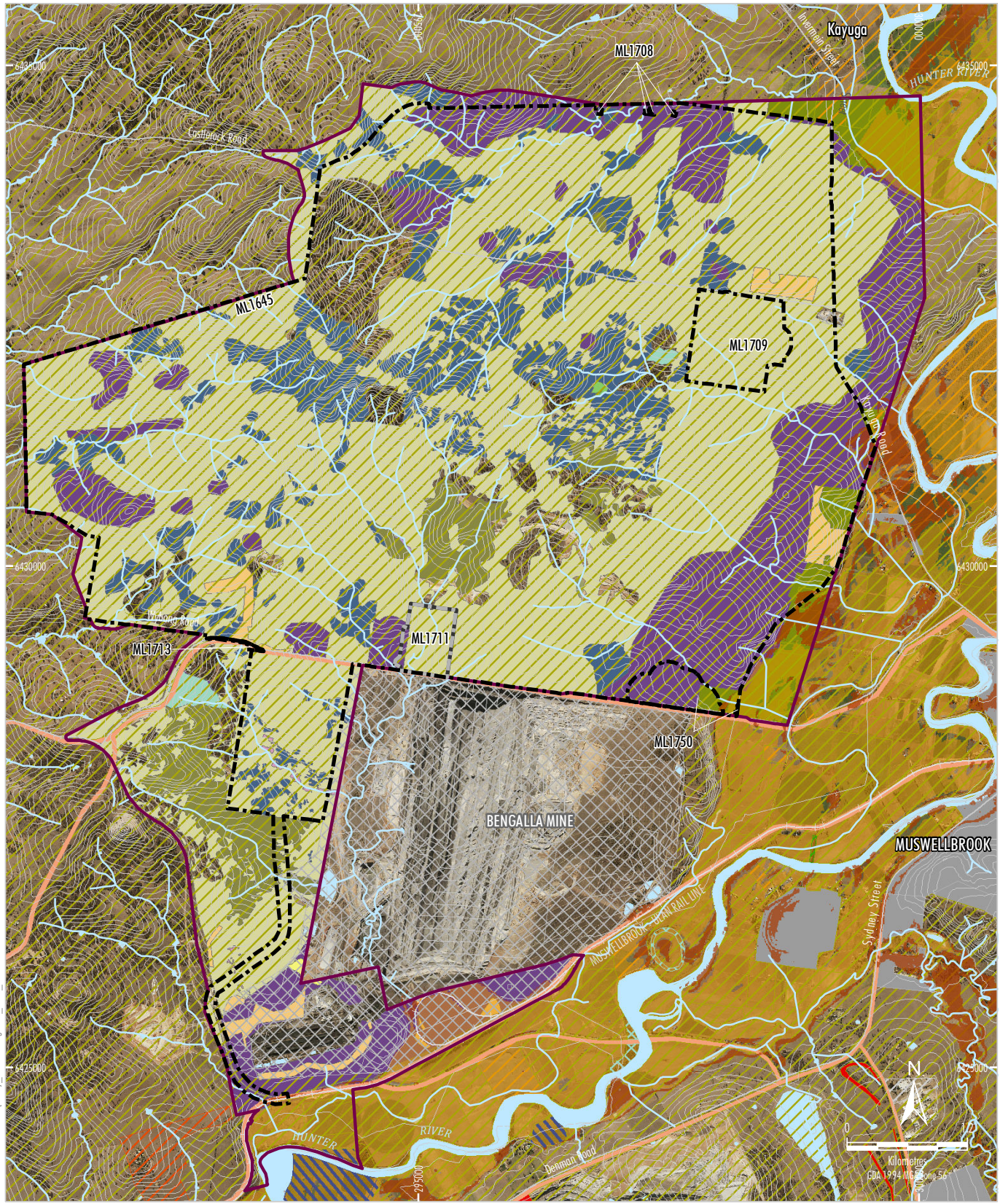
Date

MACHEnergy

MOUNT PLEASANT OPERATION

Pre-mining Environment Project Locality

Plan 1A



MAC-16-01 MOP-RMP V2 (2018)_AMEND A Aug2018_Plans_204A

LEGEND

Modified Development Consent Boundary[1]
Mount Pleasant Operation Mining Lease Boundary
Bengalla Mining Lease Boundary

Existing Landuse (OEH, 2016)
- Conservation Area
- Cropping
- Grazing
- Horticulture
- Intensive Animal Production
- Mining & Quarrying
- Power Generation
- River & Drainage System
- Transport & Other Corridors
- Tree & Shrub Cover
- Urban
- Wetland

- Muswellbrook 100 Year Flood Hazard Low
- Muswellbrook 100 Year Flood Hazard High

Vegetation Mapping (May 2010)
- Central Hunter Buloak Forest Regeneration
- Central Hunter Ironbark - Spotted Gum Forest
- Derived Native Grassland
- Exotic Grassland
- Grey Box/White Box Intergrade Grassy Woodland
- Grey Box/White Box Intergrade of Spotted Gum Grassy Woodland
- Hunter Floodplain Red Gum Woodland Complex
- Low Diversity Derived Native Grassland and Exotic Pasture
- Narrabeen Footslopes Slaty Box Woodland
- Spotted Gum Forest
- Tree and Shrub Plantations
- Upper Hunter Hills Exposed Ironbark Woodland
- Upper Hunter White Box - Ironbark Grassy Woodland

Source: NSW Land & Property Information (2013); NSW Department Resources & Energy (2018); OEH (2016); EMM (2010); Worley Parsons (2014)
Orthophoto: MACH Energy (Jul 2018)

[1] Approximate graphical representation of the Schedule of Land presented as Appendix 1 of Development Consent DA 92/97

MACHEnergy

MOUNT PLEASANT OPERATION

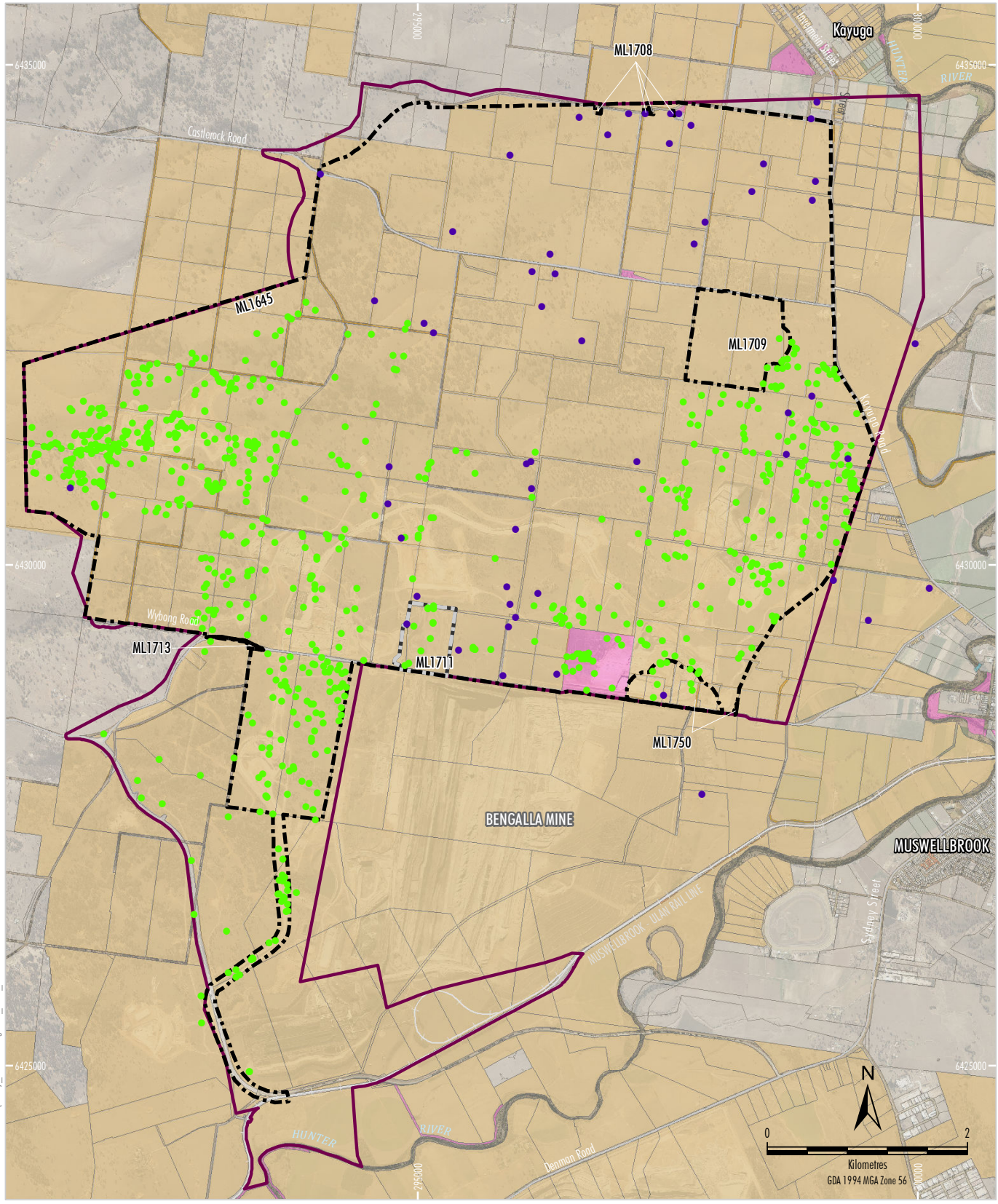
Pre-mining Environment
Natural Environment

I, the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

30-08-18
Date

Plan 1B



MAC-16-01 MOP-RMP V2 (2018)_AMEND A Aug2018_Plans_205A

LEGEND

- Modified Development Consent Boundary[1]
- Mount Pleasant Operation Mining Lease Boundary
- Bengalla Mining Lease Boundary
- Crown
- Privately-Owned
- Local Government Authority
- NSW Government
- Mine Owned
- Historic Heritage Sites
- Aboriginal Heritage Site

[1] Approximate graphical representation of the Schedule of Land presented as Appendix 1 of Development Consent DA 92/97

I the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

30-08-18

Date

Source: NSW Land & Property Information (2013); NSW Department Resources & Energy (2018); Veritas Archaeology (2014); AHIMS (2016)

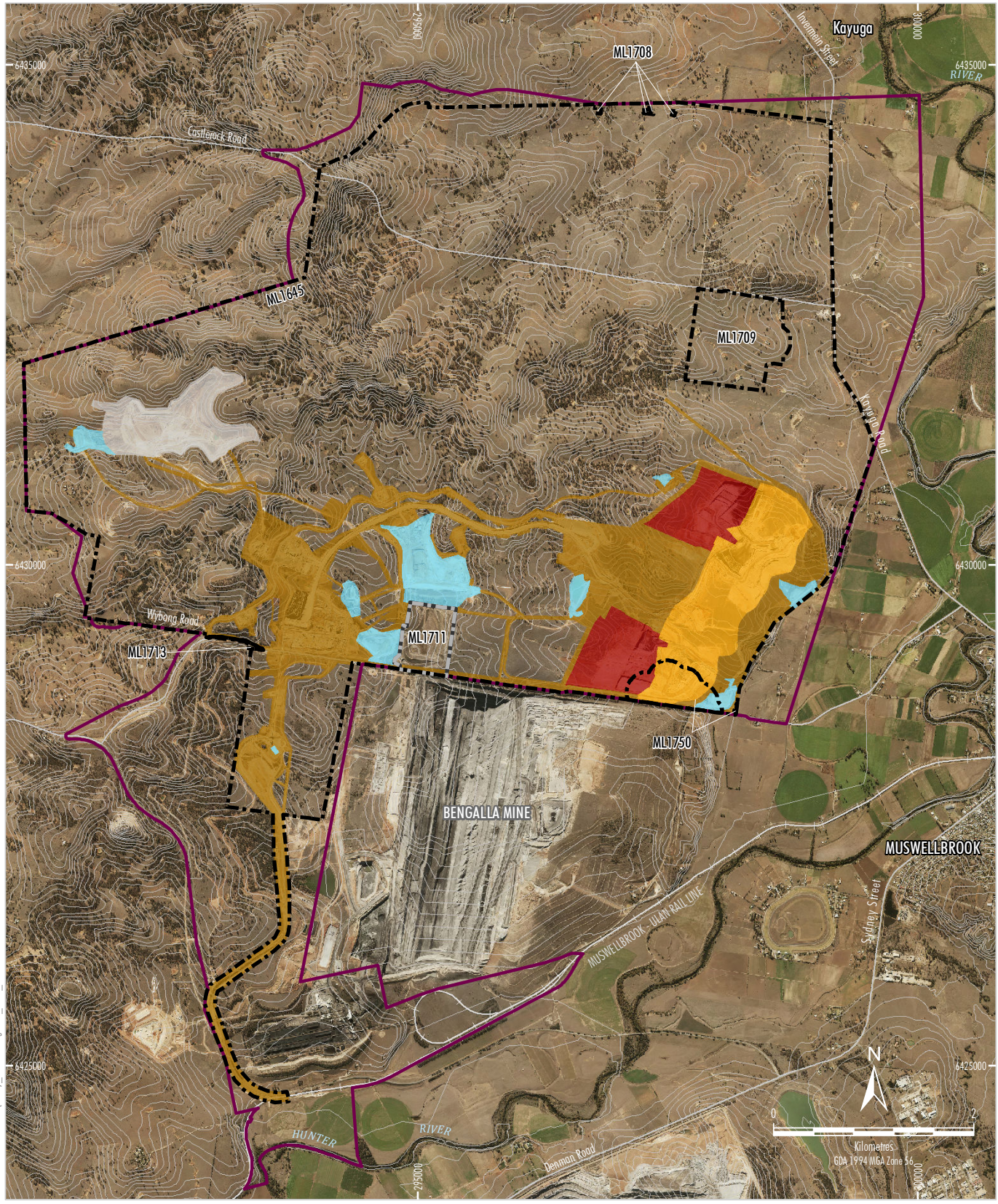
Orthophoto: MACH Energy (Jul 2018)

MACHEnergy

MOUNT PLEASANT OPERATION

Pre-mining Environment
Built Environment

Plan 1C



MAC-16-01 MOP-RMP V2 (2018)_AMEND A Aug2018_Plans_203A

LEGEND

- Modified Development Consent Boundary[1]
- Mount Pleasant Operation Mining Lease Boundary
- Bengalla Mining Lease Boundary
- Pre-mining Contours (5m Intervals)

Primary Domains

1. Infrastructure Area
2. Tailings Storage Facility
3. Water Management Area
4. Active Void
5. Overburden Emplacement

[1] Approximate graphical representation of the Schedule of Land presented as Appendix 1 of Development Consent DA 92/97

Source: NSW Land & Property Information (2015); NSW Department Resources & Energy (2018); MACH Energy (2018)
Orthophoto: MACH Energy (Jul 2018)

I, the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

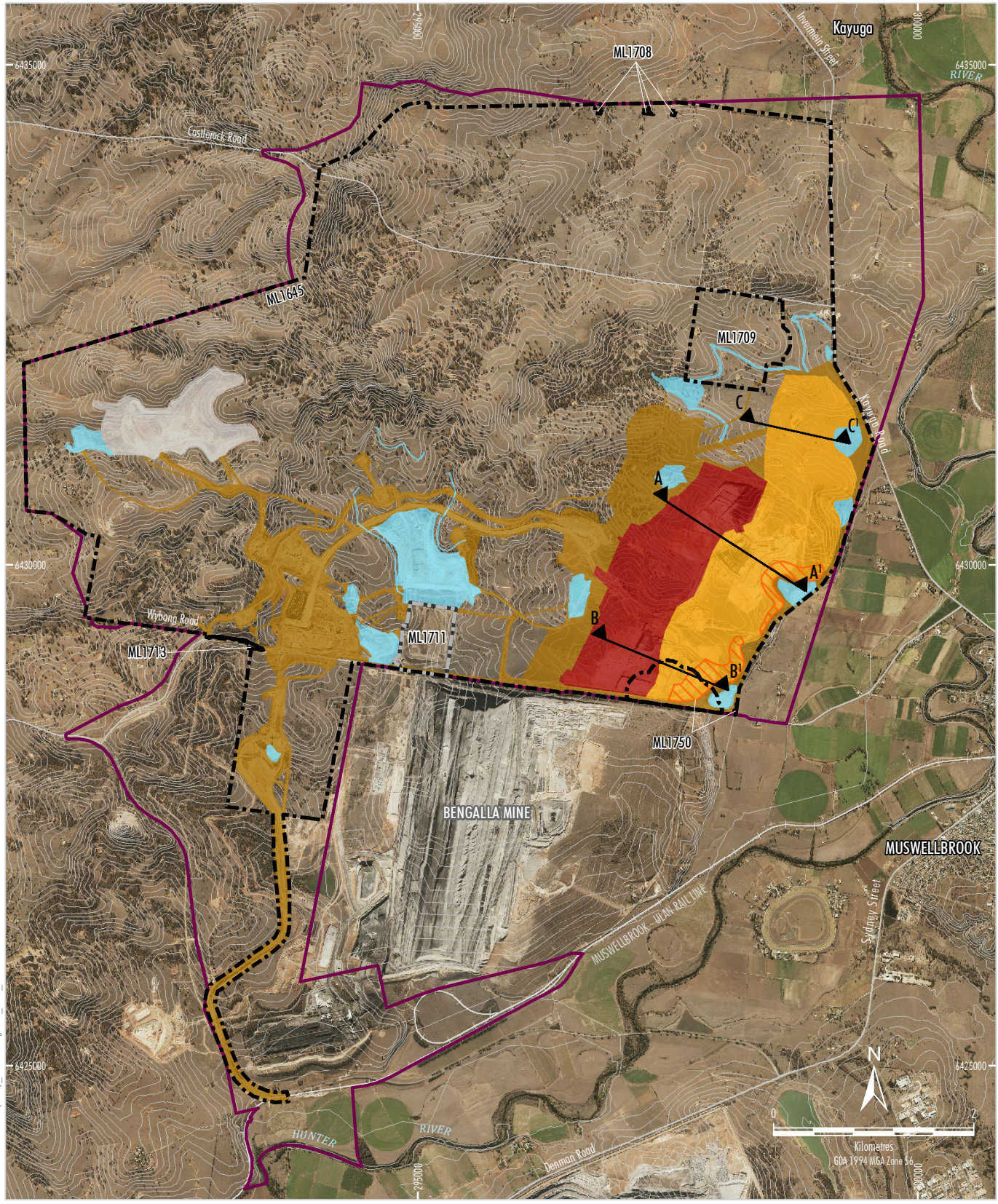
30-08-18
Date

MACHEnergy

MOUNT PLEASANT OPERATION

Mine Domains at Commencement of MOP

Plan 2



MAC-16-01 MOP-RMP V2 (2018)_AMEND A Aug2018_Plans_201A

LEGEND

Modified Development Consent Boundary[1]
Mount Pleasant Operation Mining Lease Boundary
Bengalla Mining Lease Boundary
Pre-mining Contours (5m Intervals)

Primary Domains

1 Infrastructure
2 Tailings Storage Facility
3 Water Management Area
4 Active Void
5 Overburden Emplacement

Rehabilitation Phase

Growth Medium Development

[1] Approximate graphical representation of the Schedule of Land presented as Appendix 1 of Development Consent DA 92/97

I, the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

30-08-18
Date

Source: NSW Land & Property Information (2015); NSW Department Resources & Energy (2018); MACH Energy (2018)
Orthophoto: MACH Energy (Jul 2018)

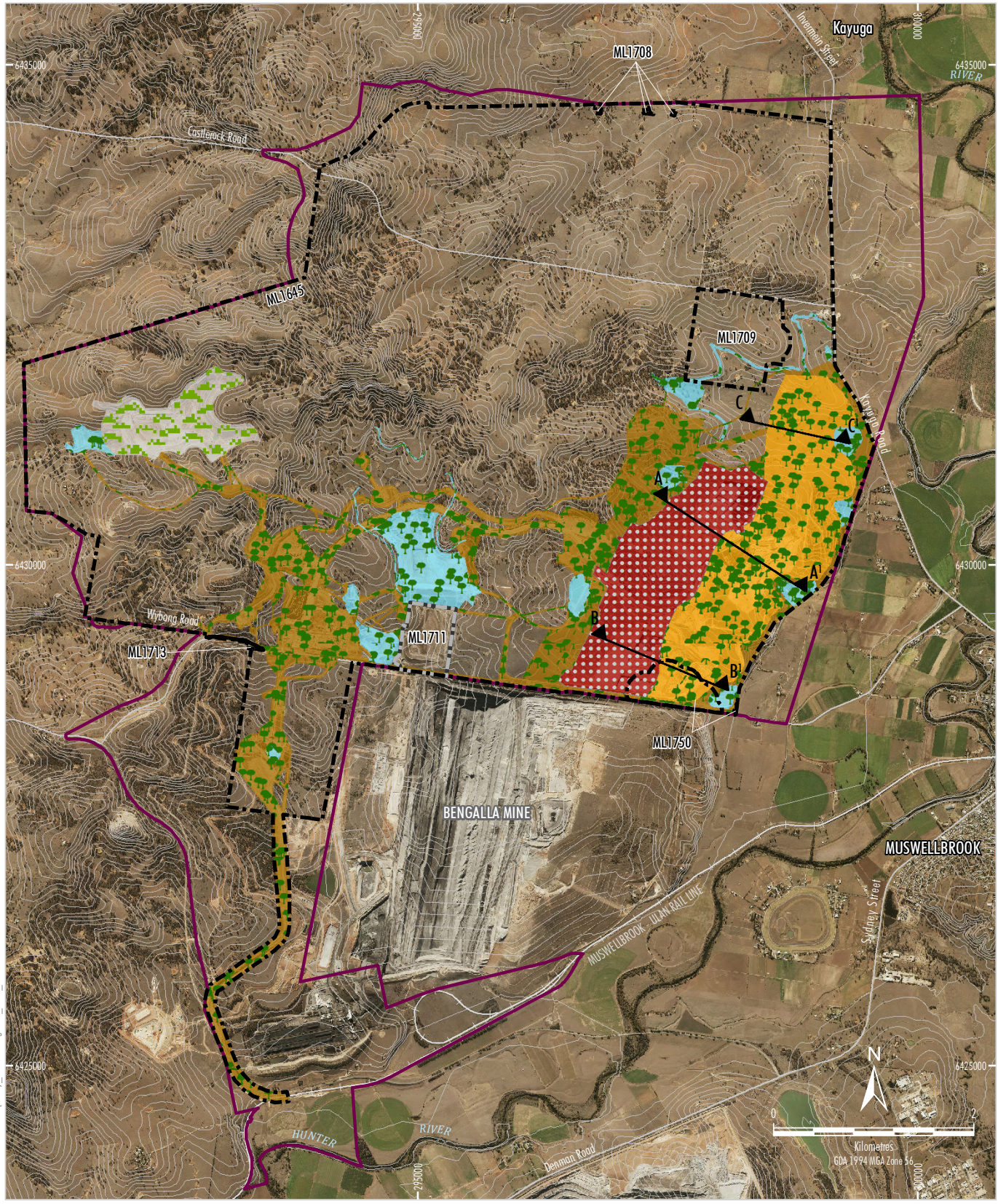
Refer Plan 5 for cross sections.

MACHEnergy

MOUNT PLEASANT OPERATION

Mining and Rehabilitation
(30 June 2019)

Plan 3



MAC-16-01 MOP-RMP V2 (2018)_AMEND A Aug2018_Plans_202A

LEGEND

- Modified Development Consent Boundary[1]
- Mount Pleasant Operation Mining Lease Boundary
- Bengalla Mining Lease Boundary
- Pre-mining Contours (5m Intervals)

Primary Domains

1. Infrastructure
2. Tailings Storage Facility
3. Water Management Area
4. Active Void
5. Overburden Emplacement

Secondary Domains

- A Final Void
- B Water Management Area
- C Exotic Pasture
- D Woodland/Grassland

[1] Approximate graphical representation of the Schedule of Land presented as Appendix 1 of Development Consent DA 92/97

I, the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

30-08-18
Date

Source: NSW Land & Property Information (2015); NSW Department Resources & Energy (2018); MACH Energy (2018)
Orthophoto: MACH Energy (Jul 2018)

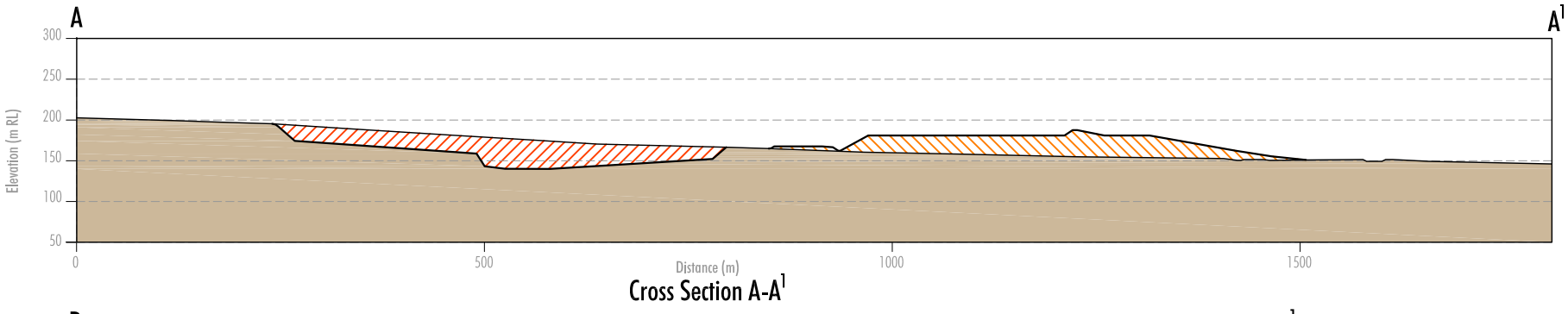
Refer Plan 5 for cross sections.

MACHEnergy

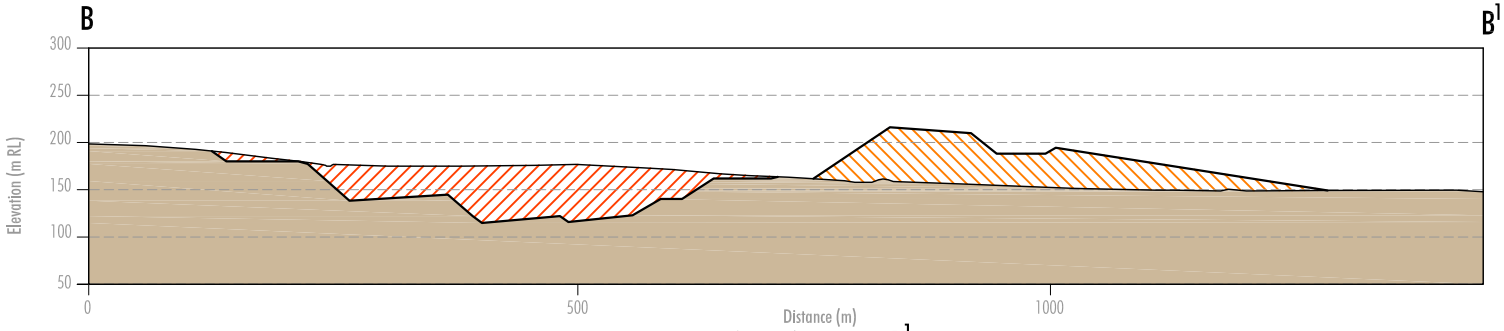
MOUNT PLEASANT OPERATION

Indicative Final Landform (30 June 2019)

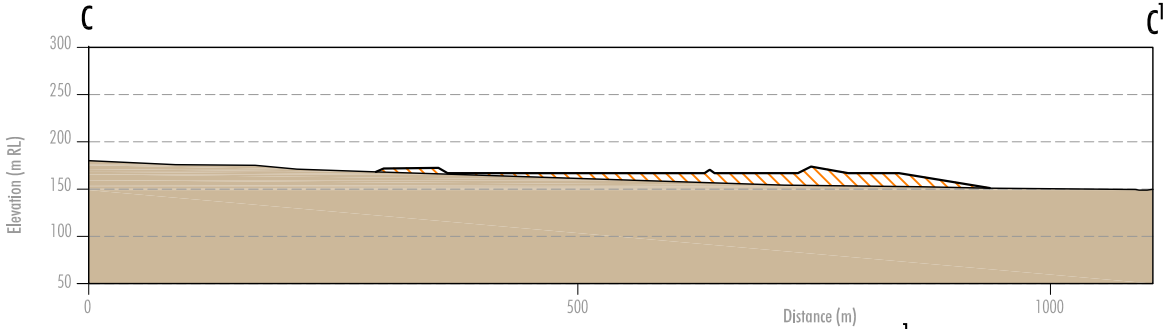
Plan 4



Cross Section A-A1



Cross Section B-B1



Cross Section C-C1

Not to Scale

MAC-16-01_MOP-RMP V2 (2018)_AMEND A (Aug 2018)_Plans_101A

LEGEND

- Pre-mining Topography
- Proposed Landform at End of MOP Term
- Active Void
- Overburden Emplacement
- In situ Material

Source: MACH Energy (2018)

I, the representative of MACH Energy Australia Pty Ltd, certify that the information on this plan is a true indication of the proposed development.

