BLOOMFIELD

MINING OPERATIONS (BLOOMFIELD COLLIERY)

MINE CLOSURE PLAN

Ver	Date	Description	By	Chk	App
1	30/05/12	Original Draft	GL		
2	28/06/12	Final	GL	JH	GB
3	28/08/17	Revised and Updated	GL		BC
4	3/11/17	Revised Final – incorporating DPE consultation	GL		BC

CONTENTS

INTRODUCTION

This Mine Closure Plan (MCP) has been prepared in response to Project Approval, 07_0087, (Approval) granted under section 75J of the Environmental Planning and Assessment Act (EP&A) and Modifications issued under section 75w of the Environmental Planning and Assessment Act 1979.

The MCP takes into consideration the commitments stated in the Part 3A Environmental Assessment, various conditions outlined in schedules 2 to 5 of the Approval granted under Section 75 J of the Environmental Planning and Assessment Act 1979. In addition, commitments outlined in Bloomfield Group Environment Management Policy are also taken into account.

PURPOSE AND OBJECTIVES

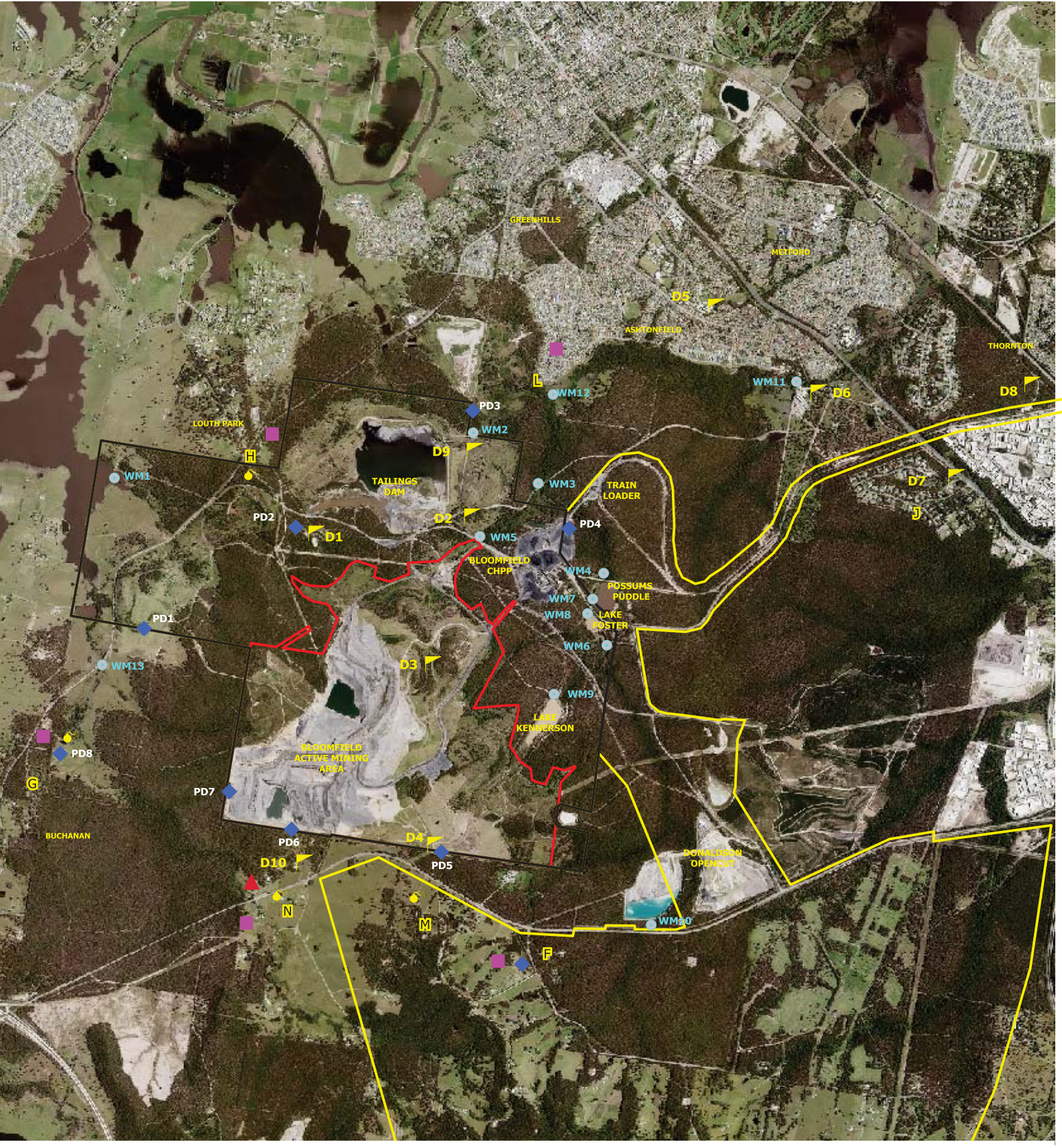
The purpose of the MCP is to:

- address the relevant conditions of the development consent;
- address commitments made within the Environmental Assessment;
- address legislative requirements and guidelines relevant to the MCP and related management plans; and
- provide a clear and concise description of responsibilities in relation to Landscape Management (including Rehabilitation, Final Void Management & Mine Closure) during the operation and subsequent closure of the Bloomfield group mining operations.

