Title of Proposal - Bloomfield Colliery - Life of Mine Extension

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Mining

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The Bloomfield Colliery (the Colliery) is an existing open cut mining operation located approximately 20km northwest of Newcastle. The Colliery is operated by Bloomfield Collieries Pty Limited (Bloomfield). The Colliery currently operates in accordance with Project Approval 07_0087, with approved production levels of 1.3 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal. Mining operations under the existing approval may take place until 31 December 2021 within the approved Project Area.

Based on current annual mining rates and an estimate of remaining coal reserves inside the approval area, mining is expected to extend beyond 2021. Bloomfield is therefore seeking a modification to the Project Approval to allow for the continuation of mining within Consolidated Coal Lease (CCL) 761 and Mining Lease (ML) 1738 beyond the life of its current consent.

The Project would allow the Colliery to continue its open cut mining operations and use existing mine infrastructure to process up to 1.3Mtpa of ROM coal until 31 December 2030. Existing mining methods would continue to be employed as part of the Project. The Colliery currently uses multi-seam bench open cut techniques to extract coal from a variety of seams within the Tomago Coal Measures. The mining process at the Colliery generally comprises vegetation stripping and topsoil removal, drilling and blasting of overburden, removal and stockpiling of overburden, and extraction of coal. Coal is transported by truck to the ROM coal stockpile via internal haul roads. Overburden emplacement areas are reshaped and rehabilitated to create the final landform.

This modification proposes a revised mine plan which includes extraction of deeper coal seams that were not previously considered to be a recoverable resource in the Bloomfield Colliery Completion of Mining and Rehabilitation: Part 3A Environmental Assessment (2008 EA) prepared by Business Environment Pty Ltd.

The proposed mine plan would result in modification of the previously approved final landform by moving the final void approximately 200m to the west. The Project also includes widening of an existing haul road and upgrade of the adjacent watercourse and would require clearing of approximately 3.5 ha of previously rehabilitated landform. The area to be cleared includes 0.34 ha of native vegetation and 3.2 ha of non-native vegetation dominated by exotic grasses.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Bloomfield Colliery	1	-32.81362305422	151.55294198359
Bloomfield Colliery	2	-32.81362305422	151.55309820131
Bloomfield Colliery	3	-32.794209321185	151.55746870374
Bloomfield Colliery	4	-32.79853828235	151.58711805174
Bloomfield Colliery	5	-32.818344906158	151.58384103144
Bloomfield Colliery	6	-32.81362305422	151.55294198359

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The Colliery is located approximately 20km northwest of Newcastle, centrally located between the suburbs of Kurri Kurri, East Maitland and Beresfield. The Colliery is situated north of John Renshaw Drive, Buttai and east of Buchanan Road, Buchanan. The land along the western boundary of the Project Area is mainly open forest. To the north and east, the Project Area is generally bounded by rehabilitated mined land. Land adjoining the south of the Project Area, near John Renshaw Drive, has been cleared for grazing. John Renshaw Drive is the nearest public road to the Project Area.

A number of residences are located to the south of the Project Area. These are mainly rural residential properties adjacent to John Renshaw Drive and extending southwards along Lings Road and Browns Road. Residential properties are also located to the west adjacent to Buchanan Road and to the north-west at Louth Park. The nearest urban residential area is Ashtonfield, approximately 2.25 kilometres north-east of the workshop area. The nearest residence to the Project Area not owned by Bloomfield is located approximately 600 metres south of the southern boundary of the Project Area.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The approved Project Area is located within CCL761 and ML 1738 and covers approximately 576 hectares.

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Various lots in DP755260, DP755237, DP241097, DP69246, DP136865, DP1045720, DP1045722, DP1045719,

1.8 Primary Jurisdiction.

New South Wales

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 04/2018

End date 12/2030

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The Project would be assessed in accordance with the applicable statutory planning instruments of both the Commonwealth and the State of NSW.

Commonwealth legislation

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Under the EPBC Act, an action that has, will have, or is likely to have a significant impact upon matters of national environmental significance (MNES) is declared a controlled action. A controlled action requires the approval of the Department of Environment and Energy (DoE) under the provision of Division 1, Part 7 of the EPBC Act, in addition to requirements under NSW State legislation.

The EPBC Act lists nine MNES to be addressed when assessing the impacts of a proposal.

During preparation of the Environmental Assessment (EA) for the Project, three matters of NES that could be impacted by the proposed action were identified:

- Threatened species and ecological communities listed under the EPBC Act;

- Migratory species listed under the EPBC Act; and

- Water resources impacted on by a large coal mining development.

Specialist studies were undertaken to assess the potential impacts to biodiversity and water resources (refer to Section 1.14 of this EPBC referral).

New South Wales legislation

Environmental Planning and Assessment Act 1979 (EP&A Act)

The Colliery currently operates under Project Approval MP 07_0087, issued under Part 3A (repealed) of the EP&A Act. As it was for the purpose of coal mining, the original development was classified as a Major Project under the State Environmental Planning Policy (Major Projects) 2005, which triggered the former Part 3A approval pathway. While Part 3A of the EP&A Act was repealed in 2011, transitional arrangements set out in Schedule 6A of the EP&A Act provide that Part 3A continues to apply to approved Part 3A projects, and that section 75W of the EP&A Act continues to apply for the purpose of modifications to Project Approvals. The current Project would therefore be undertaken as a modification to the existing Project Approval (MP 07_0087) under section 75W of the EP&A Act. The approval authority is the Minister for Planning.

Following Bloomfield's initial consultation with the DP&E regarding the Project, DP&E compiled the Environmental Assessment Requirements (EARs) for the Project (issued 16 November 2015 and subsequently revised 22 March 2017). A copy of the EARs for the Project is attached to this referral (refer to Section 1.14.1).

Mining Act 1992

An authorisation under the Mining Act 1992 is required prior to mining or carrying out a mining purpose in NSW.

The existing Colliery currently operates under authorisation CCL 761 and ML 1738. The Project disturbance area is located within the boundary of CCL 761 and ML 1738, therefore a new mining lease or lease extension would not be required.

Protection of the Environment Operations Act 1997 (POEO Act)

Mining for coal is listed as a scheduled activity under clause 28(2)(a), Schedule 1 of the POEO Act. The Colliery currently operates in accordance with the conditions of EPL 396 issued by the EPA under the POEO Act. A variation to EPL 396 to accommodate the Project would be sought from the EPA if required, in order to take account of the amended operations resulting from the Project.

Water Management Act 2000 (WM Act)

The WM Act sets out the water management principles and water sharing provisions relative to water sources across NSW. Water sharing plans establish annual limits on water extraction, set water allocations through the issuing of water licences and determine trading rules surrounding water licences. Two water sharing plans are enacted in proximity to the Project:

- Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009; and

- Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016.

The Project would involve water supply works and drainage works, as well as the taking of groundwater. The Colliery has existing water licences for its current operations and these would be modified where required to accommodate the Project over its life.

Aquifer Interference Policy (AIP)

The AIP defines the requirements for assessing the impacts of aquifer interference activities on water resources, with the aim of striking a balance between the water use requirements of towns, farmers, industry and the environment. Under the requirements of the AIP, the predicted impacts of an activity are considered acceptable if they do not exceed the Level 1 thresholds provided within the Policy by no more than the accuracy of an otherwise robust model. A detailed assessment of potential impacts of the Project on relevant groundwater resources as part of this EIS indicates that the Project would not exceed the Level 1 thresholds and the impact on groundwater is considered minimal.

National Parks and Wildlife Act 1974 (NPW Act)

The NPW Act governs the establishment, preservation and management of national parks, historic sites and certain other areas, and the protection of Aboriginal relics. Mining operations

are currently undertaken in accordance with the approved Aboriginal Cultural Heritage Management Plan (ACHMP). The Project would have no additional impact on Aboriginal heritage sites as mining would be undertaken within the existing approved extraction area.

Heritage Act 1977

The Heritage Act 1977 aims to protect and conserve non-Aboriginal cultural heritage, including scheduled heritage items, sites and relics. There are three historic heritage items in the vicinity of the Project Area. Assessment of the potential impact to these heritage items was undertaken as part of the EA for the Project.

Threatened Species Conservation Act 1995 (TSC Act)

The TSC Act was repealed and replaced by the Biodiversity Conservation Act 2016 on 25 August 2017. However transitional arrangements for major projects set out in the Biodiversity Conservation (Savings and Transitional) Regulation 2017 provide that development applications can be considered under the previous legislation (the TSC Act) if assessment requirements have been issued or substantial environmental assessment was undertaken before the 25 August 2017. EARs for the Project were issued on 22 March 2017 and therefore the Project would be assessed in accordance with the TSC Act.

A Biodiversity Assessment Report was prepared as part of the EA to assess the potential impacts associated with the Project. No significant impacts on any State listed species populations or communities are expected to occur as a result of the Project.

Environmental Planning Instruments

State Environment Planning Policies (SEPPs) are legal documents enacted under the EP&A Act that regulate land use and development. The following SEPPs may be applicable to the Project:

- SEPP (Major Projects) 2005 (now referred to as SEPP (State Significant Precincts) 2005): provides the framework for major projects and identifies those projects to which the Part 3A approval process would apply.