Representative

30-08-18

Date

MACHEnergy

MOUNT PLEASANT OPERATION

Open Cut and Overburden Emplacement Cross-Sections

Plan 5

APPENDIX 1

DEVELOPMENT CONSENT DA 92/97

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979 (UNAMENDED)

DETERMINATION OF DEVELOPMENT APPLICATION
PURSUANT TO SECTION 91

I, the Minister for Urban Affairs and Planning, pursuant to Section 101 of the unamended Environmental Planning and Assessment Act, 1979 ("the Act"), determine the development application ("the application") referred to in Schedule 1 by granting consent to the application subject to the conditions set out in Schedule 2.

The reasons for the imposition of the conditions are to:

(i) minimise the adverse impact the development may cause through water and air pollution, noise and visual disturbance;

(ii) provide for environmental monitoring and reporting; and

(iii) set requirements for infrastructure provision.

Signed

Andrew Refshauge
Minister for Urban Affairs and Planning

Sydney, 22 December 1999 File No. N95/00147

Red text represents MOD 1 dated 19 September 2011
Blue text represents MOD 2 dated 29 March 2017
Green text represents MOD 3 dated August 2018

SCHEDULE 1

Development Application:	DA 92/97
Applicant:	MACH Energy Australia Pty Ltd
Consent Authority:	Minister for Urban Affairs and Planning
Land:	See Appendix 1
Development:	Construction and operation of the Mt Pleasant open cut coal mine and associated infrastructure

TABLE OF CONTENTS

DEFINITIONS

Aboriginal stakeholders	Wonaruah Local Aboriginal Land Council, Wonnarua Tribal Council and any other relevant Aboriginal groups
Annual review	The review required by condition 3 of Schedule 5
Applicant	MACH Energy Australia Pty Ltd, or any person/s who rely on this consent to carry out development that is subject to this consent
ARTC	Australian Rail Track Corporation
BCA	Building Code of Australia
Blast misfire	The failure of one or more holes in a blast pattern to initiate
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
Conditions of this consent	Conditions contained in Schedules 2 to 5 inclusive
Conveyor/service corridor	The conveyor and supporting infrastructure approved to be located within the area shown in blue hatch in Figure 6.9 in EA (MOD 1)
Council	Muswellbrook Shire Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Development	The development as described in the documents listed in condition 2 of Schedule 2
DoI Water	Department of Industry - Water
DPI	Department of Primary Industries
DRG	Division of Resources and Geoscience with the Department
EA (MOD 1)	The Environmental Assessment for the Mt Pleasant Project Modification prepared by EMGA Mitchell McLennan, dated October 2010; the associated response to submissions, dated December 2010; and the addendum to the environmental assessment, dated 31 August 2011
EA (MOD 2)	The Environmental Assessment titled *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification* prepared by MACH Energy Australia Pty Ltd dated 30 January 2017
EA (MOD 3)	The Environmental Assessment titled *Mount Pleasant Operation Mine Optimisation Modification* prepared by MACH Energy Australia Pty Ltd, dated 31 May 2017, including the *Response to Submissions* and covering letter, dated 23 November 2017, provided by the Applicant in support of the application
EIS	The Environmental Impact Statement for the Mt Pleasant Mine, prepared by ERM Mitchell McCotter and dated September 1997, as modified by the Applicant's submissions to the Commission of Inquiry into the establishment and operation of the Mt Pleasant Mine
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence issued under the POEO Act
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build or carry out
Incident	A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this consent
Land	In general, the definition of land is consistent with the definition in the EP&A Act. However, in relation to the noise and air quality conditions in Schedules 2-5 it means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this modification
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mine water	Water that accumulates within, or drains from, active mining and infrastructure areas and any other areas where runoff may have come into contact with coal or carbonaceous material
Mining operations	Includes the removal of overburden and the extraction, processing, handling, storage and transportation of coal
Minister	Minister for Planning, or delegate
Minor	Small in quantity, size and degree
Mitigation	Activities associated with reducing the impacts of the development
Modification 3	The modification to the development as described in EA (Mod 3
NAG	Noise assessment group
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and public holidays
OEH	Office of Environment and Heritage
Offset strategy	The strategy required by condition 29 of Schedule 3 of this approval
POEO Act	*Protection of the Environment Operations Act 1997*
Privately-owned land	Land that is not owned by a public agency, or a mining company (or its subsidiary)
Public infrastructure	Linear and related infrastructure that provides services to the general public, such

	as roads, railways, water supply, gas supply, drainage, sewerage, telephony, telecommunications etc
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The treatment or management of land disturbed by the development for the purpose of establishing a safe, stable and non-polluting environment, and includes remediation
Remediation	Activities associated with partially or fully repairing the impacts and/or environmental consequences of the development
ROM	Run-of-mine
RMS	Roads and Maritime Services
SANSW	Subsidence Advisory NSW
Secretary	Secretary of the Department, or nominee
Site	The land listed in Appendix 1
Southern catchment	The catchment located in the south west corner of the site and identified in Figure 12 of the EIS as the active fines emplacement
Statement of commitments	The Applicant's commitments in Appendix 3

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. The Applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development.

TERMS OF CONSENT

2. The Applicant must carry out the development:
   (a) generally in accordance with the EIS, EA (MOD 1), EA (MOD 2), EA (MOD 3) and project layout plans; and
   (b) in accordance with the Statement of Commitments and conditions of this consent.

   Notes:
   - *The project layout plans is shown in Appendix 2.*
   - *The Statement of Commitments is reproduced in Appendix 3.*

3. If there is any inconsistency between the documents listed in condition 2(a) of Schedule 2, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency with the documents listed in condition 2(a) of Schedule 2 or the Statement of Commitments.

4. The Applicant must comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:
   (a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted by the Applicant in accordance with this consent (including any stages of these documents);
   (aa) any reviews, reports or audits commissioned by the Department regarding compliance with this consent; and
   (b) the implementation of any actions or measures contained in these documents.

LIMITS ON CONSENT

Mining Operations

5. The Applicant may carry out mining operations on the site until 22 December 2026.

   Note: Under this consent, the Applicant is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Secretary and DRG. Consequently this consent will continue to apply in all other respects - other than the right to conduct mining operations - until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

Coal Extraction

6. The Applicant must not extract more than 10.5 million tonnes of ROM coal from the site in a calendar year.

Coal Transport

7. The Applicant must transport all coal from the site by either (but not both):
   (a) conveyor to the Bengalla mine; or
   (b) rail via an on-site rail loop.

   Prior to the construction of the coal transport infrastructure on site, the Applicant must notify the Secretary of the coal transport option chosen.

8. If the Applicant decides to develop the conveyor/service corridor to the Bengalla mine, then the Applicant must:
   (a) ensure that the final design of the conveyor/service corridor includes all reasonable and feasible measures to avoid and/or minimise the impacts on threatened species, endangered ecological communities, and Aboriginal objects with medium to high significance; and
   (b) submit detailed plans of the development in the conveyor/service corridor to the Secretary for approval.

   Following approval, the Applicant must implement the detailed plans to the satisfaction of the Secretary.

STRUCTURAL ADEQUACY

9. The Applicant must ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA and SANSW.

Notes:

- *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works;*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development;*
- *The development is located in the Muswellbrook Mine Subsidence District. Under Section 15 of the Mine Subsidence Compensation Act 1961, the Applicant is required to obtain the SANSW's approval before constructing any improvements on the site.*

DEMOLITION

10. The Applicant must ensure that all demolition work on site is carried out in accordance with *AS 2601-2001: The Demolition of Structures*, or its latest version.

PROTECTION OF PUBLIC INFRASTRUCTURE

11. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:
    (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
    (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development,

    Note: This condition does not include matters that are expressly provided for in the conditions of this consent, such as the maintenance of public roads.

OPERATION OF PLANT AND EQUIPMENT

12. The Applicant must ensure that all plant and equipment used on site, or to transport coal from the site, is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

APPLICATION OF EXISTING STRATEGIES, PLANS OR PROGRAMS

13. The Applicant must continue to apply existing management strategies, plans or monitoring programs approved prior to the approval of Modification 3, until the approval of a similar plan, strategy or program following the approval of Modification 3.

13. Deleted

PLANNING AGREEMENT

14. By the end of March 2012, unless otherwise agreed by the Secretary, the Applicant must enter into a planning agreement with Council in accordance with:
    (a) Division 6 of Part 4 of the EP&A Act; and
    (b) the terms of the Applicant's offer dated 14 February 2011, which is summarised in Appendix 4.

    This agreement must provide for annual payments to be made to Council with the first period for payment commencing upon the commencement of development on the site.

SCHEDULE 3
ENVIRONMENTAL PERFORMANCE CONDITIONS

ACQUISITION UPON REQUEST

1. If the Applicant receives a written request for acquisition from the owner of any land listed in Table 1, then the Applicant must acquire the land in accordance with the procedures in conditions 6-7 of Schedule 4.

Table 1: Land subject to acquisition upon request

Basis	Receiver
Noise	45, 47, 67, 96, 102, 108, 112, 118, 120, 120c, 121, 136, 143a, 143b, 147, 153a, 156a, 157a, 158, 159
Noise & Air	43, 43b
Air	20[2], 21[2]

Notes:
1 To identify the locations referred to in Table 1, see the figures in Appendix 5.
2 The Applicant is only required to acquire and/or install mitigation measures at this property if acquisition and/or mitigation is not reasonably achievable under a separate approval for the Bengalla mine.

ADDITIONAL MITIGATION UPON REQUEST

2. Upon receiving a written request from the owner of any residence on any land listed in Table 1 (unless the owner of that land has requested acquisition) or Table 2, the Applicant must implement additional:
   (a) noise mitigation measures (such as double-glazing, insulation and/or air conditioning); and/or
   (b) air quality mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning),

   at the residence(s) in consultation with the owner.

   These measures must be reasonable and feasible, and directed towards reducing the noise and/or air quality impacts of the development on the residence(s). The Applicant must also be responsible for the reasonable costs of ongoing maintenance of these additional mitigation measures until the cessation of mining operations.

   If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Table 2: Land where additional mitigation measures are available on request

Basis	Receiver
Noise	68, 74, 77, 79, 80a, 84a, 86a, 139, 140a, 140c, 154, 203, 257, 258, 259, 526

Notes:
1 To identify the locations referred to in Table 2, see the figures in Appendix 5.

NOISE

Noise Criteria

3. Except for the noise-affected land referred to in Table 1, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately-owned land.

Table 3: Noise criteria dB(A)

Receiver or other location	Day	Evening	Night	
	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{Aeq(15min)}$	$L_{A1(1min)}$
68, 74	43	42	42	45
86a	42	42	42	45
35, 35b, 77	42	41	41	45
79, 80a, 140c, 526	41	41	41	45
289	41	40	40	45
23, 84a, 139, 154, 203, 257, 258a	40	40	40	45
83	40	39	39	45
86b, 140a, 202, 259	39	39	39	45
198, 202b	38	38	38	45

260, 261	37	37	37	45
169, 272	36	36	36	45
NAG 5 - All privately-owned land	41	40	39	45
NAG 6 - All privately-owned land	37	37	37	45
NAG 7 - All privately-owned land	40	37	37	45
NAG 8 - All privately-owned land	41	39	39	45
NAG 9 - All privately-owned land	39	38	37	45
NAG 11 - All privately-owned land	37	36	35	45
All other privately-owned land	35	35	35	45

Notes:

- *To identify the locations referred to in Table 3, see the figures in Appendix 5.*
- *Noise generated by the development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy, with the exception of the application of modifying factors under Fact Sheet C of the Noise Policy for Industry.*

However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner to exceed the criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

4. Deleted

Cumulative Noise Criteria

5. Except for the noise-affected land referred to in Table 1, the Applicant must implement all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines in the area does not exceed the criteria in Table 5 at any residence on privately-owned land.

Table 5: Cumulative noise criteria dB(A) $L_{Aeq\ (period)}$

Location	***Day***	***Evening***	***Night***
NAG 8, 9	55	45	40
All other privately-owned land	50	45	40

Notes:

- *To identify the locations referred to in Table 5, see the figures in Appendix 5; and*
- *Cumulative noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

6. Deleted

Rail Noise

7. The Applicant must ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in RailCorp's EPL (No. 12208) and ARTC's EPL (No. 3142).

Noise Operating Conditions

8. The Applicant must:
   (c) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the construction, operational, low frequency, and rail noise generated by the development;
   (d) minimise the noise impacts of the development during temperature inversions;
   (e) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and
   (f) co-ordinate the noise management on site with the noise management at nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines,

   to the satisfaction of the Secretary.

   Note: Monitoring under this consent is not required at all residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria, if agreed to by the Secretary.

Noise Management Plan

9. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
   (a) be submitted to the Secretary for approval prior to carrying out any development on site;
   (b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this consent, including a real-time noise management system that employs both reactive and proactive mitigation measures;
   (c) include a noise monitoring program that:
      - uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the development;
      - accounts for the occurrence of any noise enhancement between the site, and any sensitive receivers located beyond the site boundary; and
      - includes a protocol for determining exceedances of the relevant conditions of this consent.
   (d) include a protocol that has been prepared in consultation with the owners of the nearby mines (including the Bengalla mine) to minimise the cumulative noise impacts of the mines.

   The Applicant must implement the approved management plan as approved from time to time by the Secretary.

BLASTING

Blasting Criteria

10. The Applicant must ensure that the blasting on the site does not cause exceedances of the criteria in Table 7.

Table 7: Blasting criteria

Location	***Airblast overpressure (dB(Lin Peak))***	***Ground vibration (mm/s)***	***Allowable exceedance***
Residence on privately owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months
Historic heritage sites	-	10	0%
All public infrastructure	-	50	0%

However, these criteria do not apply if the Applicant has a written agreement with the relevant owner or infrastructure provider/owner, and the Applicant has advised the Department in writing of the terms of this agreement.

Blasting Hours

11. The Applicant must only carry out blasting on site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Secretary.

Blasting Frequency

12. Unless otherwise agreed by the Secretary, the Applicant may carry out a maximum of:
   (a) 1 blast a day; and

(b) 5 blasts a week, averaged over any calendar year;
for the development.

This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blasts required to ensure the safety of the mine or its workers.

Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.

Property Inspections

13. If the Applicant receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit/s on site, for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Applicant must:
    (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to:
        - establish the baseline condition of the buildings and/or structures on the land, or update the previous property inspection report;
        - identify any measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and/or structures; and
    (b) give the landowner a copy of the new or updated property inspection report.

    If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property inspection report, either party may refer the matter to the Secretary for resolution.

Property Investigations

14. If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim the Applicant must:
    (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and
    (b) give the landowner a copy of the property investigation report.

    If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property investigation report, either party may refer the matter to the Secretary for resolution.

    If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damages to the satisfaction of the Secretary.

    If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.

Blast Operating Conditions

15. The Applicant must:
    (a) implement best blasting management practice on site to:
        - protect the safety of people and livestock in the surrounding area;
        - protect public or private infrastructure/property in the surrounding area;
        - minimise the dust and fume emissions of the blasting on site; and
        - minimise blasting impacts on heritage items in the vicinity of the site;
    (b) co-ordinate the blasting on site with the blasting at nearby mines (including the Bengalla mine) to minimise the cumulative blasting impacts of the mines; and
    (c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site,
    to the satisfaction of the Secretary.

16. The Applicant must not undertake blasting within 500 metres of:
    (a) a public road without the approval of Council; and
    (b) any land outside the site not owned by the Applicant, unless:
        - the Applicant has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Applicant has advised the Department in writing of the terms of this agreement, or
        - the Applicant has:
            - demonstrated to the satisfaction of the Secretary that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and

- updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.

Blast Management Plan

17. The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be submitted to the Secretary for approval prior to carrying out any blasting on site;
    (b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent;
    (c) include a road closure management plan, prepared in consultation with Council;
    (d) include a blast monitoring program for evaluating compliance with the relevant conditions of approval; and
    (e) include a protocol that has been prepared in consultation with the owners of nearby mines (including the Bengalla mine) for minimising and managing cumulative blasting impacts of the mines.

    The Applicant must implement the approved management plan as approved from time to time by the Secretary.

AIR QUALITY & GREENHOUSE GAS

Odour

18. The Applicant must ensure that no offensive odours are emitted from the site, as defined under the POEO Act, unless otherwise authorised by an EPL.

Greenhouse Gas Emissions

19. The Applicant must implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.

Air Quality Criteria

20. Except for the air quality-affected land referred to in Table 1, the Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not exceed the criteria listed in Tables 8, 9 or 10 at any residence on privately-owned land.

Table 8: Long term criteria for particulate matter

Pollutant	***Averaging Period***	***[d]Criterion***
Total suspended particulate (TSP) matter	Annual	[a]90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a]25 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	[a]8 µg/m^3

Table 9: Short term criteria for particulate matter

Pollutant	***Averaging Period***	***[d]Criterion***
Particulate matter < 10 µm (PM_{10})	24 hour	[b]50 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	24 hour	[b]25 µg/m^3

Table 10: Long term criteria for deposited dust

Pollutant	***Averaging Period***	***Maximum increase in deposited dust level***	***Maximum total deposited dust level***
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes to Tables 8-10:

[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources);

[b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own);

[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method; and

[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

21. Deleted

Air Quality Operating Conditions

22. The Applicant must:
    (a) implement best practice air quality management, including all reasonable and feasible measures to minimise the odour, fume and dust emissions of the development;
    (b) minimise visible air pollution generated by the development;
    (c) minimise, where reasonable and feasible, the extent of potential dust generating surfaces exposed on the site at any given point in time;
    (d) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note d above under Tables 8-10);
    (e) regularly assess the real-time air quality monitoring and meteorological forecasting data and relocate, modify and/or stop operations on site to ensure compliance with the relevant conditions of this consent; and
    (f) co-ordinate the air quality management on site with the air quality management at nearby mines (including the Bengalla mine) to minimise cumulative air quality impacts from the mines,

    to the satisfaction of the Secretary.

Air Quality and Greenhouse Gas Management Plan

23. The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be submitted to the Secretary for approval prior to carrying out any development on site;
    (b) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, including a real-time air quality management system that employs reactive and proactive mitigation measures;
    (c) include an air quality monitoring program that:
        - uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the development;
        - includes $PM_{2.5}$ monitoring (although this obligation could be satisfied by the regional air quality monitoring network if sufficient justification is provided);
        - includes a protocol for determining exceedances of the relevant conditions of this consent; and
    (d) include a protocol that has been prepared in consultation with the owners of nearby mines to minimise the cumulative air quality impacts of the mines.

    The Applicant must implement the approved management plan as approved from time to time by the Secretary.

METEOROLOGICAL MONITORING

24. For the life of the development, the Applicant must ensure that there is a meteorological station operating in the vicinity of the site that:
    (a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in NSW* guideline; and
    (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the *NSW Industrial Noise Policy*, or as otherwise approved by the Secretary.

SOIL & WATER

Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain water licences for the development.

Water Supply

25. The Applicant must ensure that it has sufficient water for all stages of development, and if necessary, adjust the scale of mining operations on site, to match its available water supply to the satisfaction of the Secretary.

Water Discharges

26. The Applicant must ensure that any surface water discharges from the site comply with the:
    (a) discharge limits (both volume and quality) set for the development in any EPL; or
    (b) relevant provisions of the POEO Act or *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*.

Compensatory Water Supply

27. The Applicant must provide compensatory water supply to any landowner of privately-owned land whose water entitlements are adversely and directly impacted (other than an impact that is negligible) as a result of the development, in consultation with DoI Water, and to the satisfaction of the Secretary.

The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent, in quality and volume, to the loss attributed to the development. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.

If the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

If the Applicant is unable to provide an alternative long-term supply of water, then the Applicant must provide alternative compensation to the satisfaction of the Secretary.

Water Management Plan

28. The Applicant must prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with DoI Water and EPA, and be submitted to the Secretary for approval prior to carrying out any development on site. The plan must include:

(a) a Site Water Balance, which must:
- include details of:
  - sources and security of water supply;
  - water use on site;
  - water management on site;
  - any off-site water transfers; and
- investigate and implement all reasonable and feasible measures to minimise water use by the development;

(b) an Erosion and Sediment Control Plan, which must:
- identify activities that could cause soil erosion, generate sediment or affect flooding;
- describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, and manage any flood risk;
- describe the location, function, and capacity of erosion and sediment control structures;
- describe what measures would be implemented to maintain the structures over time;

(c) a Surface Water Management Plan, which must include:
- detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the development;
- surface water and stream health impact assessment criteria including trigger levels for investigating any potentially adverse surface water impacts;
- a program to monitor surface water flows and quality in the watercourses that could be affected by the project; and
- reporting procedures for the results of the monitoring program;

(d) a Groundwater Management Plan, which must include:
- detailed plans, including design objectives and performance criteria, for the design and management of the proposed final voids;
- detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores, that could be affected by the development;
- groundwater impact assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts;
- a program to monitor and assess:
  - groundwater inflows to the mining operations;
  - impacts on regional and local (including alluvial) aquifers;
  - impacts on the groundwater supply of potentially affected landowners;
  - impacts on groundwater dependent ecosystems and riparian vegetation;

(e) a Surface and Ground Water Response Plan, which must include:
- a response protocol for any exceedances of the surface water and groundwater assessment criteria;
- measures to offset the loss of any baseflow to watercourses caused by the development;
- measures to prevent, minimise or offset groundwater leakage from alluvial aquifers caused by the development;
- measures to compensate landowners of privately-owned land whose water supply is adversely affected by the development; and
- measures to mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

BIODIVERSITY

Offset Strategy

29. The Applicant must prepare an offset strategy for the development to the satisfaction of the Secretary.

This strategy must:
(a) be prepared in consultation with OEH;
(b) be submitted to the Secretary for approval prior to carrying out any development in the conveyor/service corridor;
(c) offset the biodiversity impacts of the development in the conveyor/service corridor; and
(d) focus on the re-establishment of:
- significant and/or threatened flora communities and/or species; and
- habitat for significant and/or threatened fauna species.

This offset strategy is not required if the Applicant does not carry out any development in the conveyor/service corridor.

The Applicant must implement the approved strategy as approved from time to time by the Secretary.

Note: The offset strategy may be combined with any similar offset strategy required for the development under Commonwealth legislation, or the Aboriginal cultural heritage conservation area/s described in condition 33 below, subject to suitably offsetting the impacts of the conveyor/service corridor.

Long Term Security of Offset

30. Within 2 years of the approval of the offset strategy, the Applicant must demonstrate to the satisfaction of the Secretary that it has made suitable arrangements to provide appropriate long term security for the offset area/s in the offset strategy.

Conservation Bond

31. Within 6 months of the approval of the offset strategy, the Applicant must lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan (see below).

The sum of the bond must be determined by:
(a) calculating the full cost of implementing the offset strategy (other than land acquisition costs); and
(b) employing a suitably qualified, independent and experienced person to verify the calculated costs.

The calculation of the Conservation Bond must be submitted to the Department for approval at least 1 month prior to the lodgement of the bond.

The Conservation Bond must be reviewed and if required, an updated bond must be lodged with the Department within 3 months following:
(a) an update or revision to the Biodiversity Management Plan;
(b) the completion of an Independent Environmental Audit in which recommendations relating to the implementation of the Biodiversity Offset Strategy have been made; or
(c) in response to a request by the Secretary.

If the offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the Secretary, the Secretary will release the bond.

If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Secretary will call in all or part of the conservation bond, and arrange for the satisfactory completion of the relevant works.

With the agreement of the Secretary, this bond may be combined with rehabilitation security deposit administered by the Minister for Resources.

Biodiversity Management Plan

32. The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with OEH and Council, and be submitted to the Secretary for approval prior to carrying out any development on site;
(b) include:
- a description of the short, medium, and long term measures that would be implemented to:
  - manage the remnant vegetation and habitat on the site and in the offset area/s (if and when applicable); and
  - implement the offset strategy (if and when applicable), including detailed performance and completion criteria;
- a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:

- implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
- maximising salvage and beneficial use of resources in areas that are to be impacted, including vegetative, soil and cultural heritage resources;
- protecting vegetation and soil outside the disturbance areas;
- rehabilitating creeks and drainage lines on the site, to minimise net loss of stream length and aquatic habitat;
- managing salinity;
- conserving and reusing topsoil;
- undertaking pre-clearance surveys;
- managing impacts on fauna;
- landscaping the site and along public roads to minimise visual and lighting impacts;
- collecting and propagating seed;
- salvaging and reusing material from the site for habitat enhancement;
- salvaging, transplanting and/or propagating threatened flora and native grassland;
- controlling weeds and feral pests;
- managing grazing and agriculture on site;
- controlling access; and
- bushfire management;

- a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;
- a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and
- details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

HERITAGE

Note: Under the National Parks and Wildlife Act 1974 or the Heritage Act 1977, the Applicant is required to obtain approvals for any impacts to Aboriginal objects and/or significant relics.

Aboriginal Heritage Conservation Strategy

33. The Applicant must prepare an Aboriginal Heritage Conservation Strategy for the development to the satisfaction of the Secretary. This strategy must:
    (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;
    (b) be prepared in consultation with OEH and the Aboriginal stakeholders;
    (c) be submitted to the Secretary for approval prior to carrying out any development on site;
    (d) provide for the establishment and conservation of an off-site Aboriginal cultural heritage conservation area/s that has comparable Aboriginal cultural heritage values (both cultural and archaeological) to the areas that would be developed on site;
    (e) describe the measures that would be implemented to provide appropriate long term security for the proposed Aboriginal cultural heritage conservation areas; and
    (f) include an action plan for the implementation of the strategy.

    The detailed measures for the implementation of the strategy are to be outlined in the Heritage Management Plan (see condition 36).

    The Applicant must implement the approved strategy as approved from time to time by the Secretary.

    Note: The Aboriginal cultural heritage conservation area/s may be combined with any similar offset/conservation area required for the development under Commonwealth legislation, subject to suitably offsetting the cultural heritage impacts of the development.

34. Within 2 years of the approval of the Aboriginal Heritage Conservation Strategy, the Applicant must demonstrate to the satisfaction of the Secretary, that it has made suitable arrangements to provide appropriate long term security for the Aboriginal cultural heritage conservation area/s in the Aboriginal Heritage Conservation Strategy.

Oral History

35. By the end of December 2013, the Applicant must prepare a detailed history of the Mount Pleasant locality to the satisfaction of the Secretary. This history must:
    (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;

(b) be prepared in consultation with the OEH, the local history society, local community (including former residents as far as is practicable), and Aboriginal stakeholders;
(c) be prepared in accordance with the relevant Heritage Council of NSW guidelines; and
(d) include detailed historical research as well as an oral history.

Aboriginal Heritage Management Plan

36. The Applicant must prepare a Aboriginal Heritage Management Plan for the development to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with OEH and the Aboriginal stakeholders by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;
(b) be submitted to the Secretary for approval prior to carrying out any development on site;
(c) include:
- a detailed plan for the implementation of the approved Aboriginal Heritage Conservation Strategy (required under condition 34);
- a description of the measures that would be implemented to:
  - comply with the requirements of any Aboriginal Heritage Impact Permit issued for the development, including any approved archaeological testing and salvage program;
  - store the Aboriginal objects salvaged, both during construction and in the long term;
  - protect, monitor and/or manage all Aboriginal objects on site until the impacts of the development on these objects is unavoidable;
  - minimise the blasting impacts of the development on Aboriginal objects in the vicinity of the site;
  - manage the discovery of any human remains or previously unidentified Aboriginal objects on site;
  - enable Aboriginal stakeholders to get reasonable access to the site during the development;
  - ensure Aboriginal stakeholders are consulted about the conservation and management of Aboriginal cultural heritage on site; and
  - ensure construction personnel receive suitable heritage inductions prior to carrying out any development on site, and that suitable records are kept of these inductions.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

TRANSPORT

Removal of Rail Loop Infrastructure Corridor

37. The Applicant must, by no later than 31 October 2022:
(a) remove all infrastructure associated with the development within Mining Lease No. 1645 (ML 1645) south of Wybong Road (other than infrastructure which the operator of the Bengalla mine agrees with the Applicant, in writing, can remain in situ);
(b) do all things available to transfer or cause the grant of a mining lease over that part of ML 1645 south of Wybong Road to the operator of Bengalla mine or its nominee;
(c) transfer the freehold land owned by the Applicant within ML 1645 south of Wybong Road to the operator of Bengalla mine (or its nominee) at rural market value; and
(d) release any easements for pipeline and rail spur within or in the vicinity of ML 1645 south of Wybong Road which benefit land owned by the Applicant.

Road Works

38. The Applicant must, at its own expense:
(a) construct a bridge to carry the Bengalla Link Road over the proposed Mount Pleasant rail loop, in consultation with the operators of the Bengalla Mine;
(b) construct the Mount Pleasant Northern Link Road to Dorset Road, prior to the closure of Castlerock Road;
(c) construct the Mount Pleasant Western Link Road (generally in accordance with Council's Western Roads Strategy) from the intersection of the Bengalla Link Road to the intersection of the Mount Pleasant Northern Link Road, prior to the closure of Wybong Road;
(d) construct the Mount Pleasant Mine Access Road;
(e) upgrade the Wybong Road from the Bengalla Link Road to the Mount Pleasant Mine Access Road; and
(f) construct an overpass or underpass across Wybong Road, or other means of crossing Wybong Road, should a construction road be proposed,
to the satisfaction of Council.

39. Should the following intersections be required, the Applicant must undertake construction works at:
(a) the intersection of the Western Link Road and access to the mine site;
(b) the intersection of the Bengalla Link Road and the Western Link Road;

(c) the intersection of the Castlerock/Mount Pleasant Northern Link Road and the Western Link Road; and
(d) the intersection of the Mount Pleasant Northern Link Road and Kayuga Road,
to the satisfaction of Council and/or RMS.

