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
5	27/09/18	Revised Final – incorporating Modification 4	GL		CK
6	16/03/20	Final - Reviewed	GL		CK
7	19/05/20	Revised Final – incorporating DPI&E consultation	GL		CK
8	05/05/22	Final – Reviewed post IEA	GL		CK

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

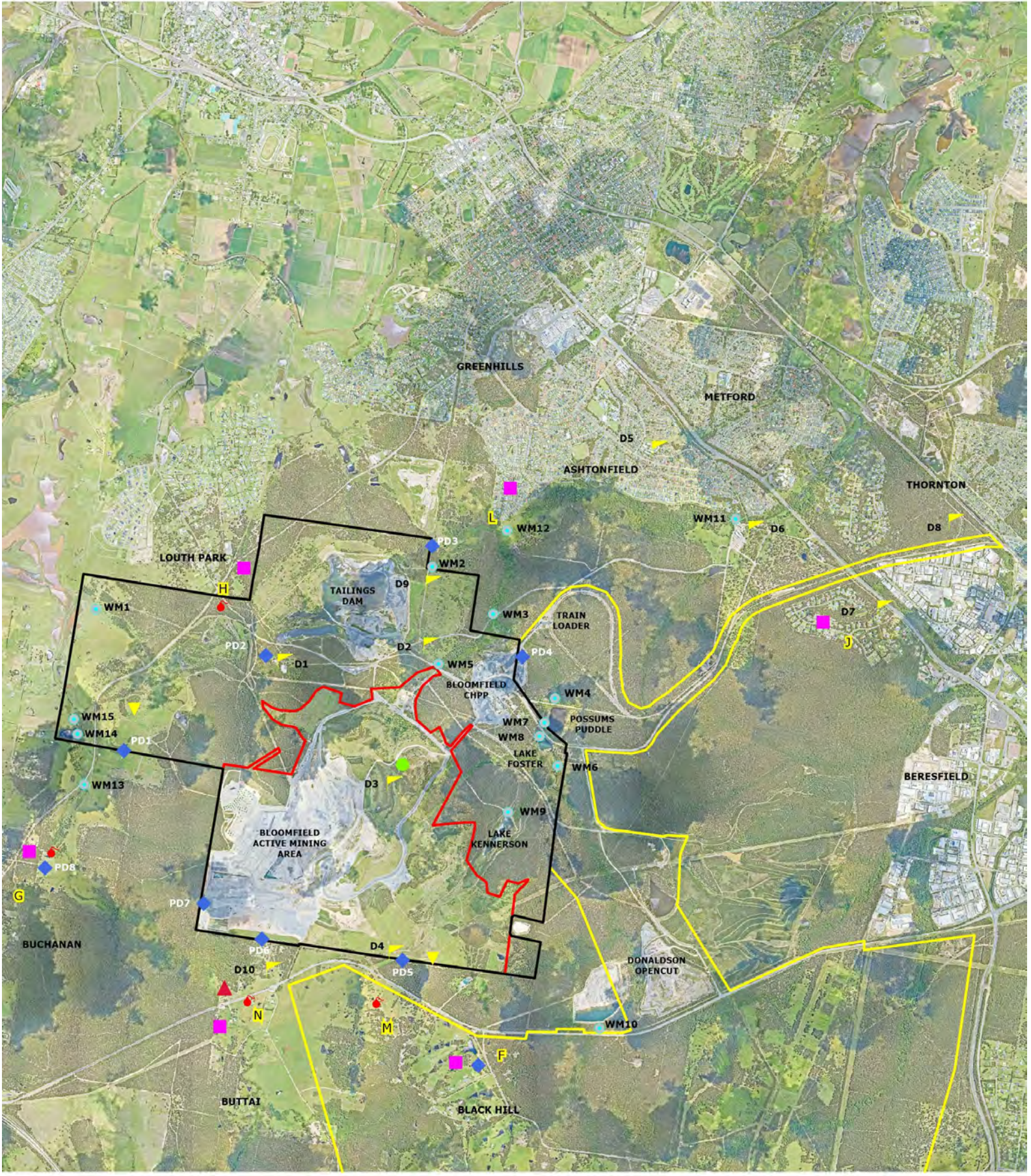
The purpose of the MCP is to:

- 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 2018-2020 (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).