- SEPP (mining Petroleum Production and Extractive Industries) 2007(Mining SEPP): recognises the importance of mining, petroleum production, and extractive industries within NSW and identifies development which can be carried out with development consent. The Project is permissible as it is mining carried out on land where development for the purposes of

agriculture or industry may be carried out.

- SEPP 33 - Hazardous and Offensive Development: requires a consent authority to consider whether a development may constitute a hazardous or offensive industry as defined by SEPP 33. In order to determine whether the Project constitutes an 'industry' under SEPP 33, the definition of 'industry' under the Mining SEPP needs to be applied. The definition of 'industry' adopted by the Mining SEPP specifically excludes 'mines, petroleum production facilities, and extractive industries', and as a consequence the Project is not considered an 'industry' for the purposes of SEPP 33.

- SEPP 44 - Koala Habitat Protection: applies to all Local Government Areas (LGAs) listed in Schedule 1 of the SEPP and requires a consent authority to consider whether land subject to a development application is classified as potential koala habitat and/ or core koala habitat. Cessnock LGA is listed in Schedule 1 of SEPP 44 and the biodiversity assessment included consideration of Koala habitat in impacted areas of the Project. While a number of Koala feed trees were identified within the areas to be impacted, they did not make up greater than 15% of the tree species within the respective areas and as such the vegetation was not considered to constitute potential Koala habitat as defined under SEPP 44.

Local legislation

Cessnock Local Environment Plan 2011 (Cessnock LEP 2011)

The Project Area lies within the Cessnock LGA and land use considerations are provided within the Cessnock LEP 2011. The Project Area is on land zoned as RU2 Rural Landscape, and mining is considered to be permissible with consent. However, the Mining SEPP prevails over the LEP and therefore the Project is permissible with consent under the Provisions of the Mining SEPP.

Maitland Local Environmental Plan 2011 (Maitland LEP 2011)

The existing mine rail loop and tailings emplacement area (which are outside the Project Area and form part of the project approval for the neighbouring Abel Underground Mine) extend beyond Cessnock LGA and lie partly within the Maitland LGA. Under the Maitland LEP 2011 these areas are zoned RU2 Rural Landscape. Open cut mining is permitted with consent within this zone.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Stakeholders were consulted throughout preparation of the EA for the Project. This included meetings with the following statutory agencies and other stakeholders:

- NSW Department of Planning and Environment;

- Cessnock City Council;

- Maitland Council;

- NSW Environmental Protection Authority;

- NSW Department of Planning and Environment – Division of Resources and Geosciences;

- Community Consultative Committee;

- Mindaribba Local Aboriginal Land Council (LALC).

Copies of the meeting minutes are attached at Section 1.13.1 of this EPBC referral.

Bloomfield regularly consults with the Mindaribba LALC as part of the ongoing operation of the Colliery. Representatives from Mindaribba LALC participate in archaeological monitoring during stripping of vegetation and topsoil in accordance with the existing Aboriginal Cultural Heritage Management Plan. Also Bloomfield entered into an agreement with the Mindaribba LALC for the provision of funds to support programs such as operation of Mindaribba's pre-school. The current agreement is scheduled to lapse in 2018. Bloomfield has consulted with the Mindaribba LALC during preparation of the EA for the Project regarding the current agreement and the proposed modification.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

The Bloomfield Colliery Completion of Mining and Rehabilitation: Part 3A Environmental Assessment (2008 EA) was prepared by Business Environment Pty Ltd in 2008. Project Approval (MP 07_0087) for mining operations at the Colliery was issued on 3 September 2009. Prior to this, mining operations had previously been carried out pursuant to existing use rights. There have been three previous modifications to the Project Approval, including:

- Modification 1, granted in May 2011, which extended the project approval area by 259 ha to allow for additional out-of-pit overburden emplacement, relocation of a power line corridor, and the upgrade and use of an alternative haul road;

- Modification 2, a minor administrative modification approved in March 2012 to amend the

required date for submission of management plans; and

- Modification 3, which changed the areas of vegetation clearing covered by the mine's biodiversity offset area.

A copy of the existing Project Approval (as modified) is attached at Section 1.14.1 of this EPBC referral.

Bloomfield is seeking further modification to the Project Approval to enable the extraction of additional coal resources within the approved extraction area, and to extend the operational life of the Colliery from 2021 to 2030. As such, an EA is currently being prepared for submission to the DP&E. The EA will address the following environmental aspects as identified in the EARs issued by the NSW DP&E (refer to Section 1.14.1):

- Biodiversity;

- Noise;

- Air quality;

- Soil and water

- Groundwater

- Visual impacts and rehabilitation; and

- Social and economic.

Specialist assessments will be undertaken for key issues in accordance with relevant government guidelines and policies. The EA will also address a number of other environmental aspects such as Aboriginal and historic heritage, hazard and risk, waste and traffic and transport.

Biodiversity Assessment Report

A Biodiversity Assessment Report (BAR) (attached at Section 2.14) was undertaken to assess the potential impacts to biodiversity as a result of the Project. The proposed action includes

clearing of 3.5 ha of rehabilitated landform, including 0.34 ha of native vegetation, for the proposed widening of a haul road and upgrade of a watercourse, and clearing of 6.12 ha to facilitate the further extraction of coal resources within the approved extraction area. Assessment of the potential biodiversity impacts of this vegetation clearing was undertaken by EMM Consulting. The BAR documents the biodiversity assessment methods and results, the initiatives built into the proposal design to avoid and minimise biodiversity impacts, and the additional mitigation and management measures proposed, including offsets, to address any residual impacts not able to be avoided.

Two defined areas were assessed in the BAR: the ‘study area’ which includes the 3.5ha of additional vegetation clearing within the previously rehabilitated landform; and the ‘MNES study area’ which includes the 6.12 ha of vegetation to be cleared for the further extraction of coal resources. It is noted that the clearing of the 6.12 ha of vegetation within the MNES study area was previously approved under the MOD1 modification application. However a gap analysis undertaken by EMM Consulting identified that the MOD1 ecological assessment (Hunter Eco, 2010) did not adequately assess protected matters listed under the EPBC Act. The BAR therefore included an assessment of the potential impacts of the 6.12 ha of vegetation clearance within the MNES study area on matters of NES as listed under the EPBC Act. This assessment is contained within the MNES Report, which is attached as Appendix A of the BAR.

Surface Water Report

A Surface Water Assessment (attached at Section 2.14) was undertaken to assess the potential impacts of the Project on the existing water management system. The water management system at the Colliery has been developed to meet the demand for water at the Bloomfield Coal Handling and Preparation Plant. This has been undertaken in collaboration with neighbouring mine sites, in particular with Abel Underground Mine which is currently in care and maintenance. The Surface Water Assessment also reviewed the site water balance prepared for the Colliery and Abel Underground Mine.

Groundwater Report

A Groundwater Impact Assessment (attached at Section 2.14) was undertaken to assess the potential impacts of the Project on groundwater resources. A predictive groundwater model was developed and this was used to assess the hydrogeological impacts of the Project.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

No

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Regent Honeyeater (Anthochaera phrygia)	Study Area Potential seasonal foraging habitat

Species	Impact
	for this species has been identified in the Haul Road Study Area. However, the study area does not provide habitat for an ecologically significant proportion of this species and significant impacts are unlikely to result from the proposed action. MNES Study Area – assessment of significance 1: long?term decrease in population size An action that would lead to a long?term decrease of the Regent Honeyeater population would be one that is undertaken in a breeding area, or one that removes key feed species when foraging resources are sparse. As the proposed action is not located in a known breeding area for the species, it is not expected to result in a long?term decrease in population size. The study area includes Spotted Gum, identified as a key eucalypt species in the National Recovery Plan for the Regent Honeyeater (DoE 2016). Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events of Regent Honeyeaters. Flowering of broad?leaved ironbark can also contribute important nectar flows at times (DoE 2016). Spotted Gum is present within the study area, at a canopy cover percentage of approximately 22%, and Broad?leaved ironbark at 10% canopy cover within the study area, and the study area may provide foraging habitat for the species. However, potential foraging may be limited due to lack of large mature trees within the study area. Regent Honeyeaters prefer taller and larger diameter trees for foraging, as these typically produce more nectar (Franklin et al., 1989; Webster & Menkhorst 1992; Menkhorst et al., 1999; Oliver 2000, in DoE 2016). It is unlikely that the species is reliant on foraging resources within the study area, nor are any substantial numbers of the species likely to occur within the study area. As such, there is not likely to be any population level impacts. 2: reduce area of occupancy A total area of 6.12 ha of potential foraging habitat that includes key tree species, Spotted Gum, as identified in the Regent Honeyeater recovery plan (DoE 2016), will be