If there is any dispute between the Applicant and Council or RMS in relation to the funding or upgrade works, then any of the parties may refer the matter to the Secretary for resolution.

40. The Applicant must:
(a) prepare a detailed schedule outlining the timing of the road construction works required by conditions 38 and 39 by the end of December 2011; and
(b) update this schedule annually,
to the satisfaction of Council.

Road Maintenance

41. During the development, the Applicant must maintain the roads and intersections between the Bengalla Mine main entrance and the Mt Pleasant Mine main entrance, including:
(a) part of the Bengalla Link Road;
(b) part of the Wybong Road; and
(c) part of the Mount Pleasant Western Link Road.

The Applicant must develop a Maintenance Management Plan in respect of these roads, to the satisfaction of Council.

Thomas Mitchell Drive

41A. The Applicant must contribute to the upgrade and maintenance of Thomas Mitchell Drive, proportionate to its impact (based on usage) on that infrastructure, in accordance with the Contributions Study prepared by GHD titled, *"Thomas Mitchell Drive Contributions Study, May 2015", as amended by the supplementary report dated, August 2018* (as amended from time to time), unless otherwise agreed with the Secretary.

For Thomas Mitchell Drive, the contributions must be paid to Council in accordance with:
(a) the payment schedule in the Contributions Study for the upgrade works; and
(b) the maintenance schedule established in accordance with the Contributions Study during the life of the development,
unless otherwise agreed with Council.

Notes:

- *In making a determination about the applicable contribution/s under this condition, the Secretary will take into account the contributions already paid or required to be paid towards the upgrade and maintenance of the local road network in the Muswellbrook Local Government Area under this consent and any associated Planning Agreement with Council.*
- *If there is a dispute between the relevant parties about the implementation of this condition, then any party may refer the matter to the Secretary for resolution.*

Road Access and Signage

42. The Applicant must ensure that as far as possible the preferred mine access road route, as described in the EIS, is the only route used by employees and contractors travelling to the mine site from Muswellbrook.

43. The Applicant must maintain signs and give at least 24 hours notice of temporary road closures. The location and wording of the signs are to be approved by Council. A protocol is to be established, in consultation with the emergency service providers and Council, to permit the passage of emergency vehicles during road closures.

Monitoring of Coal Transport

44. The Applicant must:
- keep records of the:
  - amount of coal transported from the site (on a monthly basis); and
  - date and time of each train movement generated by the development; and
- make these records available on its website at the end of each calendar year.

VISUAL

Visual Amenity and Lighting

45. The Applicant must:

(a) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development;
(b) ensure no outdoor lights shine above the horizontal; and
(c) ensure that all external lighting associated with the development complies with *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting* or its latest version,

to the satisfaction of the Secretary.

Additional Visual Mitigation Measures

46. Upon receiving a written request from the owner of any residence on privately-owned land which has, or would have, significant direct view of the mining operations on site, the Applicant must implement visual mitigation measures (such as landscaping treatments or vegetation screens) on the land in consultation with the landowner. These measures must be reasonable and feasible, and directed toward minimising the visibility of the mining operations from the residence.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Note: Except in exceptional circumstances, the Secretary will not require additional visual impact mitigation to be undertaken for residences that are more than 3 kilometres from the mining operations.

Landscape Management Plan

47. The Applicant must prepare a Landscape Management Plan to mitigate the visual impacts of the development to the satisfaction of the Secretary. This plan must:
(a) be prepared in consultation with Council, and submitted to the Secretary for approval prior to carrying out any development on site;
(b) provide for the establishment of trees and shrubs and/or the construction of mounding or bunding:
- along the access road to the mine site;
- around the water storage dams and coal preparation plant;
- at other areas identified as necessary for the maintenance of satisfactory visual amenity; and

(c) include details of the visual appearance of all buildings, structures, facilities or works (including paint colours and specifications), aimed at blending as far as possible with the surrounding landscape.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

BUSHFIRE MANAGEMENT

48. The Applicant must:
(a) ensure that the development is suitably equipped to respond to any fires on site; and
(b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.

WASTE

Waste Minimisation & Disposal

49. The Applicant must:
(a) minimise the waste (including coal reject) generated by the development;
(b) ensure that the waste generated by the development is appropriately stored, handled and disposed of in a lawful manner.

On-site Sewage

50. The Applicant must ensure that all sewage generated on site is treated and disposed of to the satisfaction of Council.

Disposal of Fine Rejects

51. The Applicant must not emplace fine rejects in the southern catchment without the written approval of the Secretary

Waste Management Plan

52. The Applicant must prepare a Waste Management Plan for the development to the satisfaction of the Secretary. This plan must:

(a) be prepared in consultation with DoI Water and DRG, and submitted to the Secretary for approval prior to carrying any development on site;
(b) describe the measures that would be implemented to avoid, minimise, reuse and recycle all waste streams generated by the development;
(c) include a fines emplacement plan; and
(d) a program to evaluate the fines emplacement plan and methods, with a view to emplacing fines within active mining areas.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

REHABILITATION

Rehabilitation Objectives

53. The Applicant must rehabilitate the site to the satisfaction of DRG. This rehabilitation must be generally consistent with the conceptual final landform depicted in Figure 4 in Appendix 2, and comply with the objectives in Table 11.

Table 11: Rehabilitation Objectives

Feature	***Objective***
All areas of the site affected by the development	• Safe, stable & non-polluting • Fit for the intended post-mining land use/s
Areas proposed for native ecosystem re-establishment	• Restore self-sustaining native woodland ecosystems characteristic of vegetation communities found in the local area, as shown conceptually in Figure 4 in Appendix 2. • Establish areas of self-sustaining: – riparian habitat, within any diverted and/or re-established creek lines and retained water features; – potential habitat for threatened flora and fauna species; and – wildlife corridors, as far is reasonable and feasible, and as shown conceptually in Figure 4 in Appendix 2.
Areas proposed for agricultural land	• Establish/restore grassland areas to support sustainable agricultural activities • Achieve the nominated land capability classification
Other land affected by the develop	• Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native plant species (unless DRG agrees otherwise)
Final Landform	• Stable and sustainable for the intended post-mining land use/s • Integrated with surrounding natural landforms • Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable • Maximise surface water drainage to the natural environment (excluding final void catchment)
Final voids	• Designed as long term groundwater sinks to maximise ground water flows across back filled pits to the final void • Minimise to the greatest extent practicable: – the size and depth of final voids; – the drainage catchment of final voids; – any high wall instability risk; and – the risk of flood interaction
Surface infrastructure of the development	• To be decommissioned and removed, unless DRG agrees otherwise
Rehabilitation materials	• Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources, to the greatest extent practicable
Water quality	• Water retained on the site is fit for the intended post-mining land use/s • Water discharged from the site is suitable for

	receiving waters and fit for aquatic ecology and riparian vegetation
Community	• Ensure public safety • Minimise adverse socio-economic effects associated with mine closure

54. By the end of January 2019, unless otherwise agreed by the Secretary, the Applicant must prepare a Rehabilitation Strategy for the development to the satisfaction of the Secretary. This strategy must:
(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
(b) be prepared in consultation with DRG and Council;
(c) build upon the Rehabilitation Objectives in Table 11 and the conceptual final landform depicted in Figure 4 in Appendix 2, including identification of opportunities for increasing the areas of woodland and habitat connectivity within the rehabilitated landscape;
(d) include details of the canopy, sub-canopy, understory and ground strata species to be established in the rehabilitation areas, with a particular focus on ensuring the achievement of an appropriate level of diversity and mix of functional groups within each target community; and
(e) include an indicative schedule for the staged rehabilitation of the development.

The applicant must implement the approved strategy as approved from time to time by the Secretary.

Progressive Rehabilitation

55. The Applicant must rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilisation and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion and weed incursion cannot be permanently rehabilitated.

Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development.

Rehabilitation Management Plan

56. By the end of January 2019, unless otherwise agreed by the Secretary, the Applicant must prepare a Rehabilitation Management Plan for the development to the satisfaction of the DRG. This plan must:
(a) be prepared by a suitably qualified and experiences person/s whose appointment has been endorsed by the Secretary;
(b) be prepared in consultation with the Department, DoI Water, OEH, DPI, and Council;
(c) be prepared in accordance with any relevant DRG Guideline;
(d) describe how the rehabilitation of the sire would achieve the objectives identified in Table 11 and the outcomes described in the Rehabilitation Strategy referred to in condition 54;
(e) include a detailed plan for the reinstatement and review of the proposed:
(f) agricultural land capability of grassland areas in the final landform, including a protocol for periodic trials to demonstrate that the land capability is being achieved; and
(g) rehabilitated woodland areas and fauna habitat, including a protocol for periodic trials to demonstrate that the target vegetation community is being achieved;
(h) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and for triggering remedial action (if necessary);
(i) describe the measures to be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform (including final voids), final land use/s and water management in the final landform;
(j) include procedures for the use of interim stabilisation and temporary vegetation strategies, where reasonable to minimise the area exposed for dust generation;
(k) include a program to monitor, independently audit and report on the effectiveness of the measures in condition 56(g), and progress against the detailed performance and completion criteria in condition 56(f);
(l) to the maximum extent practicable build on and integrate with the other management plans required under this consent; and
(m) include detailed scheduling for progressive rehabilitation to be initiated, undertaken and/or completed over the next three years.

The Applicant must implement the approved management plan as approved from time to time by DRG.

SCHEDULE 4
ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. By the end of December 2011, the Applicant must:
   (a) notify in writing the owners of:
      - the land listed in Table 1 of Schedule 3 that they have the right to require the Applicant to acquire their land at any stage of the development;
      - any residence on the noise-affected land in Table 1 or Table 2 of Schedule 3 that they are entitled to ask for additional noise mitigation measures to be installed at their residence at any stage of the development;
      - any residences on the air quality-affected land listed in Table 1 that they are entitled to ask for additional air quality mitigation measures to be installed at their residence at any stage of the development;
      - any privately-owned land within 2 kilometres of the approved open cut mining pit on the site that they are entitled to ask for an inspection to establish the baseline condition of any buildings and/or structures on their land, or to have a previous property inspection updated; and
   (b) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the documents listed in condition 2(a) of Schedule 2 identify that dust emissions generated by the development are likely to be greater than the relevant air quality criteria in Schedule 3 at any time during the life of the development.

1A. Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended dust and/or noise criteria, the Applicant must:
   (a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and
   (b) advise the prospective tenants of the rights they would have under this consent,
   to the satisfaction of the Secretary.

2. As soon as practicable after obtaining monitoring results showing:
   (a) exceedance of the relevant criteria in Schedule 3, the Applicant must notify the affected landowner and tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the development is complying with the relevant criteria again; and/or
   (b) an exceedance of the relevant criteria of Schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).

INDEPENDENT REVIEW

3. If an owner of privately-owned land considers the development to be exceeding the criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.

   If the Secretary is not satisfied that an independent review is warranted, the Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.

   If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, the Applicant must:
   (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to:
      - consult with the landowner to determine his/her concerns;
      - conduct monitoring to determine whether the development is complying with the relevant criteria; and
      - if the development is not complying with these criteria then:
         - determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine towards the impact on the land;
         - identify the measures that could be implemented to ensure compliance with the relevant criteria; and
   (b) give the Secretary and landowner a copy of the independent review.

4. Deleted

5. Deleted

LAND ACQUISITION

6. Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:
   (a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the development, having regard to the:
      - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
      - presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional mitigation measures required under condition 2 of Schedule 3;

   (b) the reasonable costs associated with:
      - relocating within the Muswellbrook, Singleton or Scone local government area, or to any other local government area determined by the Secretary; and
      - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and

   (c) reasonable compensation for any disturbance caused by the land acquisition process.

   However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Secretary for resolution.

   Upon receiving such a request, the Secretary shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:
   - consider submissions from both parties;
   - determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
   - prepare a detailed report setting out the reasons for any determination; and
   - provide a copy of the report to both parties.

   Within 14 days of receiving the independent valuer's report, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

   However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.

   Within 14 days of this determination, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination.

   If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise.

7. The Applicant must pay all reasonable costs associated with the land acquisition process described in condition 6 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. If the Secretary requires, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:
   (a) be submitted to the Secretary for approval prior to carrying out any development on site;
   (b) provide the strategic framework for environmental management of the development;
   (c) identify the statutory approvals that apply to the development;
   (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
   (e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the development;
      - respond to any non-compliance;
      - respond to emergencies; and
   (f) include:
      - copies of any strategies, plans and programs approved under the conditions of this consent; and
      - a clear plan depicting all the monitoring to be carried out in relation to the development.

   The Applicant must implement the approved strategy as approved from time to time by the Secretary.

Adaptive Management

1A. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:
(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
(c) implement remediation measures as directed by the Secretary,
to the satisfaction of the Secretary.

Management Plan Requirements

2. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:
   (a) detailed baseline data;
   (b) a description of:
      - the relevant statutory requirements (including any relevant consent, licence or lease conditions);
      - any relevant limits or performance measures/criteria;
      - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
   (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
   (d) a program to monitor and report on the:
      - impacts and environmental performance of the development;
      - effectiveness of any management measures (see c above);
   (e) a contingency plan to manage any unpredicted impacts and their consequences;
   (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
   (g) a protocol for managing and reporting any:
      - incidents;
      - complaints;
      - non-compliances with statutory requirements; and
      - exceedances of the impact assessment criteria and/or performance criteria; and

(h) a protocol for periodic review of the plan.

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Annual Review

3. By the end of March each year (or other such timing as agreed by the Secretary), the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must:
   (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the next calendar year;
   (b) include a comprehensive review of the monitoring results and complaints records of the development over the past calendar year, which includes a comparison of these results against the:
      - relevant statutory requirements, limits or performance measures/criteria;
      - monitoring results of previous years; and
      - relevant predictions in the documents listed in condition 2(a) of Schedule 2;
   (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
   (d) identify any trends in the monitoring data over the life of the development;
   (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
   (f) describe what measures will be implemented over the next year to improve the environmental performance of the development.

Revision of Strategies, Plans and Programs

4. Within 3 months of:
   (a) the submission of an annual review under condition 3 above;
   (b) the submission of an incident report under condition 7 below;
   (c) the submission of an audit under condition 9 below; and
   (d) any modification to the conditions of this consent,

   the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

   Within 4 weeks of conducting any such review, the Applicant must advise the Secretary of the outcomes of the review, and submit any revised documents for the approval of the Secretary.

   Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

Updating & Staging Strategies, Plans or Programs

4A. The Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.

   With the agreement of the Secretary, the Applicant may prepare a revision or stage of any strategy, plan or program required under this consent without undertaking consultation with all parties nominated under the applicable condition in this consent.

   Notes:
   - *While any strategy, plan or program may be submitted on a staged basis, the Applicant must ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times.*
   - *If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.*

Management of Cumulative Impacts

5. In conjunction with the owners of the nearby mines (including the Bengalla mine), the Applicant must use its best endeavours to minimise the cumulative impacts of the development on the surrounding area to the satisfaction of the Secretary.

   Note: Nothing in this consent is to be construed as requiring the Applicant to act in a manner which is contrary to the Trade Practices Act 1974.

Community Consultative Committee

6. The Applicant must operate a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. This CCC must be operated in general accordance with the Department's

Community Consultative Committee Guidelines State Significant Projects November 2016, or its latest version.

Note: The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.

REPORTING

Incident Reporting

7. The Applicant must immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Regular Reporting

8. The Applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent, and to the satisfaction of the Secretary.

INDEPENDENT ENVIRONMENTAL AUDIT

9. By the end of March 2014, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission, commence and pay the full cost of an Independent Environmental Audit of the development. This audit must:
   (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
   (b) include consultation with the relevant agencies and the CCC;
   (c) assess the environmental performance of the development and whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease or necessary water licences (including any assessment, plan or program required under these approvals);
   (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals (including whether the development has met or is trended towards the progressive performance and completion criteria detailed in these strategies, plans or programs);
   (e) if necessary, recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under the abovementioned approvals; and
   (f) be conducted and reported to the satisfaction of the Secretary.

   Notes:
   - *This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary.*

10. Within 12 weeks of commencing any audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary and any other NSW Government agency that requests it, together with its response to any recommendations contained in the audit report and a timetable for the implementation of these recommendations, as required. The Applicant must implement the audit report recommendations, to the satisfaction of the Secretary.

ACCESS TO INFORMATION

11. The Applicant must:
   (a) make the following information publicly available on its website:
      - the documents listed in condition 2(a) of Schedule 2;
      - all current statutory approvals for the development;
      - approved strategies, plans and programs required under the conditions of this consent;
      - a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
      - a complaints register, which is to be updated on a monthly basis;
      - minutes of CCC meetings;
      - the annual reviews (over the last 5 years);
      - any independent environmental audit, and the Applicant's response to the recommendations in any audit;
      - any other matter required by the Secretary; and
   (b) keep this information up to date,

   to the satisfaction of the Secretary.

APPENDIX 1
SCHEDULE OF LAND

Tenure Type	Lot	Section	Deposited Plan Number
Freehold	1	8	2770
Freehold	1	5	2770
Freehold	1	6	2770
Freehold	1	3	2770
Freehold	1	4	2770
Freehold	1	1	2770
Freehold	1	2	2770
Freehold	1		104563
Freehold	1		112742
Freehold	1		114090
State Rail Authority (Crown)	1		189134
Freehold	1	2	192121
Freehold	1	1	192121
Freehold	1		194043
Freehold	1		213293
Freehold	1		254339
Freehold	1		312392
Freehold	1		318999
Freehold	1		401237
Freehold	1		544039
Freehold	1		629491
Freehold	1		634490
Freehold	1		655691
Freehold	1		706645
Freehold	1		742324
Freehold	1		744333
Freehold	1		780673
Freehold	1		791576
Crown	1		904885
Freehold	1		905281
Freehold	1		906668
Freehold	1		911212
Freehold	1		915913
Freehold	1		944232
Freehold	1		998239
Freehold	1		1072667
Freehold	1		1080962
Freehold	1		1081385
Freehold	1		1100374
Freehold	1		1137590

Tenure Type	Lot	Section	Deposited Plan Number
State Rail Authority (Crown)	1		1129338
Freehold	1		1199733
Freehold	2	8	2770
Freehold	2	5	2770
Freehold	2	6	2770
Freehold	2	3	2770
Freehold	2	1	2770
Freehold	2	4	2770
Freehold	2		104563
Freehold	2		112742
Freehold	2		114090
Freehold	2	2	192121
Freehold	2		194043
Freehold	2		629491
Freehold	2		634490
Freehold	2		706645
Freehold	2		780673
Freehold	2		791576
Freehold	2		801249
Freehold	2		915913
Freehold	2		998239
Freehold	2		1081385
Freehold	2		1234475
Freehold	3	8	2770
Freehold	3	5	2770
Freehold	3	3	2770
Freehold	3	1	2770
Freehold	3		112742
Freehold	3	2	192121
Freehold	3		194043
Freehold	3		236668
Freehold	3		629491
Freehold	3	28	758554
Freehold	3	29	758554
Freehold	3		791576
Freehold	3		998239
Freehold	3		998477
Freehold	3		1183514
Freehold	3		1199733
Freehold	3		1234475

Tenure Type	Lot	Section	Deposited Plan Number
Freehold	4	8	2770
Freehold	4	5	2770
Freehold	4	6	2770
Freehold	4	4	2770
Freehold	4	3	2770
Freehold	4	1	2770
Freehold	4	2	2770
Freehold	4	2	192121
Freehold	4	28	758554
Freehold	4	29	758554
Freehold	4		801249
Freehold	4		1199733
Freehold	4		1234475
Freehold	5	8	2770
Freehold	5	6	2770
Freehold	5	4	2770
Freehold	5	3	2770
Freehold	5	1	2770
Freehold	5		112742
Freehold	5	2	192121
Freehold	5	28	758554
Freehold	5		801249
Freehold	5		1199733
Freehold	5		1234475
Freehold	6	8	2770
Freehold	6	3	2770
Freehold	6	1	2770
Freehold	6	2	192121
Freehold	6		749716
Freehold	6		750926
Freehold	6	28	758554
Freehold	6		821183
Freehold	6		1199733
Freehold	6		1234475
Freehold	7		112742
Freehold	7	2	192121
Freehold	7		236668
Freehold	7		749716
Freehold	7		821183
Freehold	7		1199733
Freehold	7		1234475
Freehold	8		255048
Freehold	8		821183

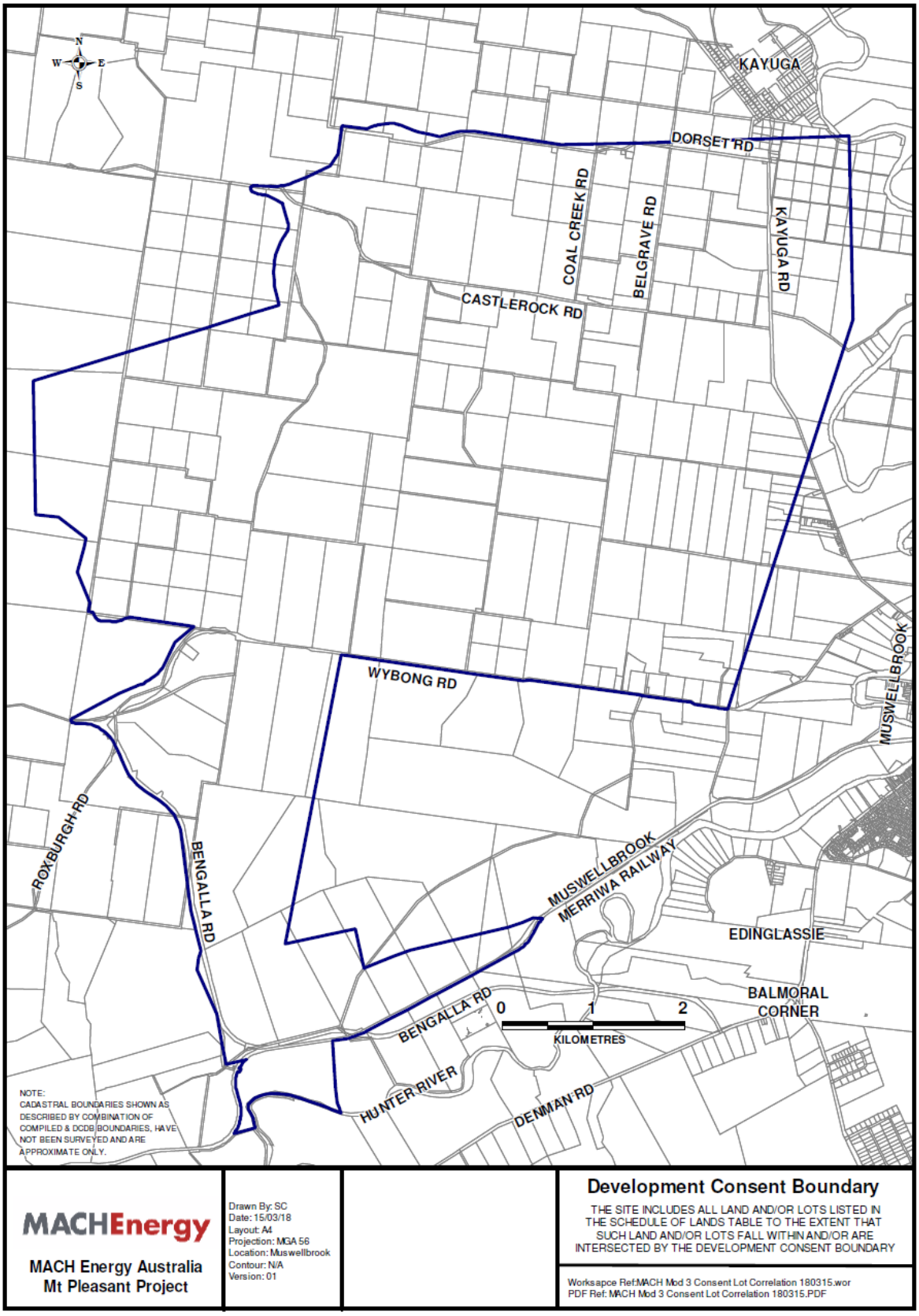
Tenure Type	Lot	Section	Deposited Plan Number
Freehold	8		821183
Road	8		1072668
Freehold	8		1199733
Freehold	9		255048
Freehold	9		750926
Road	9		1072668
Freehold	9		1199733
Freehold	10		255048
Freehold	10		750926
Road	10		1072668
Freehold	10		1184928
Freehold	10		1199733
Freehold	11		112742
Freehold	11		255048
Freehold	11		1051153
Road	11		1072668
Freehold	11		1184928
Freehold	12		112742
Freehold	12		255048
Freehold	12		659924
Road	12		1072668
Freehold	12		1112792
Freehold	13		112742
Freehold	13		255048
Freehold	13		750926
Freehold	13		1112792
Freehold	14	8	2770
Freehold	14		112742
Freehold	14		255048
Freehold	14		1112792
Freehold	15		112742
Freehold	15		255048
Freehold	15		750926
Freehold	15		1112792
Freehold	16		112742
Freehold	16		255048
Freehold	16		750926
Freehold	16		1072668
Freehold	16		1112792
Freehold	17		2770
Freehold	17		112742
Road	17		1072668
Freehold	18		112742

Tenure Type	Lot	Section	Deposited Plan Number
Freehold	18		1072668
Freehold	19		112742
Freehold	19		750926
Road	19		1072668
Freehold	20		112742
Freehold	20		747226
Freehold	20		1072668
Freehold	21		554140
Freehold	21		750926
Freehold	22		554140
Freehold	22		776758
Freehold	22		870608
Freehold	22		1041946
Freehold	22		1072668
Freehold	23		1041946
Freehold	24		742543
Freehold	24		1072668
Freehold	25		1053537
Freehold	25		1072668
Freehold	26		750926
Freehold	26		1072668
Freehold	27		745897
Freehold	27		1072668
Freehold	28		750926
Freehold	29		731706
Freehold	30		137297
Freehold	35		1076510
Freehold	36		1108421
Freehold	38		750926
Freehold	39		750926
Freehold	41		750926
Freehold	42		750926
Freehold	43		750926
Freehold	43		792447
Freehold	44		750926
Freehold	45		750926
Freehold	50		809718
Freehold	51		809718
Freehold	71		750926
Freehold	72		750926
Freehold	73		750926
Freehold	74		750926
Freehold	86		750926

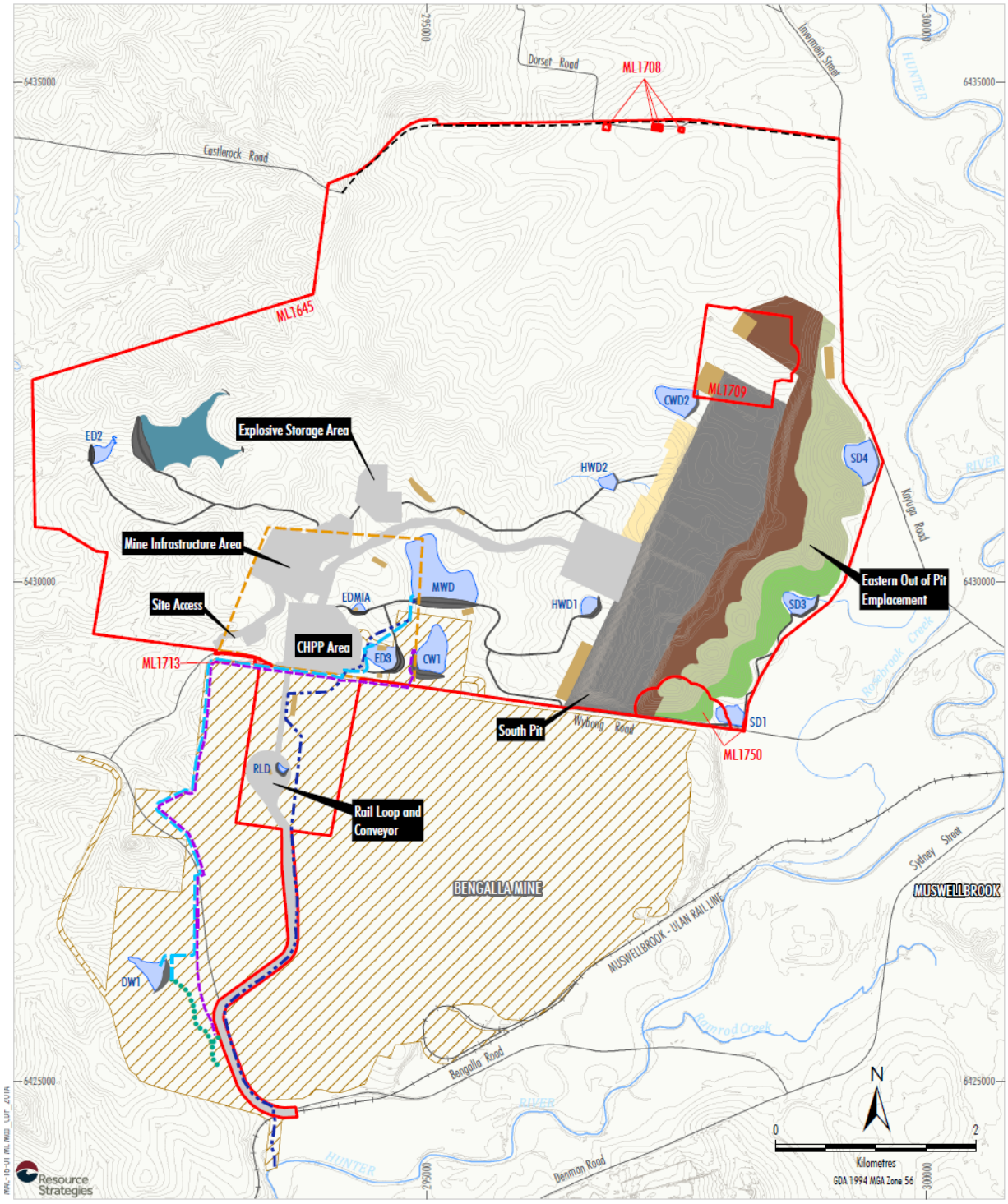
Tenure Type	Lot	Section	Deposited Plan Number
Freehold	90		750926
Crown	90		1215947
Freehold	91		750926
Freehold	92		750926
Freehold	93		750926
Freehold	94		665393
Road	100		1148907
Freehold	100		1177385
Freehold	101		1148907
Freehold	102		1148907
Freehold	103		1148907
Freehold	104		1148907
Freehold	105		1148907
Freehold	106		1148907
Freehold	122		750926
Freehold	123		750926
Freehold	124		750926
Freehold	125		750926
Freehold	126		750926
Freehold	127		750926
Freehold	130		750926
Freehold	131		750926
Freehold	132		558246
Freehold	132		750926
Freehold	133		750926
Freehold	135		750926
Freehold	143		750926
Freehold	144		1120266
Freehold	145		1120266
Freehold	146		750926
Freehold	147		1083411
Freehold	149		750926
Freehold	150		750926
Freehold	151		750926
Freehold	152		750926
Freehold	153		750926
Freehold	154		750926
Freehold	164		635272
Freehold	177		750926
Freehold	181		750926
Freehold	184		750926
Freehold	188		750926
Freehold	189		750926

Tenure Type	Lot	Section	Deposited Plan Number
Freehold	190		750926
Freehold	193		750926
Freehold	195		750926
Freehold	196		750926
Freehold	199		750926
Freehold	200		750926
Freehold	211		750926
Freehold	212		750926
Freehold	213		750926
Freehold	214		750926
Freehold	215		750926
Freehold	216		750926
Freehold	217		750926
Freehold	218		750926
Freehold	219		750926
Freehold	220		750926
Freehold	221		750926
Freehold	224		750926
Freehold	236		750926
Freehold	237		750926
Freehold	238		750926
Freehold	239		750926
Freehold	240		750926
Freehold	241		750926
Freehold	242		750926
Freehold	251		750926
Freehold	253		750926
Freehold	254		750926
Freehold	256		750926
Freehold	258		750926
Freehold	259		750926
Freehold	260		750926
Freehold	261		561919
Freehold	261		750926
Freehold	262		750926
Freehold	263		750926
Freehold	264		750926
Freehold	265		750926
Freehold	268		567444
Freehold	268		750926
Freehold	269		567444
Freehold	269		750926
Freehold	270		750926
Freehold	271		750926
Freehold	272		750926
Freehold	273		750926
Freehold	274		750926
Freehold	275		750926
Freehold	276		750926
Freehold	278		750926
Freehold	279		750926
Freehold	280		750926
Freehold	282		750926
State Rail Authority (Crown)	1031		1164040
Freehold	1453		628493
Crown	7001		93329
Crown	7304		1146786
Freehold	A		174071
Freehold	A		432713
Freehold	B		174071
Freehold	B		432713
Crown Watercourse		Hunter River	
State Rail Authority (Crown)		Muswellbrook Merriwa Railway	
State Rail Authority (Crown)		Railway lands located within, between or adjacent to the above parcels of land	
Muswellbrook Council or Department of Lands (Crown)		Various council and Crown public and unformed roads located within, between or adjacent to the above parcels of land	
Freehold		Any identified or unidentified historical title residues located within, between or adjacent to the above parcels of land	
Crown		Creeks or streams located within, between or adjacent to the above parcels of land	
Crown		Any unidentified Crown land or Crown land historical title residues located within, between or adjacent to the above parcels of land	

Note: The Development Consent Boundary is shown conceptually on the figure below.


