Bloomfield Colliery
Life of Mine Extension
(07_0087 MOD 4)

Environmental Assessment Report
Section 75W of the *Environmental Planning and Assessment Act 1979*

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1. BACKGROUND

Bloomfield Collieries Pty Ltd (Bloomfield) owns and operates the Bloomfield Colliery, an open cut coal mine at Buttai, eight kilometres (km) south of Maitland in the Cessnock and Maitland local government areas (see **Figure 1**). Other mining operations within the vicinity of the project include Abel Underground Mine (Abel) to the south-east (in care and maintenance since June 2016), Donaldson Open Cut Mine on the eastern boundary (also in care and maintenance since June 2016) and the Tasman Underground Mine to the south (closed, rehabilitation complete in 2014).

***Figure 1**: Regional location of the Bloomfield Colliery*

Mining has been undertaken at Bloomfield Colliery for over 100 years. The mine currently operates under a project approval (MP 07_0087) granted by the Department's then Director-General (under delegation from the then Minister of Planning) on 3 September 2009 under the now repealed Part 3A of the *Environmental Planning Assessment Act 1979* (EP&A Act). This approval allows Bloomfield to:

- extract up to 1.3 million tonnes (Mt) of run-of-mine (ROM) coal per year for 12 years (ie until 2021);
- transport this coal to the Bloomfield Coal Handling and Preparation Plant (CHPP); and
- progressively rehabilitate the site.

However, certain mining infrastructure and activities that occur at Bloomfield Colliery are approved as part of the project approval for Abel (MP 05_0136). These include:

- the CHPP and associated water management;
- the rail loading facility; and
- coarse reject and tailings disposal and coal handling.

These activities and infrastructure do not form part of the proposed modification application. Nevertheless, they have been considered during the assessment of cumulative impacts associated with the proposed modification (see **Section 5**).

Since its original grant, the Bloomfield Colliery project approval has been modified three times. In May 2011, the approval was modified to relocate the mine's power supply infrastructure, establish a new haul road, manage the mine's out-of-pit overburden emplacement requirements and improve on-site rehabilitation outcomes (MOD 1). In March 2012, it was modified to amend the submission date for the Final Void Management Plan and Mine Closure Plan (MOD 2). In February 2013, it was modified to amend the area of vegetation clearing covered by the mine's Biodiversity Offset Area (MOD 3).

2. PROPOSED MODIFICATION

On 19 January 2018, Bloomfield submitted a fourth modification application. Bloomfield has identified that, based on current production rates and estimated remaining coal reserves, mining could extend beyond 2021. Bloomfield is therefore seeking to modify its project approval to allow for continuation of current open cut mining operations within current approved extraction boundaries until 31 December 2030. The Department notes that this proposed date would synchronise with the Abel approval limit of 31 December 2030, thereby allowing common infrastructure to be used by both mines until completion.

The proposed modification also includes a revision to the current mine plan, allowing for the extraction of up to 13 Mt of ROM coal from deeper coal seams (ie down to the Big Ben seam) that were not previously considered to be recoverable. This is primarily due to a change in available mine fleet. The final landform would also change as a result, including the final void shifting approximately 200 metres (m) to the west. Nevertheless, the maximum annual production levels would remain at 1.3 Mt of ROM coal per year.

The currently approved final landform incorporates a final void, planned to be used as a tailings facility for the ongoing operations at Abel. As mentioned above, Abel is currently on care and maintenance and there is some uncertainty as to when, or if, operations will resume. Given this status, Bloomfield has proposed two final landform design scenarios, based on:

1) Abel remaining in care and maintenance in perpetuity; or
2) Abel resuming operations.

These two final landform scenarios can be seen below (see **Figures 2** and **3**).

No new infrastructure is proposed to be constructed or brought onto the site as part of the modification. However, the proposed modification includes widening of a haul road and upgrade of an adjacent watercourse.

The current tailings emplacement area (approved under the Abel project approval) does not form part of the proposed modification. However, Bloomfield notes that at current production levels, the emplacement area is expected to be filled during 2019. Bloomfield has approval from the Dams Safety Committee to raise the wall on the current tailings emplacement area, which would provide adequate tailings capacity for the rest of the project, including the proposed modification.

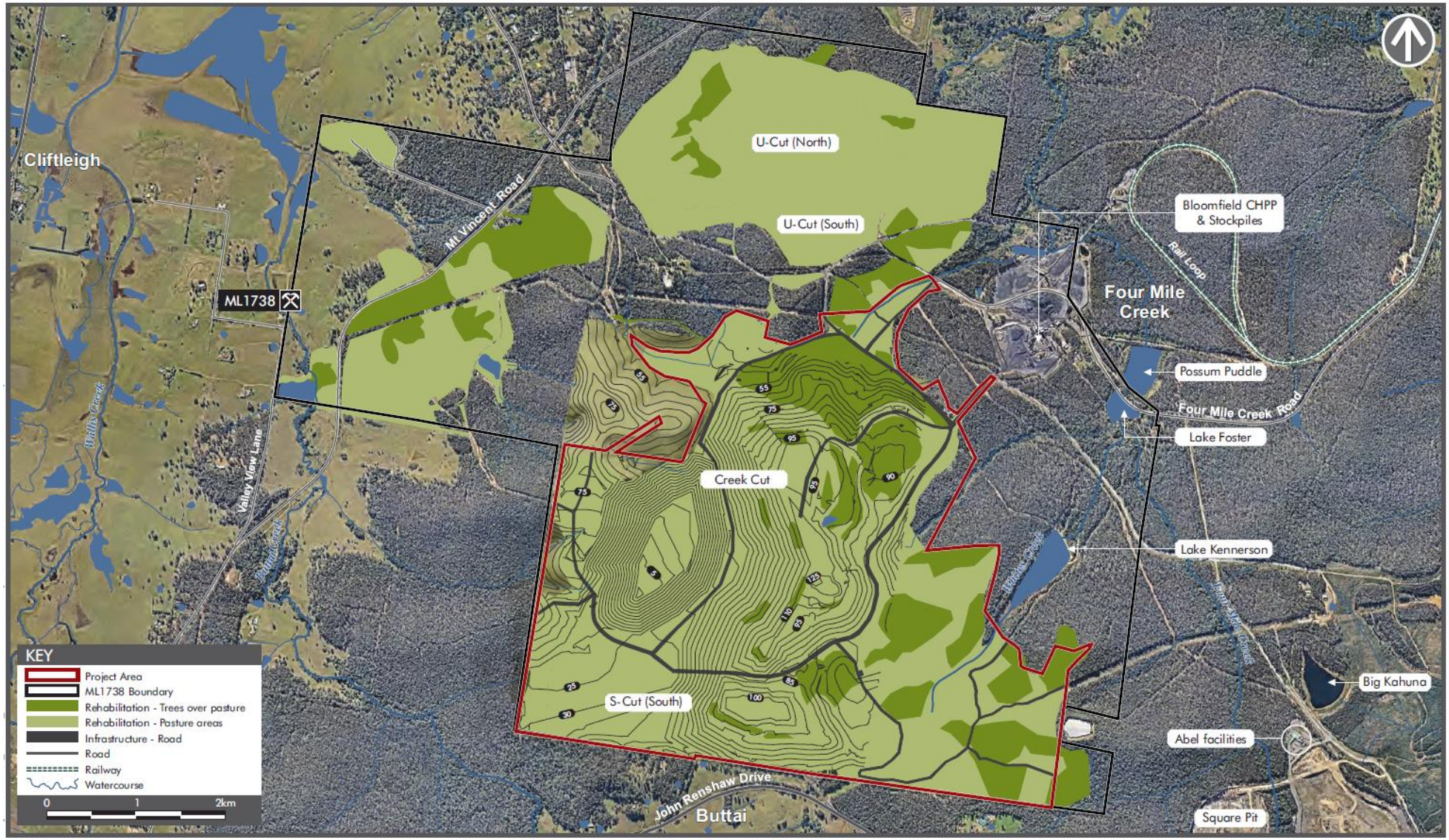

***Figure 2**: Proposed final landform – Abel in care and maintenance*

***Figure 3**: Proposed final landform – Abel resumes operations*

However, if Abel recommenced operations, the current tailings emplacement would no longer provide adequate storage to service both Bloomfield Colliery *and* Abel. Therefore, Bloomfield is proposing a new tailings emplacement area (see **Figure 3**), where tailings disposal could occur until 31 December 2030 even if Abel were to recommence operations. Bloomfield intends to use this proposed tailings area regardless of the status of Abel.