LEGEND

0 1 km

N

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

THE Bloomfield GROUP

Bloomfield Colliery

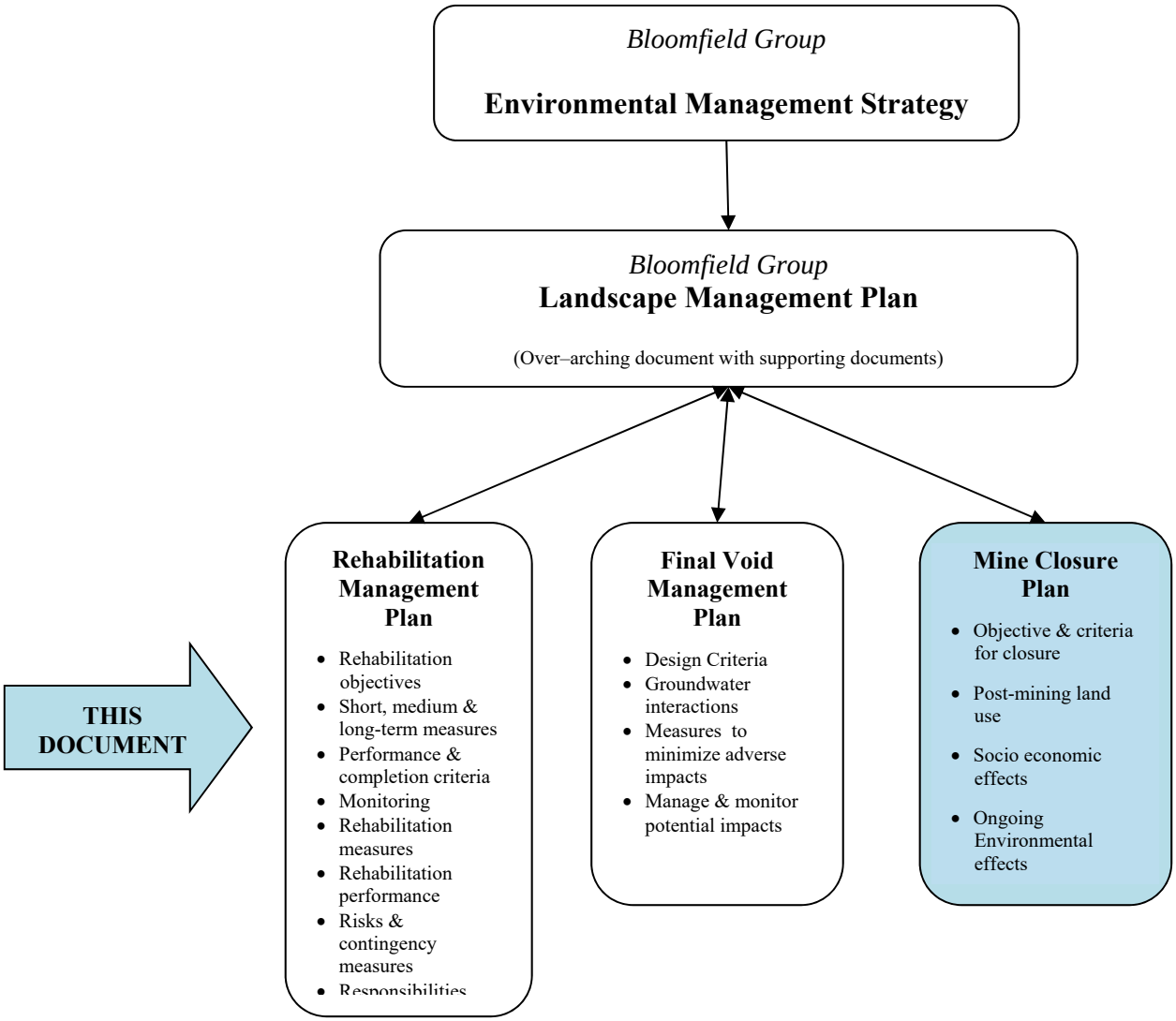
Mine Closure Plan

Figure 1 Blommfield Coliiery Project Area

Scale: 1:33,333	Date: May 2022 Photo: 30 December 2021	Drawing: A3

RELATIONSHIP WITH OTHER PLANS

The Environmental Management Strategy (EMS) establishes the overall environmental management strategy for mining and related activities on the site. The Landscape Management Plan (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 DRG 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 DRG. Relevant agencies will be consulted throughout the process and include the following:

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

Throughout the mining phase, copies of the Annual Review 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
CEO	Brett Lewis
Manager Technical Services	Simon Grassby
Manager of Mining Development	Geoff Moore
Mine Manager	Brad Donoghoe
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 DRG provides a detailed outline of the objectives and criteria for mine closure on a domain by domain basis covering the entire CCL761 and ML1738. The closure criteria outlined in the approved MOP 2021 – 2023 is provided in Appendix A.

FUTURE LAND USE OPTIONS

Mining operations are approved on site to 31 December2030. 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.

As outlined in the 2017 EA (MOD4) two scenarios were considered for the final landform. These include one where the Abel Coal Mine resumes operations and one where Abel remains in care and maintenance. Figures 2 & 3 show the final rehabilitation and post-mining landuse as at the expected end of mining and rehabilitation operations in 2028 under both scenarios.

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.

The Hunter Regional Plan 2036 (DP&E, 2016) is a 20 year blueprint for the future of the Hunter region. The vision is to create a leading regional economy in Australia with a biodiversity-rich natural environment, thriving communities and greater housing choice and jobs. Therefore any decisions regarding the post-mining landform and land use would need to take this, and any additional detailed plans that may be prepared in the future, into consideration;

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.

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.

As outlined in the 2017 EA (Mod 4), an indicative final land use plan has been developed and the plan has been issued to Council and regulatory authorities for consideration.