N
W
E
S
KAYUGA
DORSET RD
COAL CREEK RD
BELGRAVE RD
KAYUGA RD
CASTLEROCK RD
WYBONG RD
MUSWELLBROOK
ROXBURGH RD
BENGALLA RD
MUSWELLBROOK
MERRIWA RAILWAY
EDINGLASSIE
BALMORAL
CORNER
BENGALLA RD
0
1
2
KILOMETRES
HUNTER RIVER
DENMAN RD
NOTE:
CADASTRAL BOUNDARIES SHOWN AS DESCRIBED BY COMBINATION OF COMPILED & DCDB BOUNDARIES, HAVE NOT BEEN SURVEYED AND ARE APPROXIMATE ONLY.
MACHEnergy
MACH Energy Australia
Mt Pleasant Project
Drawn By: SC
Date: 15/03/18
Layout: A4
Projection: MGA 56
Location: Muswellbrook
Contour: N/A
Version: 01
Development Consent Boundary
THE SITE INCLUDES ALL LAND AND/OR LOTS LISTED IN THE SCHEDULE OF LANDS TABLE TO THE EXTENT THAT SUCH LAND AND/OR LOTS FALL WITHIN AND/OR ARE INTERSECTED BY THE DEVELOPMENT CONSENT BOUNDARY
Worksapce Ref:MACH Mod 3 Consent Lot Correlation 180315.wor
PDF Ref: MACH Mod 3 Consent Lot Correlation 180315.PDF

APPENDIX 2
FIGURE 1 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2021



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Stripping Area
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

MACHEnergy
MOUNT PLEASANT OPERATION

FIGURE 2 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2025

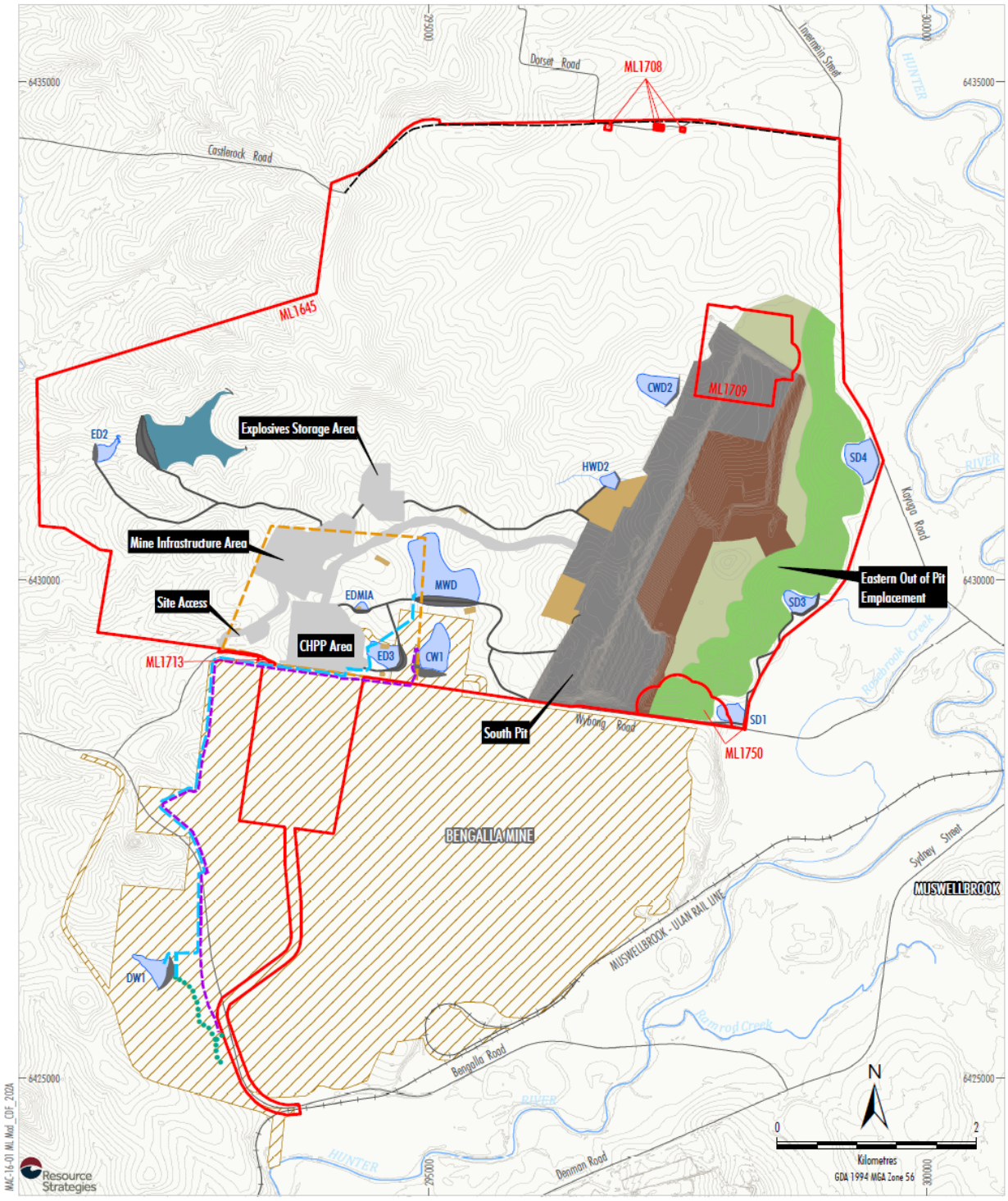
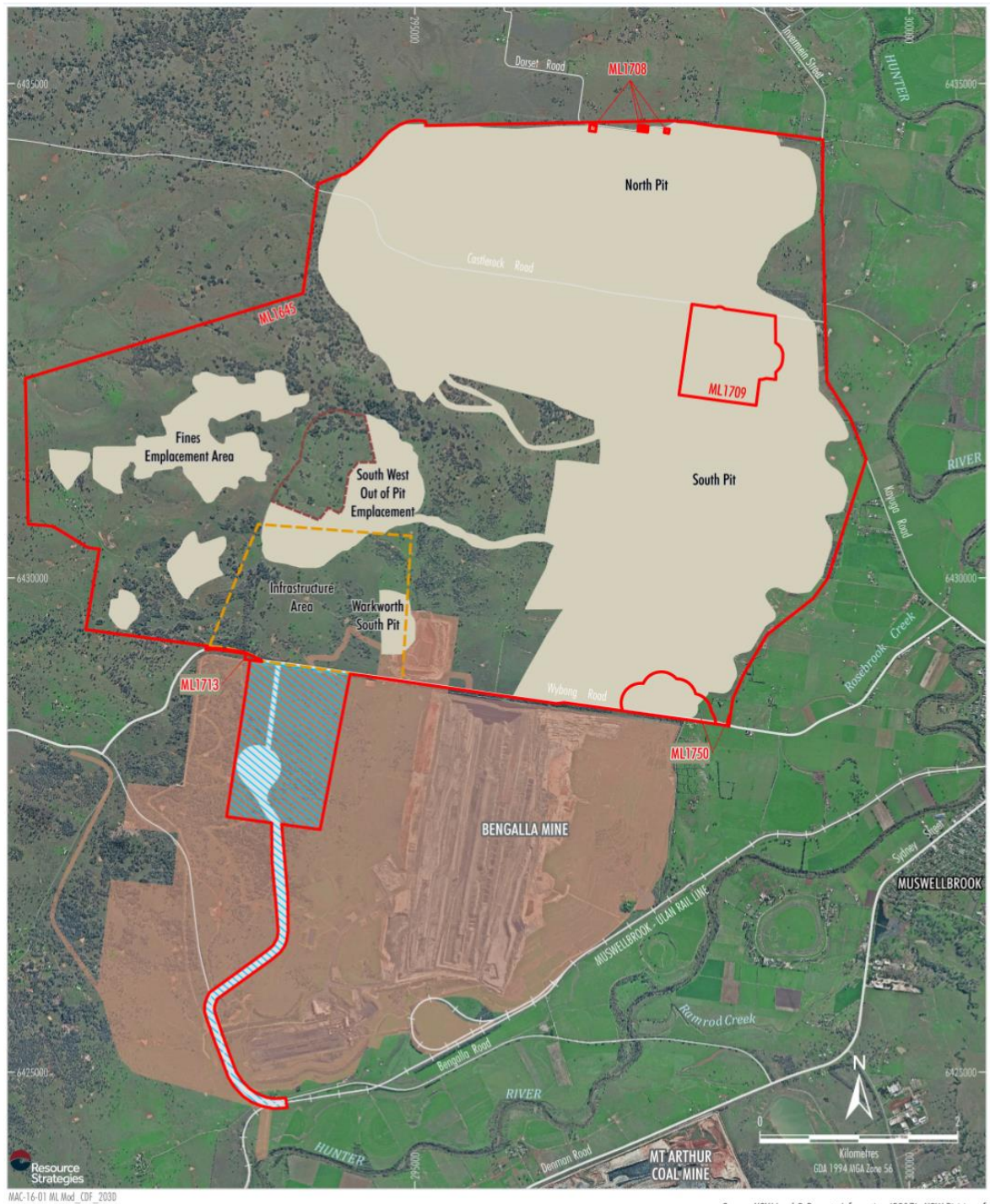


FIGURE 3 - APPROVED SURFACE DISTURBANCE PLAN



LEGEND

- Mining Lease Boundary
- Infrastructure Area Envelope
- Indicative Offsite Coal Transport Infrastructure
- Approximate Extent of Approved Surface Development (1997 EIS Year 20, as modified)*
- Area Relinquished for Overburden Emplacement and Major Infrastructure#
- Infrastructure to be removed under the Terms of Condition 37, Schedule 3
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

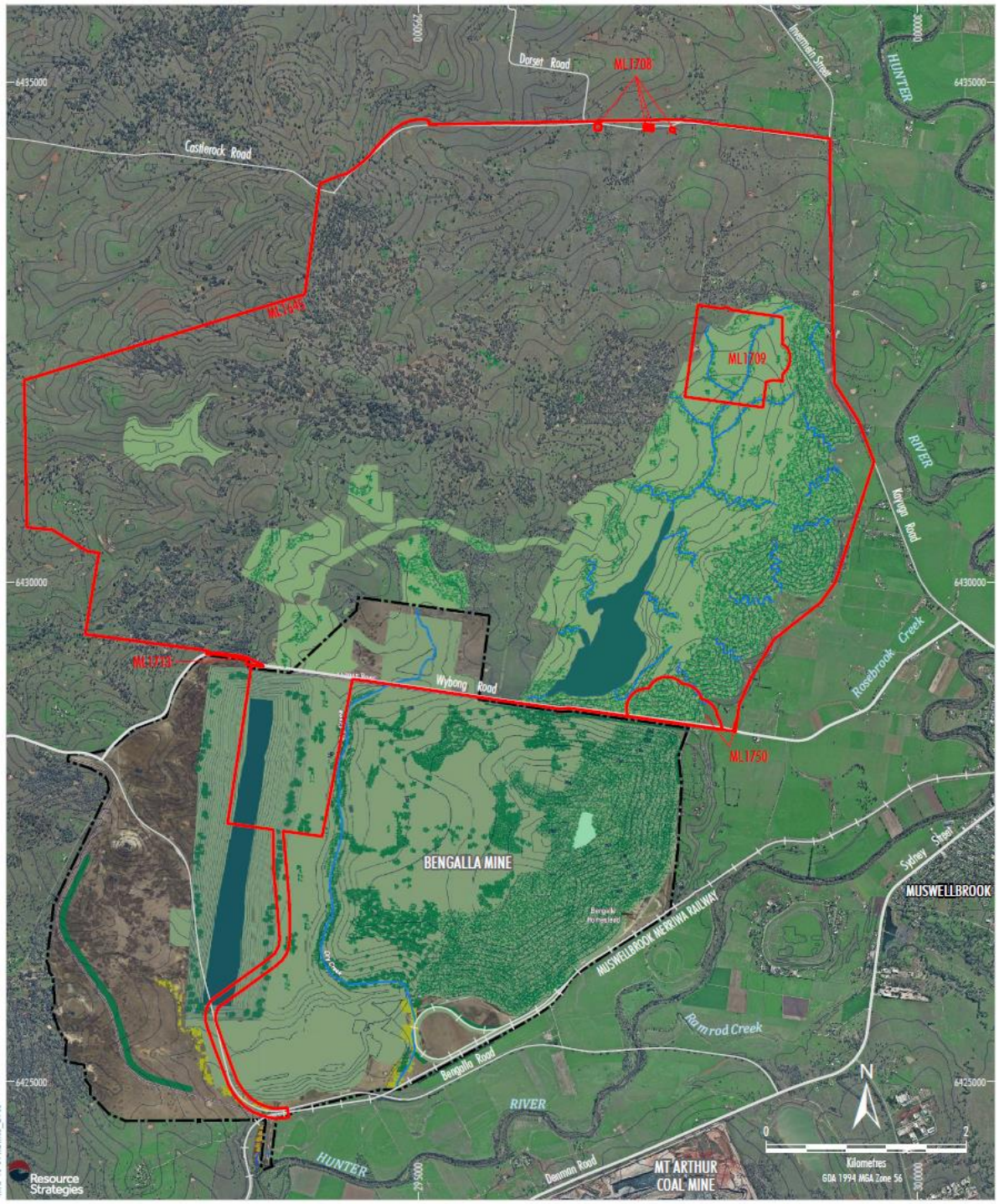
Notes: * Excludes some project components such as water management infrastructure, infrastructure within the Infrastructure Area Envelope, offsite coal transport infrastructure, road diversions, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

\# Relinquishment excludes more flexible and relatively minor infrastructure such as light vehicle roads, disturbance associated with monitoring, water management structures and other ancillary infrastructure.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

MACHEnergy
MOUNT PLEASANT OPERATION

FIGURE 4 - CONCEPTUAL FINAL LANDFORM



LEGEND

- Mt Pleasant Mining Lease Boundary
- Final Void
- Final Rehabilitation

Bengalla Mine Conceptual Final Landform *

- Project Boundary (Appendix 2 of Development Consent SSD-5170) (Dated 23 December 2016)
- Dry Creek
- Final Void Lake
- Rehabilitation
- Rehabilitation Class III
- Indicative Tree Screens (or equivalent)
- Treed Rehabilitation
- Indicative Restorative Area

* Digitised from Appendix 9 of Development Consent (SSD-5170) and amended in the Mount Pleasant Operation CHPP area.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

MACHEnergy
MOUNT PLEASANT OPERATION
Conceptual Final Landform (2026)

Figure 32

APPENDIX 3
STATEMENT OF COMMITMENTS

Environmental aspect	Commitment
Noise and vibration	• A NMP will be prepared in accordance with the development consent. • The NMP will be extended to include management of potential noise emissions associated with the construction of the conveyor. The plan will also consider pro-active and predictive modelling and management, and protocols for managing noise during adverse meteorological conditions. • Noise monitoring will continue to be undertaken in accordance with the development consent. • Implementation of the following feasible and reasonable mitigation measures: – a cover and a shield on the western side of the conveyor at locations where the conveyor would be at ground level. Where the conveyor is elevated, it will be completely enclosed; – plant will operate in less exposed areas during the more sensitive night period; – procurement of new and best available technology plant; – provision of noise suppression on all mobile plant. It anticipated that the noise suppression technology will require an outlay of capital expenditure of between $15M and $20M; and – updating the comprehensive operational noise management plan to include real-time back to base noise monitoring using the best available technology. • The Applicant is committed to working with its communities and extend the opportunity for upfront acquisition upon request to the additional 13 properties affected under adverse conditions.
Ecology	• During the construction phase pre-clearance surveys of relevant forest and woodland areas for threatened flora and fauna species will be undertaken. • Details of the rehabilitation of the infrastructure area and conveyor/service corridor (should this option be pursued) upon decommissioning will be provided in the REMP. • Ecological management for the Mount Pleasant Project will be undertaken in accordance with the existing development consent.
Air quality	• Air quality management for the Mount Pleasant Project will be undertaken in accordance with the Air Quality Management Plan which is a requirement under the existing development consent.
Aboriginal cultural heritage	• Aboriginal cultural heritage management will continue to be undertaken in accordance with relevant Applicant procedures. • Site avoidance will be considered as part of the detailed design process to determine the final location for the siting of the infrastructure within the infrastructure envelope and the alignment of the optional conveyor/service corridor. • Where site avoidance is impossible, cultural heritage management approaches that are set out in the CHMP for the Mount Pleasant Project area will be applied. This will include lodging an application for the relevant AHIPs under section 90 of the NPW Act. • A field inspection of both the infrastructure and conveyor/service corridor envelopes will be conducted with Aboriginal stakeholders to finalise the design, alignment and protective management measures and to identify any unavoidable impacts associated with the proposed modifications. • Aboriginal cultural heritage sites that cannot be avoided will be mitigated by standard salvage collection measures in accordance with the Aboriginal Heritage Management Plan, following the issue of an AHIP (section 90, NPW Act). • The Aboriginal Heritage Management Plan will be revised to include the

Environmental aspect	Commitment
	proposed modifications and any requirements specified by the regulator. • Any mitigation salvage will be staged over time based upon mine operation plan requirements and the zoning regime of the CHMP. • All cultural materials collected will be stored in a storage facility to be established at the Mount Pleasant Project or VCA under an approved Care and Control Permit. • All cultural heritage sites not affected by the proposed development will be managed in situ in accordance with the Aboriginal Heritage Management Plan procedures for long-term protective management and to minimise future development disturbance. • Sites that are assessed as vulnerable to damage due to the proximity to roads and tracks or other operational infrastructure will be appropriately buffered and barricaded in accordance with existing site protection protocols including monitoring protocols.
Visual amenity	• Visual amenity management will be undertaken in accordance with the development consent, which requires the preparation of a Landscape Management Plan. • Lighting management will be undertaken in accordance with the development consent, including preparation of an engineering report regarding light emissions.
Surface water	• Water management for the proposed modifications will be incorporated into the Water Management System for the Mount Pleasant Project. These features will include the design of the catch drain and dam locations required for the final alignment of the optional conveyor/service corridor.
Other environmental aspects	• The final alignment of the optional conveyor/service corridor will be incorporated into the Soil Stripping Plan and the Erosion and Sediment Control Management Plan. • All other aspects will be managed in accordance with Mount Pleasant Project environmental management system, and the relevant environmental licensing and development consent requirements.
Operational Management	• Should the conveyor/service corridor be pursued, a Plan of Management will be prepared in consultation with Bengalla Mine in order to manage activities associated with the facilities at Bengalla Rail Spur. The Plan of Management would include: – details of responsibilities for Bengalla Mine and Mount Pleasant Project; – commitments regarding compliance with relevant and respective development consents; and – details of management protocols to be performed by Bengalla Mine and Mount Pleasant Project ensuring compliance with consent conditions.

(Note: References to abbreviations, tables, sections, figures and appendices are references to the EA MOD 1)

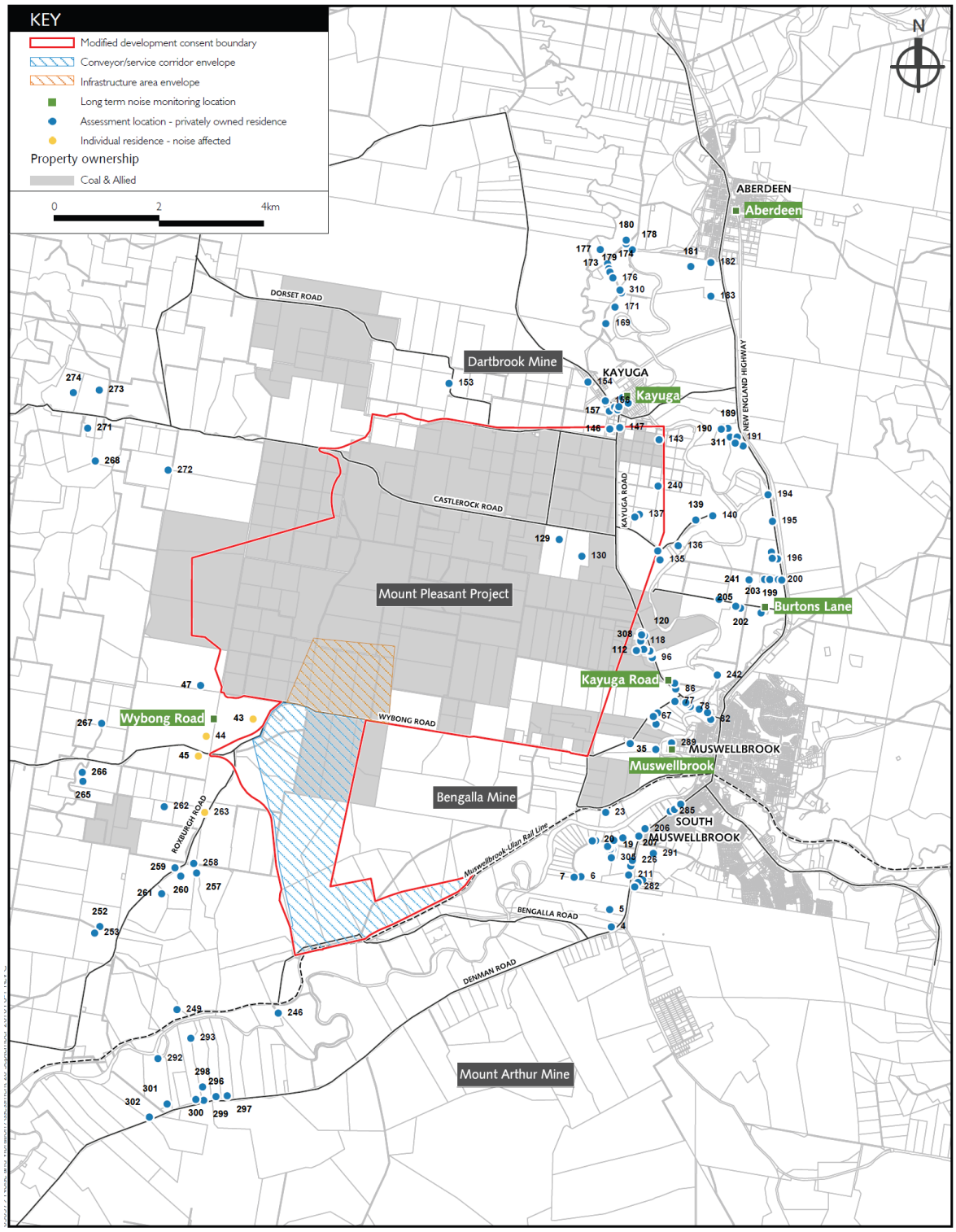
APPENDIX 4
GENERAL TERMS FOR THE PLANNING AGREEMENT

The Applicant undertakes to make the following Development Contributions:

Note: where indicated in the following table CPI will be applied to the payment on each anniversary of the payment with the payment being increased in line with the CPI for the previous 12 month period.

Column 1	Column 2
Item	**Development Contribution**
Proposed Mt Pleasant Community Contribution	$500,000 per annum (indexed annually according to CPI). A community representative committee will be established, including Applicant representatives, to make recommendations to Council regarding these community contributions.
Council Road Maintenance Costs	Costs associated with the maintenance of roads, as reasonably apportioned to the use of the road by Mount Pleasant, up to a maximum annual payment of $220,000 per annum (indexed according to CPI). This contribution will be made for the recurrent road maintenance to be used at Councils discretion for that purpose.
Environmental Officer	The Applicant to make contributions to an Environmental Officer, up to a maximum of $20,000 per annum (indexed annually according to CPI).
Apprenticeships	The Applicant to use its best endeavours to engage 4 apprentices per year for the life of the mine sourced from residents within the Muswellbrook Shire and Aberdeen.