Species	Impact
	removed as a result of the project. The Regent Honeyeater is wide ranging, typically occurring in areas where profuse flowering of feed trees is occurring. It is unlikely that the loss of a small area of sub?optimal foraging habitat will significantly reduce the occupancy of the species. The study area is to the north?east of the Hunter Valley key breeding area, as identified in the recovery plan. However, the study area is unlikely to provide any potential breeding habitat, due to lack of mature roughbarked trees. 3: fragment a population The Regent Honeyeater occurs as a single, contiguous population (DoE 2016). This species is highly mobile and able to cross open areas. As the study area would likely only form a small part of their wider occurrence, and the impact of loss of 6.12 ha of potential foraging habitat is on the edge of an existing open cut mining operation (located to the east and south of the study area), fragmentation of a single contiguous population is unlikely to occur. 4: adversely affect critical habitat Habitat critical to the survival of the Regent Honeyeater includes, any breeding or foraging habitat in areas where the species is likely to occur (as defined in Figure 1 of the National Recovery Plan (DoE 2016)); and any newly discovered breeding or foraging locations. The Lower Hunter Valley Important Bird Area (IBA) is considered to include critical habitat for the species. The study area is located approximately 10 km to the north?east of known breeding records, in the Tomalpin Woodland near Kurri Kurri, which is part of the IBA. However, the habitat which will be removed consists of sub?optimal foraging habitat only, as it has been historically cleared, and has a lack of large trees and many trees of a similar size, indicating a single regeneration event. With few large trees, and smaller trees having limited fruiting resources and limited nectar, it is unlikely that the species is reliant on foraging resources within the study area, nor are any substantial numbers of the species likely to occur within the study area. While Spotted Gum, a key eucalypt species, is

Species	Impact
	within the study area, it is unlikely to provide masses of nectar resources due to its younger age. The study area does not comprise breeding habitat. Therefore, the project will not affect any habitat critical to the survival of the Regent Honeyeater. 5: disrupt the breeding cycle of a population The Regent Honeyeater has bred within the Tomalpin Woodland, located approximately 10 km south?west of the Study area. However, it is considered unlikely that breeding would occur within the areas to be impacted by the project, due to relatively young stand of trees and lack of mature trees with rough bark. 6: decrease availability or quality of habitat The species has not been recorded within the study area and if it does occur, it is likely to be on a transient basis only, passing through to more optimal areas of foraging habitat. The clearance of 6.12 ha of sub?optimal foraging habitat is not likely to cause any discernible impact to the species, and the species will remain largely unaffected by the project. 7: result in invasive species Without management, vegetation clearing and topsoil stripping are likely to lead to weed invasion in surrounding remaining habitat to the north and west (to the east and south is existing open cut operations). Weed control protocols will be undertaken, in accordance with the proponent’s relevant processes and procedures, to ensure plant entering the study area is weed free. Therefore the project will not result in invasive species that are harmful to the species becoming established in the habitat to the north and west of study area. 8: introduce disease This species is not known to be particularly susceptible to disease and the project will not introduce any disease relevant to the Regent Honeyeater. 9: interfere with recovery The recovery of the Regent Honeyeater is closely linked the extent and quality of habitat, and actions include the protection of intact (high quality) areas of Regent Honeyeater breeding and foraging habitat (DoE 2016). The study area is not within a known breeding area, and does not provide

Species	Impact
	optimal breeding habitat. The study area is on the edge of an existing open cut mining operation (located to the east and south of the study area), and is not considered as intact. Although the habitat within the study area to be removed provides a potential foraging resource, including key eucalypt species Spotted Gum, it is not considered high quality as the habitat is missing a likely important ecological feature, being large trees with high quality nectar flows. It is unlikely that any individuals are reliant on the habitat. Conclusion The habitat to be removed is unlikely to be important for these species and the project is not anticipated to have a significant impact on the Regent Honeyeater as: • the study area is not within a known breeding area, and does not provide optimal breeding habitat for the species; and • if the species does occur, it is likely to be on a transient basis only, passing through to more optimal areas of foraging habitat.
Swift Parrot (Lathamus discolour)	Study Area Potential seasonal foraging habitat for this species has been identified in the Haul Road Study Area. However, the study area does not provide habitat for an ecologically significant proportion of this species and significant impacts are unlikely to result from the proposed action. MNES Study Area – assessment of significance 1: long?term decrease in population size The study area has been historically cleared, and has a lack of large trees and many trees of a similar size, indicating a single regeneration event following disturbance. With limited large trees, and smaller trees having limited fruiting resources and limited nectar, it is unlikely that the species is reliant on foraging resources within the study area, nor are any substantial numbers of the species likely to occur within the study area. As such, there is not likely to be any population level impacts. 2: reduce area of occupancy A total area of 6.12 ha of potential foraging habitat will be removed as a result of the project. This species is wide ranging, typically occurring in areas where profuse flowering of feed trees is occurring. It is unlikely that the loss of 6.12 ha

Species	Impact
	of sub?optimal foraging habitat will significantly reduce the occupancy of the species. 3: fragment a population This species is highly mobile and is able to cross open areas. The loss of 6.12 ha of potential foraging habitat, that occurs on the edge of an existing open cut mine working areas, where clearing has historically taken place, will not cause any fragmentation effects. 4: adversely affect critical habitat Habitats of particular importance to the Swift Parrot are outlined in the recovery plan for the species (Birds Australia 2011) and include habitats which are used: • for nesting; • by large proportions of the Swift Parrot population; • repeatedly between seasons (site fidelity), or • for prolonged periods of time (site persistence). The Swift Parrot breeds within Tasmania. As the study area is within mainland Australia, there is no potential for nesting to occur. The species has not been recorded within the study area or the immediate vicinity and there is no evidence of prolonged occurrence, repeat use or large number of the species occurring. Therefore, the project will not affect any habitat critical to the survival of the Swift Parrot. 5: disrupt the breeding cycle of a population The Swift Parrot breeds within Tasmania and has no potential to breed within the study area. 6: decrease availability or quality of habitat The species has not been recorded within the study area and if it does occur, it is likely to be on a transient basis only, passing through to more optimal areas of foraging habitat. The Swift Parrot is not considered to be dependent on habitat in the study area and the clearance of 6.12 ha of sub?optimal foraging habitat is not likely to cause any discernible impact to the Swift Parrot, and the species will remain largely unaffected by the project. 7: result in invasive species Weed invasion impacting on habitat regeneration and health, and aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners are two key threats that invasive species pose on the Swift Parrot. Noisy Miners were not recorded in the study

Species	Impact
	area during any of the ecological investigations. Without management, vegetation clearing and topsoil stripping are likely to lead to weed invasion in surrounding remaining habitat to the north and west (to the east and south is existing open cut operations). Weed control protocols will be undertaken, in accordance with the proponent's relevant processes and procedures, to ensure plant entering the study area is weed free. Therefore the project will not result in invasive species that are harmful to the species becoming established in the habitat to the north and west of study area. 8: introduce disease This species is vulnerable to Psittacine Beak and Feather Disease however the proposed activity does not play a role in the introduction of this threat. 9: interfere with recovery The key action within the recovery plan for the Swift Parrot (Birds Australia 2011), which is relevant to the project, is the management and protection of Swift Parrot habitat at the landscape scale. The habitat within the study area is unlikely to be important for this species and there is expected to be no impact on its recovery as the result of the project. Conclusion It is unlikely that the species is reliant on foraging resources within the study area, therefore the habitat to be removed is unlikely to be important for the species and the project is not anticipated to have a significant impact on the Swift Parrot.
Large-eared Pied Bat (Chalinolobus dwyeri)	Study Area Potential seasonal foraging habitat for this species has been identified in the Haul Road Study Area. However, the study area does not provide habitat for an ecologically significant proportion of this species and significant impacts are unlikely to result from the proposed action. MNES Study Area – assessment of significance 1. Long term decrease in population size Actions that would cause a long?term decrease in Large?eared Pied Bat population size would be the removal of roosting habitat, maternity roosts and the substantial removal of foraging habitat. The proposal will not impact any roosting habitat, however requires removal of 6.12 ha of

Species	Impact
	potential foraging habitat. The foraging habitat is considered sub?optimal given that it has been historically cleared, with a lack of large trees and an abundance of trees of a similar size, indicating a single regeneration event. With limited large trees, and smaller trees having limited fruiting resources and limited nectar, the removal of this small area is not likely to cause any population level effects. 2. Reduce area of occupancy The study area is within the known and modelled distribution of the species, as identified within the national recovery plan (DERM 2011). Within NSW, based on available records, the largest concentration of populations appears to be in the sandstone escarpments of the Sydney Basin and northwest slopes of NSW (DERM 2011). It is unlikely that an important population is reliant on the study area for foraging, as the habitat is sub?optimal due to limited large trees, and there is no roosting habitat. The area of occupancy of the species is large and the removal of 6.12 ha of potential foraging habitat is unlikely to reduce this area of occupancy significantly. 3. Fragment a population Modelling based on presence?only data indicates that bats forage in fertile valleys and plains, as well as areas with moderately?tall to taller trees along water courses. The majority of records are from canopied habitat, suggesting a sensitivity to clearing, although narrow connecting riparian strips in otherwise cleared habitat are sometimes quite heavily used (DECC 2007, cited in DERM 2011). However, the loss of 6.12 ha of potential foraging habitat, that occurs on the edge of an existing open cut mine working area, where clearing has historically taken place, will not cause any significant fragmentation effects for the species. 4. Adversely affect critical habitat Any maternity roosts must be considered habitat critical to the survival of the species (DERM 2011). Sandstone cliffs and fertile wooded valley habitat within close proximity of each other should also be considered habitat critical to the survival of the Large?eared Pied Bat (DECC