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 2030. 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 operations 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 Annual Review.

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 Annual Review.

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 DRG and Council 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 Annual Review.

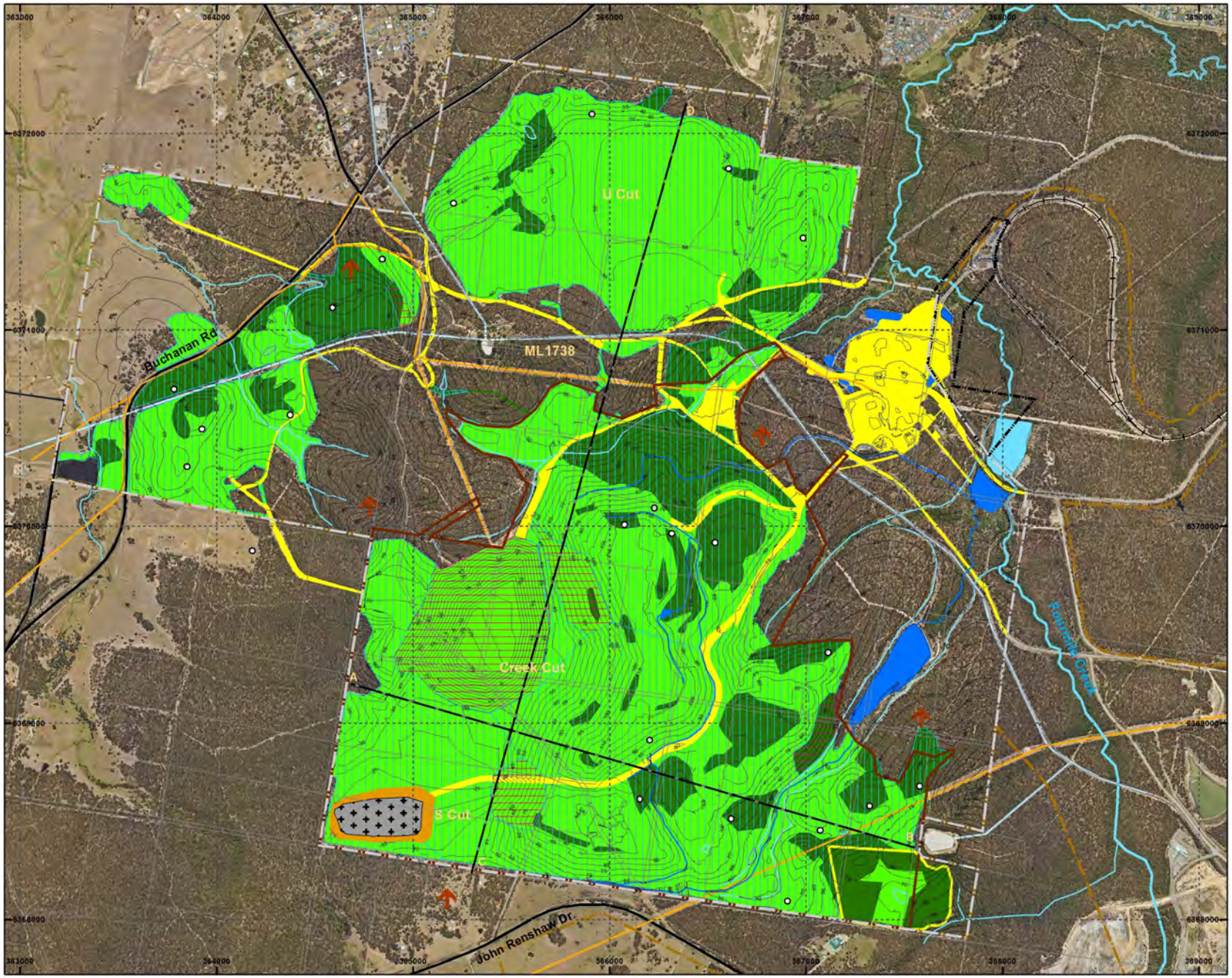
Monitoring of the environment within and surrounding Bloomfield Colliery will include the assessment of:

- 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 & 3



- Cross-section
- ML1738
- AMA1001
- 07-0087 Approval Area
- 05-0136 Able Coal Project
- Cadastral Boundary
- Contour (5m)
- Creek
- Clean Water
- Mine Water
- Rehabilitation Monitoring Site
- Powerline
- Hunter Water Pipeline
- Roads
- Rail Line
- Wildlife Corridor

Primary Mine Domains

- Infrastructure Area
- Water Management Area
- Tailings Storage Area
- Overburden Emplacement

Secondary Mine Domains

- Rehabilitated Area - Pasture
- Rehabilitated Area - Trees over Pasture
- Relinquished Lands

Land and Soil Capability Class

- L&SC Class 4
- L&SC Class 5

Title Holder - Bloomfield Collieries Pty Ltd
Plan prepared by Greg Lamb
Bloomfield Orthophoto - 31/1/20