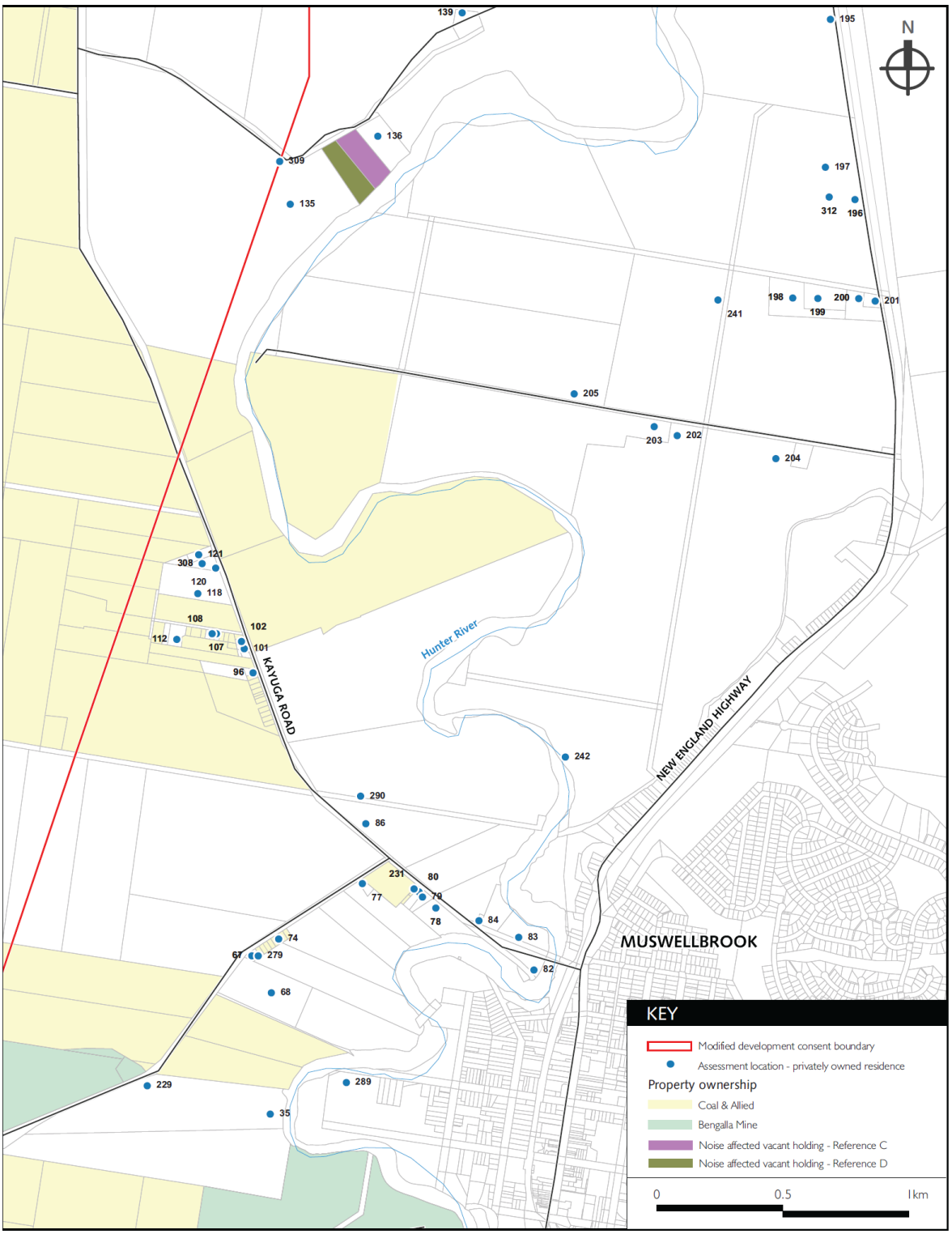
APPENDIX 5
RECEIVER LOCATION PLANS



COAL & ALLIED

Proposed Modifications Noise Assessment and Affected Properties

Mount Pleasant Project Modification

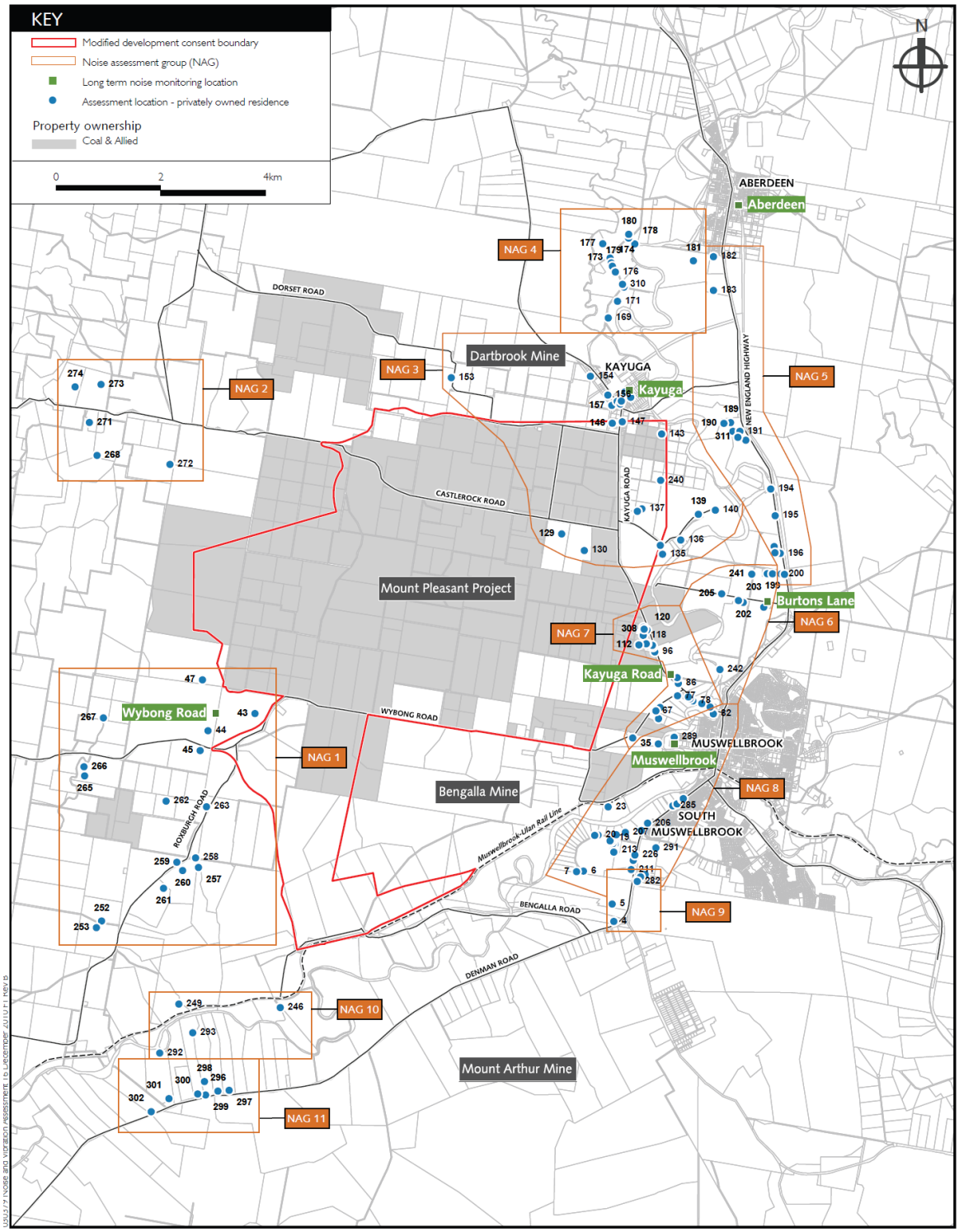


COAL & ALLIED
Managed by Rio Tinto Coal Australia

Property Ownership and Residence Locations - Muswellbrook

Mount Pleasant Project Modification - Vacant Land Noise Assessment

APPENDIX 6
NOISE ASSESSMENT GROUPS

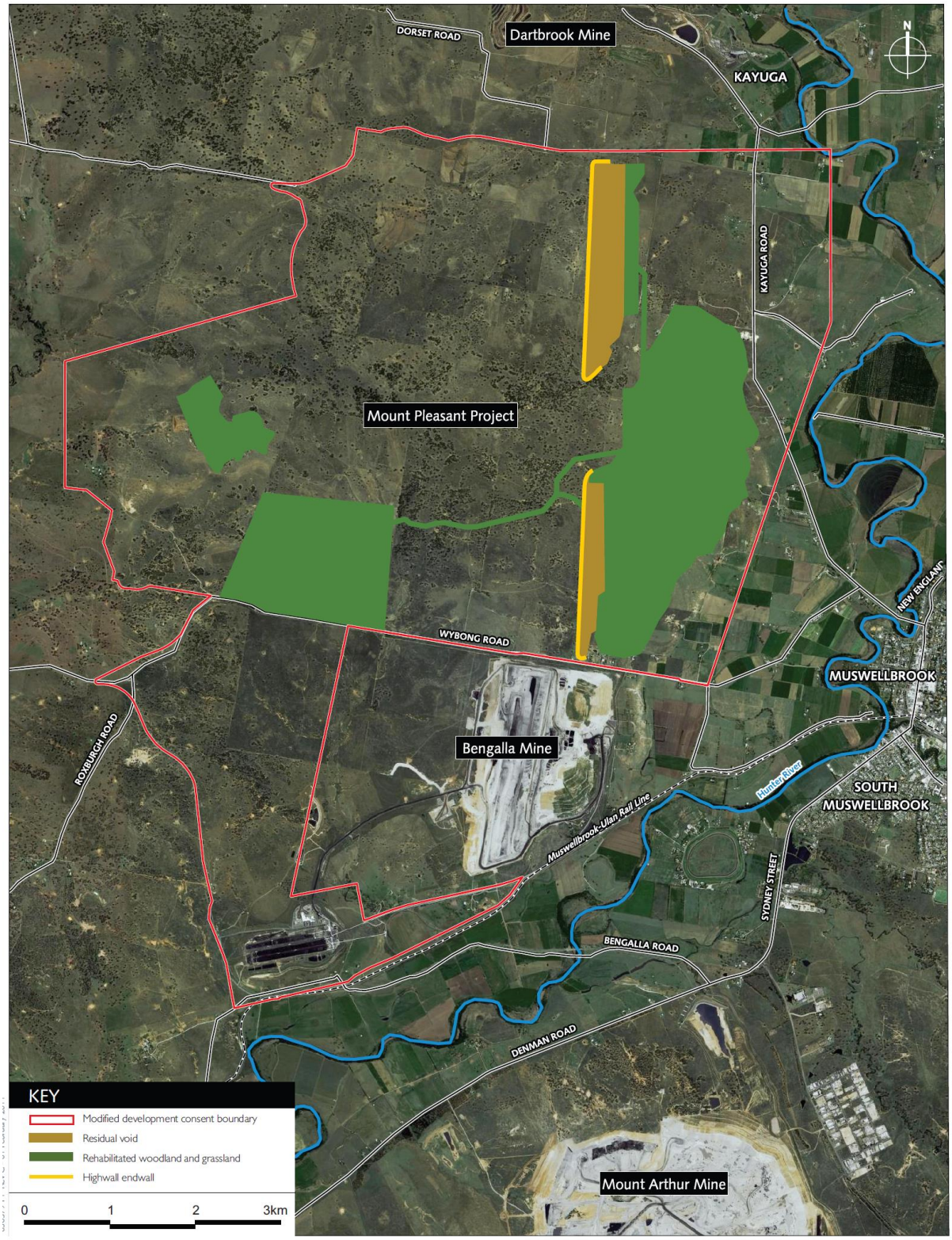


COAL & ALLIED
Managed by Rio Tinto Coal Australia

Noise Assessment Groups

Mount Pleasant Project Modification - Noise and Vibration Assessment

APPENDIX 7
CONCEPTUAL FINAL LANDFORM – YEAR 6



COAL & ALLIED
Managed by Rio Tinto Coal Australia

Indicative Final Landform Year 6 Closure Scenario
Mount Pleasant Project Modification
FIGURE 1

APPENDIX 2

RELEVANT MINING LEASES

Department of Industry
Resources & Energy

Transfer Approval Document

Reference: 16/416

TRANSFER OF MINING LEASE 1645 (ACT 1992)

Pursuant to Section 121(1)(a) of the *Mining Act 1992*, the Minister has approved the transfer of this authority from **COAL & ALLIED OPERATIONS PTY LTD** to **MACH ENERGY AUSTRALIA PTY LTD**.

TERMS OF APPROVAL OF TRANSFER OF AUTHORITY:

The terms of this approval take effect upon the registration of this transfer in accordance with Section 122(4) of the Act.

Transferee: MACH Energy Australia Pty Ltd
ACN 608 495 441

Area: The authority embraces an area of **3982 hectares** as shown on the attached plan Catalogue No **M27367**.

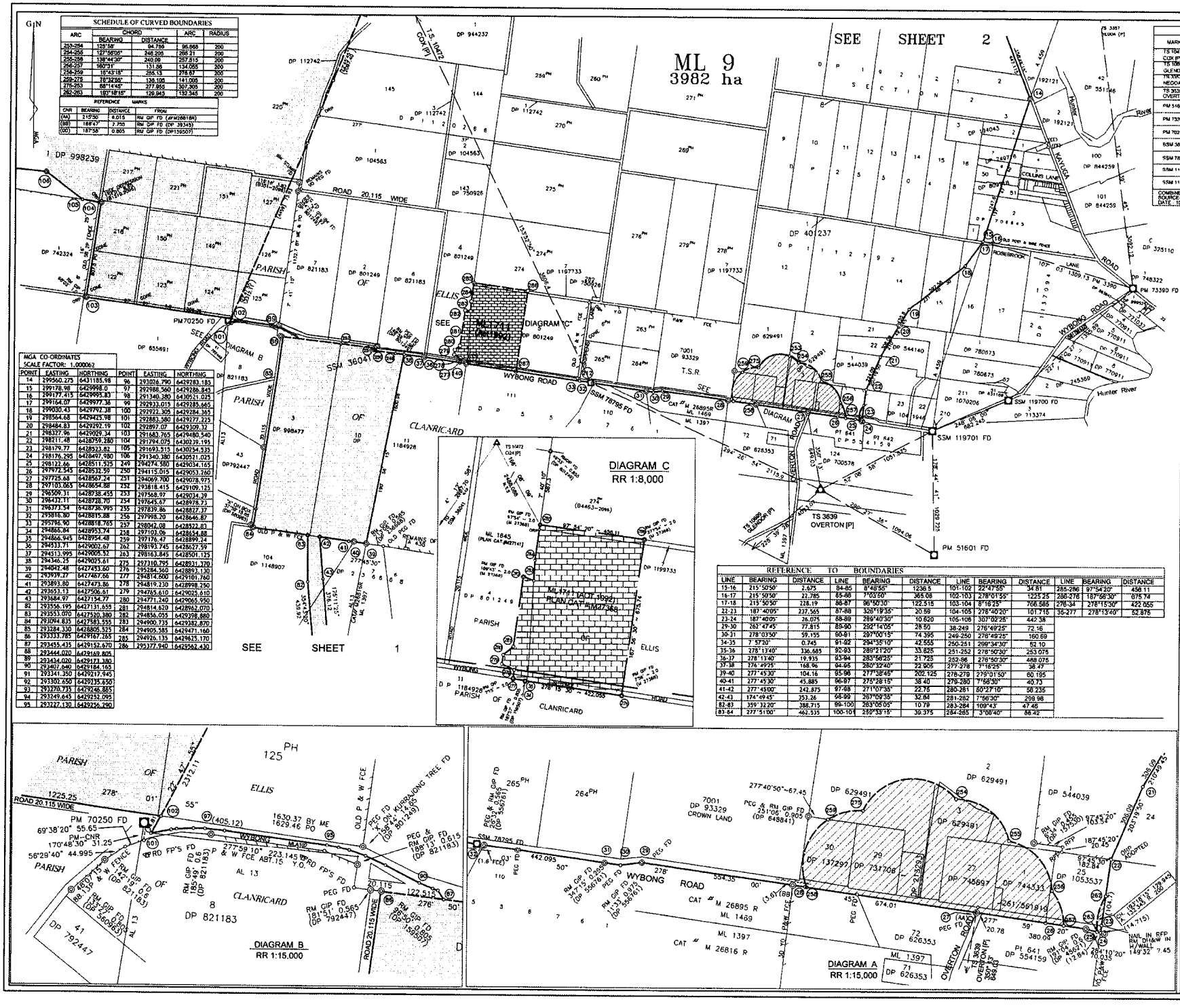
Conditions: The conditions in the attached Schedule of Mining Lease Conditions 2013 herein and numbered 1 – 11 (inclusive).

ACCEPTANCE OF TERMS OF APPROVAL:

SIGNED BY

Anthony Roberts MP
Minister for Industry,
Resources and Energy

MACH Energy Australia Pty Ltd
(ACN 608 495 441)



SCHEDULE OF CURVED BOUNDARIES

ARC	CHORD BEARING	CHORD DISTANCE	ARC	RADIUS
253-254	129°55"	84.756	86.966	200
254-255	127°56'05"	248.205	266.21	200
255-256	138°44'36"	240.09	257.515	200
256-257	160°31"	131.56	134.055	200
258-259	16°43'16"	265.13	276.67	200
259-275	76°39'55"	138.106	141.006	200
275-253	88°14'45"	277.955	307.305	200
262-263	193°18'15"	129.945	132.345	200

REFERENCE MARKS			
CNR	BEARING	DISTANCE	FROM
(AA)	215°30"	8.015	RM GIP FD (SPM26818A)
(BB)	188°47"	2.755	RM GIP FD (DP 39345)
(CC)	187°58"	0.805	RM GIP FD (DP159507)

MGA CO-ORDINATES
SCALE FACTOR: 1.000062

POINT	EASTING	NORTHING	POINT	EASTING	NORTHING
14	299560.275	6431185.98	96	293026.790	6429283.185
15	299178.98	6429998.0	97	292988.560	6429286.845
16	299177.415	6429999.83	98	291340.380	6430521.025
17	299164.07	6429977.36	99	292933.015	6429285.665
18	299030.43	6429792.38	100	292922.305	6429284.365
19	298564.68	6429425.98	101	292883.580	6429277.225
20	298484.83	6429292.19	102	292867.07	6429309.32
21	298327.96	6429029.34	103	291583.765	6429480.540
22	298211.48	6428759.280	104	291784.075	6430219.195
23	298179.77	6428523.82	105	291693.515	6430254.535
24	298176.295	6428497.980	106	291340.380	6430521.025
25	298122.66	6428511.525	249	294274.580	6429034.165
26	297972.545	6428532.59	250	294115.015	6429053.760
27	297725.68	6428567.24	251	294069.700	6429078.975
28	297103.065	6428654.88	252	293818.415	6429109.125
29	296509.31	6428738.453	253	297568.97	6429034.39
30	296437.11	6428728.70	254	297645.67	6428978.73
31	296373.54	6428736.995	255	297839.86	6428827.37
32	295816.80	6428815.88	256	297998.20	6428646.87
33	295796.90	6428858.765	257	298042.08	6428522.83
34	294866.84	6428953.74	258	297103.06	6428654.88
35	294866.945	6428954.48	259	297176.47	6428899.24
36	294833.71	6429002.67	262	298193.745	6428627.59
37	294513.995	6429008.52	263	298163.845	6428501.125
38	294346.25	6429025.61	275	297310.795	6428931.370
39	294042.48	6427453.60	276	295284.560	6428893.130
40	293939.27	6427467.06	277	294814.660	6429101.760
41	293893.80	6427494.86	278	294819.230	6428998.250
42	293653.13	6427506.61	279	294765.610	6429020.610
43	293684.97	6427134.77	280	294771.240	6429065.950
82	293556.195	6427131.655	281	294814.620	6428962.070
83	293553.070	6427520.380	282	294856.055	6429398.880
84	293094.835	6427583.555	283	294900.725	6429382.870
85	293284.330	6428805.525	284	294905.585	6429471.160
86	293333.785	6429167.265	285	294926.135	6429625.170
87	293455.435	6429152.670	286	295377.940	6429562.430
88	293444.020	6429169.805			
89	293434.020	6429173.380			
90	293407.640	6429184.165			
91	293341.350	6429217.945			
92	293302.650	6429235.650			
93	293270.735	6429246.865			
94	293249.645	6429252.095			
95	293227.130	6429256.290			

REFERENCE TO BOUNDARIES

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
15-16	215°50'50"	2.675	84-85	8°48'55"	1236.5	101-102	22°47'55"	34.81	255-256	97°54'20"	456.11
16-17	215°50'50"	22.785	85-86	7°03'50"	365.08	102-103	278°01'55"	1225.25	256-278	187°58'30"	675.74
17-18	215°50'50"	228.19	86-87	96°50'30"	1322.515	103-104	8°16'25"	756.585	276-34	278°15'30"	422.555
22-23	187°40'05"	237.565	87-88	328°19'35"	20.69	104-105	276°40'20"	101.715	35-277	278°13'40"	52.875
23-24	187°40'05"	26.075	88-89	289°40'30"	10.820	105-106	307°02'25"	442.38			
29-30	262°47'45"	77.815	89-90	292°14'05"	28.50	38-249	276°49'25"	72.16			
30-31	278°03'50"	59.155	90-91	297°00'15"	74.395	249-250	276°49'25"	160.69			
34-35	7°57'20"	0.745	91-92	294°35'10"	42.555	250-251	299°34'30"	62.10			
35-36	278°13'40"	336.685	92-93	289°21'20"	33.625	251-252	278°50'20"	253.075			
36-37	278°11'40"	19.935	93-94	283°56'25"	21.725	252-86	276°50'30"	469.075			
37-38	276°49'25"	168.96	94-95	280°32'40"	22.905	277-278	7°16'25"	38.47			
39-40	277°45'30"	104.16	95-96	277°38'45"	202.125	278-279	279°01'50"	60.195			
40-41	277°45'30"	45.885	96-97	275°26'15"	38.40	279-280	7°58'30"	40.75			
41-42	277°45'00"	242.875	97-98	271°07'35"	22.75	280-281	80°27'10"	59.235			
42-43	174°49'45"	253.26	98-99	267°09'35"	32.84	281-282	7°56'30"	299.98			
82-83	359°32'20"	388.715	99-100	263°05'05"	10.79	283-284	109°43'	47.48			
83-84	277°51'00"	462.535	100-101	259°33'15"	39.375	284-285	3°08'40"	88.42			

SURVEYING REGULATIONS 2006 CLAUSE 33(1)(b) and (3) AUSE 61(2)

MARK	MGA CO-ORDINATES EASTING	MGA CO-ORDINATES NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
TS 10472 COX [P]	294321.914	6432041.745	56	B	2	From SCIMS	SCIMS
TS 10606 GLENDOR [P]	294762.786	6426223.784	56	B	2	From SCIMS	SCIMS
TS 3357 NEGOA [P]	300038.979	6432671.200	56	2A	0	From SCIMS	SCIMS
TS 3639 OVERTON [P]	297835.972	6427927.856	56	2A	0	From SCIMS	SCIMS
PM 51601	296788.849	6427389.550	56	B	2	From SCIMS	SCIMS
PM 73390	300430.661	6429614.130	56	C	3	From SCIMS	SCIMS
PM 70250	292873.223	6429256.323	56	C	N/A	RTK GPS	FOUND
SSM 36041	294107.245	6429061.944	56	C	N/A	RTK GPS	FOUND
SSM 78795	295909.878	6428803.415	56	C	N/A	RTK GPS	FOUND
SSM 119700	299309.120	6428673.865	56	C	N/A	RTK GPS	FOUND
SSM 119701	296788.068	6428419.080	56	C	N/A	RTK GPS	FOUND

COMBINED SCALE FACTOR 1.00062 (AVERAGE ADOPTED OVERSITE)
SOURCE: MGA COORDINATES TAKEN FROM SCIMS
DATE: 10th JULY 2015

PLAN OF PORTION ML 9

PARISH: ELLIS & CLANRICARD

COUNTY: BRISBANE

MAP SHEET No. 9033-1-S & 9033-2-N

REDUCTION RATIO 1: 20,000

TITLE CODE: ML

TITLE NO: 1645 ACT: 1992

HOLDER:
COAL & ALLIED OPERATIONS PTY LTD

GRANT DATE: 17-12-2010

STATUS:

METHOD: OPEN CUT

SURFACE EXCEPTION / DEPTH RESTRICTION

- Embraces the strata between a depth of 15 metres below the surface to a depth of 900 metres below Australian Height Datum (AHD).
- Embraces the surface and soil below thereof to a depth of 40 metres
- Embraces the surface and soil below thereof to a depth of 900 metres below AHD.
- Embraces the strata between a depth of 15 metres below the surface to a depth of 900 metres below the surface.
- Embraces the strata between a depth of 40 metres below the surface to a depth of 900 metres below AHD

NOTES:

LEASE PART TRANSFERRED TO ML 1711

THIS PLAN SUPERSEDES: M27095

Azimuth: TS 10472 COX[P] - TS 3357 NEGOA [P]

Plans used in the course of this survey/compilation
"SEE TABLE HEREIN"

Survey declared on this plan for lines
THE WHOLE

SHEET 3 OF 3

I **ROSS ANDREW PEASLEY**
of MUSWELLBROOK NSW 2333
a Surveyor Registered under the Surveying and Spatial Information Act 2002, hereby certify that the survey /compilation represented in this plan is accurate and has been completed in accordance with the Surveying and Spatial Information Regulation 2012 and the Surveyor General's Direction for Mining Surveys and was completed on 10TH JULY 2015

Signature : Ross Peasley

BOSSI Identification No : 162

Survey Calcs : .....

Plan Investigated : 13-08-2015

Plan Approved : 13.08.2015

Paper No : 15/1026

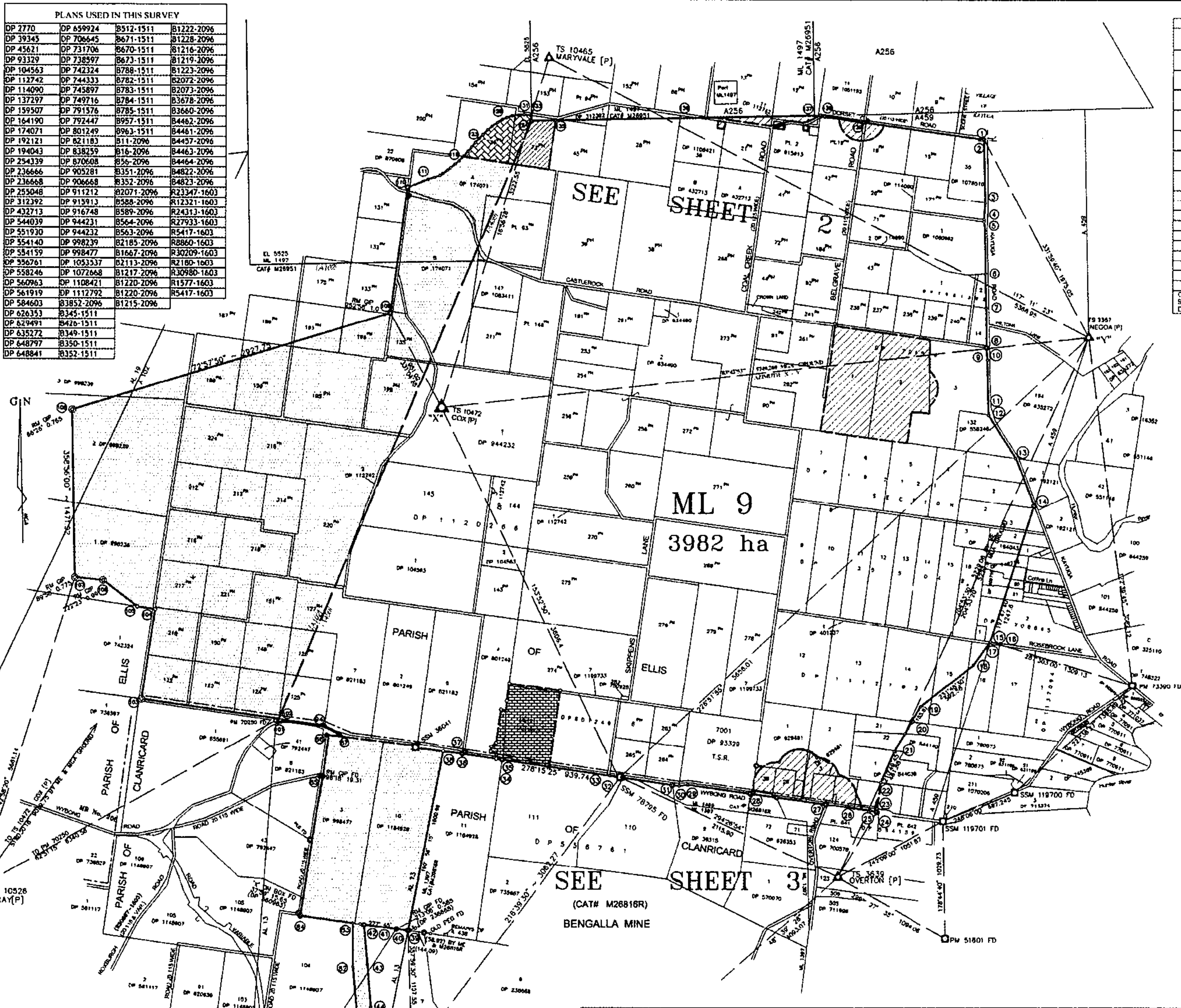
R 17009200
D 110097230

FORM 10

M27367

SCHEDULE OF MGA CO-ORDINATES SCALE FACTOR: 1.000062 ZONE:- 56 [VIDE #M27095]					
POINT	EASTING	NORTHING	POINT	EASTING	NORTHING
1	299109.53	6434415.09	91	293341.350	6429217.945
2	299110.40	6434394.95	92	293302.650	6429235.650
3	299121.505	6433857.085	93	293270.735	6429246.865
4	299115.355	6433709.13	94	293249.645	6429252.095
5	299115.83	6433688.77	95	293227.130	6429256.290
6	299126.46	6433230.105	96	293026.790	6429283.185
7	299134.18	6432931.345	97	292988.560	6429286.845
8	299136.44	6432598.705	98	292965.815	6429287.290
9	299136.675	6432578.305	99	292933.015	6429285.665
10	299144.295	6432469.59	100	292922.305	6429284.365
11	299156.715	6431987.475	101	292883.580	6429277.225
12	299156.765	6431985.485	102	292897.07	6429309.32
13	299398.725	6431602.92	103	291683.765	6429480.540
14	299560.275	6431185.98	104	291794.075	6430239.195
15	299178.98	6429998.0	105	291693.515	6430254.535
16	299177.415	6429995.83	106	291340.380	6430521.025
17	299164.07	6429977.36	107	291089.850	6430544.635
18	299030.43	6429792.38	108	291062.430	6432016.390
19	298564.68	6429425.98	109	293861.895	6432874.170
20	298484.83	6429292.19	110	294014.110	6433981.270
21	298327.96	6429029.34	111	294194.935	6434054.00
22	298211.48	6428759.280	112	294250.485	6434072.040
23	298179.77	6428523.82	113	294299.450	6434087.940
24	298176.295	6428497.980	114	294325.650	6434106.125
25	298122.66	6428511.525	115	294366.965	6434134.795
26	297972.545	6428532.59	116	294395.575	6434157.095
27	297725.68	6428567.24	117	294435.31	6434188.07
28	297103.065	6428654.88	118	294466.76	6434216.64
29	296509.31	6428738.455	119	294514.52	6434262.55
30	296432.11	6428728.70	120	294580.075	6434338.175
31	296373.54	6428736.995	121	294613.14	6434376.80
32	295816.80	6428815.88	122	294645.475	6434414.57
33	295796.90	6428818.765	123	294679.64	6434450.03
34	294866.84	6428953.74	124	294723.435	6434493.86
35	294866.945	6428954.48	125	294760.685	6434526.10
36	294533.71	6429002.67	126	294810.08	6434557.44
37	294513.995	6429005.52	127	294851.465	6434583.70
38	294346.25	6429025.61	128	294890.485	6434598.715
39	294042.48	6427453.60	129	294935.865	6434616.185
40	293939.27	6427467.66	130	294992.135	6434621.405
41	293893.80	6427473.86	131	295040.795	6434625.925
42	293653.13	6427506.61	132	295103.435	6434617.475
43	293684.97	6427154.77	133	295107.405	6434616.940
44	293716.51	6426779.95	134	295108.295	6434573.400
45	293718.185	6426427.145	135	295322.525	6434577.695
46	293704.03	6426328.14	136	296419.010	6434599.690
47	293684.85	6426275.32	137	297606.22	6434623.52
48	293644.675	6426216.75	138	297698.94	6434613.75
49	293560.785	6426144.665	139	298042.48	6434565.83
50	293000.975	6425740.110			
51	292974.795	6425668.27			
52	292973.085	6425625.57			
53	292991.97	6425563.795			
54	293070.140	6425342.955			
55	293123.21	6425192.16			
56	293194.99	6425001.32			
57	293252.365	6424915.53			
58	293327.510	6424834.345			
59	293400.095	6424785.33			
60	293497.830	6424745.585			
61	293581.145	6424731.505			
62	293694.375	6424739.75			
63	293710.09	6424640.97			
64	293572.92	6424631.46			
65	293452.47	6424657.205			
66	293352.765	6424696.610			
67	293261.955	6424757.925			
68	293172.440	6424854.645			
69	293114.470	6424948.080			
70	293036.230	6425157.465			
71	292976.485	6425307.785			
72	292896.960	6425532.470			
73	292872.465	6425612.585			
74	292875.385	6425685.485			
75	292894.205	6425745.700			
76	292921.990	6425804.600			
77	293499.445	6426223.735			
78	293569.255	6426283.620			
79	293608.295	6426357.530			
80	293618.120	6426428.845			
81	293596.665	6426693.570			
82	293556.195	6427131.655			
83	293553.070	6427520.380			
84	293094.835	6427583.555			
85	293284.330	6428805.525			
86	293333.785	6429167.265			
87	293455.435	6429152.670			
88	293444.020	6429169.805			
89	293434.020	6429173.380			
90	293407.640	6429184.165			