SCOPE

This MCP outlines the planning strategy for the cessation of mining operations covered by the project area as shown in Figure 1. It should be noted that the scope of this plan specifically addresses the area covered by the Approval. The Coal Handling Preparation Plant (CHPP) and associated infrastructure will continue to operate after mining operations cease and is operating under the Abel Coal Project (05_0136).

The Bloomfield Colliery Mining Operations Plan 2012-2016 (MOP) approved by DRG provides a detailed outline of the objectives, closure criteria and monitoring for mine closure on a domain by domain basis covering CCL761 and ML1738. This includes the CHPP operating under the Abel Coal Project (05_0136). The current approved MOP has been extended by DRG and expires 31 December 2017. A MOP Amendment has been submitted to DRG to extend the expiry date to 30 June 2018.



LEGEND

0 1 km

N

- Bloomfield Project Area
- Abel Mine Project Area
- Bloomfield Mining Lease
- Blast Monitor
- Dust Monitor
- High Volume Air Sampler
- Noise Monitor
- Peizometers
- Water Monitoring

THE Bloomfield GROUP

Bloomfield Colliery

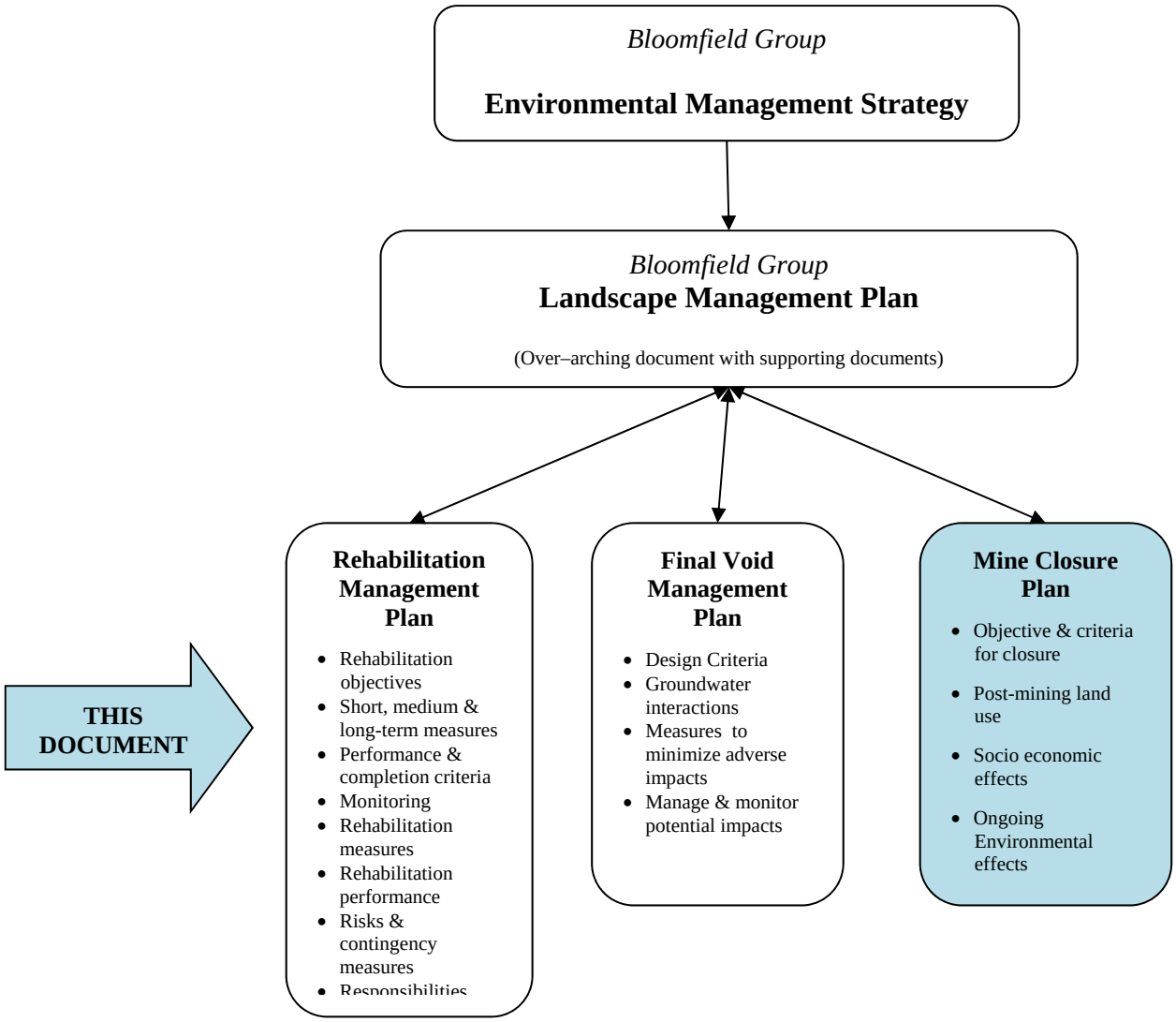
Mine Closure Plan

Figure 1 Bloomfield Colliery Project Area

Scale: 1:33,333	Date: January 2016 Photo: January 2016	Drawing: A3

RELATIONSHIP WITH OTHER PLANS

The EMS establishes the overall environmental management strategy for mining and related activities on the site. The LMP provides the framework for rehabilitation and mine closure related issues. This document, the MCP outlines the planning strategy for the cessation of mining operations at the Bloomfield Colliery.