The proposed modification is set out in full in Bloomfield's Environmental Assessment (EA, see **Appendix A**).

3. STATUTORY CONTEXT

3.1 Section 75W

The project was originally approved under Part 3A of the EP&A Act. The project is a transitional Part 3A project under Schedule 2 to the *EP&A (Savings, Transitional and Other Provisions) Regulation 2017*. The power to modify transitional Part 3A projects under section 75W of the Act as in force immediately before its repeal on 1 October 2011 is being wound up – but as the request for this modification was made before the 'cut-off date' of 1 March 2018, the provisions of clause 3 of Schedule 2 continue to apply. Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or delegate) may approve or disapprove the carrying out of the project under section 75W of the EP&A Act.

The proposed modification involves the extension of existing open cut mining operations for an additional nine years until 31 December 2030, modification of the previously approved final landform including moving the final void approximately 200 m to the west and additional clearing for the widening of a haul road and associated watercourse upgrade. The proposal would not change any of the core elements of the project, including the mining methods, operational hours or annual extraction volumes and processing rates. Consequently, the Department is satisfied that the proposed modification is within the scope of section 75W, and may be determined accordingly.

3.2 Approval Authority

The Minister for Planning was the approval authority for the original project application, and is consequently the approval authority for this modification application. However, the Executive Director, Resource Assessments and Compliance may determine the application under the Minister's delegation of 11 October 2017, given that neither Cessnock City Council nor Maitland City Council objected to the proposal, there was only one public submission in the nature of an objection and no political donations have been reported by Bloomfield.

3.3 Environmental Planning Instruments

A number of environmental planning instruments (EPIs) apply to the modification, including:

- *State Environmental Planning Policy (SEPP) (State Significant Precincts) 2005*;
- *SEPP (Mining, Petroleum Production and Extractive Industries) 2007*;
- *SEPP No. 33 – Hazardous and Offensive Development*;
- *SEPP No. 44 – Koala Habitat Protection*;
- *SEPP No. 55 – Remediation of Land*;
- *Cessnock Local Environmental Plan 2011*;
- *Cessnock City Wide Settlement Strategy*; and
- *Maitland Local Environmental Plan 2011*.

The Department has considered the assessment of relevant EPIs in the EA and assessed the proposed modification against the relevant provisions of these instruments. Based on this assessment, the Department is satisfied that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.

3.4 Landowner's Consent

All lots within the project area are legally owned by Ashtonfields Pty Limited with the exception of Part Lot 4 DP 241097, Part Lot 5 DP 241097, Part Lot 1 DP 617909, Lot 1 DP 722210, Lot 6 DP 241097 and Part Lot 1 DP 42349 which area assigned to Hunter Water (pipeline easement) and Cessnock Council (Crown road reserve, closed). Ashtonfields Pty Limited is an independent third party with a long-standing relationship with Bloomfield. The land is held by Bloomfield under a commercial lease. Bloomfield provided the Department with land owner's consent for the proposed modification pursuant to clause 49 of the *Environmental Planning and Assessment Regulations 2000*, on 28 March 2018.

3.5 Objects of the EP&A Act

The Minister or delegate must consider the objects of the EP&A Act when making decisions under the Act. The objects of the EP&A Act changed on 1 March 2018. The Department has assessed the proposed modification against the current objects of the EP&A Act. The objects of most relevance to the decision on whether or not to approve the proposed modification are found in section 1.3. They are:

- Object 1.3(a): *to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources*;
- Object 1.3(b): *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment*;
- Object 1.3(c): *to promote the orderly and economic use and development of land*;
- Object 1.3(e): *to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats*;
- Object 1.3(f): *to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)*; and
- Object 1.3(j): *to provide increased opportunity for community participation in environmental planning and assessment*.

The Department is satisfied that the proposed modification encourages the proper management and development of resources (Object 1.3(a)) and the promotion of the orderly and economic use of land (Object 1.3(c)), since the:

- modification involves a permissible land use on the subject land;
- targeted coal resource has been determined by the Department's Division of Resources and Geoscience (DRG) to be significant from a State and regional perspective;
- targeted coal resource is located entirely within mining lease areas, in a region that is dominated by coal mining operations;
- modification can be largely carried out using existing mine site and transport infrastructure; and
- modification would provide ongoing socio-economic benefits to the community of NSW.

The Department has considered the principles of ecologically sustainable development (ESD, Object 1.3(b)) in its assessment of the proposed modification. The Department has also noted Bloomfield's consideration of these matters (see Section 11.3 of the EA), and considers that the proposed modification is able to be carried out in a manner that is consistent with the principles of ESD. The Department's assessment has sought to integrate all significant environmental, social and economic considerations.

Consideration of the protection of the environment and heritage (Object 1.3(e) and(f)) is provided in **Section 5** of this report. The Department believes that the modification as proposed has been designed to minimise potential environmental and heritage impacts where practicable, including avoidance of direct disturbance to threatened biodiversity and Aboriginal cultural heritage items.

The Department exhibited the modification application and made the accompanying EA publicly available (Object 1.3(j)). The Department received 14 public and special interest group submissions during the exhibition period, of which 93% were in support of the modification.

4. CONSULTATION

4.1 Exhibition and Notification

The Department exhibited the modification application and the accompanying EA from 2 February until 2 March 2018 and made them publicly available on its website and at Cessnock City Council's and Maitland City Council's administrative centres, and the office of the Nature Conservation Council.

In response to this exhibition, the Department received 9 submissions from public authorities, including NSW Government agencies. The Department also received 14 public and special interest group submissions during the exhibition period. Of those received, 13 were in support and 1 objected to the proposed modification.

Copies of these submissions and a copy of Bloomfield's Response to Submissions (RTS) are included in **Appendix B** and **Appendix C**, respectively. A summary of the residual issues raised in these submissions is provided below.

4.2 Agency Submissions

DRG identified inadequacies in the EA regarding proposed rehabilitation methodologies and requested that additional information be provided to demonstrate that sustainable rehabilitation outcomes could be achieved. In particular, DRG requested further details regarding post-mining land use and domains in the event that no future residential/mixed use/industrial land uses, as described in the EA, are approved via future development applications. DRG also requested rehabilitation objectives and completion criteria that clearly define the outcomes required to achieve the post-mining land use for each domain. The Department has addressed these recommendations in **Section 5.2**.

The **Department of Industry – Lands and Water** (DoI) made several recommendations, including assessment of impacts on high-priority groundwater dependent ecosystems, independent review of the groundwater model, and licensing arrangements and entitlements. The Department has addressed these recommendations in **Section 5.3**.