N

Kilometers

0 0.5 1 1.5

Scale: 1:20,000 **MGA Zone 56**

Source: MOP 2021 - 2023

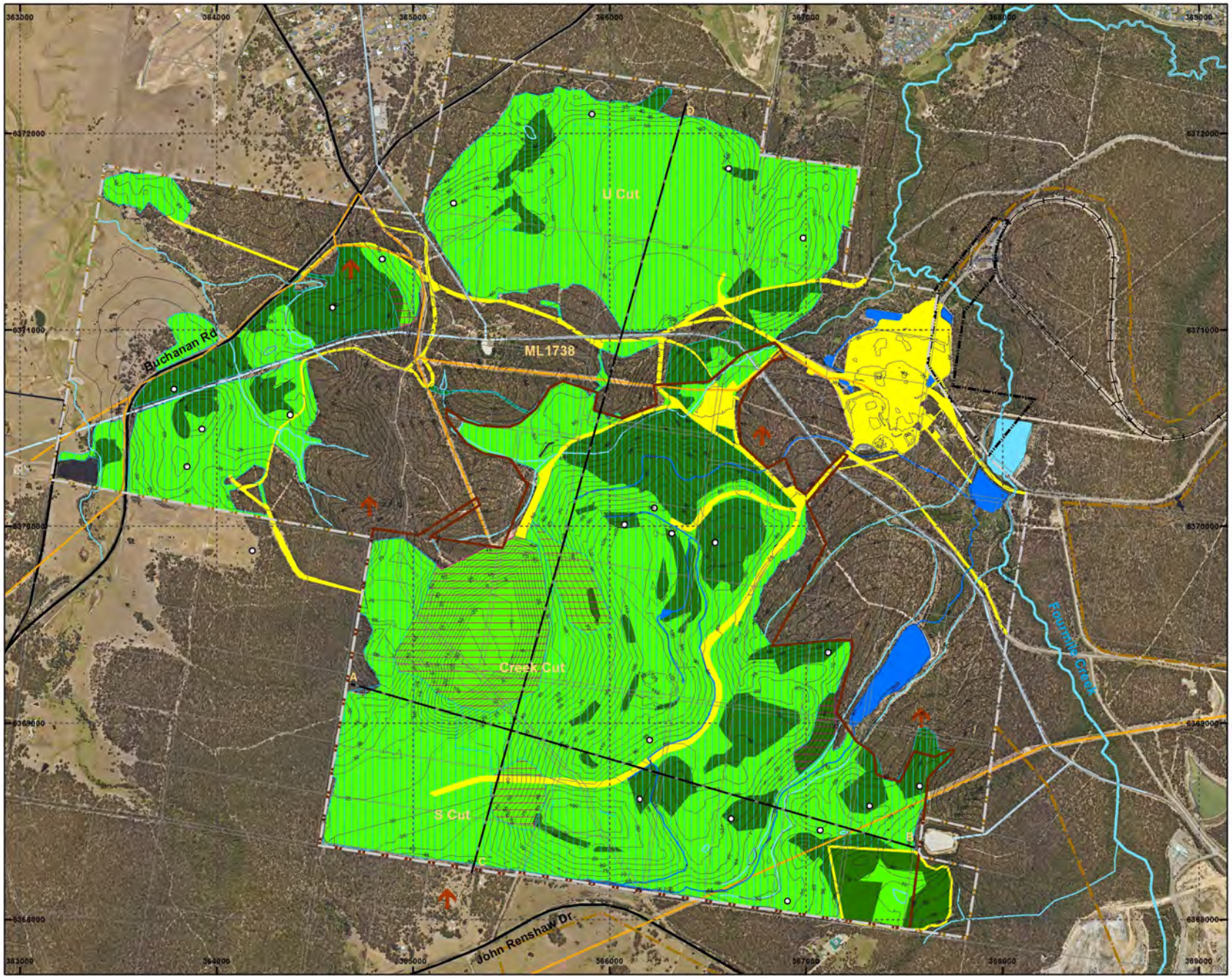
Bloomfield Colliery

Final Rehabilitation and Post Mining Land Use - 2028
Abel Coal Mine Resumes Operation
Mine Closure Plan

Date: 13/05/2022

THE Bloomfield GROUP

Figure 2



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0 0.5 1 1.5

Scale: 1:20,000 **MGA Zone 56**

Source: MOP 2021 - 2023

Bloomfield Colliery

Final Rehabilitation and Post Mining Land Use - 2028
Abel Coal Mine in Care and Maintenance
Mine Closure Plan

Date: 13/05/2022

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Figure 3

APPENDIX A

COMPLETION CRITERIA TABLE

(Source: Bloomfield MOP 2021 - 2023)