Species	Impact
	2007, cited in DERM 2011). As maternity roosting habitat and any nearby sandstone cliff is absent, the study area does not contain critical habitat for the Large?eared Pied Bat. 5. Disrupt the breeding cycle of a population Maternity roosts are absent from the study area, and the habitat does not provide any opportunity for any future maternity roosts, therefore it will not disrupt the breeding cycle of a population. 6.Decrease availability or quality of habitat Given the small area (6.12 ha) of clearing and the abundance of potential foraging habitat in the locality, this is not expected to impact the species such that it would decline. 7. Result in invasive species Predation by introduced predators is listed as a threat to the species (recovery plan). It is possible that mortality is a factor particularly where roosts are limited and bats are forced to roost close to the ground, making them vulnerable to attack from cats, foxes and possibly rats. However, the study area does not contain roosting habitat therefore the species, which may only forage in the study area, is not affected by this threat. Weed controls and hygiene protocols will be implemented during the construction works, reducing the chance of introducing any invasive species to surrounding bushland. 8. Introduce disease This species is subject to Australian Bat Lyssavirus. This disease becomes more prevalent when the species is stressed. As the works are not located in a roosting colony, and result in small clearance of only potential sub?optimal foraging habitat it is unlikely to cause stress such that a disease outbreak would occur. 9. Interfere with recovery Recovery actions for this species rely on identifying priority roost and maternity sites for protection and implementing conservation and management strategies for priority sites. Other recovery actions include educating the community and industry to understand and participate in the conservation of the large?eared pied bat, researching the large?eared pied bat to augment biological and ecological data to enable conservation

Species	Impact
	management, and determining the meta?population dynamics throughout the distribution of the large?eared pied bat. The project does not interfere with any of these priority actions. Conclusion The project will not have a significant impact on the Large?eared Pied Bat as: • no roost sites or roosting habitat will be directly impacted; and • the study area represents sub?optimal potential foraging habitat only.
Grey-headed flying fox (Pteropus poliocephalus)	Study Area Potential seasonal foraging habitat for this species has been identified in the Haul Road Study Area. However, the study area does not provide habitat for an ecology significant proportion of this species and significant impacts are unlikely to result from the proposed action. MNES Study Area – assessment of signficance 1. Long term decrease in population size The Grey?headed Flying?fox occurs as a single population across its range, and therefore important populations cannot be identified for the species. Actions that would cause a long?term decrease in Grey?headed Flying?fox population size would be the removal of maternity camps and the substantial removal of foraging habitat. Roosting camps are absent from the study area, and therefore breeding habitat and breeding activities will not be affected by the project. However the project requires removal of 6.12 ha of potential foraging habitat. The foraging habitat is considered sub?optimal given that it has been historically cleared, with a lack of large trees and an abundance of trees of a similar size, indicating a single regeneration event. With limited large trees, and smaller trees having few fruiting resources and limited nectar, the removal of this small area is not likely to cause any population level effects. This species is highly mobile and able to exploit foraging resources over large areas of NSW. As breeding habitat is absent from the study area, and only a small amount of sub?optimal potential foraging habitat, with a relatively young canopy, will be removed, the project will not lead to a long?term decrease in the

Species	Impact
	Grey?headed Flying?fox population. 2. Reduce area of occupancy The Grey?headed Flying?fox is a highly mobile species with a large area of occupancy along the east coast of Australia. The removal of 6.12 ha of potential foraging habitat is unlikely to reduce this area of occupancy significantly. 3. Fragment a population The Grey?headed Flying?fox is a highly nomadic species with a wide distribution along the east coast of Australia, which occurs as a single, contiguous population. The removal of 6.12 ha of potential foraging habitat will not fragment the population. 4. Adversely affect critical habitat Habitat critical to the survival of the species may include foraging habitat which can support 30,000 individuals within a 50 km radius, and productive habitat during seasonal bottlenecks (DECCW 2009). Roosting habitat critical to survival include those used as a camp >50% of years, or has a certain number of females during the final stages of pregnancy. As roosting camps and habitat are absent, the study area does not contain critical habitat for the Grey?headed Flying Fox. 5. Disrupt the breeding cycle of a population Maternity roosts are absent from the study area, and the highly cleared landscape is unlikely to support any breeding in the future, therefore it will not disrupt the breeding cycle of a population. 6.Decrease availability or quality of habitat Given the small area (6.12 ha) of clearing and the abundance of potential foraging habitat in the locality, this is not expected to impact the species such that it would decline. 7. Result in invasive species Weed controls and hygiene protocols will be implemented during the construction works, reducing the chance of introducing any invasive species to surrounding bushland. 8. Introduce disease This species is subject to Australian Bat Lyssavirus and Hendra virus. These diseases become more prevalent when the species is stressed. As the works are not located in a roosting colony and result in small clearance of only potential sub?optimal foraging habitat, it is unlikely to cause stress such that a disease outbreak

Species	Impact
	would occur. 9. Interfere with recovery Recovery actions for this species rely on identifying foraging resources, mapping critical habitat and documenting levels of flying?fox damage so non?invasive mitigation measures can be implemented. The project does not interfere with any of these priority actions. Conclusion The project will not have a significant impact on the Grey?headed Flying?fox as: • no roost sites or roosting habitat will be directly impacted; and • the study area represents sub?optimal potential foraging habitat only.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Satin Flycatcher (Myiagra cyanoleuca)	MNES Study Area – assessment of significance 1. Substantially modify destroy or isolate an area of important habitat. The MOD1 Study Area does not contain important habitat for the Satin Flycatcher. While this species has the potential to occur given they are highly mobile and have broad habitat requirements whilst on migration, this species will not breed in the site considering that they prefer taller forests in wetter habitats such as heavily forested gullies. This species is more likely to visit drier sclerophyll forest, such as that in the majority of the study area, only when on passage. Also, Satin Flycatchers are largely absent from re-growth forests (Loyn 1980; Loyn 1985a; Smith 1984; Taylor et al. 1997b, cited in DoE 2017). 2. Result in an invasive species becoming

Species	Impact
	established in an area of important habitat. As stated above, the MOD1 Study Area does not contain important habitat for this species. Weed controls and hygiene protocols will be included during the construction works, reducing the chance of introducing any invasive species to surrounding bushland. 3. Disrupt the breeding cycle of a population If this species occurs within the study area, it is anticipated to be on an intermittent basis only, and would not include significant proportions of a population at any given time. There are no attributes of the study area which would cause large aggregations of individuals to occur. This species will not breed within the study area as suitable habitat is absent, therefore disruptions to the breeding cycle are unlikely. Conclusion The project will not have a significant impact on this migratory species, as: - the area does not contain important habitat; - no breeding habitat will be impacted; - foraging habitat is sub-optimal and considered unimportant within the landscape; and - no large aggregations of the species are likely to occur.
Rufous Fantail (Rhipidura rufifrons)	MNES Study Area – assessment of significance 1. Substantially modify, destroy or isolate an area of important habitat. The MOD 1 study area does not contain important habitat for the Rufous Fantail. While this species has the potential to occur given they are highly mobile and have broad habitat requirements whilst on migration, this species will not breed in the site considering that they prefer taller forests in wetter habitats such as heavily forested gullies. This species is more likely to visit drier sclerophyll forest, such as that in the majority of the study area, only when in passage. 2. Result in an invasive species becoming established in an area of important habitat. As stated above, the MOD1 Study Area does not contain important habitat for this species. Weed controls and hygiene protocols will be included during the construction works, reducing the chance of introducing any invasive species to surrounding bushland. 3. Disrupt the breeding cycle of a population If this species occurs

Species	Impact
	within the study area, it is anticipated to be on an intermittent basis only, and would not include significant proportions of a population at any given time. There are no attributes of the study area which would cause large aggregations of individuals to occur. This species will not breed within the study area as suitable habitat is absent, therefore disruptions to the breeding cycle are unlikely. Conclusion The project will not have a significant impact on this migratory species, as: - the area does not contain important habitat; - no breeding habitat will be impacted; - foraging habitat is sub-optimal and considered unimportant within the landscape; and - no large aggregations of the species are likely to occur.
Fork-tailed Swift (Apus pacificus)	MNES Study Area This species may possibly occur within the MOD1 Study Area, however due to their almost exclusive aerial nature, potential impacts are unlikely to occur and no further assessment was undertaken for this species.
White-throated Needletail (Hirundapus caudacutus)	MNES Study Area This species may possibly occur within the MOD1 Study Area, however due to their almost exclusive aerial nature, potential impacts are unlikely to occur and no further assessment was undertaken for this species.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

Yes

2.9.1 Impact table

Water Resource	Impact
Surface Water – Four Mile Creek and Buttai Creek	Mine water management The proposed modification for the extension of mining is not predicted to have significant impacts on water supply or demand, or offsite water quality impacts. The design and operation of the existing water management system allows a high degree of flexibility in and significant capacity to account for variations in climatic conditions and production rates. No further impacts to surface water management, beyond that approved under the current Project Approval, are predicted. Catchment areas The amended final landform would result in the following changes to the existing approved design: • The final eastern slopes of the overburden dump will drain east towards Four Mile Creek. The catchment area draining towards Four Mile Creek would increase by approximately 10 ha from the currently approved final landform design; and • The proposed catchment area draining towards the final void would be approximately 52 ha, a decrease from the 103 ha under the currently approved final landscape design. This increases the catchment to Buttai Creek by 41 ha. The proposed final landform may increase the risk of sediment-laden water draining off-site to Four Mile Creek and Buttai Creek and its tributaries during the rehabilitation phase, whilst the area is being revegetated and stabilised. However these potential impacts will be mitigated through current site practices. A reduced catchment draining to the final void would have a positive effect on Four Mile Creek and Buttai Creek and its tributaries, as it results in less water being removed from the natural catchment hydrology in the post-mining phase.