RELATIONSHIP WITH OTHER DOCUMENTS

STATUTORY OBLIGATIONS

Approval was granted by the Minister for Planning on 3 September 2009 under Section 75J of the Environmental Planning and Assessment Act, 1979. Section 29 of Schedule 3 of the Approval states that:

Requirement	MCP Reference
The Mine Closure Plan must:	
(a) be prepared in consultation with DRE and Council;	Appendix B
(b) define the objectives and criteria for mine closure;	Appendix A
(c) investigate options for the future use of the site in a manner consistent with the Lower Hunter Regional Strategy (Department of Planning, 2006) and/or other extant regional planning strategies;	Future Land Use Options
(d) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local employment levels;	Socio-Economic Effects of Mine Closure
(e) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and	Post Closure Management Measures
(f) describe how the performance of these measures would be monitored over time.	Post Closure Monitoring, Appendix A

In addition to the Approval granted under the Environmental Planning and Assessment Act, 1979 there is a range of other relevant legislation that has been taken into consideration in developing the MCP. These include the Mining Lease and requirements of the Environment Protection Licence (EPL) that must be satisfied.

CONSULTATION WITH REGULATORY AUTHORITIES

This MCP has been prepared in consultation with Department of Resources and Geosciences (DRG) and Cessnock City Council. Evidence of consultation is provided in Appendix B. The closure, decommissioning and rehabilitation process will be regulated by the DRE. Relevant agencies will be consulted throughout the process and include the following:

- environmental inspections following the submission of the Annual Environmental Management Report
- submission of Mining Operations Plan for Closure, Decommissioning and Rehabilitation;
- periodic inspections with Departmental throughout closure process;
- the preparation and submission to DRE of "as constructed" drawings of final landforms on completion of decommissioning.

Throughout the mining phase, copies of the AEMR will continue to be distributed to the relevant authorities to enable feedback on the strategy and overall progress of rehabilitation.

ROLES AND RESPONSIBILITIES

The company directors are responsible for the overall rehabilitation and environmental performance of Bloomfield Colliery. Senior Operational managers have direct responsibility for the mine closure process. The Environmental Officer provides direction and advice to ensure site environmental compliance is maintained. The key management positions are shown are shown in Table 1.

Table 1 MANAGEMENT TEAM

Position	Name
Managing Director	John Richards
Manager Technical Services	Simon Grassby
Manager of Mining Development	Garry Bailey
Mine Manager	Brendon Clements
Environmental Officer	Greg Lamb

OBJECTIVES AND CRITERIA FOR MINE CLOSURE

Mine closure planning at Bloomfield Colliery has been undertaken to develop key site specific objectives. These objectives have been developed to provide strategic direction for the mine closure process at Bloomfield Colliery according to the following criteria:

- Rehabilitation and rehabilitation outcomes consistent with the Environmental Assessment which formed the basis of approval;
- All infrastructure not agreed (with the land-owner) to remain post-mining will be rehabilitated;
- The land will represent a minimal source of offsite environmental impacts, such as dust, water pollution, visual amenity and weeds and will require ongoing management inputs no greater than similar adjacent land;
- Rehabilitation will be compatible with the proposed post-mining land-use (mixed used development);
- Landforms will be safe and stable and will be will be recontoured to a landform compatible with the surrounding natural landscape;
- Land capability will be returned to a class similar to that existing prior to the commencement of mining.
- Rehabilitated land will be sown with pasture grass and / or native vegetation species.

The Bloomfield Colliery Mining Operations Plan (MOP) approved by DRE provides a detailed outline of the objectives and criteria for mine closure on a domain by domain basis covering the entire CCL761 and ML1738. A summary closure criteria is provided in Appendix A.

FUTURE LAND USE OPTIONS

Mining operations are approved on site to 31 December 2021. The Bloomfield CHPP, rail loading facility, tailings dam and associated infrastructure will continue to operate after the mining is scheduled to be completed, so active washery infrastructure and transport will continue in the mining lease area. Further details are provided in the following pages.

Figure 2 shows the final rehabilitation and post-mining landuse as at end of mining and rehabilitation operations in 2021.

Selection of an appropriate post-mining land use and development of a suitable post mining landform is an integral part of this MCP. The main factors influencing the selection of an appropriate post-mining landform and land use are:

- The Lower Hunter Regional Strategy (DoP, 2006);
- The Ashtonfield Agreement;
- The Stony Pinch Consortium; and
- The Bloomfield CHPP, rail loading facility and associated infrastructure.

Lower Hunter Regional Strategy

The Lower Hunter Regional Strategy, prepared by DoP (2006), is a land use planning document that outlines the provision of sufficient, appropriately placed housing and employment land to cater for the Region's predicted growth over the next 25 years. The strategy is based on population growth projections forecasting an additional 160,000 people in the Region by 2031.

The Bloomfield mine lies on land which the Lower Hunter Regional Strategy identifies as part of land a 'future freight hub and employment lands'. It will provide an opportunity for the storage, transfer and distribution of containerised freight and associated employment. Discussions regarding the final land use for the site are an ongoing part of the project and are being held between Bloomfield, the land owners and the relevant government agencies. Rehabilitation of the area will enable future development of the site consistent with this Strategy.

Ashtonfield Agreement

Bloomfield has entered into a commercial lease agreement with the majority landowner, Ashtonfield Pty Ltd, with regards to rehabilitation obligations for disturbed land at Bloomfield. In this document, Bloomfield Mine is referred to as "Four Mile Creek Mine". The agreement sets out general obligations such as the requirement to provide a safe and stable landform. It also sets out specific criteria for the removal of infrastructure and the rehabilitation of overburden dumps, roads, final voids, dams and tailings emplacements. Henceforth, this plan is referred to as the Ashtonfield Agreement.

The Stony Pinch Consortium

The Stony Pinch Consortium (SP Consortium) is comprised of Ashtonfields Pty Limited, Donaldson Coal Pty Limited and The Bloomfield Group who are the major landowners of the site and surrounding area. The SP Consortium was established through a formal legal agreement in 2008 which legally binds the individual landowners to act as a coordinated and single entity in the planning and development of the overall site. The legal agreement ensures that individual landowner interests in the site are replaced by a single, shared interest in all land use and development outcomes.

The *Lower Hunter Regional Strategy* (DoP 2006) recognises the strategic significance of the SP site, designating it as a large scale future freight hub and employment lands destination and directing that structure planning for the site should commence.

Currently, the SP site is home to the Bloomfield, Donaldson and Abel coal mining operations that contribute to the Lower Hunter Region's employment and economic prosperity. Over the next 30 years these mines will be gradually decommissioned, creating both short and long term rehabilitation and development opportunities on the site.

In August 2010 the SP Consortium submitted an application to the NSW Department of Planning (DoP) requesting the site be declared a State Significant Site. In March 2011 DoP responded that an alternative decision making process be considered given the regional significance of the proposal. DoP recognized the need to commence studies and engage with relevant government agencies in formulating development and rehabilitation opportunities on the site and the Department offered the assistance of their Project Delivery Unit.

Since then the consortium has:

- Engaged with key state and local government stakeholders;
- Undertaken further studies to advance the thinking about the vision for Stony Pinch;
- Refined the Structure Plan presented in the August 2010 application, to identify a broad plan of future conservation and urban areas;
- Develop a Biodiversity Offset Strategy framework that outlines an approach to avoid, mitigate and offset impacts of the project on biodiversity.

In March 2012 the Stony Pinch Consortium submitted a refined development plan to NSW Department of Planning and Infrastructure (DP&I). The purpose of the report is to demonstrate that the proposal is consistent with state and regional strategic planning policy and provide information to enable the DP&I to advise the Consortium as to the appropriate planning approval pathway to advance the project.

The Report also identifies Stage 1 of the project that is ready to commence immediately and the intention to lodge a formal planning application in the first half of 2012 (Stage 1 is not located within the Bloomfield mining lease area).

In October 2013 Maitland Council adopted the Maitland Urban Settlement Strategy (MUSS). The MUSS identifies the entire Stony Pinch Consortium landholding as a Preliminary Investigation Area. The purpose of these Areas under the MUSS is to prioritise where Council will focus efforts in considering the direction for future land use and settlement patterns.

In September 2014 an Ecological Constraints Assessment for the proposed Stage 1 of the Stony Pinch development was conducted.

The Bloomfield CHPP

The Bloomfield CHPP, rail loading facility and associated infrastructure will continue to operate after the mining is scheduled to be completed, so active washery infrastructure and transport will continue in the mining lease area.

The CHPP, rail loading facility and associated infrastructure was approved under Project Approval 05_0136 for the Abel Underground Mine. Project Approval 05_0136 was issued to Donaldson Coal (owned by Yancoal) and was granted in June 2007. It allows for the Abel Underground Mine as well as the continued use of the Bloomfield CHPP and rail loading facility, management of water associated with the CHPP, coarse reject and tailings disposal and coal handling.

These items associated with the operation of the CHPP, are used to process coal from Bloomfield and Abel Underground Mine. Project Approval 05_0136 permits operations until 2030.

A final void will remain at the end of Bloomfield mining operations. This void will be used as the tailings dam for the CHPP which will continue to process coal from the Abel mine.

SOCIO-ECONOMIC EFFECTS OF MINE CLOSURE

Project Approval (07_0087) is granted until 2021. It is recognised that the cessation of mining operations will result in socio economic impacts to the local and regional community through the loss of full time employment opportunities and a reduction in demand for associated support businesses and service providers.

It is anticipated that the long term planning for mine closure at Bloomfield Colliery will allow for employees, contractors and service providers to be given appropriate time to prepare. The process for the final cessation of mining operations, decommissioning of related infrastructure and the subsequent development of the final landform design will progress in a staged manner to ensure any significant socio economic impacts are minimised.

The existing workforce will be retained until the cessation of coal mining. It is then anticipated that a reduced crew will be retained to complete any final decommissioning and rehabilitation works.

As discussed previously, the CHPP and associated operations will continue after mining operation finish. The existing workforce employed to operate the CHPP, rail loading facility and tailings dam will be retained after mining operations cease.

The Bloomfield Group also owns the Rix's Creek Mine at Singleton and is actively conducting exploration activities for future mining projects. Some employees will be retained as part of the CHPP operations, transferred to the Rix's Creek Mine or be utilised in the development of future mining projects.

Some other key aspects that will need to be considered in relation to human resource issues moving towards closure include:

- Communication with workforce regarding closure. A communication strategy needs to be developed to ensure that the workforce remains informed;
- Retaining of key technical staff and mine workers required to implement closure of the mining operations;

- Investigate the transfer of employment to another mine site or to another operation within the Bloomfield Group;
- Redundancy packages to be offered if employment at other Bloomfield sites is not possible; and
- Counseling, career advice and training services to be offered to employees.

POST CLOSURE MANAGEMENT MEASURES

The measures to be implemented to minimise or manage the ongoing environmental effects of the mining operations are grouped into the following:

- Air quality;
- Surface Water;
- Groundwater; and
- Rehabilitation.

Air Quality

The main area of concern with regard to air quality impacts during mine closure is dust emissions. Dust generation may occur as a result of the emplacement of overburden and interburden material, subsoil and topsoil, as well as during the period of exposure before groundcover is established during rehabilitation. Dust management during mine closure will continue to be carried out in accordance with Project Approval and EPL conditions.

The methodology for air quality monitoring is established in the Bloomfield Colliery Air Quality Monitoring Program. Existing mitigation techniques and monitoring methods will continue to be carried out throughout the progression of the mine closure.

As outlined in the Rehabilitation Management Plan (PMP)**,** minimisation of exposed areas by having progressively rehabilitated disturbed land throughout the life of the mine will result in a smaller final exposed area of disturbance. The RMP also outlines the procedure for rehabilitation.

Surface Water

Surface flows will continue to be directed through a series of drains to the site water storage dams. Appropriate catchment management will be undertaken for the final landform to ensure there is no residual risk of contamination or nutrient enrichment occurring in site water storage dams and drainage structures. Surface water monitoring will be conducted for a minimum of five years after the completion of rehabilitation, in accordance with the methods outlined in the Water Management Plan and reported in the AEMR.

Groundwater

Monitoring of groundwater in the vicinity of the mine will continue for a minimum of five years after the completion of rehabilitation to ensure no adverse impacts on the groundwater system occur. Monitoring will be conducted as per the Water Management Plan, with analysis of groundwater data reported in the AEMR.

Rehabilitation

Rehabilitation of the mine site area is proposed to be rehabilitated in accordance with its pre mining land capability to create a stable, undulating landscape with a mix of pasture and tree areas suitable for grazing and general habitat. Mitigation of potential impacts on ecological systems will be mitigated through use of the Completion Criteria outlined in the MOP. A summary closure criteria is provided in Appendix A.

POST CLOSURE MONITORING

Bloomfield employs an extensive environmental monitoring program as part of the Bloomfield Colliery environmental monitoring network, as required by PA 07_0087 and EPL 396. This program is designed to incorporate all impact assessment criteria and other regulatory required monitoring regimes and includes monitoring of the following:

- Air quality;
- Noise and blasting
- Surface and groundwater quality
- Rehabilitation assessments;
- Erosion assessments; and
- Visual and lighting assessments.

This monitoring network will be reviewed in consultation with DRE and Office of Environment and Heritage (OEH) to ensure it is appropriate for closure prior to the completion of mining operations. The reviewed monitoring program will continue to operate for a period of five years following the completion of mining operations or until lease relinquishment is achieved. Monitoring results during the mine closure phase will continue to be reported in the Bloomfield Colliery AEMR.

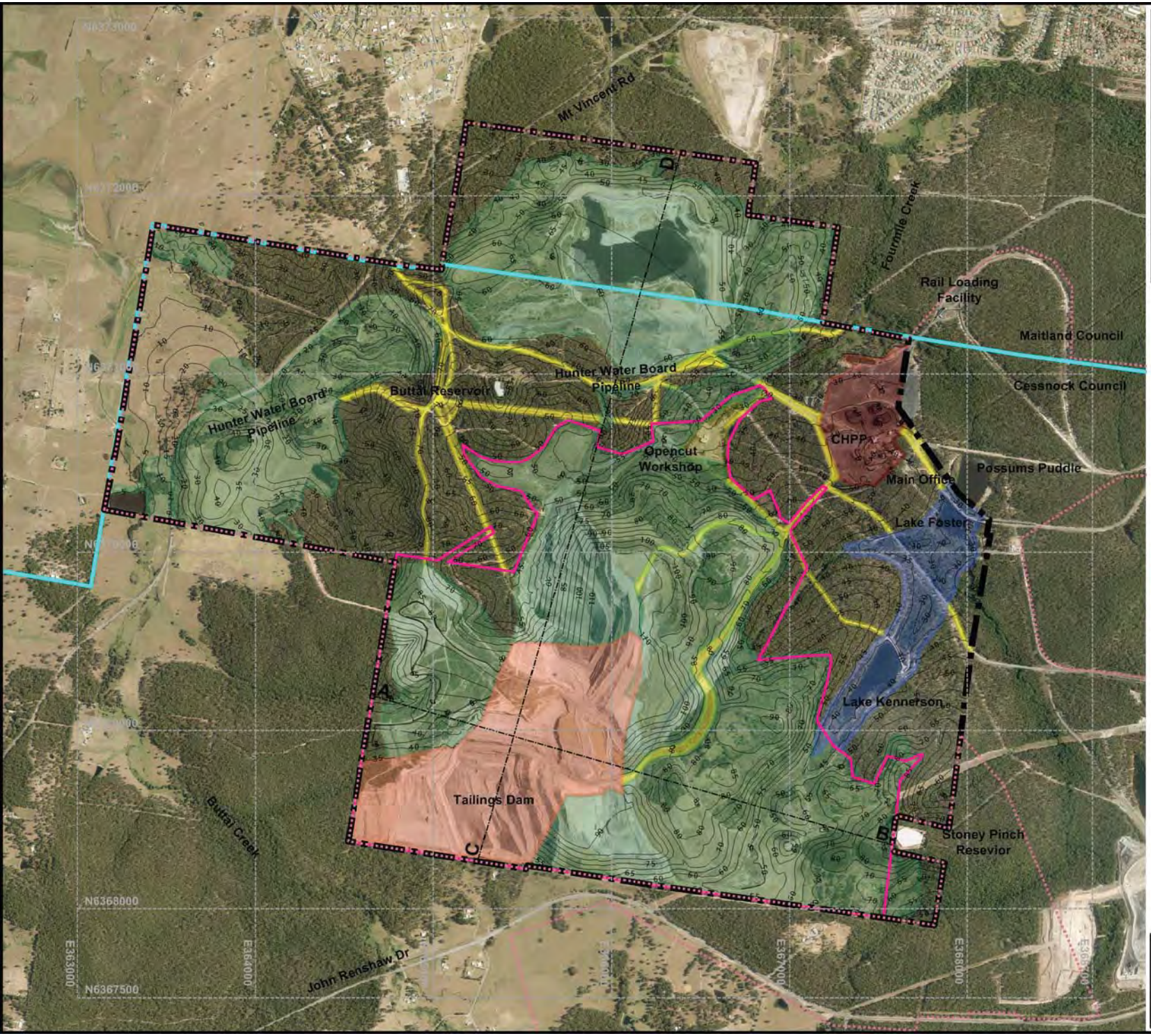
Monitoring of the environment within and surrounding Bloomfield Colliery will include the assessment of:

- Air quality impacts;
- Surface and groundwater levels and quality;
- Landform stability and landscape design performance; and
- Vegetation community establishment.

Rehabilitation Management Plan

As part of the RMP, Bloomfield Colliery has established Completion Criteria that identifies and outlines a number of criteria which have been developed as a result of previous onsite rehabilitation successes as well as generally accepted industry practices. In accordance with the RMP, performance and completion criteria for rehabilitation areas will be assessed periodically post seeding. The adopted criteria provide a simple and effective checklist which enables objective testing of rehabilitation success and will continue to be utilised following the completion of mining operations.

FIGURE 2



Bloomfield Collieries Pty Ltd

Mine Closure Plan

Figure 2 - Final Rehabilitation and Post-mining Landuse

Scale	Date	Datum
1:20,000	30/03/2012	MGA

Map Prepared by Greg Lamb

Legend

- CCL 761 / ML-----
- 07-0087 Approval Area (Mod 1)
- 05-0136 Able Coal Project
- Council Boundary
- Surface Contours 5 m
- Sections
- CHPP Domain Area
- Tailings Dam Domain Area
- Water System Domain Area
- Infrastructure Domain Area
- Open Cut Workshop Domain Area
- Rehabilitation Domain Area
- Orthophotomap - Feb 2011

Source:
Mining Operation Plan
2012 - 2016

THE Bloomfield GROUP

APPENDIX A

COMPLETION CRITERIA TABLE

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
1: CHPP	Where not required in the Ashtonfield Agreement, all buildings and fixed plant will be demolished and removed from the site. The landform will be re-graded and contoured to be compatible with surrounding natural landscape and seeded with a pasture grass seed mix suitable for grazing purposes.	Decommissioning	Services disconnected and removed.	All infrastructure not required under Ashtonfield Agreement, or identified for post-closure landuse, removed.	Ashtonfield Agreement
			Buildings and fixed plant removed.		
			Fuel tanks removed and soil contamination remediated.		
			Carbonaceous material stripped and placed in mine void.		
		Landform Establishment	Maximum slopes gradients less than 10°.	< 10 degrees.	Ashtonfield Agreement
			Drainage designed to utilise existing sediment control structures.	Completed	Rehabilitation Management Plan
			Area deep ripped to reduce compaction.	Completed	Rehabilitation Management Plan
		Growth Medium Development	Suitable top soil material applied.	Completed	Rehabilitation Management Plan
			Biosolids application.	100 t/Ha	NSW EPA: Use and Disposal of Biosolids Products (2000)
			Soil ameliorant application (Lime, Gypsum) if required.	Dependant on soil analysis	Dependant on soil analysis
			Soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan
		Ecosystem Establishment	Appropriate pasture species seed selected	Completed	Environmental Assessment
			Seeding rate	50 kg /Ha	
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
			Litter cover %	Present at 75% of sites.	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
			Tree species displaying successful recruitment	Evidence of successful recruitment	Rehabilitation Management Plan
2: Tailings Dam	Use of rehabilitated tailings emplacements for post-closure infrastructure is unlikely due to increased stability risks, and rehabilitation will consist of stable, undulating, self draining, landforms with a mixed cover of pasture and native woodland vegetation.	Decommissioning	All pumping infrastructure removed.	Infrastructure removed.	Ashtonfield Agreement
		Landform Establishment	Capping of tailings material	2 metres	Ashtonfield Agreement
			Slope gradients generally less than 10^{o}, no slopes greater than 18^{o}.	< 18 degrees.	Ashtonfield Agreement
			Drainage designed to utilise existing sediment control structures and integrated with the drainage features on the adjacent landscape.	Completed	Rehabilitation Management Plan
		Growth Medium Development	Suitable top soil material applied.	Completed	Rehabilitation Management Plan
			Biosolids application.	100 t/Ha	NSW EPA: Use and Disposal of Biosolids Products (2000)
			Soil ameliorant application (Lime, Gypsum) if required.	Dependant on soil analysis	Dependant on soil analysis
			Soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
		Ecosystem Establishment	Appropriate pasture grass species seed selected	Completed	Environmental Assessment
			Seeding rate	50 kg /Ha	
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
3: Water Reticul-ation System	Under the Ashtonfield Agreement the major water storage dams will remain after operations cease. After removal of associated infrastructure disturbed areas will be seeded with a pasture grass seed mix or native species depending on surrounding vegetation.	Decommissioning	All pumping infrastructure removed.	Infrastructure removed.	Ashtonfield Agreement
			Lake Foster and Lake Kennerson drained of process water and mine water.	Process and mine water released under EPL conditions.	EPL 396
		Landform Establishment	Diversion drains pushed in and ripped.	Completed	
		Growth Medium Development	Diversion drain soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan
		Ecosystem Establishment	Appropriate pasture grass species or native seed selected.	Completed	Environmental Assessment
			Seeding rate	Pasture 50 kg /Ha, native 7.5 kg / Ha	
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Lake water pH	pH 6.5 – 8.5	ANZECC Guidelines for Fresh and Marine Waters (2000)
			Lake water EC	EC 125-2200 uS/cm	ANZECC Guidelines for Fresh and Marine Waters (2000)
			Lake water TSS	<50 mg/L	ANZECC Guidelines for Fresh and Marine Waters (2000)
			Tree species displaying successful recruitment	Evidence of successful recruitment	Rehabilitation Management Plan
4: Access Roads	Under the Ashtonfield Agreement designated roads will be left in a maintained condition at the end of operations suitable for 2WD or 4WD dry weather access. All other tracks will be ripped and seeded with a pasture grass seed mix suitable for grazing purposes or seeded with a mix of native tree and shrub species to establish native ecosystem commensurate with the surrounding vegetation community.	Decommissioning	All road infrastructure required under Ashtonfield Agreement left in place in maintained condition.	Completed	Ashtonfield Agreement
			Sealed roads not required to be stripped of bitumen surface.	Completed	Ashtonfield Agreement
		Landform Establishment	Track banks and batters trimmed to achieve landform matching surrounding landform.	Completed	
			Unnecessary culverts removed.	Completed	
			Natural drainage paths re-instated, utilising appropriate sediment controls if necessary.	Completed	
		Growth Medium Development	Tracks deep ripped to reduce compaction.	Completed	Rehabilitation Management Plan
			Biosolids application.	100 t/Ha	NSW EPA: Use and Disposal of Biosolids Products (2000)
			Soil ameliorant application (Lime, Gypsum) if required.	Dependant on soil analysis	Dependant on soil analysis
			Soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
		Ecosystem Establishment	Appropriate pasture grass species or native seed selected.	Completed	Environmental Assessment
			Seeding rate	Pasture 50 kg /Ha, native 7.5 kg /Ha	
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Litter cover %	Present at 75% of sites.	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
			Tree species displaying successful recruitment	Evidence of successful recruitment	Rehabilitation Management Plan
5: Open Cut Work-shop	All buildings and fixed plant will be demolished and removed from the site. The landform will be re-graded and contoured to be compatible with surrounding natural landscape and the area will be seeded with a pasture grass seed mix suitable for grazing purposes.	Decommissioning	Services disconnected and removed.	All infrastructure not required under Ashtonfield Agreement, or identified for post-closure landuse, removed.	Ashtonfield Agreement
			Buildings and fixed plant removed.		
			Fuel tanks removed and soil contamination remediated.		
		Landform Establishment	Maximum slopes gradients less than 10^{o}.	< 10 degrees.	Ashtonfield Agreement
			Drainage designed to utilise existing sediment control structures.	Completed	Rehabilitation Management Plan
			Area deep ripped to reduce compaction.	Completed	Rehabilitation Management Plan
		Growth Medium Development	Suitable top soil material applied.	Completed	Rehabilitation Management Plan
			Biosolids application.	100 t/Ha	NSW EPA: Use and Disposal of Biosolids Products (2000)

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
			Soil ameliorant application (Lime, Gypsum) if required.	Dependant on soil analysis	Dependant on soil analysis
			Soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan
		Ecosystem Establishment	Appropriate pasture species seed selected	Completed	Environmental Assessment
			Seeding rate	50 kg /Ha	
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
6: Waste Emplace-ments	The landform will be graded and contoured to be compatible with surrounding natural landscape. Shaped overburden emplacement areas will be seeded with a pasture grass seed mix suitable for grazing purposes or seeded with a mix of native tree and shrub species to establish native ecosystem commensurate with the surrounding vegetation community. This will result in a mix of rural pasture and habitat ecosystems.	Landform Establishment	Slope gradients generally less than 10^{o}, no slopes greater than 18^{o}.	< 18 degrees.	Ashtonfield Agreement
			Drainage designed to utilise existing sediment control structures and integrated with the drainage features on the adjacent landscape.	Completed	Rehabilitation Management Plan
		Growth Medium Development	Suitable top soil material applied.	Completed	Rehabilitation Management Plan
			Biosolids application.	100 t/Ha	NSW EPA: Use and Disposal of Biosolids Products (2000)
			Soil ameliorant application (Lime, Gypsum) if required.	Dependant on soil analysis	Dependant on soil analysis
			Soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan
		Ecosystem Establishment	Appropriate pasture grass species and native seed selected.	Completed	Environmental Assessment

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
			Seeding rate	Pasture 50 kg /Ha, native 7.5 kg/Ha	
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Litter cover %	Present at 75% of sites.	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
			Tree species displaying successful recruitment	Evidence of successful recruitment	Rehabilitation Management Plan
7: Open Cut/Final Void	After mining operations conclude the remaining final void will be utilised as a tailing disposal area. Use of rehabilitated tailings emplacements for post-closure infrastructure is unlikely due to increased stability risks, and rehabilitation will consist of stable, undulating, self draining, landforms with a mixed cover of pasture and native woodland vegetation.	Landform Establishment	Capping of tailings material	2 metres	Ashtonfield Agreement
			Slope gradients generally less than 10^{o}, no slopes greater than 18^{o}.	< 18 degrees.	Ashtonfield Agreement
			Drainage designed to utilise existing sediment control structures and integrated with the drainage features on the adjacent landscape.	Completed	Rehabilitation Management Plan
		Growth Medium Development	Suitable top soil material applied.	Completed	Rehabilitation Management Plan
			Biosolids application.	100 t/Ha	NSW EPA: Use and Disposal of Biosolids Products (2000)
			Soil ameliorant application (Lime, Gypsum) if required.	Dependant on soil analysis	Dependant on soil analysis
			Soil surface prepared in roughened condition.	Completed	Rehabilitation Management Plan
		Ecosystem Establishment	Appropriate pasture grass species seed selected	Completed	Environmental Assessment
			Seeding rate	50 kg /Ha	

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

Domain	Rehabilitation Objective	Rehabilitation Phase	Indicator	Completion Criteria	Justification
		Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
8: Rehabil-itated Areas	These areas require maintenance only. Maintenance may include periodic fertiliser application, weed management and soil conservation works.	Ecosystem Development	Stable water management structures	No evidence of failed water management structures	Rehabilitation Management Plan
			Ground cover %	>70%	Rehabilitation Management Plan
			Litter cover %	Present at 75% of sites.	Rehabilitation Management Plan
			Presence of rill erosion	Rills remaining stable in number and size	Rehabilitation Management Plan
			Presence of noxious weeds	No significant infestations.	Rehabilitation Management Plan
			Soil pH	pH 4.5 - 9	Rehabilitation Management Plan
			Soil EC	EC <0.6 dS/m	Rehabilitation Management Plan
			Soil EAT Class	Class 3-8	Rehabilitation Management Plan
			Tree species displaying successful recruitment	Evidence of successful recruitment	Rehabilitation Management Plan

Source: Mining Operations Plan 2012-2016 (extended to 31/12/17)

APPENDIX B

AGENCY CONSULTATION

S3 C29
DRE Consultation

From: peter.ainsworth@industry.nsw.gov.au
To: Greg Lamb
Subject: Re: Mine Closure Plan
Date: Tuesday, 5 June 2012 10:17:06 AM

Thankyou Greg
I will review it in details in the next week or two.

Peter Ainsworth | A/ Senior Environmental Officer | Environmental Sustainability Unit
NSW Trade and Investment | Resources and Energy
516 High Street Maitland NSW 2320 | PO Box 344 Hunter Region Mail Centre NSW 2310
T: 02 4931 6480 | F: 02 4931 6790 | M: 0409 638 641 | E: peter.ainsworth@industry.nsw.gov.au
W: http://www.dpi.nsw.gov.au/

NSW GOVERNMENT | Trade & Investment Resources & Energy

From: Greg Lamb <glamb@bloomcoll.com.au>
To: "peter.ainsworth@industry.nsw.gov.au" <peter.ainsworth@industry.nsw.gov.au>
Cc: John Hindmarsh <jHindmarsh@bloomcoll.com.au>
Date: 31/05/2012 01:35 PM
Subject: Mine Closure Plan

Peter,

In accordance with Project Approval Condition 29 of Schedule 3 Bloomfield is required to prepare a Mine Closure Plan in consultation with DRE. Attached is a draft copy of the Mine Closure Plan for comment.

You will notice that it is consistent with the MOP and refers to the MOP in parts for more detailed information. Your earliest response would be appreciated.

Regards

Greg Lamb

Environmental Officer
Bloomfield Colliery
The Bloomfield Group
PO Box 4, EAST MAITLAND NSW 2323
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[attachment "MCP Draft_v1.pdf" deleted by Peter Ainsworth/DII/NSW]

S3 C29

CCC Consultation.

From: Greg Lamb
To: "janine.mccarthy@cessnock.nsw.gov.au"
Cc: Simon Grassby
Subject: Bloomfield Colliery Mine Closure Plan
Date: Friday, 1 June 2012 7:47:00 AM
Attachments: MCP Draft v1.pdf

Janine,

Please receive the attached draft Mine Closure Plan for Bloomfield Colliery. In accordance with Project Approval (07_0087) Condition 29 of Schedule 3, Bloomfield Colliery is required to prepare the Mine Closure Plan in consultation with Cessnock City Council. The attached draft copy of the Mine Closure Plan is for comment by Council. If you have any queries please contact me. Your earliest response would be greatly appreciated.

Regards

Greg Lamb

Environmental Officer
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