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Phase 1 - Decommissioning					
Domain 1 - Infrastructure					
Where not required in the Ashtonfield Agreement, all buildings, fixed plant and powerlines will be demolished and removed from the site. 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.	Services disconnected and removed.	All infrastructure not required, or identified for post-closure landuse, removed. Remaining infrastructure subject to obtaining appropriate regulatory approvals.	Post closure approved landuse will require access, easements and some infrastructure. (ie Hunter Water) PA 07_0087 PA_ 05_0136	No	Not commenced
	Buildings and fixed plant removed.				
	All road infrastructure required left in place in maintained condition.				
	Sealed roads not required to be stripped of bitumen surface.				
	Hazardous and contaminated materials removed and remediated.	Carbonaceous material removed from CHPP area and placed in mine void.	This MOP NEPM Schedule B2		
		Phase 2 Contamination Assessment carried out. Contaminated materials remediated or removed from site in accordance with NEPM Guidelines.			
Domain 2 – Tailings Storage Area					
All infrastructure used for transporting water and fine rejects slurry between the U-Cut Tailings Dam and the CHPP will be removed. Piezometers will be left behind to measure groundwater movement as part of monitoring program.	Services disconnected and removed.	All infrastructure not required, or identified for post-closure landuse, removed. Piezometers remaining subject to appropriate regulatory approval / licences.	Post closure approved landuse will require access, easements and some infrastructure. (ie Hunter Water) PA 07_0087 PA_ 05_0136	No	In progress
	All pumping infrastructure removed.				

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Domain 3 – Water Management Area					
Dams required for final landuse will remain as required. All infrastructure used for transporting water between storage dams and the CHPP will be removed.	All pumping infrastructure removed	All infrastructure not required, or identified for post-closure landuse, removed. Remaining infrastructure subject to obtaining appropriate regulatory approvals.	Post closure approved landuse will require access, easements and some infrastructure. (ie Hunter Water) PA 07_0087 PA_ 05_0136	No	Not commenced
	Services disconnected and removed.				
	Lake Foster and Lake Kennerson drained of process water and mine water under EPL conditions	Retained water storage dams spilling water quality would satisfy ANZECC (2000) Guidelines.	ANZECC Guidelines for Fresh and Marine Waters		
		Harvestable rights for retained dams will be determined and any actions to satisfy these rights will be addressed prior to mine closure.	Water Management Act 2000		
Phase 2 – Landform Establishment					
Domain 1 - Infrastructure					
The landform will be re-graded and contoured to be compatible with surrounding natural landscape.	Maximum slopes gradients less than 10°.	< 10 degrees as per approved MOP	This MOP	No	Not commenced
	Drainage designed to utilise existing sediment control structures.	Works completed	PA_ 05_0136 PA 07_0087 Appendix 4 Approved final landform This MOP Rehabilitation Management Plan		
	Area deep ripped to reduce compaction.	Works completed			
	Track banks and batters trimmed to achieve landform matching surrounding landform.	Works completed			
	Unnecessary culverts removed.	Works completed			
	Natural drainage paths re-instated, utilising appropriate sediment controls if necessary.	Works completed			

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Domain 2 – Tailings Storage Area					
Overburden material that has been left in close proximity to the Tailings Storage Dam will be relocated to cap tailings material. The landform will be graded and contoured to be compatible with surrounding natural landscape as far as possible.	Capping of reject / tailings material	At least 2 metres	This MOP PA_ 05_0136 Rehabilitation Management Plan-Bloomfield	No	In progress
	Slope gradients generally less than 10º, no slopes greater than 18º.	< 18 degrees.	This MOP PA_ 05_0136 Rehabilitation Management Plan-Bloomfield		
	Drainage designed to utilise existing sediment control structures and integrated with the drainage features on the adjacent landscape.	Works completed	PA_ 05_0136 Rehabilitation Management Plan-Bloomfield		
Domain 3 – Water Management Area					
Where no longer required for post-closure water management, diversion drains and sediment ponds will be backfilled and rehabilitated, and levees breached and stabilised to allow natural catchment flow.	Diversion drains and banks pushed in an ripped	Works completed	This MOP PA 07_0087 PA_ 05_0136 Approved final landforms Rehabilitation Management Plan-Bloomfield	No	Not commenced