Water Resource	Impact
	Surface Water Quality The potential impacts of the Colliery's current and future operations relate to the risks of contamination from disturbed catchments, mine water, and process water being released off site to natural waterbodies. To date there have been four unplanned discharges as a result of large rainfall events or pipe failure which resulted in water overflowing from storage dams and leaving the site. These incidents were reported to the EPA in accordance with Project Approval and EPL requirements. The proposed modification being sought by Bloomfield will not increase or decrease the probability of unplanned discharges, or water quality risks, from Bloomfield's operations. However these risks will continue to exist up until the end of extraction (2030) and until such time as the site is rehabilitated noting that risks would decrease with the progressive rehabilitation of post mining areas across the life of the project.
Groundwater aquifers – alluvial deposits of the quaternary and consolidated sedimentary rocks of the Permian	Groundwater extraction The maximum inflow predicted by the model across the life of the Project is 561 ML per annum in 2020. However the groundwater model is conservative and applied higher recharge across parts of the model domain. The model was refined to reduce recharge to these areas and mine inflows are predicted to be within the licence conditions of 500 ML per annum. The final void will remain a sink and will have a wide spread effect of lowering water levels in the vicinity of the mine in the long term. Groundwater Drawdown Groundwater drawdown as a result of mining activities are expected to reach a maximum in 2025; at which time mining activities are scheduled to cease in the southern end of the approved extraction area and the groundwater levels would start to recover. A drawdown of 100 m is predicted in the surficial aquifer in the Bloomfield approved extraction area and final mine void. Drawdown is generally less than 0.5 m outside the Bloomfield lease area apart from the south-west corner where the 2 m drawdown contour extends outside the lease approximately 600 m

Water Resource	Impact
	beneath Buttai Creek. The predicted drawdowns are not expected to negatively impact Groundwater Dependent Ecosystems (GDEs) as historical mining in the area has lowered water levels far below the ground surface. Groundwater Quality Groundwater within the Bloomfield mine lease is saline and of negligible beneficial use. The potential impacts of Bloomfield's current and future operations relate to the risks of contamination from disturbed catchments, mine water, and process water being released off site to natural waterbodies. The Project would not increase or decrease the probability of unplanned discharges or water quality risks from Bloomfield operations. These risks will continue to exist up until the end of extraction (2030) and until such time as the site is rehabilitated. Baseflow impacts Predicted surface water impacts were considered negligible, indicating that Bloomfield mining is having an insignificant effect on stream baseflow. Four Mile Creek is predicted to have been converted to a losing stream around 2011, losing an average baseflow of 0.24kL/ day.

2.9.2 Do you consider this impact to be significant?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

The Biodiversity Aassessment Report (BAR) (attached at Section 2.14) undertaken for the Project included two defined study areas, including:

- Study Area – which includes the 3.5 ha of previously rehabilitated landform to be cleared for upgrade of the haul road and adjacent watercourse; and

- MNES Study Area – which includes the 6.12 ha of vegetation to be cleared (previously approved as part of the MOD1 modification application) to facilitate further extraction of coal resources.

Study area

The study area is used as part of the Colliery operations and contains rehabilitated landform and haul roads associated with past and current mine operations. The study area has been historically cleared for open cut mining and occurs on heavily disturbed land that is rehabilitated landform. Within the study area, this rehabilitation occurs as:

patches of regenerating forest, consisting of stands of regenerating trees of a similar size, no very large trees, a sparse mid storey and grassy understorey; and

exotic grassland dominated by grass species that are common to mine rehabilitation, especially Rhodes Grass (Chloris gayana), with Acacia sp. regrowth in the mid storey and no canopy layer.

Two vegetation types were identified within the study area, including the Spotted Gum – Broad-leaved Mahogany – Red Ironbark shrubby open forest (0.05 ha) and the Spotted Gum – Red Ironbark – Grey Gum – grass open forest of the Lower Hunter (0.29 ha). No threatened ecological communities as listed under the EPBC Act were recorded within the study area.

No threatened flora or fauna species were recorded during targeted field surveys. The BAR

identified potential seasonal foraging habitat within the study area for a number of threatened species listed under the EPBC Act – the Regent Honeyeater (Anthochaera phrygia), Swift Parrot (Lathamus discolour), Large-eared Pied Bat (Chalinolobus dwyeri), Grey-headed Flying Fox (Pteropus poliocephalus), Satin Flycatcher (Myiagra cyanoleuca), and Rufous Fantail (Rhipidura rufifrons). However, the study area does not provide habitat for an ecologically significant proportion of these species or for migratory species.

MNES study area

The entire MNES study are is forested, although it appears to have been historically cleared as there is a lack of large trees and a large number of trees of a similar size, indicating a single regeneration event. In several areas, ground disturbance was also evident with contour banks and a drainage line. A single vegetation type was identified within the study area, the Spotted Gum – Broad-leaved Mahogany – Red Ironbark shrubby open forest. This community does not meet the listing of the Critically Endangered Ecological Community (CEEC) Central Hunter Valley eucalypt forest and woodland due to the frequent occurrence of contraindicative canopy species, including Red Ironbark and Forest Oak.

No threatened or migratory flora or fauna species listed under the EPBC Act were identified within the MNES study area during field surveys. Fauna species observed during the field survey were limited to common bird species including the Laughing Kookaburra (Dacelo novaeguineae), Yellow-tufted Honeyeater (Lichenostomus melanops) and Yellowfaced Honeyeater (Lichenostomus chrysops).

The BAR identified potential foraging habitat for a number of threatened species listed under the EPBC Act - Regent Honeyeater (Anthochaera phrygia), Swift Parrot (Lathamus discolour), Large-eared Pied Bat (Chalinolobus dwyeri), Grey-headed Flying Fox (Pteropus poliocephalus), Satin Flycatcher (Myiagra cyanoleuca), and Rufous Fantail (Rhipidura rufifrons). Significant impact assessments were prepared for these species in accordance with the criteria listed in the Matters of National Environmental Significance – Significance Impact Guidelines 1.1.

3.2 Describe the hydrology relevant to the project area (including water flows).

The major natural creek running through the site is Four Mile Creek. Most of the operational mining areas at Bloomfield are located within the catchment of Four Mile Creek. A series of drains and levees direct Four Mile Creek around Lake Foster (mine water storage) and into Possums Puddle (clean water storage). From Possums Puddle clean water overflows, or is discharged, back into Four Mile Creek. Runoff from undisturbed and rehabilitated areas is

directed away from operational areas and mine water storages via diversion banks and channels. These banks and channels direct runoff into clean water dams or natural watercourses.

The hard rock Permian coal measures are the main aquifer unit for the site, with the coal seams themselves representing the most permeable material within the formation. Groundwater typically is restricted to the cleat and fractures within the coal. Groundwater is also present in the Quaternary alluvium, swamp, floodplain and estuarine sediments. The alluvial groundwater is shallow with groundwater levels being topographically controlled.

The shallow alluvial aquifer, which is associated with Wallis Creek and the Hunter River floodplain, is inferred to be in direct hydraulic connection with the lower reaches of the major tributary streams in the area. Groundwater in the localised surficial weathered bedrock is inferred to be in hydraulic connection with the high-level streams. These limited occurrences of surficial groundwater do not represent a significant or regionally extensive aquifer system, and are not considered to be part of the surface water flow system.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

The Newcastle Coalfield Regional Geology Map (1:100 000) (Hawley et al, 1995) indicates that the Project Area is underlain by Paleozoic, Late Permian sandstone which makes up the Tomago Coal Measures. Sediments above, below and between the coal seams comprise predominantly interbedded mudstone, siltstone and sandstone. The Soil Landscapes of the Newcastle 1:100 000 Sheet (Matthei, 1995) indicates that the derived soils are comprised of the Shamrock Hill erosional landscape, the Beresfield residual landscape and areas of disturbed terrain.

The majority of the Project Area has previously been cleared of vegetation for historical land use (grazing and open cut mining). The Project Area contains some small areas of native vegetation as well as areas of previously rehabilitated landform. The vegetation within the areas to be cleared as part of the Project is described in Section 3.1 of this EPBC referral.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

There are no outstanding natural features or unique values present on the Project Area.

3.5 Describe the status of native vegetation relevant to the project area.

The Biodiversity Assessment Report prepared for the Project identified that the study area has been historically cleared and occurs on heavily disturbed land that is rehabilitated landform. Within the study area, this rehabilitation occurs as patches of regenerating forest and exotic grassland. The study area supports 0.34 ha of native vegetation, occurring as small patches. The BAR identified two vegetation types within the native vegetation - the Spotted Gum – Broad-leaved Mahogany – Red Ironbark shrubby open forest and the Spotted Gum – Red Ironbark – Grey Gum - grass open forest of the Lower Hunter. No threatened ecological communities, flora or fauna species listed under the EPBC Act were identified within the study area.

The MNES study area is forested, although it appears to have been historically cleared as there is a lack of large trees and a large number of trees of a similar size, indicating a single regeneration event. In several areas, ground disturbance was also evident with contour banks and a drainage line. A single vegetation type was identified within the MNES study area - the Spotted Gum – Broad-leaved Mahogany - Red Ironbark shrubby open forest. No threatened l ecological communities, flora or fauna species listed under the EPBC Act were identified within the MNES study area.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The topography surrounding the mine is dominated by gentle undulations to low hilly country. The topography across the Bloomfield mine lease ranges from approximately 15 m AHD (Australian Height Datum) to more than 80m AHD.

3.7 Describe the current condition of the environment relevant to the project area.

Mining has occurred on the Project Area for over 100 years and the Project Area contains haul roads, open cut pits, overburden dumps, water storage facilities and a range of other surface infrastructure. The majority of the Project Area has been previously cleared for historical land uses (grazing and open cut mining) and has undergone a staged process of rehabilitation since 1988. As a result, the Project Area contains areas of previously rehabilitated landform, with small patches of native vegetation.

The study area (which includes 3.5 ha of vegetation to be cleared for expansion of the haul road) occurs on heavily disturbed land that is rehabilitated landform. The rehabilitation occurs as patches of regenerating forest and exotic grassland, with 0.34 ha of native vegetation occurring as small patches. The condition of the native vegetation ranges from a poor condition with a high cover of introduced grasses to a good condition with a moderately diverse ground and mid layer.

The MNES study area (which includes 6.12 ha of vegetation previously approved to be cleared to enable extraction of coal resources) is a forested area which appears to have previously cleared. The area lacks large trees and contains many trees of a similar size, indicating a single regeneration event. Smaller trees have limited fruiting resources and nectar and therefore potential foraging habitat within the MNES study area is considered to be sub-optimal.

Due to the long history of disturbance, there is a lack of natural watercourses within the Project Area. There are a series of diversion banks and channels that direct water into the main natural drainage system that runs through the development site, Four Mile Creek.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

There are no Commonwealth or other National Heritage places recognised as having heritage value at the Project Area.

3.9 Describe any Indigenous heritage values relevant to the project area.

The Aboriginal Heritage Impact Assessment undertaken for the previous 2008 EA included a review of the archaeological background of the Project area, searches of relevant heritage databases, and field survey of the Project Area. This included a comprehensive program of consultation with the local Aboriginal community, including the Mindaribba LALC, the Lower Hunter Wonnarua Council and the Awabakal Traditional Owners Aboriginal Corporation.

The field surveys identified a total of six Aboriginal heritage sites (referred to as B2, B16, B18, B19, B20 and B22), comprising 19 loci of identified evidence within the ‘unmodified’ area. These were all stone artefact occurrences, containing 53 lithic items in a very low density distribution. These sites were assessed as being of low scientific significance within a local context.

An Aboriginal Cultural Heritage Management Plan(ACHMP) was subsequently prepared in accordance with the Project Approval conditions of consent. Archaeological salvage of the six Aboriginal heritage sites identified during the field surveys was undertaken by South East Archaeology in 2010 in accordance with the ACHMP. Representatives from Mindaribba LALC participated and monitored the process, which included surface collection of all visible artefacts and documentation of artefacts collected. In all, 79 artefacts were salvaged and are being stored at the Colliery.

Several other heritage investigations have since been conducted at the Colliery, including archaeological monitoring during the stripping of vegetation and topsoil in preparation for mining activities. In each case, representatives from Mindaribba LALC monitored the ground disturbance works.

Existing management measures would adequately manage potential impacts to Aboriginal heritage items. Mining operations would continue to be undertaken in accordance with the approved ACHMP and relevant legislative requirements. Bloomfield would continue to consult with the Aboriginal community groups and regulatory authorities as per the procedures set out the ACHMP.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

All land within the Project Area is owned by Ashtonfields Pty Limited (Ashtonfields), an independent third party with a long standing relationship with Bloomfield, and is held by Bloomfield under a commercial lease.

3.11 Describe any existing or any proposed uses relevant to the project area.

Land use within the Project Area is exclusively associated with the extraction, stockpiling and transport of coal. The land use consists of active mining areas and associated infrastructure (that is, hardstands, laydown areas, roadways, overburden stockpiles, dams, drains), rehabilitated mined areas and undisturbed vegetated areas.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

Biodiversity

While no specific impacts on matters of NES under the EPBC Act have been identified, existing management practices and additional measures (including offsetting) would be implemented as part of the Project to further minimise impacts on biodiversity.

The Colliery has established clearing practices in place as part of its EMS which include minimisation of disturbance areas, pre-clearance surveys, salvaging and reusing material on site for habitat enhancement, conserving and reusing topsoils and weed management. These clearing practices would continue to be implemented for the Project in accordance with the approved EMS.

Pre-clearance surveys

Pre-clearance surveys of the forest to be removed would be conducted within 24 hours prior to commencement of clearing to identify any fauna species or habitat within areas of impact. Where clearing of vegetation and fauna habitat occurs, clearing protocols would be put in place, including checking trees for the presence of arboreal fauna prior to felling. Where feasible, animals found to be occupying trees would be safely relocated into nearby forest that would not be disturbed. Where feasible, transportable habitat features such as large logs and boulders would be placed in adjacent retained areas or in areas ready for seeding, to allow their continuation as potential fauna refuge sites.

Regent Honeyeater and Swift Parrot

In addition to these general fauna pre-clearance methods, the following measures would be implemented to mitigate potential impacts on habitat for the Regent Honeyeater and Swift Parrot:

- A qualified ecologist would undertake a targeted pre-clearance survey within 24 hours prior to the commencement of removal of potential foraging habitat for the Regent Honeyeater and Swift Parrot (potential foraging habitat includes the entire 6.12 ha MNES study area);

- Pre-clearance surveys would be undertaken over a period of two days and surveys would be undertaken in the morning (i.e. within 3 hours of sunrise) to target the species highest activity period. Dependent on the clearing schedule, the survey effort would comprise:

    - 20 minute searches in areas up to 5 ha; or

    - 40 minute searches in areas of 6 – 30 ha.

- If Regent Honeyeaters or Swift Parrots are not found within the clearance area, then searches for Regent Honeyeater or Swift Parrot habitat trees (foraging trees) are not required;

- If Regent Honeyeaters or Swift Parrots are found within the clearance area, targeted searches for Regent Honeyeater or Swift Parrot habitat trees would be undertaken by a qualified ecologist;

- If habitat trees are found within the clearance area, a qualified ecologist would mark the trees with flagging tape and spray paint (e.g. with a ‘H’, denoting habitat tree);

- The two stage clearance protocol for habitat trees comprises:

    - Stage 1: Non-habitat trees would be cleared 24 hours prior to any habitat trees being cleared, to encourage Swift Parrots to move out of the habitat area; and

    - Stage 2: When Stage 1 is complete, habitat trees can be removed.

Weed control, microhabitat retention and demarcation

Other management strategies would include:

- Appropriate weed controls to avoid incursion of exotic weed species into the remaining surrounding forest;

- Salvaging microhabitat features, such as woody debris and logs, within adjacent suitable habitat, where possible to mitigate potential impacts to ground-dwelling fauna; and

- Habitat adjacent to the proposed clearing would be demarcated to avoid accidental clearing. Vegetation clearing would be minimised and avoided where possible. Where opportunities for

reduction in clearing extents occur, these would be implemented and micro-habitat features retained.

Construction of Haul Road Upgrade

- Additional mitigation measures to be implemented during construction of the haul road upgrade would include:

- Appropriate exclusion fencing would be installed around vegetation to be retained directly adjacent to the development footprint;

- Appropriate signage such as ‘No Go Zone’ or ‘Environmental Protection Area’ would be installed;

- The location of any ‘No Go Zone’ would be identified in site inductions;

- Fencing would be secured with star pickets and would use high visibility bunting;

- All material stockpiles, vehicle parking and machinery storage would be located within cleared areas or areas proposed for clearing, and not in areas of retained native vegetation;

- A licenced wildlife salvage team would be on?site during vegetation removal to catch and relocate (if appropriate) wildlife encountered;

- Where appropriate, native vegetation cleared from the development site would be mulched for reuse on the site, to stabilise bare ground;

- Temporary stormwater controls would be implemented during construction to ensure that discharges to the drainage channels are consistent with existing conditions; and

- Sediment and erosion control measures would be implemented prior to construction works commencing (e.g. silt fences, sediment traps), to protect drainage channels. These would conform to relevant guidelines, would be maintained throughout the construction period and would be carefully removed following the completion of works.

Biodiversity Offset Strategy

Ten ecosystem credits would be required to offset the impacts arising from the Project, and Bloomfield would pay the required offsetting cost (currently estimated to be $22,007.08 including GST) into the Biodiversity Conservation Trust.

Surface water management and monitoring

Mine Water Management

The existing Water Management Plan would be reviewed and revised to incorporate the Project and ensure that the management of soil and water continues to:

- Stay current and consistent with relevant guidelines and best practice;

- Account for projected changes in operation; and

- Update water balance modelling and projections on the basis of observed results (i.e. variations in mine water make, groundwater monitoring).

At such time as Abel returns to production, reconsideration of the water balance would be undertaken as part of the ongoing management plan review process. This would enable and support appropriate planning to ensure mine water and tailings would continue to be contained on site.

Catchments

Rehabilitated catchments would continue to be managed as per the existing Water Management Plan and Rehabilitation Management Plan, in accordance with the following principles:

- Rehabilitated landform would be progressively rehabilitated;

- Runoff from areas undergoing rehabilitation would be managed with appropriately designed water and sediment management structures (contour banks, drains, and drop structures); and

- Ongoing monitoring of the landform would be carried out to repair and restore areas of erosion or instability.

Discharge of water from the final landform would not occur to Four Mile Creek or Buttai Creek and its tributaries until the catchment is considered ‘rehabilitated’ in accordance with the Rehabilitation Monitoring Plan and associated regulator sign-off and approvals.

Surface Water Quality

Potential impacts to receiving waters would be mitigated through implementation of the mine water management system, which includes:

- Runoff from undisturbed and rehabilitated areas would be directed away from operational

areas and mine water storages via diversion banks and channels; and

- Mine and sediment water would be collected for treatment before discharge via Lake Kennerson, Lake Foster and sediment basins to intercept runoff from disturbed areas.

Surface water monitoring would continue to be undertaken in accordance with Bloomfield's EPL 396. The existing monitoring program would be periodically reviewed to ensure the program continues to be adequate and consistent with current guidelines and policy requirements.

Erosion and Sediment Control

The erosion and sediment control plan would continue to be implemented to ensure that the discharge of all water from the site is managed and meets appropriate quality standards. Key elements of the erosion and sediment control plan include:

- Coordination of mining to minimise exposure to disturbed soils;

- Separation or diversion of clean water catchments from disturbed areas to minimise sediment laden and mine water volumes for management;

- Collection and management of runoff sediment control devices;

- Appropriate storage and handling of topsoil materials;

- Revegetation of disturbed areas following site disturbance; and

- A maintenance program for control structures.

Groundwater management measures

Monitoring

In order to monitor the drawdown effects from depressurisation of the regional aquifer, ongoing quarterly monitoring of the onsite piezometer network and monthly surface water monitoring is recommended. In addition the installation of additional monitoring points will be considered if areas of predicted drawdown are significantly different to that of actual drawdown.

The frequency of water level measurements within the pit should be compatible with evaporation rates obtained from the site's weather station which will allow refinement of model calibration and inflow predictions.

Management

Bloomfield has an existing Water Management Plan (WMP) which details the monitoring and management measures which are currently in place for the management of groundwater (and surface water) at the Colliery. The WMP will be reviewed and updated in accordance with the conditions of consent to monitor groundwater levels in monitoring wells and in the pit. Groundwater discharge will be monitored to quantify pit inflows to ensure the discharge licence conditions are satisfied.

The monitoring data collected from groundwater and surface water systems enables management of groundwater by:

- Establishment of groundwater and surface water trigger levels based on the beneficial use of each water body.

- Mitigation measures which may include the provision of ‘make good’ measures in bores where excessive drawdown may be experienced. This could involve deepening a water supply bore or providing an alternative water supply. No surface water mitigation measures are proposed due to the minimal predicted impacts;

- Plotting of groundwater level data as hydrographs and comparing to rainfall; and

- Collation of the results of the groundwater monitoring program on an annual basis and presenting in an annual report as required under the conditions of consent.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The potential impacts to matters of NES have been considered during the project design phase and minimised as far as is practicable. The matters of NES that may be affected by the Project include potential impact to threatened and migratory species listed under the EPBC Act as a result of vegetation clearing and the potential impact to water resources as a result of large open cut mining operations.

In order to reduce the impacts, the previously described mitigation measures (section 4.1) will be put in place. The outcomes of these measures will be as follows;

- Reduction in potential habitat / vegetation loss and degradation.

- Reduction in risk of direct mortality of threatened or migratory species.

- Reduction in risk of new weeds establishing within local area through hygiene protocols which

prevents species composition change and reduction in suitability for the species.

- Offsetting of the impacts arising from the Project through purchase of ecosystem credits under the NSW biodiversity offsetting scheme.

- Reduction in the risk of contamination to surface water and ground water from disturbed catchments, mine water, and process water being released off site to natural waterbodies.

The proposed works are not likely to result in a significant impact to threatened or migratory species or water resources; therefore the proposed action is not considered to be a ‘controlled action’. Bloomfield is seeking confirmation from the Department of Environment and Energy that the Project is not deemed to be a ‘controlled action’.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

Threatened species listed under the EPBC Act

The Project is not expected to result in significant impact to threatened species and ecological communities listed under the EPBC Act, as no listed flora, fauna or ecological communities were identified within the study areas.

Potential foraging habitat for the following listed species was identified within the study area:

- Regent Honeyeater (*Anthochaera phrygia*),

- Swift Parrot (*Lathamus discolour*),

- Large-eared Pied Bat (*Chalinolobus dwyeri*) and

- Grey-headed Flying Fox (*Pteropus poliocephalus*).

However the habitat is not likely to support important populations of these species and significant impacts as a result of Project are considered to be unlikely.

Migratory species listed under the EPBC Act

The Project is not expected to result in significant impact to migratory species listed under the EPBC Act as no listed migratory species were identified within the study areas.

Potential foraging habitat for the following listed migratory species was identified within the study area:

- Satin Flycatcher (*Myiagra cyanoleuca*),

- Rufous Fantail (*Rhipidura rufifrons*);

- Fork tailed Swift,

- White-throated Needletail

However the habitat is not likely to support important populations of these species or be critical to the survival of a population of the species and significant impacts as a result of Project are considered to be unlikely.

Water Resources

The Project is not expected to result in a significant impact on water resources as a result of changes to hydrogeological characteristics including changes to surface water flows, site water balance and water quality and changes to groundwater drawdown, quantity or quality impacts.

The design and operation of the existing water management system allows a high degree of flexibility in and significant capacity to account for variations in climatic conditions and production rates. No further impacts to surface water management, beyond that approved under the current Project Approval are predicted.

The amended final landform has decreased the catchment area to the final void. This has increased the catchment area that will ultimately drain towards Four Mile Creek by approximately 10 Ha, and increased the catchment to Buttai Creek and its tributaries by 41 Ha, as compared to the currently approved landform.

The proposed final landform may increase the risk of sediment-laden water draining off-site to Four Mile Creek and Buttai Creek and its tributaries during the rehabilitation phase, whilst the area is being revegetated and stabilised. These potential impacts will be mitigated through current site practices.

The reduction in catchment area draining to the final void will have a positive long-term effect on Four Mile Creek and Buttai Creek and its tributaries, as it will result in less water being removed from the natural catchment hydrology in the post-mining phase, more water flowing from the catchment to the creeks and less water draining to the final mining void.

The predicted mine inflows would be within the licence conditions of 500ML/a. The final void will remain a sink and will have a wide spread effect of lowering water levels in the vicinity of the mine in the long term. A drawdown of 100 m is predicted in the surficial aquifer in the Bloomfield approved extraction area and final mine void. Drawdown is generally less than 0.5 m outside the Bloomfield lease area apart from the south-west corner where the 2 m drawdown contour extends outside the lease approximately 600 m beneath Buttai Creek. The predicted drawdowns are not expected to negatively impact GDE’s as historical mining in the area has lowered water levels far below the ground surface.

Predicted surface water impacts were considered negligible, indicating that Bloomfield mining is having an insignificant effect on stream baseflow. Four Mile Creek is predicted to have been converted to a losing stream around 2011, losing an average baseflow of 0.24kL/ day.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Yes. The Colliery currently operates under a comprehensive Environmental Management System (EMS) and seeks to provide accurate information to all stakeholders including the surrounding community. This is demonstrated through the Annual Environmental Monitoring Reports, independent environmental audits and monitoring results provided on the Bloomfield Colliery website.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

No, Bloomfield has not been subject to any proceedings.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

The Colliery operates in accordance with the Bloomfield Group Environmental Policy:

It is the policy of the Bloomfield Group, and its subsidiary and associated companies, to strive to achieve a high standard of care for the natural environment in all of the activities in which we engage during the production of quality coal and the provision of engineering related services.

We aim to conduct our operations in an ecologically sustainable manner by:

- Identifying, monitoring and managing risks arising from our operations in accordance with the structure

- Minimising our impact on the environment through the:

- prevention of air, ground and water pollution;

- reduction of noise associated with our activities to as low as reasonably practicable;

- control of waste associated with our activities;

- rehabilitation of disturbed areas; and

- management of energy consumption and greenhouse gas production.

- Identifying, monitoring and managing risks arising from our operations in accordance with the structure of our Environment Management System, which establishes the appropriate objectives and targets related to the environmental aspects relevant to the scope of the Operation;

- Reviewing our environmental management activities and seeking to continually improve our production processes, waste management and the use of resources;

- Conducting our operations in compliance with all relevant environmental regulations, licences and legislation;

- Communicating with employees about our aim and about their individual responsibilities;

- Informing our contractors, customers and suppliers of our aim and of their environmental responsibilities in relation to our business;

- Communicating with the community and relevant government bodies with regard to our environmental performance, obligations and issues, as appropriate to their interests.

The Environmental Management System (EMS) provides the framework for the management and mitigation of environmental impacts at the Mine. All environmental activities undertaken will be guided by the philosophy set by the Environment Policy.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

Bloomfield also operates the Rix's Creek Mine located approximately 5km northwest of Singleton. As part of the preparation of the *Rix's Creek Continuation of Mining Project Environmental Assessment* (AECOM, 2015), Bloomfield submitted an EPBC Referral to obtain confirmation from the Department of Environment and Energy that the proposed action did not constitute a controlled action under the EPBC Act.

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Biodiversity Assessment Report, November 2017 by EMM Consulting	This study has been undertaken by local professional ecological consultants, experienced in survey and assessment of impacts upon the relevant MNES. The study informing this referral is considered reliable.	No uncertainties or limitations are identified within the report.
Surface Water Assessment, Bloomfield Colliery - Life of Mine Extension, August 2017 by AECOM	This study has been undertaken by local professional environmental consultants, experienced in the assessment of surface water impacts. The study informing this referral is considered reliable and suitably recent.	No uncertainties or limitations are identified within the report.
Groundwater Impact Assessment, Bloomfield Mining Expansion, November 2017 by AECOM	This study has been undertaken by local professional environmental consultants, experienced in the assessment of groundwater impacts. The study informing this referral is considered reliable and suitably recent.	No uncertainties or limitations are identified within the report.
Environmental Assessment: Bloomfield Colliery – Life of Mine Extension, Modification 4, currently in preparation, by AECOM	This study has been undertaken by local professional environmental consultants, experienced in the assessment of potential impacts associated with mining projects. The study informing this referral is considered reliable and suitably recent.	No uncertainties or limitations are identified within the report.

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

A number of alternatives to taking the proposed action have been assessed, including:

- Mine plan and final landform options, including not taking the proposed action;

- Mine scheduling;

- Transport methods; and

- Rehabilitation and final land use considerations

Mine plan and final landform options

Alternative mine plan and subsequent final landform options were investigated during the design phase of the Project, including: the currently approved final landform (i.e not taking the proposed action), no final void, and the large void plan.

Existing approved final landform (not taking the proposed action)

The first option involves not taking the proposed action and would mean closure of the Colliery in 2021 and the loss of approximately 93 jobs. Under this option a large portion of the 13 million tonnes of ROM coal identified within the approval area would remain undeveloped and rehabilitation of the site would be undertaken in accordance with the current approved final landform under the Project Approval 07_0087.

The negative consequences associated with this option include loss of employment opportunities, sterilisation of the remaining coal resource and unrealised financial benefits to the local and regional communities and to the State Government. The final landform as currently approved includes a large final void and approximately 1.1km of highwall. For reasons such as public safety and stability, options that include a highwall were considered to be less preferable to options that do not include a highwall. This option was therefore not considered to be the preferred option.

No final void

This option includes continued operations to extract the additional 13 million tonnes of ROM coal identified within the approval area and to fill the remaining void following extraction of the coal reserves. The benefit of this option is that no final void would remain within the final landform. However this option would require more than two years of concentrated overburden operations with no economic return during this period and is therefore not considered to be economically feasible.

Furthermore coal mining operations would not generate enough spoil to completely fill the final void and the only other source of spoil on the site would be the currently rehabilitated land. Disturbance of rehabilitated land would prolong air quality, noise and ecological impacts for the duration of these additional works.

The large void plan

The final landform under this option features two voids within the combined South Cut and Creek Cut, including a temporary void to the south which would be used for tailings emplacement from Abel Underground Mine (if required) and a larger final void to the north. In the event that Abel Underground Mine does not recommence operations, the temporary void to the south would be filled and the remaining final void to the north would be larger.

One benefit of this option is that the final void would not contain any highwalls. However, this option would require longer and higher haul routes for open cut operations as more spoil would be used to form the larger footprint of high dumps. Final landform shaping would then require relocation of this spoil to achieve the final landform in the lower slope areas. This would greatly increase the mining cost and would restrict progressive final landform shaping and rehabilitation, leaving more exposed spoil with potential for air quality impacts from dust generation.

Preferred mine plan and final landform

The proposed action was considered to be the best option as it achieves the following:

- Allows Bloomfield to offer continued employment on the site and to service existing contracts and provides the economic and flow on benefits to the local community by developing the remaining coal reserves (as opposed to the ‘do nothing’ option);

- A resulting landform which offers the best shape and slope for post mining commercial

utilisation by the land owner;

- Removal of highwalls from the final landform which reduces the public safety risk; and

- Reduction in the extent of higher elevation land which reduces the visual impact for surrounding landholders.

Mine scheduling

An alternative option to the Project would be more rapid extraction, to remove more material per year thereby completing mining on the site over a shorter timeframe. Bloomfield, however, blends coal from both the Bloomfield operations and Rix's Creek Mine (located near Singleton) to meet market specifications. Rix's Creek and Bloomfield are both multi seam, open cut mining operations with varying coal qualities and yields.

The scheduling of coals to be mined from the various locations in the Bloomfield mine plan is designed to provide flexibility to meet changes in coal quality from Rix's Creek and/or changes in market requirements. Minor variations to the sequencing and scheduling of mining blocks may be required over the life of the Project, to meet individual shipments and fulfil Bloomfield and Rix's Creek market volume and quality obligations. Therefore the Project proposes to continue mining operations within the existing approved maximum annual tonnage limits.

Transport methods

Overburden is currently removed from the pit via dump truck and placed on emplacement areas which are then shaped and rehabilitated. Coal is removed from the pits by the coaling fleet and transported via an internal haul road to the ROM coal stockpile at the CHPP.

An alternative to this current transport method would be to provide an in-pit crushing system feeding a conveyor that transports coal to the ROM coal stockpile pad at the CHPP. This would require Bloomfield to maintain a central extraction point, which is not possible as flexibility is required in extraction areas due to the multi-seam environment and varying coal quality requirements. It is therefore proposed to continue using the existing transport methods and haul road.

Rehabilitation and final land use considerations

A range of final land uses for the Project Area have previously been considered by Bloomfield and the landowner. Alternative final land uses considered in the 2008 EA and the MOP 2017-2019 include residential, industrial, open forest / bushland or undulating grazing land / rural landscape. While the final landform would depend on the future operational status of the Abel Underground Mine, the Project Area would be rehabilitated to a standard acceptable to Department of Primary Industries and the landowner (Ashtonfields). Following consideration of land use options and the requirements under the commercial lease agreement with Ashtonfields, Bloomfield determined that the land should be rehabilitated in a manner that supports a variety of future land uses, whilst enabling the retention of habitat areas.

As the site and surrounding area has been identified as having potential for industrial-type uses in the future, Bloomfield considers that the mine site area should be rehabilitated in such a way that does not conflict with this future land use. Such rehabilitation would mean providing a flat to undulating topography suitable for mixed use industrial, seeded with grasses to stabilise, together with areas of trees for habitat, until such time as detailed determinations are made regarding any future industrial use of the site. Should no such future development eventuate, the site would remain as a stable, rural landscape. Bloomfield therefore proposes to rehabilitate the land to create a stable, undulating landscape with a mix of pasture and tree areas suitable for grazing and general habitat.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Mine Manager

9.2.2 First Name

Brendon

9.2.3 Last Name

Clements

9.2.4 E-mail

bclements@bloomcoll.com.au

9.2.5 Postal Address

PO Box 4
East Maitland NSW 2323
Australia

9.2.6 ABN/ACN

ABN

76000106972 - BLOOMFIELD COLLIERIES PTY LTD

9.2.7 Organisation Telephone

02 4930 2600

9.2.8 Organisation E-mail

bclements@bloomcoll.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, BRENDON CLEMENTS, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:..... Date: 22-12-2017

I, BRENDON CLEMENTS, the person proposing the action, consent to the designation of BLOOMFIELD COLLIERIES as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 22-12-2017

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Mine Manager

9.5.2 First Name

Brendon

9.5.3 Last Name

Clements

9.5.4 E-mail

bclements@bloomcoll.com.au

9.5.5 Postal Address

PO Box 4
East Maitland NSW 2323
Australia

9.5.6 ABN/ACN

ABN

76000106972 - BLOOMFIELD COLLIERIES PTY LTD

9.5.7 Organisation Telephone

02 4930 2600

9.5.8 Organisation E-mail

bclements@bloomcoll.com.au

Proposed designated proponent - Declaration

I, BRENDON CLEMENTS, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:..... Date: 22-12-17

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Principal Environmental Planner

9.8.2 First Name

Simon

9.8.3 Last Name

Murphy

9.8.4 E-mail

simon.murphy@aecom.com

9.8.5 Postal Address

PO Box 73
Hunter Region MC NSW 2310
Australia

9.8.6 ABN/ACN

ABN

20093846925 - AECOM AUSTRALIA PTY LTD

9.8.7 Organisation Telephone

02 4911 4900

9.8.8 Organisation E-mail

simon.murphy@aecom.com

Referring Party - Declaration

I, Simon Murphy, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: ..... Date: 22/12/2017

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. 07_0087_consolidated_project_approval.pdf
2. 60289290_f1_regional_context.pdf
3. 60289290_f3_existing_mining_operations.pdf
4. 60289290_f8_proposed_final_landform_-_1.pdf
5. 60289290_f9_proposed_final_landform_-_2.pdf
6. bloomfield_sears.pdf
7. drg_meeting_minutes_12.9.17.pdf
8. ecology_report.pdf
9. ems_revised_final_090811.pdf
10. epa_consultation.pdf
11. groundwater_report_optimized_vol_1.pdf
12. groundwater_report_optimized_vol_2.pdf
13. minutes_cessnock_city_council_project_briefing_2.8.17_reduced.pdf
14. minutes_maitland_council_project_briefing_23.8.17.pdf
15. surface_water_report_optimized.pdf