The **Heritage Council of NSW** (Heritage) noted that the heritage listed Buttai Reservoirs No. 1 and No. 2 would not be impacted by the proposed modification and impacts to the heritage-listed Buttai Cemetery would diminish as mining continued to move northward. Nevertheless, Heritage was concerned that, as the proposed modified mine advances north and extracts from deeper coal seams, the likelihood of adverse impacts to the reservoirs may increase. Consequently, Heritage recommended several heritage conditions for the proposed modification, including undertaking condition surveys, implementing management plans and, if required, mitigation measures. The Department has addressed these recommendations in **Section 5.5**.

The **Office of Environment and Heritage** (OEH) was satisfied with the biodiversity and Aboriginal cultural heritage assessments provided. OEH recommended conditions including retirement of biodiversity credits, updating of management plans and preparation of a flood impact assessment. The Department has addressed these recommendations in **Sections 5.1** and **5.3** of the report.

The **Roads and Maritime Services** (RMS) noted that, whilst all coal extracted from the site would be transported via the existing rail network and the proposal would not generate any additional workforce traffic, new haulage routes being constructed on site would generate additional construction traffic. As the timeframe for construction, number of vehicles and access from the public road network for construction traffic was not included in the EA, the RMS recommended a traffic and transport study be prepared. The Department has addressed these concerns in **Section 5.5**.

The **Dams Safety Committee** (DSC) raised no concerns over the proposed modification. However, it noted that the modification includes an option to build embankments within the open cut between an area of tailings emplacement and open cut operations. The DSC requested that further details of these embankments and consideration of potential consequences if they failed are provided, if this option was pursued. The Department has addressed these recommendations in **Section 5.2**.

Hunter New England Population Health (Health) recommended that all reasonable and feasible measures be taken to minimise human exposure to particulate matter emissions, even where assessment criteria are met. The Department has addressed these recommendations in **Section 5.5**.

The **Environment Protect Authority** (EPA) and **Subsidence Advisory NSW** (SA NSW) raised no issues and had no comments to provide in relation to the proposed modification.

The Department did not receive a submission from either **Cessnock City Council** or **Maitland City Council**.

5. ASSESSMENT

The Department has assessed the merits of the proposed modification in accordance with the relevant objects and requirements of the EP&A Act. In assessing these merits, the Department has considered the:

- EA for the original project and EAs for subsequent modifications;
- conditions of approval for the project, as amended by subsequent modifications;
- modification application MP 07_0087 (MOD 4) and accompanying documents; and
- relevant environmental planning instruments, policies and guidelines.

The Department considers that the key issues for assessment are the potential impacts to biodiversity and water resources, and the proposed final landform including rehabilitation. Consideration of these issues is provided below.

5.1 Biodiversity

5.1.1 Introduction

The EA included a Biodiversity Assessment Report (BAR) prepared by EMM Consulting to determine the potential impacts of the proposed modification on native vegetation, threatened species and biodiversity values.

Under the proposed modification, Bloomfield is looking to clear approximately 3.5 hectares (ha) of previously rehabilitated landform, including 0.34 ha of native vegetation, for the proposed widening of a haul road and upgrade of a watercourse (see **Figure 4**). The Department considers this clearing to be the key biodiversity impact of the proposal.

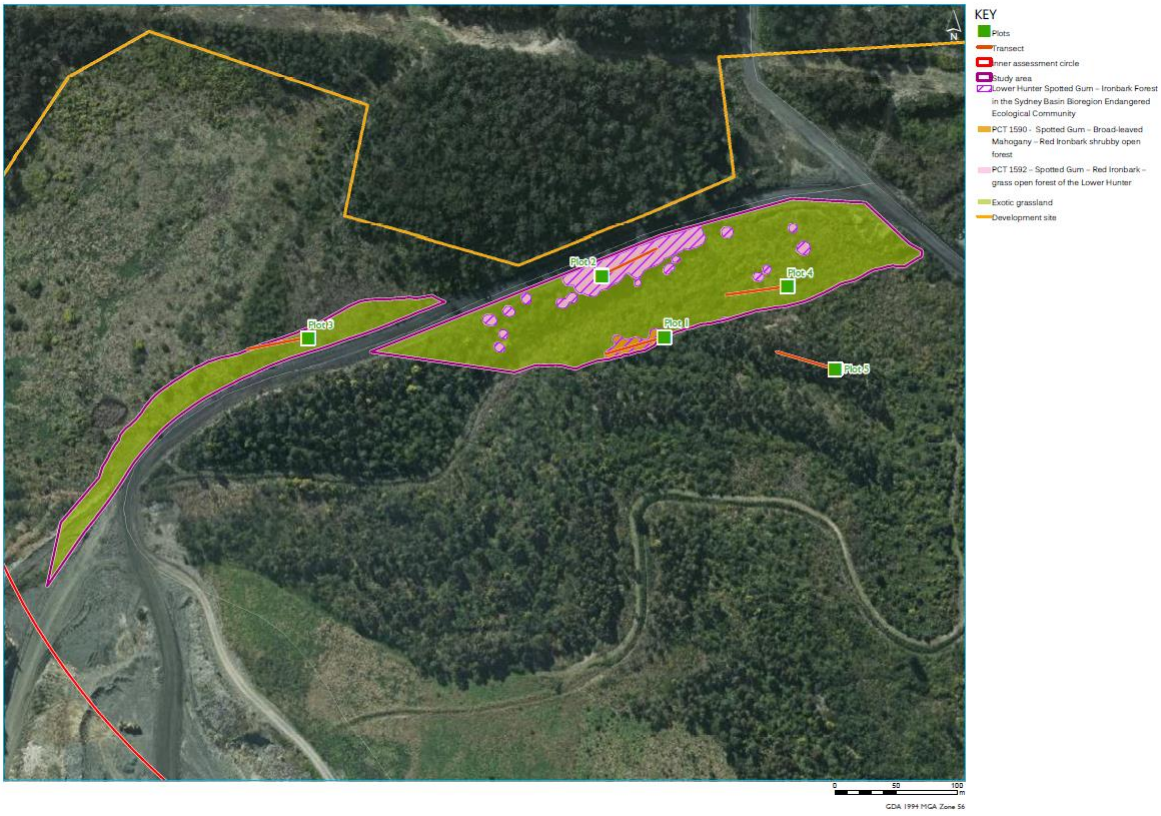

***Figure 4**: Proposed clearing for the widening of the haul road and upgrade of a watercourse*

Two areas in the north-west of the site (see **Figure 4**) make up the 3.5 ha of rehabilitated landform that require clearing. These can be broken down into:

- 0.8 ha to the north of the current haul road, to be cleared for widening of the haul road to allow for two-way travel of large rear dump trucks; and
- 2.7 ha to the south of the current haul road, to be cleared for the upgrade of the same haul road and upgrade of a previously rehabilitated watercourse.

5.1.2 Native Vegetation

The study area has seen extensive historical clearance from open cut mining at Bloomfield Colliery. This has resulted in a heavily disturbed landscape which has been subsequently rehabilitated. This rehabilitation has led to patches of regenerating forest containing stands of similar sized trees, very few large trees, a sparse mid storey and grassy understory. Exotic grasslands dominate the rehabilitated landscape.

The BAR identified two plant community types (PCTs) in moderate/good condition in the study area, apart from the exotic grasslands. These areas were assessed for the need for biodiversity offsets against the *NSW Biodiversity Offsets Policy for Major Projects* and the *Framework for Biodiversity Assessment* (FBA) (see **Table 1**).