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Domain 4 – Overburden Emplacement					
The landform will be safe and stable and contoured to be compatible with surrounding natural landscape.	Slope gradients generally less than 10°, no slopes greater than 18°.	< 18 degrees.	This MOP PA 07_0087 Approved final landform	No	Ongoing
	Drainage designed to utilise existing sediment control structures and integrated with the drainage features on the adjacent landscape, whether rehabilitated or natural.	Works completed	This MOP PA 07_0087 Approved final landform		
	After shaping, landform deep ripped and rock raking undertaken if required tp prepare surface for soil material placement.	Works completed	This MOP Rehabilitation Management Plan		
Domain 5 – Active Mining Area					
If Abel Colliery resumes and after Bloomfield mining operations conclude the remaining final void may be utilised as a tailings disposal area. As approved under PA 07_0087. After tailings operations are completed (est 2030) the landform will be graded and contoured to be compatible with surrounding natural landscape as far as possible. Final landform is safe, stable and non-polluting. Overburden material that has been left in close proximity will be relocated to cap tailings material. (Refer to Domains 2 & 4 for Phases 3, 4 & 5). Note this relies on Abel resuming operations prior to Bloomfield Closure.	Capping of reject / tailings material	At least 2 metres	This MOP	No	Not commenced
	Low wall slope gradients generally less than 10°, no slopes greater than 18°.	< 18 degrees.	This MOP PA 07_0087 Approved final landform		
	Drainage designed to utilise existing sediment control structures and integrated with the drainage features on the adjacent landscape.	Work completed	This MOP PA 07_0087		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Phase 3 – Growth Medium Development					
Domain 1 - Infrastructure					
The areas will be top dressed with appropriate top soil material to provide suitable growth medium.	Suitable top soil material applied	Minimum 100mm of growth media	Rehabilitation Management Plan	No	Not commenced
	Biosolids application, if required	Approximately 100 t/Ha	As per NSW EPA Biosolids Guidelines		
	Soil ameliorant application (Green mulch, Lime, Gypsum) if required.	Dependent on soil analysis	Rates dependent on soil analysis results This MOP (Section 7)		
	Soil surface prepared in roughened condition.	Ripping completed	Rehabilitation Management Plan		
	Tracks deep ripped to reduce compaction	Ripping completed	Rehabilitation Management Plan		
Domain 2 – Tailings Storage Area					
The areas will be top dressed with appropriate top soil material to provide suitable growth medium.	Suitable top soil material applied	Minimum 100mm of growth media	Rehabilitation Management Plan	No	In progress
	Biosolids application, if required	Approximately 100 t/Ha	As per NSW EPA Biosolids Guidelines		
	Soil ameliorant application (OGM, Lime, Gypsum) if required.	Dependent on soil analysis	Rates dependent on soil analysis results This MOP (Section 7)		
	Soil surface prepared in roughened condition.	Ripping completed	Rehabilitation Management Plan		
Domain 3 – Water Management Area					
Remaining disturbed areas after removal of any infrastructure will be ripped to develop a suitable growth medium for pasture and native tree species	Diversion drain soil surface prepared in roughened condition	Ripping completed	Rehabilitation Management Plan	No	Not commenced

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Domain 4 – Overburden Emplacement					
The areas will be top dressed with appropriate top soil material to provide suitable growth medium.	Suitable top soil material applied	Minimum 100mm of growth media	Rehabilitation Management Plan	No	Ongoing
	Biosolids application, if required	Approximately 100 t/Ha	As per NSW EPA Biosolids Guidelines		
	Soil ameliorant application (OGM, Lime, Gypsum) if required.	Dependent on soil analysis	Rates dependent on soil analysis results This MOP (Section 7)		
	Soil surface prepared in roughened condition.	Ripping completed	Rehabilitation Management Plan		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Phase 4 – Ecosystem and Land Use Establishment					
Domain 1 - Infrastructure					
All areas will be seeded with a pasture grass seed mix suitable for grazing purposes or seeded with a mix of native tree species similar to the surrounding vegetation community in accordance with PA 07_0087 Approved final landform.	Appropriate pasture grass species or native seed selected.	Species selected as per Section 7	This MOP (Section 7) Rehabilitation Management Plan PA 07_0087 Approved final landform	No	Not commenced
	Seeding rate	Pasture 50 kg /Ha, native trees 7.5 kg /Ha			
Domain 2 – Tailings Storage Area					
Areas overlying tailings material will be seeded with a pasture seed mix only to reduce the risk of subsurface combustion. These areas will be suitable for grazing purposes.	Appropriate pasture grass species selected.	Species selected as per Section 7	This MOP (Section 7) Rehabilitation Management Plan PA 07_0087 Approved final landform	No	In progress
	Seeding rate	Pasture 50 kg /Ha			
Domain 3 – Water Management Area					
The areas will be seeded with pasture grass seed or native tree species in accordance with PA 07_0087 Approved final landform.	Appropriate pasture grass species or native seed selected.	Species selected as per Section 7	This MOP (Section 7) Rehabilitation Management Plan PA 07_0087 Approved final landform	No	Not commenced
	Seeding rate	Pasture 50 kg /Ha, native trees 7.5 kg /Ha			
Domain 4 – Overburden Emplacement					
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 species in accordance with PA 07_0087 Approved final landform . This will result in a mix of rural pasture and trees over pasture blending with surrounding landscape.	Appropriate pasture grass species or native seed selected.	Species selected as per Section 7	This MOP (Section 7) Rehabilitation Management Plan PA 07_0087 Approved final landform	No	Ongoing
	Seeding rate	Pasture 50 kg /Ha, native trees 7.5 kg /Ha			