PLANS USED IN THIS SURVEY			
DP 2770	DP 659924	B512-1511	B1222-2096
DP 39345	DP 706645	B671-1511	B1228-2096
DP 45621	DP 731706	B670-1511	B1216-2096
DP 93329	DP 738597	B673-1511	B1219-2096
DP 104563	DP 742324	B788-1511	B1223-2096
DP 112742	DP 744333	B782-1511	B2072-2096
DP 114090	DP 745897	B783-1511	B2073-2096
DP 137297	DP 749716	B784-1511	B3678-2096
DP 159507	DP 791576	B785-1511	B3660-2096
DP 164190	DP 792447	B957-1511	B4462-2096
DP 174071	DP 801249	B963-1511	B4461-2096
DP 192121	DP 821183	B11-2096	B4457-2096
DP 194043	DP 838259	B16-2096	B4463-2096
DP 254339	DP 870608	B56-2096	B4464-2096
DP 236666	DP 905281	B351-2096	B4822-2096
DP 236668	DP 906668	B352-2096	B4823-2096
DP 255048	DP 911212	B2071-2096	R23347-1603
DP 312392	DP 915913	B588-2096	R12321-1603
DP 432713	DP 916748	B589-2096	R24313-1603
DP 544039	DP 944231	B564-2096	R27933-1603
DP 551930	DP 944232	B563-2096	R5417-1603
DP 554140	DP 998239	B2185-2096	R8860-1603
DP 554159	DP 998477	B1667-2096	R30209-1603
DP 556761	DP 1053537	B2113-2096	R2180-1603
DP 558246	DP 1072668	B1217-2096	R30980-1603
DP 560963	DP 1108421	B1220-2096	R1577-1603
DP 561919	DP 1112792	B1220-2096	R5417-1603
DP 584603	B3852-2096	B1215-2096	
DP 626353	B345-1511		
DP 629491	B426-1511		
DP 635272	B349-1511		
DP 648797	B350-1511		
DP 648841	B352-1511		



SURVEYING REGULATIONS 2006 CLAUSE 35(1)(b) and CLAUSE 61(2)							
MARK	MGA CO-ORDINATES EASTING	NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
TS 10526 BRAY [P]	287230.730	6426402.173	56	B	2	FROM SCIMS	SCIMS
TS 10695 CLANRICARD [P]	293180.866	6423893.081	56	B	2	FROM SCIMS	SCIMS
TS 10472 COX [P]	294321.914	6432041.746	56	B	2	FROM SCIMS	SCIMS
TS 10699 GLENDOR [P]	294762.788	6426223.784	56	B	2	FROM SCIMS	SCIMS
TS 10465 MARYVALE [P]	295261.003	6435124.627	56	B	2	FROM SCIMS	SCIMS
TS 3357 NEGOA [P]	300036.979	6432671.208	56	2A	0	FROM SCIMS	SCIMS
TS 3639 OVERTON [P]	297835.972	6427927.650	56	2A	0	FROM SCIMS	SCIMS
PM 51567	293470.386	6424628.602	56	B	2	FROM SCIMS	SCIMS
PM 51588	290912.104	6424743.222	56	B	2	FROM SCIMS	SCIMS
PM 51601	298786.649	6427389.558	56	B	2	FROM SCIMS	SCIMS
PM 70250	292873.223	6429295.323	56	C	N/A	RTK GPS	FOUND
SSM 36027	294081.284	6426346.662	56	C	N/A	RTK GPS	FOUND
SSM 36041	294102.245	6429061.944	56	C	N/A	RTK GPS	FOUND
SSM 78795	295909.678	6428803.415	56	C	N/A	RTK GPS	FOUND
SSM 119700	299099.120	6428673.565	56	C	N/A	RTK GPS	FOUND
SSM 119701	298766.068	6428419.060	56	C	N/A	RTK GPS	FOUND
SSM 73390	300430.881	6429814.130	56	C	3	FROM SCIMS	SCIMS

COMBINED SCALE FACTOR:- 1.000062
SOURCE:- MGA COORDINATES TAKEN FROM SCIMS
DATE:- 8th JUNE 2010

PLAN OF PORTION ML 9

PARISH: ELLIS & CLANRICARD

COUNTY: BRISBANE

MAP SHEET No. 9033-1-S & 9033-2-N

REDUCTION RATIO 1: 20,000

TITLE CODE: ML

TITLE NO: 1645 ACT: 1992

HOLDER:
COAL & ALLIED OPERATIONS PTY LTD

GRANT DATE: 17-12-2010

STATUS:

METHOD: OPEN CUT

SURFACE EXCEPTION / DEPTH RESTRICTION

- Embraces the strata between a depth of 15 metres below the surface to a depth of 900 metres below Australian Height Datum (AHD).
- Embraces the surface and soil below thereof to a depth of 40 metres
- Embraces the surface and soil below thereof to a depth of 900 metres below AHD.
- Embraces the strata between a depth of 15 metres below the surface to a depth of 40 metres below the surface.
- Embraces the strata between a depth of 40 metres below the surface to a depth of 900 metres below AHD

NOTES:

LEASE PART TRANSFERRED TO ML 1711

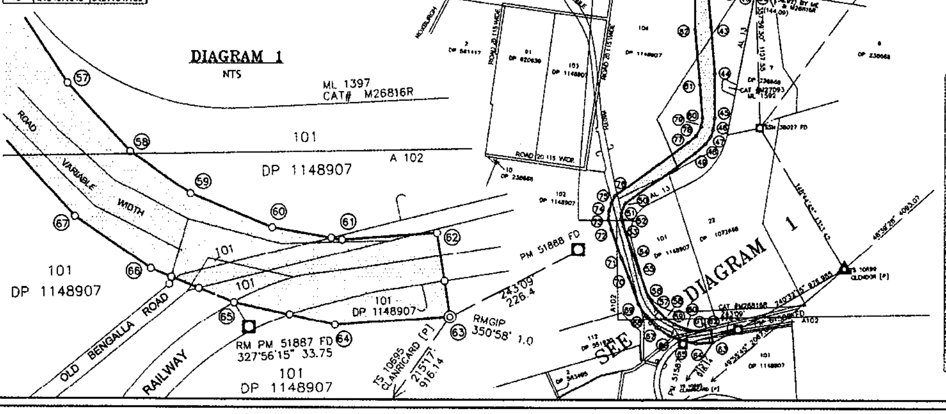
THIS PLAN SUPERSEDES: M27095

Azimuth: TS 10472 COX[P] - TS 3357 NEGOA [P]

Plans used in the course of this survey/compilation
"SEE TABLE HEREIN"

Survey declared on this plan for lines
THE WHOLE

SHEET 1 OF 3



REFERENCE TO BOUNDARIES														
LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
1–2	177°33'00"	20.155	32–33	278°15'25"	20.11	63–64	266°01'55"	137.49	92–93	289°21'20"	33.825	121–122	40°33'55"	49.715
2–3	178°49'00"	537.95	34–35	7°57'20"	0.745	64–65	282°03'55"	123.16	93–94	283°56'25"	21.725	122–123	43°56'00"	49.245
3–4	182°22'50"	148.075	35–36	278°13'40"	336.68	65–66	291°33'50"	107.205	94–95	280°32'40"	22.905	123–124	44°58'30"	61.955
4–5	178°40'00"	20.365	36–37	278°13'40"	19.925	66–67	304°01'45"	109.565	95–96	277°38'45"	202.125	124–125	49°07'40"	49.265
5–6	178°40'20"	458.76	37–38	276°49'25"	168.945	67–68	317°12'50"	131.775	96–97	275°28'15"	36.40	125–126	57°36'15"	58.495
6–7	178°31'10"	298.84	39–40	277°45'30"	104.18	68–69	328°11'00"	109.950	97–98	271°07'35"	22.75	126–127	57°36'15"	49.015
7–8	179°36'40"	332.625	40–41	277°45'30"	45.885	69–70	339°30'40"	223.515	98–99	267°09'35"	32.84	127–128	66°57'05"	41.805
8–9	179°20'00"	20.40	41–42	277°45'00"	242.875	70–71	338°19'30"	161.745	99–100	263°05'05"	10.79	128–129	68°57'00"	48.625
9–10	175°59'25"	108.975	42–43	174°49'45"	353.26	71–72	340°30'35"	238.330	100–101	259°33'15"	39.375	129–130	84°41'50"	58.51
10–11	178°31'25"	482.245	43–44	175°11'25"	376.12	72–73	342°59'50"	83.770	101–102	22°47'55"	34.81	130–131	84°41'50"	48.865
11–12	178°31'25"	1.99	44–45	179°43'40"	352.785	73–74	2°17'45"	72.955	102–103	278°01'55"	1225.25	131–132	97°40'50"	63.20
12–13	147°41'15"	452.63	45–46	188°08'15"	100.005	74–75	17°21'10"	63.080	103–104	8°16'25"	766.585	132–133	97°40'50"	4.005
13–14	158°49'15"	447.11	46–47	199°57'15"	56.19	75–76	25°15'15"	65.125	104–105	278°40'20"	101.715	133–134	179°49'50"	43.545
15–16	215°50'50"	2.675	47–48	214°26'55"	71.025	76–77	54°01'35"	713.490	105–106	307°02'25"	442.38	134–135	88°51'05"	214.26
16–17	215°50'50"	22.785	48–49	229°19'40"	110.60	77–78	49°22'40"	91.970	106–107	275°23'00"	251.625	135–136	88°51'05"	1096.64
17–18	215°50'50"	228.19	49–50	234°08'50"	690.64	78–79	27°50'30"	83.580	107–108	358°58'00"	1471.92	136–137	88°51'05"	1187.37
19–20	210°49'45"	155.8	50–51	200°01'15"	76.460	79–80	7°50'40"	71.985	108–109	72°57'50"	2927.75	137–138	95°59'55"	93.235
20–21	210°49'45"	306.09	51–52	182°17'45"	42.73	80–81	355°22'00"	265.575	109–110	7°49'45"	1117.44	138–139	97°56'30"	346.845
21–22	203°19'50"	294.09	52–53	162°59'50"	64.59	81–82	354°43'20"	439.920	110–111	68°05'25"	194.89	139–1	98°02'25"	1077.58
22–23	187°40'05"	237.565	53–54	160°30'20"	234.25	82–83	359°32'20"	388.715	111–112	72°00'20"	58.40			
23–24	187°40'05"	26.07	54–55	160°36'40"	159.845	83–84	277°51'00"	462.535	112–113	72°00'20"	51.48			
24–25	284°10'20"	55.315	55–56	159°23'10"	203.885	84–85	8°48'55"	1236.5	113–114	55°14'35"	31.89			
25–26	277°59'20"	151.575	56–57	146°13'35"	103.20	85–86	7°47'05"	365.08	114–115	55°14'35"	50.285			
26–27	277°59'20"	249.27	57–58	137°12'50"	110.815	86–87	96°50'30"	122.515	115–116	52°03'45"	36.27			
27–28	278°00'45"	673.97	58–59	124°01'45"	87.580	87–88	326°19'35"	20.59	116–117	52°03'50"	50.38			
28–29	278°00'45"	554.315	59–60	112°07'50"	105.500	88–89	289°40'30"	10.620	117–118	47°44'45"	42.485			
29–30	262°47'45"	77.815	60–61	99°35'30"	84.495	89–90	292°14'05"	28.50	118–119	48°07'50"	66.25			
30–31	278°03'50"	59.155	61–62	85°50'10"	113.52	90–91	297°00'15"	74.395	119–120	40°55'10"	100.075			
31–32	278°03'50"	562.27	62–63	170°57'40"	100.01	91–92	294°35'10"	42.555	120–121	40°34'05"	50.845			

NOTE: (1) ALL DISTANCES SHOWN HEREIN ARE GROUND DISTANCES
(2) GPS OBSERVATIONS HAVE BEEN USED FOR PART OF THE SURVEY SHOWN HEREON

I ROSS ANDREW PEASLEY
of MUSWELLBROOK NSW 2333
a Surveyor Registered under the Surveying and Spatial Information Act 2002, hereby certify that the survey /compilation represented in this plan is accurate and has been completed in accordance with the Surveying and Spatial Information Regulation 2012 and the Surveyor General's Direction for Mining Surveys and was completed on 10TH JULY 2015

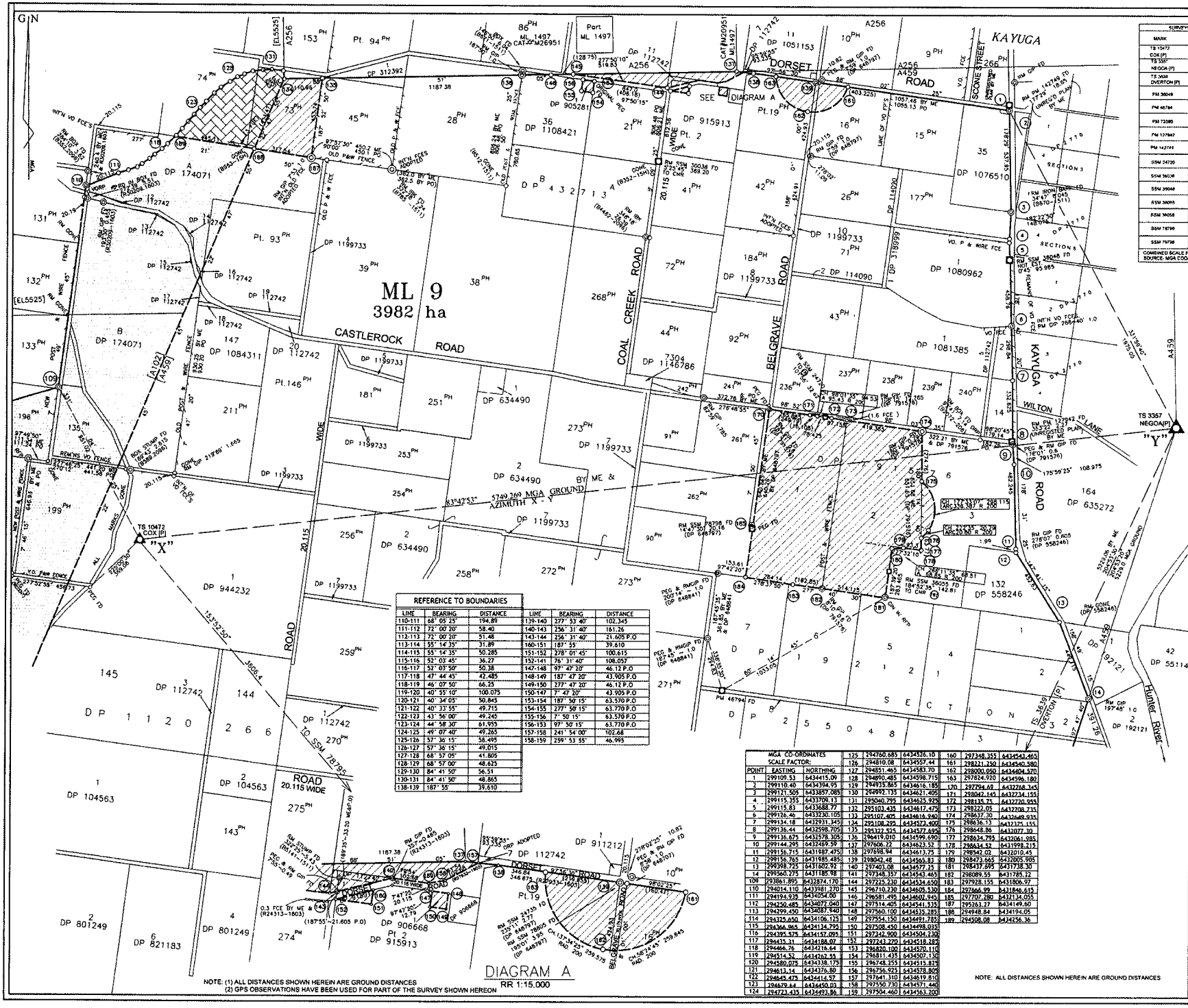
Signature : [signature]
BOSSI Identification No : 162

FORM10

Survey Calcs : ......
Plan Investigated : SCall 13-08-2015
Plan Approved : [signature] 13-08-2015
Paper No : 15/1026

R 17009200
D 110097210

M27367



SURVEYING & SPATIAL INFORMATION REGULATION 2012 CLAUSE 35(1)(b) and CLAUSE 61(2)							
MARK	MGA CO-ORDINATES EASTING	MGA CO-ORDINATES NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
TS 10472 COX [P]	294321.814	6432041.745	56	B	2	FROM SCIMS	SCIMS
TS 3357 NEGOA [P]	300038.978	6435871.208	56	2A	0	FROM SCIMS	SCIMS
TS 3638 OVERTON [P]	297816.972	6427927.686	56	2A	0	FROM SCIMS	SCIMS
PM 36049	297926.670	6433628.756	56	C	N/A	RTK GPS	FOUND
PM 46784	297540.78	6431225.68	56	C	N/A	RTK GPS	FOUND
PM 73380	300410.681	6429614.136	56	C	3	FROM SCIMS	SCIMS
PM 137942	297835.972	6427927.650	56	2A	0	FROM SCIMS	SCIMS
PM 142749	297835.972	6427927.650	56	2A	0	FROM SCIMS	FOUND
SSM 24720	298103.84	6430727.70	56	C	N/A	RTK GPS	FOUND
SSM 36038	297167.55	6434147.12	56	2A	0	FROM SCIMS	SCIMS
SSM 39048	297835.972	6427927.650	56	C	N/A	RTK GPS	FOUND
SSM 39095	299442.934	6431880.803	56	C	N/A	RTK GPS	FOUND
SSM 39058	298449.934	6431880.803	56	C	N/A	RTK GPS	FOUND
SSM 78798	297809.879	6428803.415	56	C	N/A	RTK GPS	FOUND
SSM 79798	297737.13	6432114.51	56	C	N/A	RTK GPS	FOUND

COMBINED SCALE FACTOR = 1.000042
SOURCE: MGA COORDINATES TAKEN FROM SCIMS DATE: 10th JULY 2015

PLAN OF PORTION ML 9

PARISH: ELLIS & CLANRICARD

COUNTY: BRISBANE

MAP SHEET No. 9033-1-S & 9033-2-N

REDUCTION RATIO 1: 10,000

TITLE CODE: ML

TITLE NO: 1645 ACT: 1992

HOLDER:
COAL & ALLIED OPERATIONS PTY LTD

GRANT DATE: 17-12-2010

STATUS:

METHOD: OPEN CUT

SURFACE EXCEPTION / DEPTH RESTRICTION

- Embraces the strata between a depth of 15 metres below the surface to a depth of 900 metres below Australian Height Datum (AHD).
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NOTES:

LEASE PART TRANSFERRED TO ML 1711

THIS PLAN SUPERSEDES: M27095

Azimuth: TS 10472 COX[P] - TS 3357 NEGOA [P]

Plans used in the course of this survey/compilation
"SEE TABLE HEREIN"

Survey declared on this plan for lines
THE WHOLE

SHEET 2 OF 3

I **ROSS ANDREW PEASLEY**

of MUSWELLBROOK NSW 2333

a Surveyor Registered under the Surveying and Spatial Information Act 2002, hereby certify that the survey /compilation represented in this plan is accurate and has been completed in accordance with the Surveying and Spatial Information Regulation 2012 and the Surveyor General's Direction for Mining Surveys and was completed on 10TH JULY 2015

Signature : .....

RGSS Identification No : 162

FORM 10 M27367

Survey Calcs : .....

Plan Investigated : 13-08-2015

Plan Approved : 13-08-2015

Paper No : 15/1026

R 17009200
D 110097220

REFERENCE TO BOUNDARIES					
LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
110-111	68° 05' 25"	194.89	139-140	277° 53' 40"	102.345
111-112	72° 00' 20"	58.40	140-143	256° 31' 40"	161.26
112-113	72° 00' 20"	51.48	143-144	256° 31' 40"	21.605 P.O
113-114	55° 14' 35"	31.89	160-151	187° 55'	39.610
114-115	55° 14' 35"	50.285	151-152	278° 01' 45"	100.615
115-116	52° 03' 45"	36.27	152-141	76° 31' 40"	108.057
116-117	52° 03' 50"	50.38	147-148	97° 47' 20"	46.12 P.O
117-118	47° 44' 45"	42.485	148-149	187° 47' 20"	43.905 P.O
118-119	46° 07' 50"	66.25	149-150	277° 47' 20"	46.12 P.O
119-120	40° 55' 10"	100.075	150-147	7° 47' 20"	43.905 P.O
120-121	40° 34' 05"	50.845	153-154	187° 50' 15"	63.570 P.O
121-122	40° 33' 55"	49.715	154-155	277° 50' 15"	63.770 P.O
122-123	43° 56' 00"	49.245	155-156	7° 50' 15"	63.570 P.O
123-124	44° 58' 30"	61.955	156-153	97° 50' 15"	63.770 P.O
124-125	49° 07' 40"	49.265	157-158	241° 54' 00"	102.68
125-126	57° 36' 15"	58.495	158-159	259° 53' 55"	46.995
126-127	57° 36' 15"	49.015			
127-128	68° 57' 05"	41.805			
128-129	68° 57' 00"	48.625			
129-130	84° 41' 50"	56.51			
130-131	84° 41' 50"	48.865			
138-139	187° 55'	39.610			

MGA CO-ORDINATES SCALE FACTOR:							
POINT	EASTING	NORTHING					
1	299109.53	6434415.09	125	294760.685	6434526.10	160	297348.355	6434543.465
2	299110.40	6434394.95	126	294810.08	6434557.44	161	298221.250	6434540.980
3	299121.505	6433857.085	127	294851.465	6434583.70	162	298000.050	6434454.520
4	299115.355	6433709.13	128	294890.485	6434598.715	163	297824.920	6434596.180
5	299115.83	6433688.77	129	294935.865	6434616.185	170	297794.69	6432768.145
6	299126.46	6433230.105	130	294992.135	6434621.405	171	298042.145	6432734.155
7	299134.18	6432931.345	131	295040.795	6434625.925	172	298135.75	6432720.955
8	299136.44	6432598.705	132	295103.425	6434617.475	173	298222.05	6432708.735
9	299136.675	6432578.105	133	295107.405	6434616.940	174	298637.30	6432669.935
10	299144.295	6432469.59	134	295108.295	6434573.400	175	298636.13	6432375.155
11	299156.715	6431987.475	135	295322.525	6434572.695	176	298648.86	6432077.30
12	299156.765	6431985.485	139	298042.48	6434566.83	180	298634.795	6432061.985
13	299398.725	6431602.92	140	297403.08	6434477.23	181	298437.695	6431738.30
14	299560.275	6431185.98	141	297348.357	6434543.465	182	298089.55	6431785.22
109	293861.895	6432874.170	144	297225.230	6434534.650	183	297928.155	6431806.97
110	294014.110	6433981.270	145	296710.230	6434605.530	184	297666.99	6431846.615
111	294194.935	6434054.00	146	296581.495	6434602.945	185	297707.280	6432134.055
112	294250.485	6434072.040	147	297514.405	6434541.535	187	297263.27	6434149.60
113	294299.450	6434087.940	148	297560.100	6434535.285	188	294948.84	6434194.05
114	294325.650	6434106.125	149	297554.150	6434491.785	189	294508.08	6434256.36
115	294364.965	6434134.795	150	297508.450	6434498.035			
116	294395.575	6434157.095	151	297242.900	6434504.230			
117	294433.31	6434188.07	152	297243.270	6434518.287			
118	294466.76	6434216.64	153	296820.100	6434570.110			
119	294514.52	6434262.55	154	296811.435	6434507.130			
120	294580.075	6434338.175	155	296748.355	6434515.825			
121	294613.14	6434376.80	156	296756.925	6434578.805			
122	294645.475	6434414.57	157	297641.310	6434619.810			
123	294679.64	6434450.03	158	297590.730	6434571.440			
124	294723.435	6434493.86	159	297504.460	6434563.200			

NOTE: (1) ALL DISTANCES SHOWN HEREIN ARE GROUND DISTANCES
(2) GPS OBSERVATIONS HAVE BEEN USED FOR PART OF THE SURVEY SHOWN HEREON

NOTE: ALL DISTANCES SHOWN HEREIN ARE GROUND DISTANCES

Schedule 2

MINING LEASE CONDITIONS 2013

Definitions

1. **Notice to Landholders**
2. **Rehabilitation**
3. **Mining Operations Plan and Annual Rehabilitation Report**
4. **Compliance Report**
5. **Environmental Incident Report**
6. **Extraction Plan**
7. **Resource Recovery**
8. **Security**
9. **Cooperation Agreement**
10. **Spontaneous Combustion**
11. **Spontaneous Combustion**

Note: Exploration Reports (Geological and Geophysical)

Definitions:

Words used in this mining lease have the same meaning as defined in the *Mining Act 1992* except where otherwise defined below:

Act means the *Mining Act 1992.*

Department means the Division of Resources & Energy within the Department of Industry, Skills and Regional Development.

Environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Landholder for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

Material harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Minister means the Minister administering the Act.

Pollution incident has the same meaning as in the *Protection of the Environment Operations Act 1997.*

MINING LEASE CONDITIONS 2013

1. Notice to Landholders

(a) Within a period of three months from the date of grant/renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been granted/renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice.

(b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been granted/renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1(b), compliance with condition 1(a) is not required.

2. Rehabilitation

Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.

3. Mining Operations Plan and Annual Rehabilitation Report

(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.

(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:

(i) identifies areas that will be disturbed;

(ii) details the staging of specific mining operations, mining purposes and prospecting;

(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;

(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and

(v) reflects the conditions of approval under:

- the *Environmental Planning and Assessment Act 1979;*
- the *Protection of the Environment Operations Act 1997;* and

- any other approvals relevant to the development including the conditions of this mining lease.

(c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resources.nsw.gov.au/environment

(d) The lease holder may apply to the Minister to amend an approved MOP at any time.

(e) It is not a breach of this condition if:

(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the *Environmental Planning and Assessment Act 1979*, the *Protection of the Environment Operations Act 1997*, the *Mine Health and Safety Act 2004 / Coal Mine Health and Safety Act 2002* and *Mine Health and Safety Regulation 2007 / Coal Mine Health and Safety Regulation 2006* or the *Work Health and Safety Act 2011*; and

(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.

(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must:

(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;

(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and

(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment.

Note: The Rehabilitation Report replaces the Annual Environmental Management Report.

4. Compliance Report

(a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.

(b) The Compliance Report must include:

(i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with;

(ii) particulars of any non-compliance with any such conditions or provisions,

(iii) the reasons for any such non-compliance;

(iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.

(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.

(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report:

(i) must accompany any application to renew this mining lease under the Act;

(ii) must accompany any application to transfer this mining lease under the Act; and

(iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.

(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.

(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.

5. Environmental Incident Report

(a) The lease holder must notify the Department of all:

(i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and

(ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the *Protection of the Environment Operations Act 1997*),

arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach.

Note. Refer to www.resources.nsw.gov.au/environment for notification contact details.

(b) The lease holder must submit an Environmental Incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a)(i) and (ii). The Environmental Incident Report must include:

(i) the details of the mining lease;

(ii) contact details for the lease holder;

(iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur;

(iv) a description of the nature of the incident or breach, likely causes and consequences;

(v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a).

(vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease.

Note. The lease holder should have regard to any relevant Director General's guidelines in the preparation of an Environmental Incident Report. Refer to www.resources.nsw.gov.au/environment for further details.

(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the *Protection of the Environment Operations Act 1997* arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.

6. Extraction Plan

(a) In this condition:

(i) **approved Extraction Plan** means a plan, being:

A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or

B. a subsidence management plan relating to the mining operations subject to this lease:

I. submitted to the Secretary on or before 31 December 2014; and

II. approved by the Secretary.

(ii) **relevant development consent** means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease.

(b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.

(c) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease.

(d) The lease holder must notify the Secretary within 48 hours of any:

(i) incident caused by subsidence which has a potential to expose any person to health and safety risks;

(ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or

(iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing:

A. built features;

B. public safety; or

C. subsidence monitoring.

7. Resource Recovery

The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.

8. Group Security

The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.

The amount of the security deposit to be provided as a group security has been assessed by the Minister at **$50,000**.

The leases covered by the group security include:

Mining Lease 1645, 1708, 1709 and 1713 (Act 1992)

9. Cooperation Agreement

The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as:

- access arrangements
- operational interaction procedures
- dispute resolution
- information exchange
- well location
- timing of drilling
- potential resource extraction conflicts; and
- rehabilitation issues.

10. Spontaneous Combustion

The lease holder must review and submit a Spontaneous Combustion Management Plan. The implementation and scope of this plan will be to the satisfaction of NSW Department of Industry.

11. Spontaneous Combustion

Coal or acid forming material left exposed by mining operations in the final void shall be covered with non-acid forming and non-combustible materials so as to reduce the possibility of leaking acid fluids and the possibility of self-heating of coal seams.

Exploration Reporting

Note: *Exploration Reports (Geological and Geophysical)*

The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the Mining Act 1992 and in accordance with clause 57 of the Mining Regulation 2010.

Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales (Department of Trade and Investment; Regional Infrastructure and Services 2010).

SPECIAL CONDITIONS

Note: The standard conditions apply to all mining leases. The Division of Resources & Energy (DRE) reserves the right to impose special conditions, based on individual circumstances, where appropriate.

Department of Industry
Resources & Energy

Transfer Approval Document

Reference: 16/416

TRANSFER OF MINING LEASE 1708 (ACT 1992)

Pursuant to Section 121(1)(a) of the *Mining Act 1992*, the Minister has approved the transfer of this authority from **COAL & ALLIED OPERATIONS PTY LTD** to **MACH ENERGY AUSTRALIA PTY LTD**.

TERMS OF APPROVAL OF TRANSFER OF AUTHORITY:

The terms of this approval take effect upon the registration of this transfer in accordance with Section 122(4) of the Act.

Transferee: MACH Energy Australia Pty Ltd
ACN 608 495 441

Area: The authority embraces an area of **9,951 square metres** as shown on the attached plan Catalogue No **M27299**.

Conditions: The conditions in the attached Schedule of Mining Lease Conditions 2013 herein and numbered 1 – 9 (inclusive).

ACCEPTANCE OF TERMS OF APPROVAL:

SIGNED BY

Anthony Roberts MP
Minister for Industry,
Resources and Energy

MACH Energy Australia Pty Ltd
(ACN 608 495 441)

SURVEYING & SPATIAL INFORMATION REGULATIONS 2012 CLAUSE 35(1)(b) and CLAUSE 61(2)							
MARK	MGA CO-ORDINATES EASTING	NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
TS 10472 COX [P]	294321.914	6432041.745	56	B	2	FROM SCIMS	SCIMS
TS 10465 MARYVALE [P]	295261.003	6435124.627	56	B	2	FROM SCIMS	SCIMS
TS 3357 NEGOA [P]	300036.979	6432671.206	56	2A	0	FROM SCIMS	SCIMS
SS 24735	298044.780	6434567.440	56	U	U	GPS GNSS	FOUND
SS 36038	297187.550	6434157.120	56	U	U	GPS GNSS	FOUND

COMBINED SCALE FACTOR= 1.000062
SOURCE= MGA COORDINATES TAKEN FROM SCIMS
DATE= 30th SEPTEMBER 2013

ZONE:- 56 CSF 1.000062

SCHEDULE OF MGA CO-ORDINATES		
CORNER	EASTING	NORTHING
1	296756.925	6434578.805
2	296820.10	6434570.11
3	296811.435	6434507.130
4	296748.255	6434515.825
5	297243.270	6434518.285
6	297246.245	6434539.685
7	297251.510	6434577.525
8	297349.02	6434564.31
9	297348.355	6434543.465
10	297342.900	6434504.230
11	297508.45	6434498.035
12	297514.405	6434541.535
13	297560.10	6434535.20
14	297554.15	6434491.785

DIAGRAM A
1 : 1,500

DIAGRAM B
1 : 1,1000

PLAN OF PORTION ML 7

PARISH: ELLIS

COUNTY: BRISBANE

MAP SHEET No. 9033-I-S

REDUCTION RATIO 1: 3,000 (A1)

MINING LEASE APPLICATION No. 422

MINING DIVISION: SINGLETON

APPLICANT: COAL & ALLIED OPERATIONS PTY LTD

APPLICATION DATE: 27-03-2012

MINING LEASE No. 1708 (Act 1992)

STATUS:

METHOD:OPEN CUT & UNDERGROUND

DEPTH RESTRICTION/SURFACE EXCEPTION

EMBRACES THE SURFACE AND SOIL BELOW THEREOF TO A DEPTH OF 15 METRES

NOTES: SHEET 1 OF 1

Azimuth: T.S.10472 COX [P] - T.S.3357 NEGOA [P]

Plans used in the course of this survey/compilation
PLAN CAT#M26951 & M27095

Survey declared on this plan for lines
THE WHOLE

I ROSS ANDREW PEASLEY
of BOARDMAN PEASLEY PTY LIMITED
a surveyor registered under the Surveying and Spatial Information Act 2002, hereby certify that the survey /compilation represented in this plan is accurate and has been completed in accordance with the Surveying and Spatial Information Regulation 2012 and the Surveyor General's Direction for Mining Surveys and was completed on 30TH SEPTEMBER 2013

Signature :

Surveyor's Reference : S4153-34

Survey Calcs :

Plan Investigated : 12.06.2014

Plan Approved : 17.06.2014

Paper No : T12-1506

M 27299

R17009178 D110096850

Schedule 2

MINING LEASE CONDITIONS 2013

Definitions

1. **Notice to Landholders**
2. **Rehabilitation**
3. **Mining Operations Plan and Annual Rehabilitation Report**
4. **Compliance Report**
5. **Environmental Incident Report**
6. **Extraction Plan**
7. **Resource Recovery**
8. **Security**
9. **Cooperation Agreement**

Note: Exploration Reports (Geological and Geophysical)

Definitions:

Words used in this mining lease have the same meaning as defined in the *Mining Act 1992* except where otherwise defined below:

Act means the *Mining Act 1992.*

Department means the Division of Resources & Energy within the Department of Industry, Skills and Regional Development.

Environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Landholder for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

Material harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Minister means the Minister administering the Act.

Pollution incident has the same meaning as in the *Protection of the Environment Operations Act 1997.*

MINING LEASE CONDITIONS 2013

1. Notice to Landholders

(a) Within a period of three months from the date of grant/renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been granted/renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice.

(b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been granted/renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1(b), compliance with condition 1(a) is not required.

2. Rehabilitation

Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.

3. Mining Operations Plan and Annual Rehabilitation Report

(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.

(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:

(i) identifies areas that will be disturbed;

(ii) details the staging of specific mining operations, mining purposes and prospecting;

(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;

(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and

(v) reflects the conditions of approval under:

- the *Environmental Planning and Assessment Act 1979;*
- the *Protection of the Environment Operations Act 1997;* and

- any other approvals relevant to the development including the conditions of this mining lease.

(c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resources.nsw.gov.au/environment

(d) The lease holder may apply to the Minister to amend an approved MOP at any time.

(e) It is not a breach of this condition if:

(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the *Environmental Planning and Assessment Act 1979*, the *Protection of the Environment Operations Act 1997,* the *Mine Health and Safety Act 2004 / Coal Mine Health and Safety Act 2002* and *Mine Health and Safety Regulation 2007 / Coal Mine Health and Safety Regulation 2006* or the *Work Health and Safety Act 2011*; and

(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.

(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must:

(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;

(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and

(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment.

Note: The Rehabilitation Report replaces the Annual Environmental Management Report.

4. Compliance Report

(a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.

(b) The Compliance Report must include:

(i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with;

(ii) particulars of any non-compliance with any such conditions or provisions,

(iii) the reasons for any such non-compliance;

(iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.

(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.

(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report:

(i) must accompany any application to renew this mining lease under the Act;

(ii) must accompany any application to transfer this mining lease under the Act; and

(iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.

(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.

(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.

5. Environmental Incident Report

(a) The lease holder must notify the Department of all:

(i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and

(ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the *Protection of the Environment Operations Act 1997*),

arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach.

Note. Refer to www.resources.nsw.gov.au/environment for notification contact details.

(b) The lease holder must submit an Environmental Incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a)(i) and (ii). The Environmental Incident Report must include:

(i) the details of the mining lease;

(ii) contact details for the lease holder;

(iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur;

(iv) a description of the nature of the incident or breach, likely causes and consequences;

(v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a).

(vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease.

Note. The lease holder should have regard to any relevant Director General's guidelines in the preparation of an Environmental Incident Report. Refer to www.resources.nsw.gov.au/environment for further details.

(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the *Protection of the Environment Operations Act 1997* arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.

6. Extraction Plan

(a) In this condition:

(i) **approved Extraction Plan** means a plan, being:

A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or

B. a subsidence management plan relating to the mining operations subject to this lease:

I. submitted to the Secretary on or before 31 December 2014; and

II. approved by the Secretary.

(ii) **relevant development consent** means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease.

(b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.

(c) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease.

(d) The lease holder must notify the Secretary within 48 hours of any:

(i) incident caused by subsidence which has a potential to expose any person to health and safety risks;

(ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or

(iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing:

A. built features;

B. public safety; or

C. subsidence monitoring.

7. Resource Recovery

The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.

8. Group Security

The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.

The amount of the security deposit to be provided as a group security has been assessed by the Minister at **$50,000**.

The leases covered by the group security include:

Mining Lease 1645, 1708, 1709 and 1713 (Act 1992)

9. Cooperation Agreement

The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as:

- access arrangements
- operational interaction procedures
- dispute resolution
- information exchange
- well location
- timing of drilling
- potential resource extraction conflicts; and
- rehabilitation issues.

Exploration Reporting

Note: *Exploration Reports (Geological and Geophysical)*

The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the Mining Act 1992 and in accordance with clause 57 of the Mining Regulation 2010.

Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales (Department of Trade and Investment; Regional Infrastructure and Services 2010).

SPECIAL CONDITIONS

Note: The standard conditions apply to all mining leases. The Division of Resources & Energy (DRE) reserves the right to impose special conditions, based on individual circumstances, where appropriate.

Department of Industry
Resources & Energy

Transfer Approval Document

Reference: 16/416

TRANSFER OF MINING LEASE 1709 (ACT 1992)

Pursuant to Section 121(1)(a) of the *Mining Act 1992*, the Minister has approved the transfer of this authority from **COAL & ALLIED OPERATIONS PTY LTD** to **MACH ENERGY AUSTRALIA PTY LTD**.

TERMS OF APPROVAL OF TRANSFER OF AUTHORITY:

The terms of this approval take effect upon the registration of this transfer in accordance with Section 122(4) of the Act.

Transferee: MACH Energy Australia Pty Ltd
ACN 608 495 441

Area: The authority embraces an area of **81.7 hectares** as shown on the attached plan Catalogue No **M27300**.

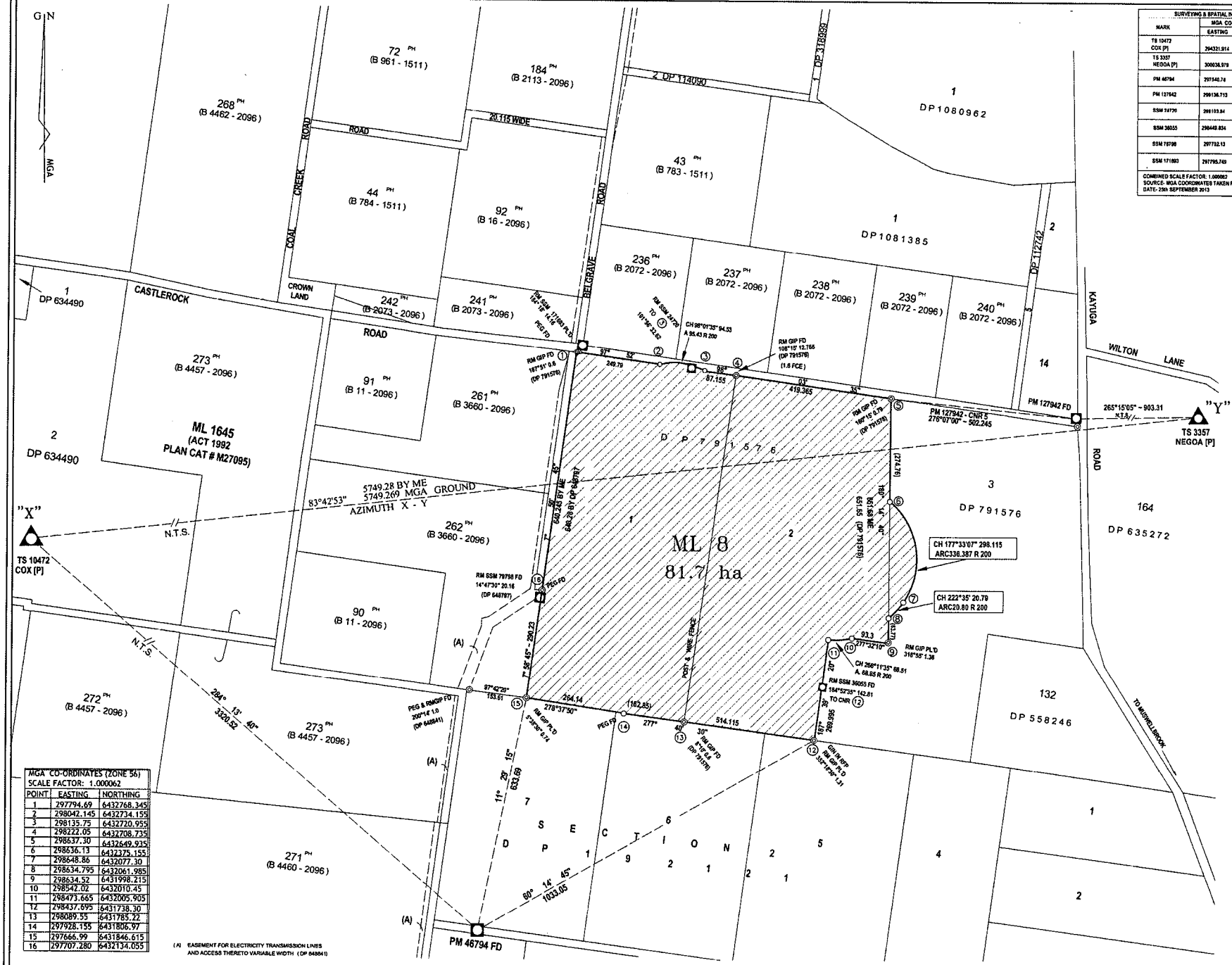
Conditions: The conditions in the attached Schedule of Mining Lease Conditions 2013 herein and numbered 1 – 9 (inclusive).

ACCEPTANCE OF TERMS OF APPROVAL:

SIGNED BY

Anthony Roberts MP
Minister for Industry,
Resources and Energy

MACH Energy Australia Pty Ltd
(ACN 608 495 441)



MGA CO-ORDINATES (ZONE 56) SCALE FACTOR: 1.000062		
POINT	EASTING	NORTHING
1	297794.69	6432768.345
2	298042.145	6432734.155
3	298135.75	6432720.955
4	298222.05	6432708.735
5	298637.30	6432649.935
6	298636.13	6432375.155
7	298648.86	6432077.30
8	298634.795	6432061.985
9	298634.52	6431998.215
10	298542.02	6432010.45
11	298473.665	6432005.905
12	298437.695	6431738.30
13	298089.55	6431785.22
14	297928.155	6431806.97
15	297666.99	6431846.615
16	297707.280	6432134.055

NOTE: (1) ALL DISTANCES SHOWN HEREIN ARE GROUND DISTANCES
(2) GPS OBSERVATIONS HAVE BEEN USED FOR PART OF THE SURVEY SHOWN HEREON IN ACCORDANCE WITH THE SURVEYOR GENERAL NSW DIRECTIONS FOR GPS SURVEYS

SURVEYING & SPATIAL INFORMATION REGULATION 2012 CLAUSE 33(1)(b) and CLAUSE 61(2)

MARK	MGA CO-ORDINATES EASTING	MGA CO-ORDINATES NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
TS 10472 COX [P]	294321.914	6432041.745	56	B	2	FROM SCIMS	SCIMS
TS 3357 NEGOA [P]	300038.979	6432671.206	56	2A	0	FROM SCIMS	SCIMS
PM 46794	297540.76	6431225.58	56	C	N/A	RTK GPS	FOUND
PM 127942	299136.713	6432806.414	56	2A	0	FROM SCIMS	SCIMS
SSM 79798	298103.84	6432727.76	56	C	N/A	RTK GPS	FOUND
SSM 36055	298442.834	6431880.883	56	C	N/A	RTK GPS	FOUND
SSM 79798	297732.13	6432114.55	56	C	N/A	RTK GPS	FOUND
SSM 171693	297795.749	6432782.483	56	C	N/A	RTK GPS	PLACED

COMBINED SCALE FACTOR: 1.000062
SOURCE- MGA COORDINATES TAKEN FROM SCIMS
DATE- 25th SEPTEMBER 2013

PLAN OF PORTION ML 8

PARISH: ELLIS

COUNTY: BRISBANE

MAP SHEET No. 9033-1-S

REDUCTION RATIO 1: 5,000 (A1)

MINING LEASE APPLICATION No. 423

MINING DIVISION: SINGLETON

APPLICANT: COAL & ALLIED OPERATIONS PTY LTD

APPLICATION DATE: 27-03-2012

MINING LEASE No. 1709 (Act 1992)

STATUS:

METHOD:OPEN CUT & UNDERGROUND

DEPTH RESTRICTION/SURFACE EXCEPTION

Embraces the surface and soil below thereof to a depth of 15 metres.

NOTES:

SHEET 1 OF 1

Azimuth: TS 10472 COX [P] to TS 3357 NEGOA [P]

Plans used in the course of this survey/compilation.
PLAN CAT# M27095 (ML1645) & DP 791576

Survey declared on this plan for lines
LINES 1 TO 16 & PM CONNECTIONS

I ROSS ANDREW PEASLEY
of BOARDMAN PEASLEY PTY LIMITED
a surveyor registered under the Surveying and Spatial Information Act 2002, hereby certify that the survey /compilation represented in this plan is accurate and has been completed in accordance with the Surveying and Spatial Information Regulation 2012 and the Surveyor General's Direction for Mining Surveys and was completed on 25TH SEPTEMBER 2013

Signature : [signature]

Surveyors Reference : S4153-35

Survey Calcs :

Plan Investigated : 12-06-2014

Plan Approved : 17-06-2014

Paper No : T12 - 1507

FORM9

R17009179

D110096860

M 27300

Schedule 2

MINING LEASE CONDITIONS 2013

Definitions

1. **Notice to Landholders**
2. **Rehabilitation**
3. **Mining Operations Plan and Annual Rehabilitation Report**
4. **Compliance Report**
5. **Environmental Incident Report**
6. **Extraction Plan**
7. **Resource Recovery**
8. **Security**
9. **Cooperation Agreement**

Note: Exploration Reports (Geological and Geophysical)

Definitions:

Words used in this mining lease have the same meaning as defined in the *Mining Act 1992* except where otherwise defined below:

Act means the *Mining Act 1992.*

Department means the Division of Resources & Energy within the Department of Industry, Skills and Regional Development.

Environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Landholder for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

Material harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Minister means the Minister administering the Act.

Pollution incident has the same meaning as in the *Protection of the Environment Operations Act 1997.*

MINING LEASE CONDITIONS 2013

1. Notice to Landholders

(a) Within a period of three months from the date of grant/renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been granted/renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice.

(b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been granted/renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1(b), compliance with condition 1(a) is not required.

2. Rehabilitation

Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.

3. Mining Operations Plan and Annual Rehabilitation Report

(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.

(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:

(i) identifies areas that will be disturbed;

(ii) details the staging of specific mining operations, mining purposes and prospecting;

(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;

(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and

(v) reflects the conditions of approval under:

- the *Environmental Planning and Assessment Act 1979;*
- the *Protection of the Environment Operations Act 1997;* and

- any other approvals relevant to the development including the conditions of this mining lease.

(c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resources.nsw.gov.au/environment

(d) The lease holder may apply to the Minister to amend an approved MOP at any time.

(e) It is not a breach of this condition if:

(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the *Environmental Planning and Assessment Act 1979*, the *Protection of the Environment Operations Act 1997*, the *Mine Health and Safety Act 2004 / Coal Mine Health and Safety Act 2002* and *Mine Health and Safety Regulation 2007 / Coal Mine Health and Safety Regulation 2006* or the *Work Health and Safety Act 2011*; and

(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.

(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must:

(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;

(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and

(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment.

Note: The Rehabilitation Report replaces the Annual Environmental Management Report.

4. Compliance Report

(a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.

(b) The Compliance Report must include:

(i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with;

(ii) particulars of any non-compliance with any such conditions or provisions,

(iii) the reasons for any such non-compliance;

(iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.

(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.

(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report:

(i) must accompany any application to renew this mining lease under the Act;

(ii) must accompany any application to transfer this mining lease under the Act; and

(iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.

(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.

(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.

5. Environmental Incident Report

(a) The lease holder must notify the Department of all:

(i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and

(ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the *Protection of the Environment Operations Act 1997*),

arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach.

Note. Refer to www.resources.nsw.gov.au/environment for notification contact details.

(b) The lease holder must submit an Environmental Incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a)(i) and (ii). The Environmental Incident Report must include:

(i) the details of the mining lease;

(ii) contact details for the lease holder;

(iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur;

(iv) a description of the nature of the incident or breach, likely causes and consequences;

(v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a).

(vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease.

Note. The lease holder should have regard to any relevant Director General's guidelines in the preparation of an Environmental Incident Report. Refer to www.resources.nsw.gov.au/environment for further details.

(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the *Protection of the Environment Operations Act 1997* arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.

6. Extraction Plan

(a) In this condition:

(i) **approved Extraction Plan** means a plan, being:

A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or

B. a subsidence management plan relating to the mining operations subject to this lease:

I. submitted to the Secretary on or before 31 December 2014; and

II. approved by the Secretary.

(ii) **relevant development consent** means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease.

(b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.

(c) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease.

(d) The lease holder must notify the Secretary within 48 hours of any:

(i) incident caused by subsidence which has a potential to expose any person to health and safety risks;

(ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or

(iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing:

A. built features;

B. public safety; or

C. subsidence monitoring.

7. Resource Recovery

The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.

8. Group Security

The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.

The amount of the security deposit to be provided as a group security has been assessed by the Minister at **$50,000**.

The leases covered by the group security include:

Mining Lease 1645, 1708, 1709 and 1713 (Act 1992)

9. Cooperation Agreement

The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as:

- access arrangements
- operational interaction procedures
- dispute resolution
- information exchange
- well location
- timing of drilling
- potential resource extraction conflicts; and
- rehabilitation issues.

Exploration Reporting

Note: *Exploration Reports (Geological and Geophysical)*

The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the Mining Act 1992 and in accordance with clause 57 of the Mining Regulation 2010.

Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales (Department of Trade and Investment; Regional Infrastructure and Services 2010).

SPECIAL CONDITIONS

Note: The standard conditions apply to all mining leases. The Division of Resources & Energy (DRE) reserves the right to impose special conditions, based on individual circumstances, where appropriate.

Department of Industry
Resources & Energy

Transfer Approval Document

Reference: 16/416

TRANSFER OF MINING LEASE 1713 (ACT 1992)

Pursuant to Section 121(1)(a) of the *Mining Act 1992*, the Minister has approved the transfer of this authority from **COAL & ALLIED OPERATIONS PTY LTD** to **MACH ENERGY AUSTRALIA PTY LTD**.

TERMS OF APPROVAL OF TRANSFER OF AUTHORITY:

The terms of this approval take effect upon the registration of this transfer in accordance with Section 122(4) of the Act.

Transferee: MACH Energy Australia Pty Ltd
ACN 608 495 441

Area: The authority embraces an area of **1.136 hectares** as shown on the attached plan Catalogue No **M27219**.

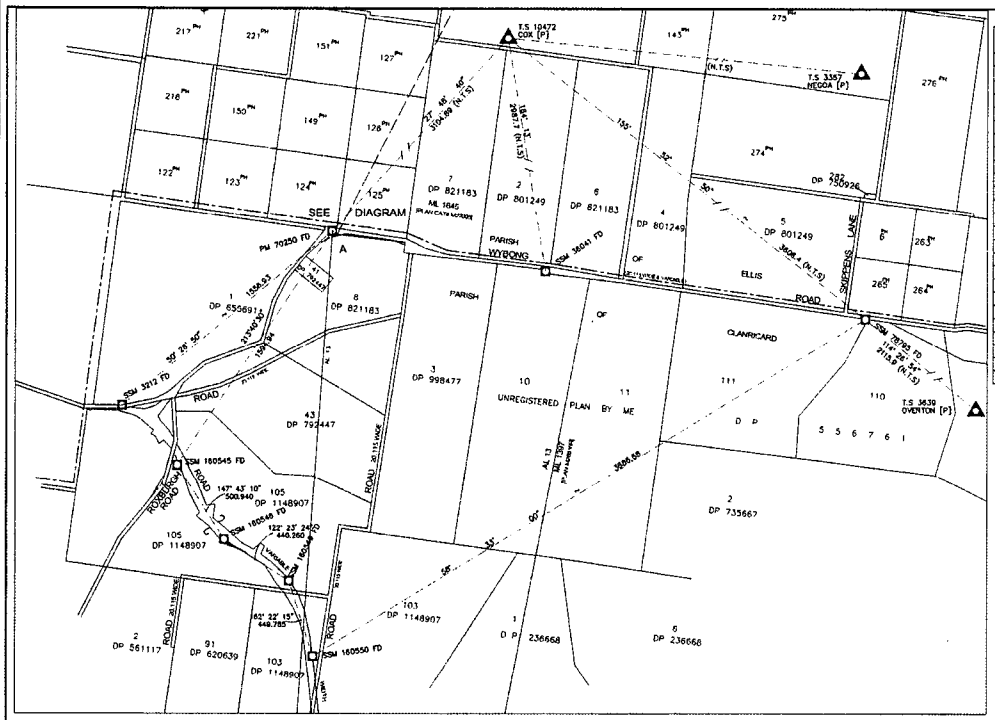
Conditions: The conditions in the attached Schedule of Mining Lease Conditions 2013 herein and numbered 1 – 9 (inclusive).

ACCEPTANCE OF TERMS OF APPROVAL:

SIGNED BY

Anthony Roberts MP
Minister for Industry,
Resources and Energy

MACH Energy Australia Pty Ltd
(ACN 608 495 441)



MGA CO-ORDINATES SCALE FACTOR: 1.000062 (ZONE 56)		
POINT	EASTING	NORTHING
1	293455.435	6429152.670
2	293333.785	6429167.265
3	293313.805	6429169.595
4	293281.540	6429173.480
5	293290.295	6429234.020
6	293231.400	6429240.275
7	293223.550	6429243.395
8	293002.555	6429274.400
9	292945.080	6429278.050
10	292918.900	6429273.470
11	292883.580	6429277.225
12	292922.305	6429284.365
13	292933.015	6429285.665
14	292965.815	6429287.290
15	292988.560	6429286.845
16	293026.790	6429283.185
17	293227.130	6429256.290
18	293249.645	6429252.095
19	293270.735	6429246.865
20	293302.650	6429235.650
21	293341.350	6429217.945
22	293407.640	6429184.165
23	293434.020	6429173.380
24	293444.020	6429169.805

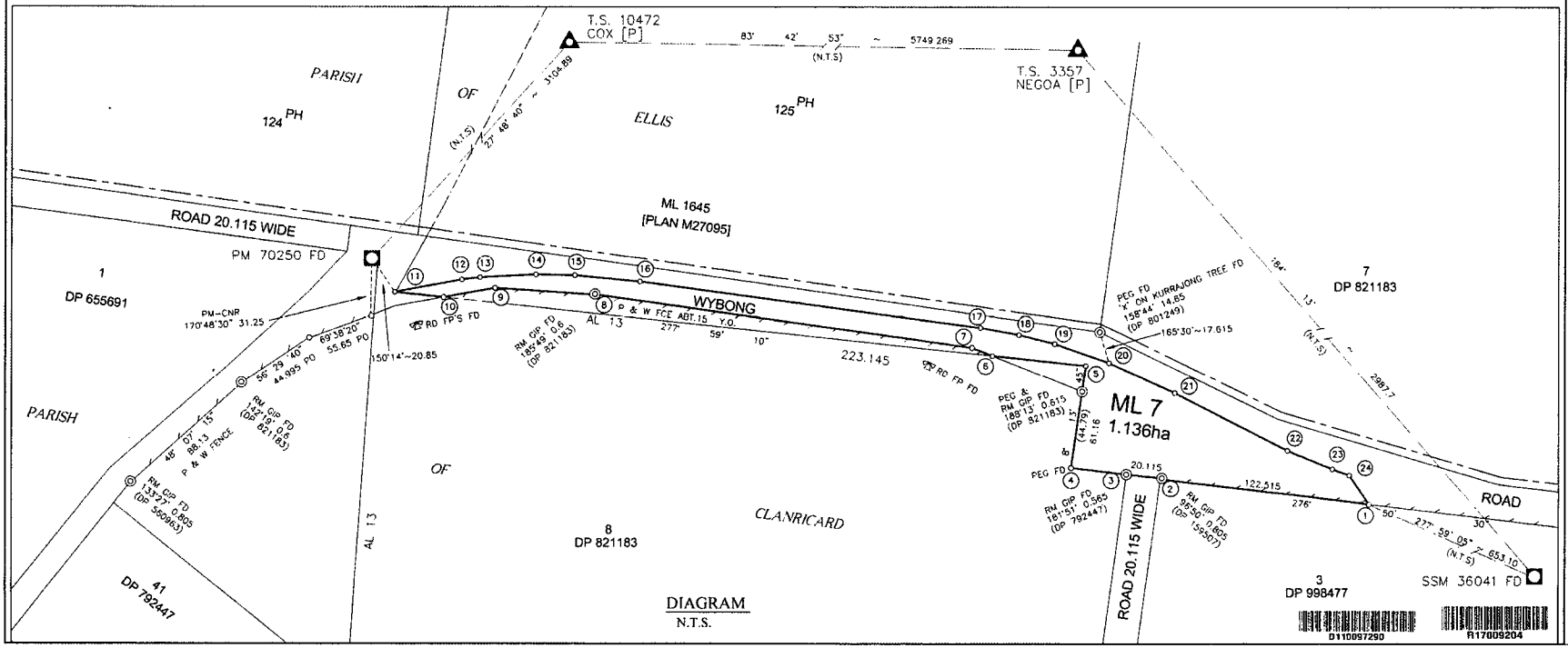
REFERENCE TO BOUNDARIES					
LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
1 - 2	276° 50' 30"	122.515	13 - 14	87° 09' 35"	32.840
2 - 3	276° 39' 40"	20.115	14 - 15	91° 07' 35"	22.750
3 - 4	276° 52' 00"	32.50	15 - 16	95° 28' 15"	38.400
4 - 5	8° 13' 45"	61.160	16 - 17	97° 38' 45"	202.125
5 - 6	276° 03' 50"	59.225	17 - 18	100° 32' 40"	22.905
6 - 7	291° 40' 50"	8.445	18 - 19	103° 56' 25"	21.725
7 - 8	277° 59' 10"	223.145	19 - 20	109° 21' 20"	33.830
8 - 9	273° 38' 00"	57.590	20 - 21	114° 35' 10"	42.555
9 - 10	260° 04' 40"	26.575	21 - 22	117° 00' 15"	74.395
10 - 11	276° 03' 50"	35.520	22 - 23	112° 14' 05"	28.500
11 - 12	79° 33' 15"	39.375	23 - 24	109° 40' 30"	10.620
12 - 13	83° 05' 05"	10.790	24 - 1	146° 19' 35"	20.590

NOTE. (1) ALL DISTANCES SHOWN HEREIN ARE GROUND DISTANCES
(2) GPS OBSERVATIONS HAVE BEEN USED FOR PART OF THE SURVEY SHOWN HEREON IN ACCORDANCE WITH THE SURVEYOR GENERALS DIRECTIONS

G N
MGA

SURVEYING REGULATIONS 2006 CLAUSE 35(1)(b) and CLAUSE 81(2)							
MARK	MGA CO-ORDINATES EASTING	MGA CO-ORDINATES NORTHING	ZONE	CLASS	ORDER	METHOD	ORIGIN
TS 10472 COX [P]	294321.914	6432041.745	56	B	2	From SCIMS	SCIMS
TS 3357 NEGOA [P]	300036.979	6432871.206	56	2A	0	From SCIMS	SCIMS
TS 3639 OVERTON [P]	297835.972	6427872.656	56	2A	0	From SCIMS	SCIMS
SSM 3212	219672.660	6428303.748	56	U	N/A	RTK GPS	FOUND
PM 70250	292873.223	6429295.323	56	C	N/A	RTK GPS	FOUND
SSM 36041	294102.245	6429061.944	56	C	N/A	RTK GPS	FOUND
SSM 78795	295909.678	6428803.415	56	C	N/A	RTK GPS	FOUND
SSM 160545	291988.806	6427967.936	56	U	N/A	RTK GPS	FOUND
SSM 160546	292256.361	6427544.314	56	U	N/A	RTK GPS	FOUND
SSM 160549	292628.180	6427308.453	56	U	N/A	RTK GPS	FOUND
SSMM 160550	292764.400	6426879.746	56	U	N/A	RTK GPS	FOUND

COMBINED SCALE FACTOR 1.000067 (AVERAGE ADOPTED OVERSITE)
SOURCE- MGA COORDINATES TAKEN FROM SCIMS
DATE- 24th MAY 2012



PLAN OF PORTION ML 7

PARISH: CLANRICARD

COUNTY: BRISBANE

MAP SHEET No. 9033-2-N

REDUCTION RATIO 1: 15 000

MINING LEASE APPLICATION No. 402

MINING DIVISION: SINGLETON

APPLICANT: COAL & ALLIED OPERATIONS PTY LTD

APPLICATION DATE: 04-05-2011

MINING LEASE No. 1713 (Act 1992)

STATUS:

METHOD:OPEN CUT & UNDERGROUND

DEPTH RESTRICTION/SURFACE EXCEPTION
☐ Embraces the surface and soil below thereof to a depth of 900 metres below Australian Height Datum (AHD).

NOTES:

SHEET 1 OF 1

Azimuth: TS 10472 COX [P] - TS 3357 NEGOA [P]

Plans used in the course of this survey/compilation
M 266168, M 27095, DP 159807, DP 560983, DP 792447, DP 801249, DP 821183

Survey declared on this plan for lines JOINING POINTS 1 TO 24 & PERMANENT MARK CONNECTIONS

I, ROSS ANDREW PEASLEY
of BOARDMAN PEASLEY PTY LIMITED
a Surveyor registered under the Surveying & Spatial Information Act 2002, as amended hereby certify that the survey/compilation represented in this plan is accurate and has been completed in accordance with the Surveying & Spatial Information Regulation 2006 and the Surveyor General's Direction for Mining Surveys and was completed on 24th MAY 2012

Signature : Ross Peasley

Surveyors Reference : 54153-25

Survey Cales :

Plan Investigated : 12/10/2012

Plan Approved : 12/10/2012

Paper No : 10/6581

D110097290

R17009204

M 27219

Schedule 2

MINING LEASE CONDITIONS 2013

Definitions

1. **Notice to Landholders**
2. **Rehabilitation**
3. **Mining Operations Plan and Annual Rehabilitation Report**
4. **Compliance Report**
5. **Environmental Incident Report**
6. **Extraction Plan**
7. **Resource Recovery**
8. **Security**
9. **Cooperation Agreement**

Note: Exploration Reports (Geological and Geophysical)

Definitions:

Words used in this mining lease have the same meaning as defined in the *Mining Act 1992* except where otherwise defined below:

Act means the *Mining Act 1992*.

Department means the Division of Resources & Energy within the Department of Industry, Skills and Regional Development.

Environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Landholder for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

Material harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Minister means the Minister administering the Act.

Pollution incident has the same meaning as in the *Protection of the Environment Operations Act 1997*.

MINING LEASE CONDITIONS 2013

1. Notice to Landholders

(a) Within a period of three months from the date of grant/renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been granted/renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice.

(b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been granted/renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1(b), compliance with condition 1(a) is not required.

2. Rehabilitation

Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.

3. Mining Operations Plan and Annual Rehabilitation Report

(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.

(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:

(i) identifies areas that will be disturbed;

(ii) details the staging of specific mining operations, mining purposes and prospecting;

(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;

(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and

(v) reflects the conditions of approval under:

- the *Environmental Planning and Assessment Act 1979;*
- the *Protection of the Environment Operations Act 1997;* and

- any other approvals relevant to the development including the conditions of this mining lease.

(c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resources.nsw.gov.au/environment

(d) The lease holder may apply to the Minister to amend an approved MOP at any time.

(e) It is not a breach of this condition if:

(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the *Environmental Planning and Assessment Act 1979*, the *Protection of the Environment Operations Act 1997,* the *Mine Health and Safety Act 2004 / Coal Mine Health and Safety Act 2002* and *Mine Health and Safety Regulation 2007 / Coal Mine Health and Safety Regulation 2006* or the *Work Health and Safety Act 2011*; and

(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.

(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must:

(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;

(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and

(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resources.nsw.gov.au/environment.

Note: The Rehabilitation Report replaces the Annual Environmental Management Report.

4. Compliance Report

(a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.

(b) The Compliance Report must include:

(i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with;

(ii) particulars of any non-compliance with any such conditions or provisions,

(iii) the reasons for any such non-compliance;

(iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.

(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.

(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report:

(i) must accompany any application to renew this mining lease under the Act;

(ii) must accompany any application to transfer this mining lease under the Act; and

(iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.

(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.

(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.

5. Environmental Incident Report

(a) The lease holder must notify the Department of all:

(i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and

(ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the *Protection of the Environment Operations Act 1997*),

arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach.

Note. Refer to www.resources.nsw.gov.au/environment for notification contact details.

(b) The lease holder must submit an Environmental Incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a)(i) and (ii). The Environmental Incident Report must include:

(i) the details of the mining lease;

(ii) contact details for the lease holder;

(iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur;

(iv) a description of the nature of the incident or breach, likely causes and consequences;

(v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a).

(vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease.

Note. The lease holder should have regard to any relevant Director General's guidelines in the preparation of an Environmental Incident Report. Refer to www.resources.nsw.gov.au/environment for further details.

(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the *Protection of the Environment Operations Act 1997* arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.

6. Extraction Plan

(a) In this condition:

(i) **approved Extraction Plan** means a plan, being:

A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or

B. a subsidence management plan relating to the mining operations subject to this lease:

I. submitted to the Secretary on or before 31 December 2014; and

II. approved by the Secretary.

(ii) **relevant development consent** means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease.

(b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.

(c) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease.

(d) The lease holder must notify the Secretary within 48 hours of any:

(i) incident caused by subsidence which has a potential to expose any person to health and safety risks;

(ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or

(iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing:

A. built features;

B. public safety; or

C. subsidence monitoring.

7. Resource Recovery

The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.

8. Group Security

The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.

The amount of the security deposit to be provided as a group security has been assessed by the Minister at **$50,000**.

The leases covered by the group security include:

Mining Lease 1645, 1708, 1709 and 1713 (Act 1992)

9. Cooperation Agreement

The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as:

- access arrangements
- operational interaction procedures
- dispute resolution
- information exchange
- well location
- timing of drilling
- potential resource extraction conflicts; and
- rehabilitation issues.

Exploration Reporting

Note: *Exploration Reports (Geological and Geophysical)*

The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the Mining Act 1992 and in accordance with clause 57 of the Mining Regulation 2010.

Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales (Department of Trade and Investment; Regional Infrastructure and Services 2010).

SPECIAL CONDITIONS

Note: The standard conditions apply to all mining leases. The Division of Resources & Energy (DRE) reserves the right to impose special conditions, based on individual circumstances, where appropriate.

MINING LEASE

MINING ACT 1992

NO 1750

DATED 3 MARCH 2017

THE MINISTER FOR RESOURCES

OF THE STATE

OF NEW SOUTH WALES

TO

MACH ENERGY
AUSTRALIA PTY LTD
ACN 608 495 441

Mining Lease Application No **524**

Mining Lease

Section 63 of the *Mining Act 1992*

I, **THE HON DONALD HARWIN MLC, MINISTER FOR RESOURCES** for the State of New South Wales, pursuant to section 63 of the *Mining Act 1992*, determine Mining Lease Application No **524** by granting a Mining Lease as described in Schedule 1 to **MACH ENERGY AUSTRALIA PTY LTD, ACN 608 495 441**, subject to the conditions set out in Schedule 2.

The conditions set out in Schedule 2 are required to:

- ensure optimal resource recovery;
- prevent, minimise, and offset adverse environmental impacts;
- provide for the ongoing environmental management of the project; and
- ensure that the areas disturbed by mineral production and exploration activities are appropriately rehabilitated.

The rights and duties of a Lease Holder are those prescribed by the *Mining Act 1992*, subject to the terms and conditions of this Lease. This lease does not override any obligation on the Lease Holder to comply with the requirements of other legislation and regulatory instruments which may apply to the Lease Holder (including all relevant development approvals) unless specifically provided in the *Mining Act 1992* or other legislation or regulatory instruments.

SIGNED

Don Harwin MLC
Minister for Resources

Dated: 3.3.17

SCHEDULE 1

Description of Lease

Land: The lease area embraces all land described in the attached lease plan titled **M27410** and approved on **4 October 2016**.

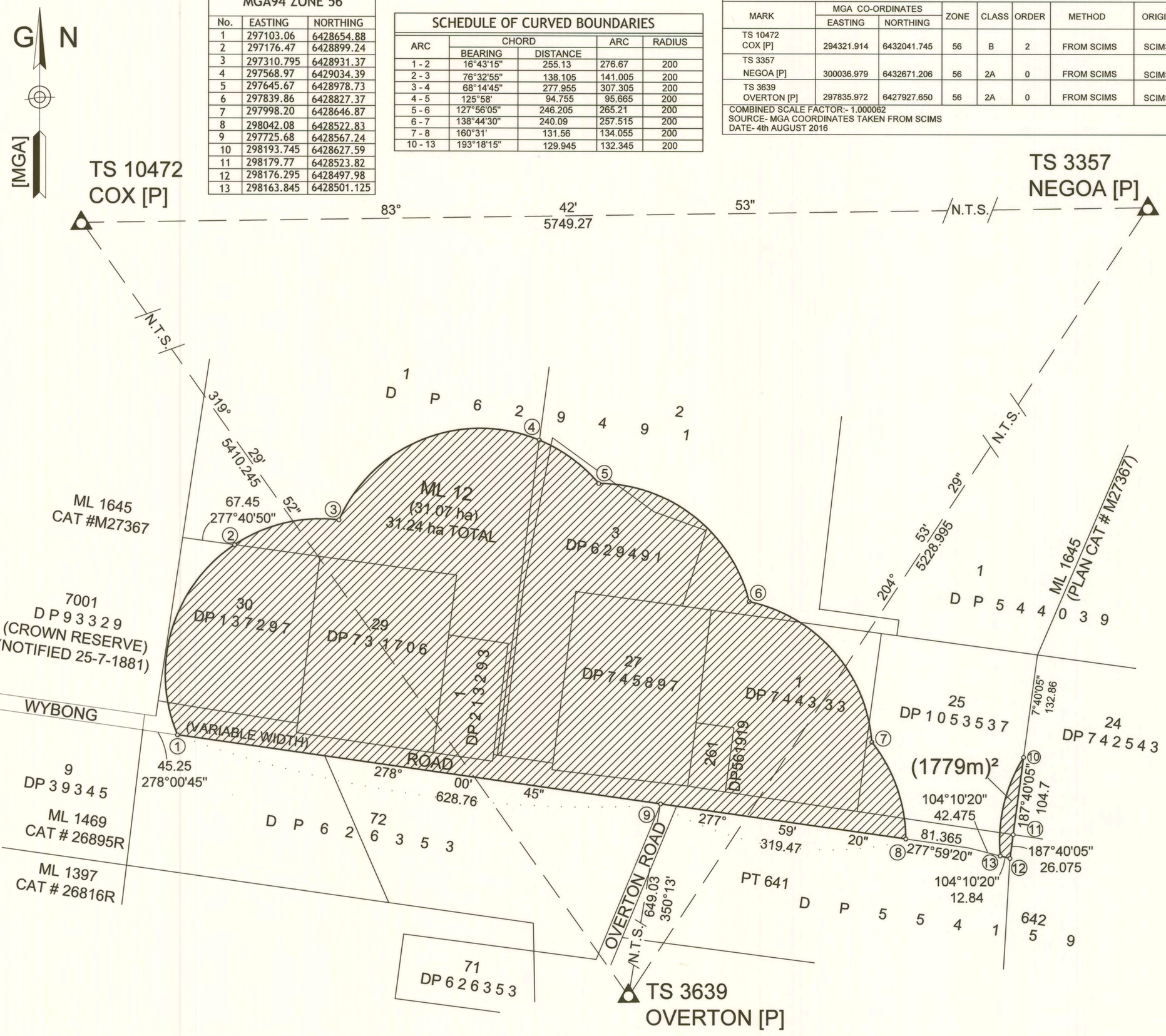
Area:	**31.24 hectares**
Surface Exception:	**Nil**
Depth Restriction:	**15 metres**
Minerals:	**Coal**
Method:	**Open cutting**
Term:	**21 years**
Due expiry date:	**3 March 2038**

MGA94 ZONE 56		
No.	EASTING	NORTHING
1	297103.06	6428654.88
2	297176.47	6428899.24
3	297310.795	6428931.37
4	297568.97	6429034.39
5	297645.67	6428978.73
6	297839.86	6428827.37
7	297998.20	6428646.87
8	298042.08	6428522.83
9	297725.68	6428567.24
10	298193.745	6428627.59
11	298179.77	6428523.82
12	298176.295	6428497.98
13	298163.845	6428501.125

SCHEDULE OF CURVED BOUNDARIES				
ARC	CHORD		ARC	RADIUS
	BEARING	DISTANCE		
1 - 2	16°43'15"	255.13	276.67	200
2 - 3	76°32'55"	138.105	141.005	200
3 - 4	68°14'45"	277.955	307.305	200
4 - 5	125°58'	94.755	95.665	200
5 - 6	127°56'05"	246.205	265.21	200
6 - 7	138°44'30"	240.09	257.515	200
7 - 8	160°31'	131.56	134.055	200
10 - 13	193°18'15"	129.945	132.345	200

SURVEYING & SPATIAL INFORMATION REGULATION 2012 CLAUSE 35(1)(b) and CLAUSE 61(2)							
MARK	MGA CO-ORDINATES		ZONE	CLASS	ORDER	METHOD	ORIGIN
	EASTING	NORTHING					
TS 10472 COX [P]	294321.914	6432041.745	56	B	2	FROM SCIMS	SCIMS
TS 3357 NEGOA [P]	300036.979	6432671.206	56	2A	0	FROM SCIMS	SCIMS
TS 3639 OVERTON [P]	297835.972	6427927.650	56	2A	0	FROM SCIMS	SCIMS

COMBINED SCALE FACTOR:- 1.000062
SOURCE- MGA COORDINATES TAKEN FROM SCIMS
DATE- 4th AUGUST 2016



PLAN OF PORTION ML 12

PARISH: ELLIS & CLANRICARD

COUNTY: BRISBANE

MAP SHEET No. 9033-2-N

REDUCTION RATIO 1: 3,500

MINING LEASE APPLICATION No. 524

MINING DIVISION: SINGLETON

APPLICANT: MACH ENERGY AUSTRALIA PTY LTD

APPLICATION DATE: 06/04/2016

MINING LEASE No.

STATUS:

METHOD: OPEN CUT

SURFACE EXCEPTION / DEPTH RESTRICTION

Embraces the surface & soil below thereof to a depth of 15 metres

NOTES:

Azimuth:

Plans used in the course of this survey/compilation
M27095

Survey declared on this plan for lines

I COLIN GEOFFREY ROGERS
OF MUSWELLBROOK NSW 2333
a surveyor registered under the Surveying and Spatial Information Act 2002, hereby certify that the survey /compilation represented in this plan is accurate and has been completed in accordance with the Surveying and Spatial Information Regulation 2012 and the Surveyor General's Direction for Mining Surveys and was completed on 4/8/2016

Signature :

BOSSI Identification No : 1927

FORM10

Survey Calcs :
Plan Investigated : 30-09-2016
Plan Approved : 7-10-2016
Paper No : T16-1503

R 17009237
D 110097800

M27410

Schedule 2

MINING LEASE CONDITIONS 2013

Definitions

1. Notice to Landholders

2. Rehabilitation

3. Mining Operations Plan and Annual Rehabilitation Report

4. Compliance Report

5. Environmental Incident Report

6. Extraction Plan

7. Resource Recovery

8. Group Security

9. Cooperation Agreement

Note: Exploration Reports (Geological and Geophysical)

Definitions:

Words used in this mining lease have the same meaning as defined in the *Mining Act 1992* except where otherwise defined below:

Act means the *Mining Act 1992.*

Department means the Division of Resources & Energy within the Department of Industry, Skills and Regional Development.

Environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997.*

Landholder for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

Material harm to the environment has the same meaning as in the *Protection of the Environment Operations Act 1997*.

Minister means the Minister administering the Act.

Pollution incident has the same meaning as in the *Protection of the Environment Operations Act 1997.*

MINING LEASE CONDITIONS 2013

1. Notice to Landholders

(a) Within a period of three months from the date of grant/renewal of this mining lease, the lease holder must serve on each landholder a notice in writing indicating that this mining lease has been granted/renewed and whether the lease includes the surface. A plan identifying each landholder and individual land parcel subject to the lease area, and a description of the lease area must accompany the notice.

(b) If there are ten or more landholders, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this mining lease has been granted/renewed; state whether the lease includes the surface and must contain a plan and description of the lease area. If a notice is made under condition 1(b), compliance with condition 1(a) is not required.

2. Rehabilitation

Any disturbance resulting from the activities carried out under this mining lease must be rehabilitated to the satisfaction of the Minister.

3. Mining Operations Plan and Annual Rehabilitation Report

(a) The lease holder must comply with an approved Mining Operations Plan (MOP) in carrying out any significant surface disturbing activities, including mining operations, mining purposes and prospecting. The lease holder must apply to the Minister for approval of a MOP. An approved MOP must be in place prior to commencing any significant surface disturbing activities, including mining operations, mining purposes and prospecting.

(b) The MOP must identify the post mining land use and set out a detailed rehabilitation strategy which:

(i) identifies areas that will be disturbed;

(ii) details the staging of specific mining operations, mining purposes and prospecting;

(iii) identifies how the mine will be managed and rehabilitated to achieve the post mining land use;

(iv) identifies how mining operations, mining purposes and prospecting will be carried out in order to prevent and or minimise harm to the environment; and

(v) reflects the conditions of approval under:

- the *Environmental Planning and Assessment Act 1979;*
- the *Protection of the Environment Operations Act 1997;* and

- any other approvals relevant to the development including the conditions of this mining lease.

(c) The MOP must be prepared in accordance with the *ESG3: Mining Operations Plan (MOP) Guidelines September 2013* published on the Department's website at www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-and-forms/pgf/environmental-guidelines

(d) The lease holder may apply to the Minister to amend an approved MOP at any time.

(e) It is not a breach of this condition if:

(i) the operations which, but for this condition 3(e) would be a breach of condition 3(a), were necessary to comply with a lawful order or direction given under the *Environmental Planning and Assessment Act 1979*, the *Protection of the Environment Operations Act 1997,* the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* or the *Work Health and Safety Act 2011*; and *Work Health and Safety Regulation 2011*

(ii) the Minister had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.

(f) The lease holder must prepare a Rehabilitation Report to the satisfaction of the Minister. The report must:

(i) provide a detailed review of the progress of rehabilitation against the performance measures and criteria established in the approved MOP;

(ii) be submitted annually on the grant anniversary date (or at such other times as agreed by the Minister); and

(iii) be prepared in accordance with any relevant annual reporting guidelines published on the Department's website at www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-and-forms/pgf/environmental-guidelines

Note: The Rehabilitation Report replaces the Annual Environmental Management Report.

4. Compliance Report

(a) The lease holder must submit a Compliance Report to the satisfaction of the Minister. The report must be prepared in accordance with any relevant guidelines or requirements published by the Minister for compliance reporting.

(b) The Compliance Report must include:

(i) the extent to which the conditions of this mining lease or any provisions of the Act or the regulations applicable to activities under this mining lease, have or have not been complied with;

(ii) particulars of any non-compliance with any such conditions or provisions,

(iii) the reasons for any such non-compliance;

(iv) any action taken, or to be taken, to prevent any recurrence, or to mitigate the effects, of that non-compliance.

(c) The Compliance Report must be lodged with the Department annually on the grant anniversary date for the life of this mining lease.

(d) In addition to annual lodgement under condition 4(c) above, a Compliance Report:

(i) must accompany any application to renew this mining lease under the Act;

(ii) must accompany any application to transfer this mining lease under the Act; and

(iii) must accompany any application to cancel, or to partially cancel, this mining lease under the Act.

(e) Despite the submission of any Compliance Report under (c) or (d) above, the titleholder must lodge a Compliance Report with the Department at any date or dates otherwise required by the Minister.

(f) A Compliance Report must be submitted one month prior to the expiry of this mining lease, where the licence holder is not seeking to renew or cancel this mining lease.

5. Environmental Incident Report

(a) The lease holder must notify the Department of all:

(i) breaches of the conditions of this mining lease or breaches of the Act causing or threatening material harm to the environment; and

(ii) breaches of environmental protection legislation causing or threatening material harm to the environment (as defined in the *Protection of the Environment Operations Act 1997*),

arising in connection with significant surface disturbing activities, including mining operations, mining purposes and prospecting operations, under this mining lease. The notification must be given immediately after the lease holder becomes aware of the breach.

Note. Refer to www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-and-forms/pgf/environmental-guidelines for notification contact details.

(b) The lease holder must submit an Environmental Incident Report to the Department within seven (7) days of all breaches referred to in condition 5(a)(i) and (ii). The Environmental Incident Report must include:

(i) the details of the mining lease;

(ii) contact details for the lease holder;

(iii) a map identifying the location of the incident and where material harm to the environment has or is likely to occur;

(iv) a description of the nature of the incident or breach, likely causes and consequences;

(v) a timetable showing actions taken or planned to address the incident and to prevent future incidents or breaches referred to in 5(a).

(vi) a summary of all previous incidents or breaches which have occurred in the previous 12 months relating to significant surface disturbing activities, including mining operations, mining purposes and prospecting operations under this mining lease.

Note. The lease holder should have regard to any relevant Secretary's guidelines in the preparation of an Environmental Incident Report. Refer to www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-and-forms/pgf/environmental-guidelines for further details.

(c) In addition to the requirements set out in conditions 5(a) and (b), the lease holder must immediately advise the Department of any notification made under section 148 of the *Protection of the Environment Operations Act 1997* arising in connection with significant surface disturbing activities including mining operations, mining purposes and prospecting operations, under this mining lease.

6. Extraction Plan

(a) In this condition:

(i) **approved Extraction Plan** means a plan, being:

A. an extraction plan or subsidence management plan approved in accordance with the conditions of a relevant development consent and provided to the Secretary; or

B. a subsidence management plan relating to the mining operations subject to this lease:

I. submitted to the Secretary on or before 31 December 2014; and

II. approved by the Secretary.

(ii) **relevant development consent** means a development consent or project approval issued under the Environmental Planning & Assessment Act 1979 relating to the mining operations subject to this lease.

(b) The lease holder must not undertake any underground mining operations that may cause subsidence except in accordance with an approved Extraction Plan.

(c) The lease holder must ensure that the approved Extraction Plan provides for the effective management of risks associated with any subsidence resulting from mining operations carried out under this lease.

(d) The lease holder must notify the Secretary within 48 hours of any:

(i) incident caused by subsidence which has a potential to expose any person to health and safety risks;

(ii) significant deviation from the predicted nature, magnitude, distribution, timing and duration of subsidence effects, and of the potential impacts and consequences of those deviations on built features and the health and safety of any person; or

(iii) significant failure or malfunction of a monitoring device or risk control measure set out in the approved Extraction Plan addressing:

A. built features;

B. public safety; or

C. subsidence monitoring.

(e) Resource Recovery

The lease holder must optimise recovery of the minerals that are the subject of this mining lease to the extent economically feasible.

(f) Group Security

The lease holder is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the mining lease, including obligations of all or any kind under the mining lease that may arise in the future.

The amount of the security deposit to be provided as a group security has been assessed by the Minister at **$11,996,000**.

The leases covered by the group security include:

Mining Lease 1645, 1708, 1709 and 1713 (Act 1992)

This group security is extended to apply to this lease.

9. Cooperation Agreement

The lease holder must make every reasonable attempt, and be able to demonstrate its attempts, to enter into a cooperation agreement with the holder(s) of any overlapping title(s). The cooperation agreement should address but not be limited to issues such as:

- access arrangements
- operational interaction procedures
- dispute resolution
- information exchange
- well location
- timing of drilling
- potential resource extraction conflicts; and
- rehabilitation issues.

Exploration Reporting

Note: *Exploration Reports (Geological and Geophysical)*

The lease holder must lodge reports to the satisfaction of the Minister in accordance with section 163C of the Mining Act 1992 and in accordance with clause 57 of the Mining Regulation 2010.

Reports must be prepared in accordance with Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales.

SPECIAL CONDITIONS

Note: The standard conditions apply to all mining leases. The Division of Resources & Energy (DRE) reserves the right to impose special conditions, based on individual circumstances, where appropriate.