Table 1: *Summary of offset requirements*

Name	***Description***	***Size of rehabilitated landscape (ha)***	***Biodiversity Value***	***Offset required***
PCT 1590	Spotted Gum, Broad-leaved Mahogany and Red Ironbark shrubby open forest.	0.05	30.21	Removal of this native vegetation would require offsetting in accordance with Section 9.31 of the FBA.
PCT 1592	Spotted Gum, Red Ironbark, Grey Gum and grass open forest of the Lower Hunter.	0.29	35.42	Removal of this native vegetation would require offsetting in accordance with Section 9.31 of the FBA.
Exotic Grassland	Grass species common to mine rehabilitation, mainly Rhodes Grass, with Acacia in the mid storey and no canopy layer.	3.2	< 17	Not considered for further offsets.

As Bloomfield intends to clear this vegetation as part of the proposed modification, some biodiversity offsets would be required. Bloomfield is proposing to offset via a payment into the Biodiversity Conservation Trust (see **Section 5.1.5** below).

5.1.3 Threatened Species

The BAR also included targeted flora and fauna surveys to determine the presence of any threatened species in the proposed impact area. Six threatened flora species were targeted; however, none were recorded.

A targeted fauna survey indicated that there were no tree hollows present within the rehabilitated forested portions of the study area. This was attributed to the relatively young age of the canopy. Due to the lack of tree hollows and the young age of the canopy, the BAR concluded that the study area is unlikely to contain any threatened arboreal mammals or hollow-dependent bird species.

Two Koala feed tree species listed under SEPP 44 were recorded within the study area; however, no Koala scats or any other evidence of Koala habitation was found. The Department considers that it is unlikely that the study area contains sufficient foraging resources to support a Koala population.

Overall the BAR determined that no threatened flora or fauna species, or habitat for an ecologically significant proportion of species listed under the State or Commonwealth biodiversity protection legislation, were present at the site.

5.1.4 Avoid, Minimise and Mitigate Impacts

To mitigate impacts to biodiversity, Bloomfield currently employs mitigation measures and owns a 40-ha vegetation offset area abutting the Watagan State Forest. Current mitigation measures include minimisation of disturbance areas, pre-clearance surveys, salvaging and reusing material on site, habitat enhancement, conserving and reusing topsoils and weed management.

Bloomfield intends to continue these practices and is committing to the following additional measures:

- installation of exclusion fencing around vegetation directly adjacent to the development footprint;
- appropriate signage such as 'Environmental Protection Area' or 'No Go Zone';
- including the locations of 'No Go Zones' in site inductions;
- locating material stockpiles, machinery storage and vehicle parking in previously cleared areas or areas proposed for clearing;
- deploying a licensed wildlife salvage team during vegetation removal to catch and relocate (if appropriate) any wildlife encountered;
- cleared native vegetation being mulched for reuse on site to stabilise bare ground (if appropriate);
- temporary stormwater controls to ensure no discharges to drainage channels; and
- sediment and erosion controls (eg silt fences and sediment traps) to protect drainage channels.

5.1.5 Biodiversity Offset

The BAR included an assessment of the ecosystem credits that would be required to compensate for the proposed clearing. In total, ten ecosystem credits would be required to offset the impacts arising from the proposed modification.

A biodiversity offset strategy was prepared to determine how to best compensate for these impacts. In accordance with the FBA, the Biobanking public register was searched for the availability of the required PCT credits. Credits for PCT 1592 were available, although none where available for PCT 1590. However, the credit profile report includes PCT 1592 as an offset option for PCT 1590, meaning PCT 1592 credits could be used as a substitute for PCT 1590 credits.

Additionally, the online Biodiversity Payment Calculator was used to estimate the price per credit. At the time of the assessment, each credit came to a price of $2,000.64, resulting in a total required payment of $22,007.07 (including GST) to offset the impacts of the proposed modification.

In its submission, OEH determined the biodiversity assessment to be satisfactory and that no further assessment was required. OEH agreed that the 3.2 ha of 'non-native vegetation' to be cleared has a site value score of less than 17 and does not require further assessment or offsetting under the FBA. OEH also agreed that the remaining 0.3 ha of native vegetation was represented by two PCTs (PCT 1590 and PCT 1592), and that the clearing of these PCTs would require Bloomfield to retire 10 credits.

Due to the small number of credits required, Bloomfield indicated its preferred option to secure offsets was payment into the Biodiversity Conservation Trust. The Department and OEH are satisfied with this approach.

OEH recommended that a condition of approval requiring Bloomfield to retire credits listed in the credit profile of Appendix D of the EA be included, if the Department were to approve the proposed modification. The Department has recommended a condition to this effect.

5.1.6 Conclusion

The proposed modification would result in the additional clearing of 3.5 ha of vegetation, of which 0.3 ha is native vegetation. Ten ecosystem credits would be required to offset these impacts. Bloomfield has elected to pay the required offsetting cost to the Biodiversity Conservation Trust, along with implementing additional mitigation measures during construction of the haul road and watercourse upgrade.

The Department is satisfied that the proposed modification would not result in any other significant impacts to biodiversity and that its residual impacts could be mitigated, managed or offset through updated management plans and the recommended conditions.

5.2 Rehabilitation and Final Landform

5.2.1 Introduction

At present, the approved final landform at Bloomfield Colliery incorporates a final void. Due to the proposal to extract deeper coal seams, Bloomfield is seeking several changes to the currently approved post-mining landform. The final landform would depend on whether Abel resumes operations.

5.2.2 Final Landform Designs

The proposal provides several opportunities for improved final landform outcomes and integration with surrounding natural landform features. The proposed modification would shift the final void approximately 200 m to the west and presents two potential final landform scenarios. One of these is based on Abel remaining in care and maintenance, and the second is based on Abel resuming operation (see **Figures 2** and **3**).

Prior to finalising the proposed mine plan and subsequent final landforms, Bloomfield assessed four potential void design options ranging from 'do nothing' to completely backfilling the final voids. Bloomfield's preferred option (option four in the EA) would feature a large flat area and two voids within the combined S Cut and Creek Cut. These voids would be characterised by a smaller temporary void to the south and a larger final void to the north. The smaller void to the south would be used for tailings emplacement by Abel if it were to resume operations. If Abel were to remain in care and maintenance, then the void to the south would be filled, resulting in a slightly larger void to the north.

This option would result in an overall reduction in slope of the final landform. It is Bloomfield's preferred option because it is the most economically viable, has no high walls and has a small final depression

compared to the other three options, including the currently approved final landform. Bloomfield has chosen this option to model the potential final landforms seen in **Figures 2** and **3**.

The Department notes that a flatter final landform is generally accepted as being beneficial for higher-order post-mining land uses such as residential, commercial and industrial development. The flat area plan would be used to guide construction of the final landform regardless of whether Abel resumes operations. This option would allow Bloomfield to continue economically viable operations, pass these benefits onto the local community, extract remaining coal reserves, remove high walls, reduce public safety and landslip risks, reduce visual impacts to surrounding landholders and create a final landform which offers the best shape and slope for post mining commercial uses by the landowner.

The Department recognises these beneficial aspects of the proposal and supports Bloomfield's stated commitment to establish a more natural post-mining landform. Even with these positive design features, the initial description of final landform features in the EA still left several opportunities for improvements and/or clarifications around rehabilitation and beneficial future land use outcomes. These matters were primarily reflected in DRG's submission, which requested further details regarding post-mining land use and domains should no future residential/mixed use/industrial land uses (as described in the EA) be pursued and approved. DRG also recommended that rehabilitation objectives are included in any recommended conditions of approval. These matters are discussed in **Section 5.2.3** below.

Whilst the DSC raised no concerns over the proposed modification, it requested further information on the potential in-pit embankments to enable it to decide whether it should be classified as a prescribed dam under the *Dams Safety Act 1978*. Bloomfield committed to this in its RTS and the Department has recommended a condition requiring Bloomfield to prepare a Tailings Embankment Plan in consultation with DSC.

5.2.3 Rehabilitation

The current rehabilitation strategy at Bloomfield Colliery is undertaken in accordance with Bloomfield's Rehabilitation Management Plan and Mining Operations Plan (MOP). These plans were developed in accordance with approval conditions, EPL 396, mining lease conditions and commitments outlined in Bloomfield's Environment Management Policy. The purpose of rehabilitation at Bloomfield Colliery is to create a safe and stable landform, which is consistent with the surrounding landscape and allows for many post-mining land uses including mixed-use development.

It is proposed that these current rehabilitation methods would continue to be implemented for the duration of the proposed modification and would be updated to reflect changes from the proposal as required. In addition, geotechnical investigations would guide the final tailings emplacement strategy and capping requirements, and any changes to the final landform would be subject to discussion with relevant agencies, including DRG.

As discussed above, DRG requested additional information regarding rehabilitation objectives and completion criteria, and intended final land uses, to demonstrate that sustainable rehabilitation outcomes can be achieved.

In its RTS, Bloomfield noted that should no future residential, mixed use or industrial land use be approved following the completion of mining, remaining hardstand, mine infrastructure areas, or areas not previously identified as rehabilitated would be returned to either pasture or trees over pasture. The Department is satisfied that this is an appropriate, reasonable and feasible approach and could be managed via updates to the Rehabilitation Management Plan and MOP. DRG has reviewed the information and has no further comments.

Bloomfield also provided the following completion criteria for rehabilitation areas identified as 'pasture' and 'trees over pasture' (see **Table 2**).

Table 2: *Rehabilitation objectives and completion criteria for 'pasture' and 'trees over pasture' domains*

Objective	***Performance indicator***	***Completion criteria***
These areas require maintenance and monitoring only.	Stable water management structures such as diversion drains and stock dams	Water management structures functioning as designed
	Ground cover %	>70%, or combined live and litter cover of 70% in tree areas
	Litter cover %	Present at 75% of sites with 20% litter cover

Maintenance may include periodic fertiliser application, weed management and soil conservation works.	Presence of rill erosion	Monitoring indicates rills remaining stable in number and size <30cm wide and deep
	Presence of weeds	No significant infestations of declared weeds. Weeds controlled in accordance with relevant legislation Weeds account for <15% of total herbage mass
	Soil pH	pH 4.5-9
	Soil electrical conductivity	EC <0.6 dS/m
	Soil emerson aggregate test class	Class 3-8
	Tree species displaying successful recruitment	Monitoring results show evidence of successful recruitment
	Tree species assemblages and health characteristic of species found within region	Tree species composition and health is comparable to analogue site
	Landscape function analysis monitoring results	Stability index >50 Infiltration index >25 Nutrient cycling index >20
	Pasture herbage mass	>800 kg dry matter/ha
	Pasture % dead matter	<50%
	Crude protein of pasture	>2%
	Digestibility of pasture dry matter	>40%
	Metabolisable energy of pasture	>6 MJ/kg dry matter
	Potential stocking rates	2-4 dry sheep equivalent/ha
	Soil substrate and pasture cover	Comparable with non-mined grazing reference site

The Department is satisfied that the completion criteria proposed offer adequate information detailing how sustainable rehabilitation outcomes can be achieved. The opportunity also exists for completion criteria to be further refined in updates to the Rehabilitation Management Plan and MOP. DRG has reviewed the information and has no further comments.

The Department notes that the existing approval does not currently contain rehabilitation objectives, as per the Department's current standard conditions and best practice. DRG provided a number of draft conditions of approval to ensure Bloomfield satisfactorily rehabilitates the site, including rehabilitation objectives and requirements for progressive rehabilitation. The Department has included these in its recommended conditions.

5.2.4 Conclusion

The Department is satisfied that potential impacts resulting from the proposed changes to the final landform would not be significantly different to those already approved. The proposed changes would allow for a range of possible post-mining land uses, increasing the potential of the post-mining landforms. The Department considers that the recommended conditions of approval and an updated Rehabilitation Management Plan would be sufficient to ensure best practice rehabilitation outcomes are being achieved.

Having carefully considered the proposed final landform designs and the uncertainty as to whether Abel resumes operations, the Department accepts that Bloomfield has sought to develop a landform that complements existing landform features, considers relevant safety and stability requirements, contributes to the rehabilitation of vegetation communities (including pasture), provides for complementary future uses and achieves a better final void outcome than currently approved.

5.3 Surface Water and Soils

5.3.1 Introduction

The EA included a Surface Water Assessment prepared by AECOM in accordance with relevant guidelines to determine the potential impacts of the proposed modification on soils and water.

Bloomfield Colliery is underlain by Late Permian sediments known as the Tomago Coal Measures. Sediments above, below and between the coal seams comprise interbedded mudstone, siltstone and sandstone. Waterways located near Bloomfield Colliery include Four Mile Creek, Buttai Creek and associated tributaries.

The current mine water management system (see **Figure 9**) is part of an integrated system involving the management of all surface runoff and groundwater sources associated with the Abel, Bloomfield

and Donaldson mines. This ensures a continuous supply of water to the Bloomfield CHPP and minimises discharges to Four Mile Creek.

Bloomfield Colliery's water management system includes removal of water from active pits, storage of water in lakes and voids, controlled discharge into Four Mile Creek in accordance with EPL 396 and control of storm water pollution from overburden dumps, waste disposal areas, stockpile areas and the workshop area.

Assessment of surface water and soils focuses on the impacts of the proposed final landform on surrounding creeks and tributaries, the impacts of additional clearing on erosion and how changes to the life of the mine would impact water management on site.

5.3.2 Impacts to Site Water Management

The current water management system allows for a high degree of flexibility and capacity to account for variations in climatic conditions and changes to production rates, including Abel potentially shifting from care and maintenance into full operation.

The project would continue to mitigate the potential impacts of its operations and monitoring would continue in accordance with EPL 396 and the project approval. Future reviews and updates of the site's Water Management Plan would be required to ensure the appropriate management of water on site is continued, regardless of whether the Abel returns to operation or remains in care and maintenance.

The proposed extension of mine life is not predicted to have any additional impacts on surface water management. The modification would not increase or decrease the probability of unplanned discharges or water quality risks. However, the existing risks would continue until extraction is complete (ie 2030) and the site is rehabilitated.

5.3.3 Surface Water Management

The proposed changes in final landform would have a significant impact on both run-off from the site and the size of the catchment area of the final void compared to that already approved. The eastern slopes of the proposed final landform would drain eastwards towards Four Mile Creek. This would see an increase in catchment area for Four Mile Creek of approximately 40 ha, along with an associated increase of approximately 188 ha in the catchment area of Buttai Creek and its tributaries. There would also be a decrease from roughly 240 ha to 52 ha for the proposed catchment area of the final void.

There is potential for the proposed changes to result in positive long-term environmental outcomes for both Four Mile Creek and Buttai Creek and its tributaries. The reduction in catchment area draining to the final void would result in less water being removed from the natural catchment hydrology, resulting in a more natural landscape.

Nevertheless, the proposed changes to the final landform would result in increased risk of sediment-laden water runoff to the surrounding waterways during the rehabilitation phase and until the final landform is stabilised and revegetation has begun.

In addition, OEH made comment that the EA did not adequately address potential offsite flooding impacts. Bloomfield provided further information in its RTS which assessed potential worst-case flooding impacts for the scenario in which Abel resumes operation, resulting in a smaller final void and a greater increase in creek catchment areas for Buttai Creek and Four Mile Creek.

For both Buttai Creek and Four Mile Creek, the changes in peak flow during 1% Annual Exceedance Probability events would be minor (<2% for Buttai Creek and <1% for Four Mile Creek). Buttai Creek flood levels would increase by 0.02 m at Buchanan Road. Four Mile Creek flood levels would increase by 0.01 m at the New England Highway. Both the Department and OEH are satisfied that the potential increases in flood level are very small, and are likely to have only minor impacts on flood risks. As such, no further flood assessment is required.

Bloomfield intends to manage potential increased runoff risks using strategies detailed in existing environmental management plans, including erosion and sediment controls, and design and operation of drainage lines and sediment basins. The Department considers that the current conditions and an updated Water Management Plan would provide sufficient protection to surface water resources and off-site receivers.

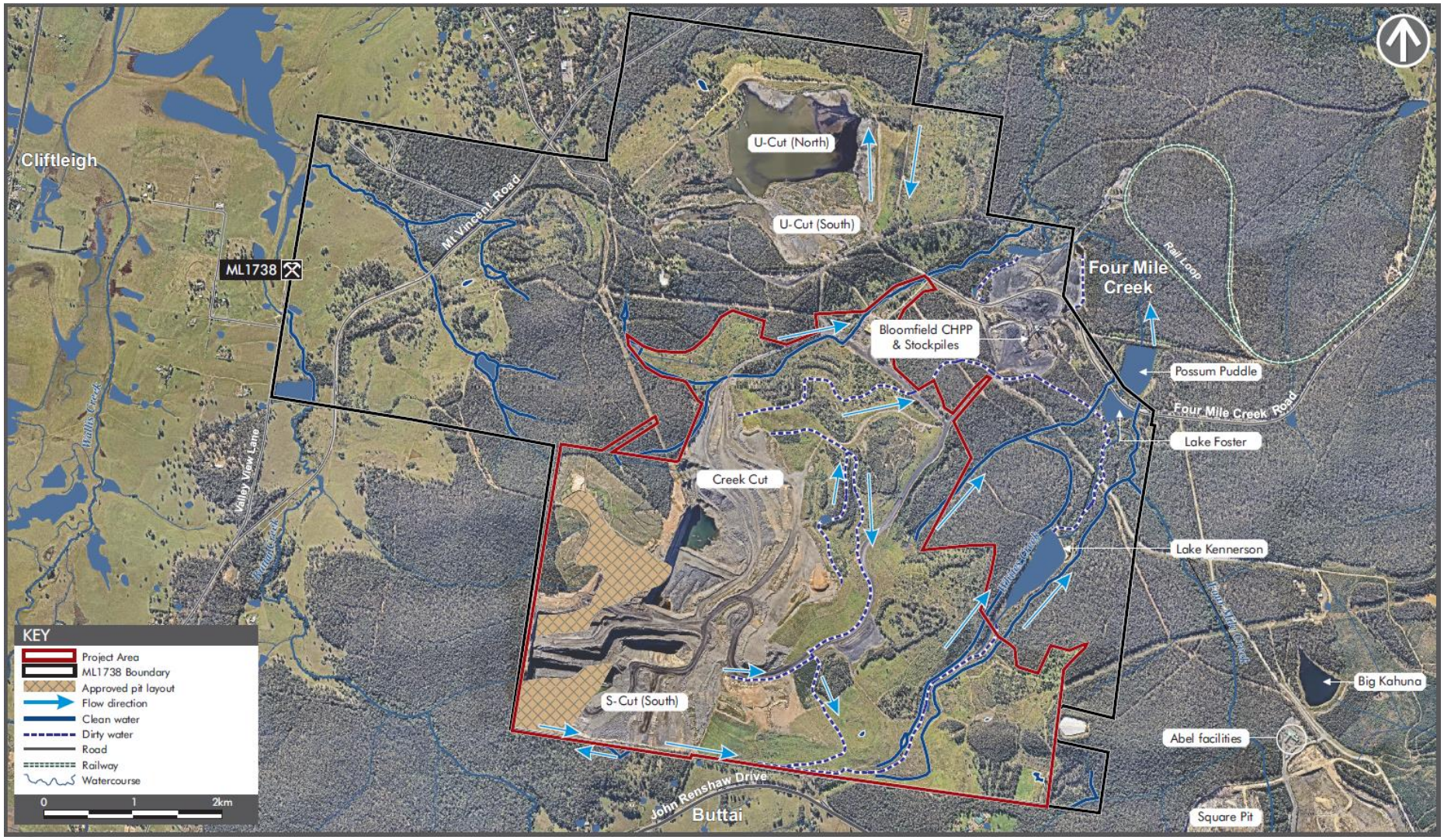

Figure 9: *Surface water management system*

5.3.4 Erosion and Sedimentation

Given that the proposed modification involves clearing and removal of vegetation, there is potential for an increase in erosion and sedimentation impacts. However, Bloomfield has noted that any additional erosion impacts would be minor and temporary, providing management measures set out in the current Erosion and Sediment Control Plan (ESCP) are implemented.

The Department also considers that the proposed life of mine extension would have minimal additional impacts to soils or erosion, as mining would remain within the previously approved boundary and any increased risk to runoff would be managed via the existing ESCP.

The Department notes that, whilst there would be an increased risk of sediment-laden runoff to surrounding waterways during rehabilitation, these risks can be mitigated using existing environmental controls. Overall the Department is satisfied that there would be a net benefit to both Four Mile Creek and Buttai Creek and their associated tributaries following closure and rehabilitation of the mine, compared to that currently approved.

5.3.5 Conclusion

The proposed modification would result in a change to the drainage pattern of the final landform, along with extending the time over which soil erosion and runoff could occur. However, the proposal also has potential for positive long-term environmental outcomes by substantially reducing the catchment area draining to the final void, resulting in a more natural landscape following closure and rehabilitation.

Current conditions require Bloomfield to implement a Water Management Plan that includes an Erosion and Sediment Control Plan and Surface Water Monitoring and Response Plan. These plans require Bloomfield to monitor, manage and mitigate the impacts that mining operations may have on both surface water and soils.

The Department considers the current conditions to be sufficient to mitigate potential impacts of the proposal. However, the abovementioned management plans would require to be updated to reflect the proposed modification.

5.4 Groundwater

5.4.1 Introduction

The EA included a Groundwater Impact Assessment, prepared by AECOM, which reviewed the hydrogeological impacts of the proposed modification, including changes to the site water balance and water management system. At DoI's request, as part of its RTS, Bloomfield also engaged Dundon Consulting Pty Ltd (Dundon) to undertake an independent peer review of the groundwater modelling. Dundon concluded that, whilst a number of minor changes could have been made, overall the Groundwater Impact Assessment was satisfactory.

The Upper Hunter Valley is dominated by two main aquifer groups, comprising alluvial Quaternary deposits overlying consolidated Permian rocks. Around Bloomfield Colliery, the Permian coal measures make up the main aquifer unit. Groundwater is typically restricted to cleats and fractures within the coal, however can also occur in the Quaternary sediments, where they are present.

Bloomfield operates a groundwater monitoring network consisting of five standpipe piezometers and five bores with vibrating wire piezometers. The monitoring history reveals the long-term effects of mining through a decrease in groundwater elevation throughout the deeper coal seam aquifers.

This same pattern is not reflected in the upper alluvial aquifers, inferring that the Permian and Quaternary aquifers are not hydraulically connected. Bloomfield Colliery currently operates under the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.* Impacts on groundwater are controlled under this plan, the *Aquifer Interference Policy* and Bloomfield's water licences.

The Department's assessment of groundwater focuses on the impacts of extending the mine life and increasing the depth of mining on both groundwater drawdown and groundwater quality.

5.4.2 Groundwater Drawdown

The EA indicated that the maximum drawdown of groundwater resulting from the proposed modification is expected to occur in 2025. At this point, mining activities are scheduled to cease at the southern end of the approved extraction area, which would result in groundwater levels beginning to recover across the site.

A maximum drawdown of 100 m is predicted in the surficial aquifer although this would generally reduce to less than 0.5 m outside the Bloomfield Colliery lease area, except for the south-west corner where a 2 m drawdown is predicted to extend approximately 600 m beneath Buttai Creek.

Predicted drawdowns in the majority of bores within 5 km of the mine following completion of mining are anticipated to be less than 1 m. However, there will be three locations which are predicted to be between 1-2 m. Overall, these impacts fall within the *Aquifer Interference Policy's* minimal impact threshold of 2 m. Regardless of this, the Department notes that the majority of these bores are mine-owned.

Groundwater drawdown has the potential to impact Groundwater Dependent Ecosystems (GDEs). DoI requested Bloomfield to undertake an assessment of the impacts on High Priority GDEs as listed under the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016*, and the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009.*

In its RTS, Bloomfield reviewed both Water Sharing Plans and noted that the nearest GDEs to the project are associated with the Pambalong Swamp, approximately 6.5 km to the south, Hexam Swamp located approximately 6 km to the south-east and Woodberry Swamp located approximately 8.5 km to the east. The project, including the proposed modification, does not directly drain any of these areas and impacts to these GDEs would be negligible. DoI provided no further comment in relation to this matter.

5.4.3 Groundwater Quality

Groundwater within the mining lease is saline and therefore has minimal beneficial use. The key impacts associated with the proposed modification relate to the risk of contamination of offsite water bodies. As noted is **Section 5.3.1**, part of the water management system includes controlled discharges to Four Mile Creek. Whilst the proposed modification would not increase or decrease the probability of unplanned discharges or water quality impacts, it would lengthen the period over which they could occur, as the modification would result in potential discharges until rehabilitation is completed after 2030.

5.4.4 Aquifer Interference Policy and Licensing

The Groundwater Impact Assessment included a minimal impact assessment under the *Aquifer Interference Policy* for groundwater potentially impacted by the proposal. The majority of Bloomfield Colliery is within a 'Less Productive Groundwater Source'. According to the minimal impact assessment conducted, all predicted impacts from the proposed modification fall under the 'less than Level 1 minimal impacts consideration'. The Department is satisfied that minimal impacts are acceptable, subject to appropriate monitoring during operations.

DoI requested that Bloomfield confirm proposed licensing arrangements for the projected take of 26 ML/yr from the Wallis Creek Water Source and 8 ML/yr from the Newcastle Water Source, given Bloomfield Colliery does not hold licences for these water sources. It also stated the need for Bloomfield to obtain entitlement under the *Water Act 1912*, as the alluvial aquifer system within the Newcastle Water Source does not fall within the *Hunter Unregulated and Alluvial Water Sources Water Sharing Plan 2009*.

In response, Bloomfield noted that the 26 ML/yr from the Wallis Creek Water Source and 8 ML/yr from the Newcastle Water Source, are included within the mine's overall 500 ML/yr take and as such no additional licensing requirements would be necessary. DoI has since reiterated its position that a licence is required to offset each of the impacted water sources and that Bloomfield Colliery does not hold such licences. Bloomfield has committed to resolving any licensing issues with DoI.

5.4.5 Monitoring and Management Measures

Bloomfield indicates that quarterly monitoring of the onsite piezometer network and monthly surface water monitoring would continue to monitor the drawdown effects from the depressurisation of the regional aquifer.

Bloomfield would continue to implement its existing Water Management Plan to manage groundwater impacts and update the plan to reflect the proposed modification, if approved. Bloomfield also proposes to monitor groundwater seepages to quantify pit inflows to ensure that licence conditions are satisfied.

The Department is satisfied that the proposed modification could occur without significant environmental impacts and would continue to comply with the relevant Water Sharing Plans.

5.4.6 Conclusion

The proposed modification would result in minor additional impacts to predicted drawdowns at the end of mining and an increased duration over which impacts could occur. However, the Department considers these impacts to be of a similar size and scale to those already approved. Bloomfield proposes to continue to implement an updated Water Management Plan and continue to monitor groundwater levels to ensure compliance and to avoid any significant increases to groundwater impacts.

The Department is satisfied that potential groundwater impacts would be relatively minor, and suitably managed under modified conditions and an updated Water Management Plan.

5.5 Other

The Department has considered the other potential impacts of the proposed modification and has summarised these considerations in **Table 3**.

***Table 3**: Assessment of other issues*

Issue	***Consideration***	***Recommendation***
Visual	• The EA included an assessment of potential visual impacts of the proposed overburden emplacement area using photomontages to illustrate the visual effect from the two most impacted viewing locations. • The landscape and visual setting of the proposed modification area is defined by undulating rural hills. The three major features of the landscape include Bloomfield Colliery itself, Donaldson Open Cut Mine and Elliot's Hill. • The primary visual receivers include small rural landholdings surrounding Bloomfield Colliery to the north, south and west, residential areas to the north including Ashtonfield, Louth Park and East Maitland, as well as passing motorists traveling along John Renshaw Drive. • Much of the site's infrastructure, including the workshop areas and haul roads, is not currently visible at offsite receiver locations. This would not change under the proposed modification. • The main visual impact from the proposed modification involves changes to the final landform. Consequently, views of the overburden emplacement area may change compared to those assessed as part of the original application, albeit minimally.	The Department considers that no additional visual impact or amenity conditions are necessary, as the proposal would not result in increased visual impacts to the area. Progressive rehabilitation would still provide the most effective method of minimising visual impacts. These activities would continue under current conditions and an updated Rehabilitation Management Plan.
Aboriginal Cultural Heritage	• The EA included an assessment of potential impacts on Aboriginal cultural heritage. The assessment identified that fifteen previously recorded Aboriginal heritage sites were located within the vicinity. Six of these sites were located within the bounds of Bloomfield Colliery and have been previously salvaged.	The Department and OEH are satisfied that the modification would have no additional impact on Aboriginal cultural heritage as mining would be undertaken within the existing approved extraction area. Overall, the Department is satisfied that the modification would not materially affect heritage items and that the management of potential impacts could be achieved with minor updates to the existing Aboriginal Cultural

		Heritage Management Plan and Blast Monitoring Plan.
Historic Heritage	• The EA included an assessment of potential impacts on historic heritage. Three listed historic heritage items were identified, including two reservoirs and the Buttai Cemetery. • The assessment concluded that the proposed modification is unlikely to adversely impact historic heritage. • Heritage raised concerns that there may be an increased likelihood of adverse impacts to the heritage listed reservoirs as extraction moves north (ie closer to the reservoirs). • Furthermore, as Buttai Reservoir No. 1 comprises vaulted brick and stone and Reservoir No. 2 comprises early 20th Century concrete, both may be affected by increased blasting and vibration that would occur due to the proposed extension of mine life. • Due to changes in mining and the potential impact on heritage items, Heritage proposed condition surveys be undertaken for the Buttai No. 1 reservoir, No. 2 reservoir and Buttai Cemetery within two months of the determination of Modification 4, if approved. • The items should be monitored and any damage should be repaired following best conservation practice, in accordance with relevant guidelines and as advised by Hunter Water's heritage specialist and/or Heritage. • In the RTS, Bloomfield committed to undertaking the necessary condition surveys as soon as practicable for both the Buttai No. 1 and No. 2 reservoirs and the Buttai Cemetery, along with adding additional project management measures.	The Department agrees with Heritage's recommendations and acknowledges the commitments made by Bloomfield. The Department has formalised these commitments through recommended conditions which require condition surveys and a Historic Heritage Management Plan.
Hazard and Risk	• Bloomfield undertook an assessment of potential hazards and risks associated with the existing operation (ie storage of hazardous goods, hydrocarbon contamination, bushfire risk, spontaneous combustion and mine subsidence). • As the proposed modification is not seeking to change the intensity or extent of mining, no increases in hazard or risk levels are expected. • No key agencies raised any issues regarding hazards or risks.	The Department is satisfied that hazards and risks of the proposed modification would be negligible and would be suitably managed under current conditions and updated management plans.
Waste	• The EA included an assessment of the impacts of the proposed modification on waste generating processes. • The assessment identified seven waste streams generated from the operation. These included waste rock, processing waste, waste oil, waste oil filters, waste metal, general waste and waste paper and cardboard. • As the proposed modification does not involve any increases to production levels, there would be no expected increase in waste generated by the operation. • No key agencies raised any issues regarding waste.	The Department is satisfied that there would be negligible waste impacts resulting from the proposed modification and any impacts could continue to be managed under current conditions and updated management plans.
Traffic and Transport	• The EA included an assessment of potential impacts to traffic and transport. • The assessment identified that the nearest public road is John Renshaw Drive, which would continue to connect the Colliery to the M1 Pacific Motorway, the Hunter Expressway and the New England Highway. • Access to the Colliery would remain via Four Mile Creek Road and secondary access would still be available via Buttai Road. • Saleable coal is to continue to be transported to Newcastle via rail. The operation of the rail loading facility falls under the Abel project approval and therefore does not require assessment under this proposed modification.	The Department is satisfied that traffic and transport impacts of the proposed modification would be negligible and would be suitably managed under current conditions and updated management plans.

	• The proposed modification would not increase traffic movements or transport of materials. Transport of materials within the mine site would remain consistent with existing operations. • However, RMS considered that additional construction traffic would be generated to upgrade the on-site haulage routes and requested that Bloomfield undertake a traffic and transport study. • In its RTS, Bloomfield noted that the upgrade of haul roads and associated haul road construction would not represent a separate construction activity beyond current routine operations at the mine, and would use existing fleet and work force. Consequently, there would be no need for a traffic and transport study. • RMS noted its satisfaction with Bloomfield's response.	
Noise and Vibration	• The EA included an assessment of potential noise, vibration and blasting impacts associated with the proposed modification. This assessment was conducted by SLR Global Environmental Solutions (SLR) and investigated both operational and cumulative noise impacts that could arise from the proposal. • Operational noise levels have the potential to exceed relevant Project Specific Noise Levels (PSNLs) and project approval noise limits under prevailing noise enhancing weather conditions. • However, current mining activities at Bloomfield Colliery are proactively tailored towards upcoming weather conditions, including mining away from areas that may pose a noise risk during noise-enhancing weather conditions. • Taking this into consideration, it was determined that the proposed modification would continue to meet the relevant PSNLs and project approval noise limits, as the site has the operational flexibility to avoid or modify activities during noise enhancing weather conditions. • Cumulative noise impacts are not predicted to exceed the amenity criteria at relevant receiver locations or on more than 25 percent of any privately-owned land (except vacant Lot 30/DP1113350). • No key agencies raised any issues regarding noise or vibration.	The Department is satisfied that noise and vibration impacts of the proposed modification would be negligible and would be suitably managed under current conditions and updated management plans.
Air Quality	• The EA included an assessment of potential air quality impacts associated with the proposed modification, conducted by Todoroski Air Sciences and prepared in accordance with the *Approved methods for the modelling and assessment of air pollutants in NSW (2016) .* • Todoroski determined that dust levels would be below the relevant criteria at all privately-owned receptor locations. • Modelling indicated that, without predictive mitigation measures, there is potential for cumulative 24-hour average PM_{10} levels to marginally exceed the relevant criterion. However, the use of routine day-to-day reactive and predictive systems would prevent unacceptable impacts from occurring. • Routine day-to-day dust suppression strategies include review of predictive meteorological modelling software, allowing operational decisions to be made in daily morning meetings. This is followed by monitoring meteorological conditions, reviewing real time data from dust monitors and visual inspections of dust plumes, to help make any further operational decisions through the day. • Overall, it was determined that potential air quality impacts associated with the proposed modification are not expected to be significantly different from existing	The Department is satisfied that air quality impacts of the proposed modification would be negligible and would be suitably managed under current conditions and updated management plans.

	approved operations and any potential impacts could be mitigated by implementing existing management plans. • Health requested that all reasonable and feasible measures are taken to minimise human exposure to particulate matter, even where assessment criteria are met. • In its RTS, Bloomfield committed to undertaking all reasonable and feasible management measures to address impacts to air quality, noise and water. Health has noted that its concerns have been adequately addressed.	
Social and Economic	• The EA included an assessment of potential social and economic impacts and benefits associated with the proposed modification. The assessment determined that: – there would not be any adverse impacts on the social fabric of the local community; – there would not be any additional impacts on accommodation, community facilities or community services; and – the proposed modification would result in primarily positive economic impacts by providing ongoing employment and flow-on benefits to other industries, along with mining royalties being paid to the State Government. • During the exhibition period the Department received 14 public and special interest group submissions, of which 93% were in support. • Furthermore, DRG determined that the State would receive around $5 million per annum of additional coal royalties and $23 million over the life of the modification.	The Department is satisfied that the proposed modification could occur without causing adverse social and economic impacts and any potential impacts could be mitigated via existing conditions and management measures.

6. RECOMMENDED CONDITIONS

The Department has drafted a recommended Notice of Modification (see **Appendix D**) and a consolidated version of the approval as it is proposed to be modified (see **Appendix E**). The Department considers that the environmental impacts of the proposal can otherwise continue to be managed through existing conditions of approval.

The Department has also taken the opportunity to recommend some minor administrative changes to update existing conditions and reflect the Department's current drafting standards.

Bloomfield has considered the recommended conditions and has not raised any objections.

7. CONCLUSION

The Department has assessed the merits of the proposed modification in accordance with the requirements of the EP&A Act. This assessment has shown that, with the implementation of minor amendments to existing conditions, coupled with Bloomfield's proposed mitigation measures and required amendments to existing management plans, the proposed modification can be carried out with limited and acceptable environmental impacts.

The proposed continuation of current open cut mining operations can be carried out economically and is a relatively straightforward variation to existing approved operations at Bloomfield Colliery.

Following on from its assessment of the project, the Department considers that the modification is approvable, subject to the proposed conditions of approval (see **Appendix D**). This assessment report is hereby presented to the Executive Director Resource Assessments and Compliance.

8. RECOMMENDATION

It is recommended that the Executive Director, Resource Assessments and Compliance, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the proposed modification is within the scope of section 75W of the EP&A Act;

- **approves** the modification application of the project under section 75W, subject to conditions; and
- **signs** the attached notice of modification (**Appendix D**).

Recommended by:

J Evans 9/8/18

Jessie Evans
Team Leader
Resource Assessments

Recommended by:

Howard Reed 9.8.18

Howard Reed
Director
Resource Assessments

Approved by:

16/8/18

Oliver Holm
Executive Director
Resource Assessments and Compliance

APPENDIX A: ENVIRONMENTAL ASSESSMENT (EA)

The EA is available at
http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9048

APPENDIX B: SUBMISSIONS

The submissions are available at
http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9048

APPENDIX C: RESPONSE TO SUBMISSIONS (RTS)

The RTS and additional information is available at
http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9048

APPENDIX D: NOTICE OF MODIFICATION

APPENDIX E: CONSOLIDATED PROJECT APPROVAL