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Phase 5 – Ecosystem and Land Use Sustainability					
Domain 1 - Infrastructure					
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures and trees over pasture developed with evidence of natural regeneration of similar species to the surrounding vegetation community.	Stable water management structures such as diversion drains and stock dams	Water management structures functioning as designed and able to support grazing activities.	Rehabilitation Management Plan PA 07_0087 Approved final landuse	No	Not commenced
	Ground cover %	>70%, or combined live and litter cover of 70% in tree areas	Rehabilitation Management Plan		
	Litter cover %	Present at 75% of sites with 20% litter cover.	Rehabilitation Management Plan		
	Presence of rill erosion	Monitoring indicates rills remaining stable in number and size. <30cm wide and deep.	Rehabilitation Management Plan		
	Presence of weeds	No significant infestations of declared weeds. Weeds controlled in accordance with relevant legislation Weeds account for <15% of total herbage mass	Rehabilitation Management Plan Noxious Weeds Act 1993 Weed Management Plan		
	Soil pH	pH 4.5 - 9	ACARP Project C13048 (2004)		
	Soil EC	EC <0.6 dS/m	ACARP Project C13048 (2004)		
	Soil EAT Class	Class 3-8	ACARP Project C13048 (2004)		
	Tree species displaying successful recruitment	Monitoring results show evidence of successful recruitment	Rehabilitation Management Plan		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures and trees over pasture developed with evidence of natural regeneration of similar species to the surrounding vegetation community	Tree species assemblages and health characteristic of species found within region	Tree species composition and health is comparable to analogue site	Rehabilitation Management Plan Analogue sites	No	Not commenced
	LFA monitoring results	Stability index >50 Infiltration index >25 Nutrient cycling index >20	Rehabilitation Management Plan		
	LFA index results	Comparable to analogue sites	Analogue sites		
	Pasture soil analysis	Comparable with non-mined grazing reference sites	Grazing monitoring program Analogue sites		
	Pasture biomass	Comparable with non-mined grazing reference sites	Grazing monitoring program Analogue sites		
Domain 2 – Tailings Storage Area					
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures.	Stable water management structures such as diversion drains and stock dams	Water management structures functioning as designed and able to support grazing activities.	Rehabilitation Management Plan PA 07_0087 Approved final landuse	No	In progress
	Ground cover %	>70%	Rehabilitation Management Plan		
	Presence of rill erosion	Monitoring indicates rills remaining stable in number and size <30cm wide and deep	Rehabilitation Management Plan		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures.	Presence of weeds	No significant infestations of declared weeds. Weeds controlled in accordance with relevant legislation Weeds account for <15% of total herbage mass	Rehabilitation Management Plan Noxious Weeds Act 1993 Weed Management Plan	No	In progress
	Soil pH	pH 4.5 - 9	ACARP Project C13048 (2004)		
	Soil EC	EC <0.6 dS/m	ACARP Project C13048 (2004)		
	Soil EAT Class	Class 3-8	ACARP Project C13048 (2004)		
	LFA monitoring results	Stability index >50 Infiltration index >25 Nutrient cycling index >20	Rehabilitation Management Plan		
	LFA index results	Comparable to analogue sites	Analogue sites		
	Pasture soil analysis	Comparable with non-mined grazing reference site	Grazing monitoring program Analogue sites		
	Pasture biomass	Comparable with non-mined grazing reference site	Grazing monitoring program Analogue sites		
Domain 3 – Water Management Area					
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures and native vegetation developed with evidence of natural regeneration of similar species to the surrounding vegetation community.	Stable water management structures such as diversion drains and stock dams	Water management structures functioning as designed and able to support grazing activities.	Rehabilitation Management Plan PA 07_0087 Approved final landuse	No	Not commenced
	Ground cover %	>70%, or combined live and litter cover of 70% in tree areas	Rehabilitation Management Plan		
	Presence of rill erosion	Monitoring indicates rills remaining stable in number and size <30cm wide and deep	Rehabilitation Management Plan		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures and native vegetation developed with evidence of natural regeneration of similar species to the surrounding vegetation community.	Presence of weeds	No significant infestations of declared weeds. Weeds controlled in accordance with relevant legislation Weeds account for <15% of total herbage mass	Rehabilitation Management Plan Noxious Weeds Act 1993 Weed Management Plan	No	Not commenced
	Lake water pH	pH 6.5 – 8.5	ANZECC Guidelines for Fresh and Marine Waters		
	Lake water EC	EC 125-2200 uS/cm	ANZECC Guidelines for Fresh and Marine Waters		
	Lake water TSS	<50 mg/L	ANZECC Guidelines for Fresh and Marine Waters		
	Tree species displaying successful recruitment	Monitoring results show evidence of successful recruitment	Rehabilitation Management Plan Analogue sites		
	Tree species assemblages and health characteristic of species found within region	Tree species composition and health is comparable to analogue site			
Domain 4 – Overburden Emplacement					
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures and native vegetation developed with evidence of natural regeneration of similar species to the surrounding vegetation community.	Stable water management structures such as diversion drains and stock dams	Water management structures functioning as designed and able to support grazing activities.	Rehabilitation Management Plan PA 07_0087 Approved final landform	No	Ongoing
	Ground cover %	>70%, or combined live and litter cover of 70% in tree areas	Rehabilitation Management Plan		
	Litter cover %	Present at 75% of sites with 20% litter cover.	Rehabilitation Management Plan		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Pasture developed to point of sustainability capable of supporting appropriate livestock grazing pressures and native vegetation developed with evidence of natural regeneration of similar species to the surrounding vegetation community.	Presence of rill erosion	Monitoring indicated rills remaining stable in number and size <30 cm wide and deep	Rehabilitation Management Plan	No	Ongoing
	Presence of weeds	No significant infestations of declared weeds. Weeds controlled in accordance with relevant legislation Weeds account for <15% of total herbage mass	Rehabilitation Management Plan Noxious Weeds Act 1993 Weed Management Plan		
	Soil pH	pH 4.5 - 9	ACARP Project C13048 (2004)		
	Soil EC	EC <0.6 dS/m	ACARP Project C13048 (2004)		
	Soil EAT Class	Class 3-8	ACARP Project C13048 (2004)		
	Tree species displaying successful recruitment	Monitoring results show evidence of successful recruitment	Rehabilitation Management Plan Analogue sites		
	Tree species assemblages and health characteristic of species found within region	Tree species composition and health is comparable to analogue site			
	LFA monitoring results	Stability index >50 Infiltration index >25 Nutrient cycling index >20	Rehabilitation Management Plan		
	LFA index results	Comparable to analogue sites	Analogue sites		
	Pasture soil analysis	Comparable with non-mined grazing reference site	Grazing monitoring program Analogue sites		
	Pasture biomass	Comparable with non-mined grazing reference site	Grazing monitoring program Analogue sites		

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
Domain C & D – Rehabilitated Areas					
These areas require maintenance and monitoring only. Maintenance may include periodic fertiliser application, weed management and soil conservation works	Stable water management structures such as diversion drains and stock dams	Water management structures functioning as designed and able to support grazing activities.	Rehabilitation Management Plan PA 07_0087 Approved final landform	No	Ongoing
	Ground cover %	>70% , or combined live and litter cover of 70% in tree areas	Rehabilitation Management Plan		
	Litter cover %	Present at 75% of sites with 20% litter cover.	Rehabilitation Management Plan		
	Presence of rill erosion	Monitoring indicates rills remaining stable in number and size, <30cm wide and deep	Rehabilitation Management Plan		
	Presence of weeds	No significant infestations of declared weeds. Weeds controlled in accordance with relevant legislation Weeds account for <15% of total herbage mass	Rehabilitation Management Plan Noxious Weeds Act 1993 Weed Management Plan		
	Soil pH	pH 4.5 - 9	ACARP Project C13048 (2004)		
	Soil EC	EC <0.6 dS/m	ACARP Project C13048 (2004)		
	Soil EAT Class	Class 3-8	ACARP Project C13048 (2004)		
	Tree species displaying successful recruitment	Monitoring results show evidence of successful recruitment	Rehabilitation Management Plan Analogue sites		
	Tree species assemblages and health characteristic of species found within region	Tree species composition and health is comparable to analogue site			

Objective	Performance Indicator	Completion Criteria	Justification	Complete (Yes/No)	Progress at end of MOP
These areas require maintenance and monitoring only. Maintenance may include periodic fertiliser application, weed management and soil conservation works	LFA monitoring results	Stability index >50 Infiltration index >25 Nutrient cycling index >20	Rehabilitation Management Plan	No	Ongoing
	LFA index results	Comparable to analogue sites	Analogue sites		
	Pasture herbage mass	>800 kg DM/ha	This MOP Grazing monitoring program		
	Pasture % dead matter	<50%			
	Crude protein of pasture	>2%			
	Digestibility of pasture dry matter	>40%			
	Metabolisable energy of pasture	>6MJ/kg DM			
	Potential stocking rates	2-4 DSE/Ha	NSW DPI Beef Stocking Rates and Farm Size – Hunter Region (2006) Grazing monitoring program		
	Pasture soil analysis	Comparable with non-mined grazing reference site	Grazing monitoring program Analogue sites		
	Pasture biomass	Comparable with non-mined grazing reference site	Grazing monitoring program Analogue sites		

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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
Tele: (02) 4930 2689 Fax: (02) 4933 8940 Mob: 0457 819 211
Email: glamb@bloomcoll.com.au Website: www.bloomcoll.com.au

[attachment "MCP Draft_v1.pdf" deleted by Peter Ainsworth/DII/NSW]

53 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
Bloomfield Colliery
The Bloomfield Group
PO Box 4, EAST MAITLAND NSW 2323
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APPENDIX C

APPROVAL COORESPONDENCE

Greg Lamb
Environmental Advisor
PO Box 4
East Maitland, NSW, 2323

13/07/2020

Dear Greg

Bloomfield Coal (PA 07_0087)
Mine Closure Plan

I refer to the Mine Closure Plan submitted in accordance with Condition 29 of Schedule 3 of the Project Approval for the Bloomfield Coal Project (PA 07_0087).

The Department has carefully reviewed the document and is generally satisfied it meets the requirements of the relevant Conditions of Consent.

Accordingly, the Planning Secretary has approved the Mine Closure Plan (Version 7, dated 19 May 2020). Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Wayne Jones on 6575 3406.

Yours sincerely

Matthew Sprott
Director
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary