



Bloomfield Colliery

Completion of Mining and Rehabilitation

Part 3A Environmental Assessment
Project Application 07_0087

Volume One

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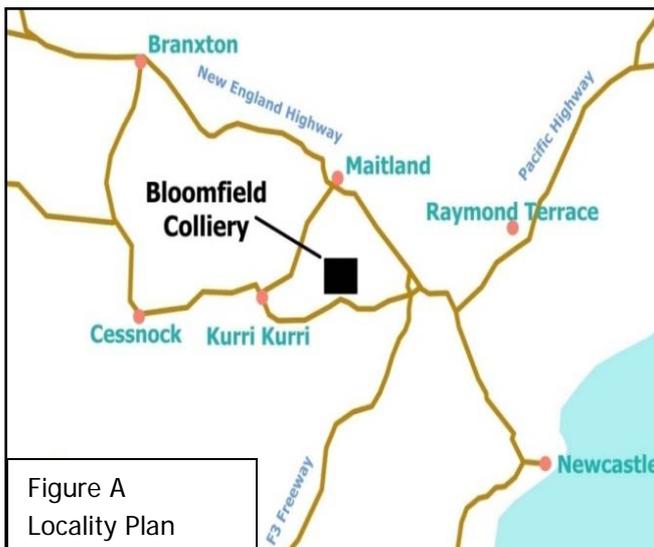
Prepared by



EXECUTIVE SUMMARY

1. INTRODUCTION

Bloomfield Colliery ('Colliery') is an existing open cut mining operation located to the north of John Renshaw Drive, Buttai and east of Buchanan Road, Buchanan, approximately 20 km north-west of Newcastle (refer **Figure A**). Mining has occurred on the Colliery site for approximately 170 years.



This Environmental Assessment ('EA') has been prepared to accompany a Project Application to enable the completion of mining and rehabilitation at Bloomfield Colliery ('the Project').

The EA has been prepared in accordance with Part 3A of the *Environmental Planning and Assessment Act 1979* and the *Environmental Planning and Assessment Regulation 2000*. The EA contains those items required to be addressed by the relevant legislation and

the EA requirements issued by the Director-General of the NSW Department of Planning ('DoP') for the Project.

2. THE APPLICANT

The applicant for the Project is Bloomfield Collieries Pty Limited ('Bloomfield'), part of The Bloomfield Group of companies. Bloomfield is an Australian owned family company.

3. THE PROJECT AREA

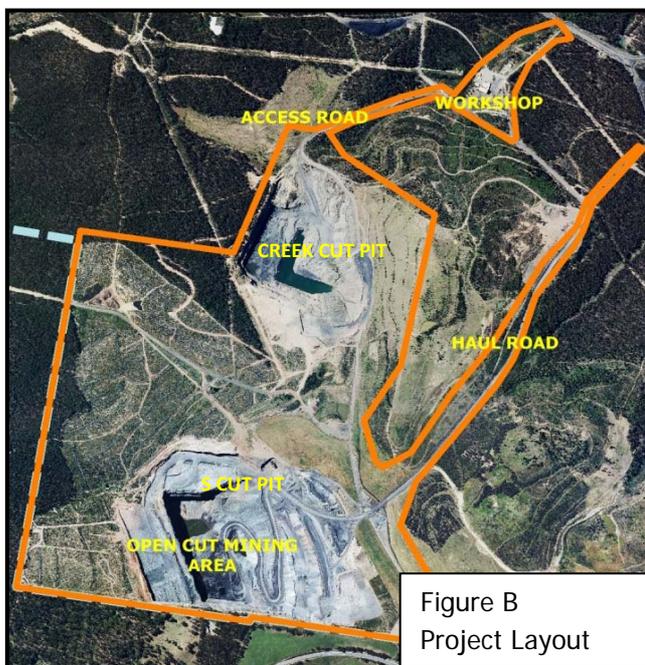
The Project covers an area of approximately 317 hectares of which 299 hectares (95%) is presently disturbed by mining-related activities. All land within the Project Area is owned by Ashtonfields Pty Limited.

The site is located within the Cessnock Local Government Area, and zoned 1(a) Rural 'A' under the *Cessnock Local Environmental Plan 1989*.

4. PROJECT OVERVIEW

This Project Application and EA seeks approval for the continued operation of the following mine infrastructure and related activities to enable Bloomfield to complete its mining and rehabilitation schedule at the Colliery:

- the current and proposed open cut mine areas;
- the workshop;
- the road between the open cut pit areas and the ROM coal stockpile at the washery; and
- the road that links the workshop, open cut pits and washery.



The location of these elements of the Project is shown in **Figure B**.

Other mining infrastructure and activities at the Colliery have previously been approved under Project Approval 05_0139 for the Abel Underground Mine ('Abel Project Approval') granted by the Minister for Planning to Donaldson Coal Pty Limited on 7 June 2007. These infrastructure items and activities include the continued use of the washery and rail loading facility, management of water associated with the washery, coarse reject and tailings disposal and coal handling.

It is proposed to complete open cut mining over a 10 to 12 year period, which has been divided into 5 stages.

The first stage, representing current operations (the current 2007-2008 period), is for the mining of a maximum of 0.88 million tonnes per annum ('mtpa') run-of-mine ('ROM') coal. Stages 2, 3 and 4 (Years 1-5, 5-7 and 7-10 respectively) propose to mine up to a maximum of 1.3 mtpa ROM coal. Stage 5 (approximately Years 10-12) is for the completion of site rehabilitation. Current assessments of economically recoverable reserves have determined that there are approximately 14 million tonnes of ROM coal remaining in the Project Area.

The maximum annual mining rate provided for assessment purposes provides for flexibility in production rates over each year, enabling Bloomfield to respond to coal market fluctuations while enabling impact assessment studies to be based on maximum production scenarios.

The mine plan aims to extract the remaining economically recoverable reserves by extending the existing S Cut and Creek Cut mine pits. These pits, shown on **Figure B**, mine a range of coal seams within the Tomago Coal Measures.

A final void will remain at the end of mining which will be used as a reject emplacement area for the washery. The Abel Project Approval enables washery operations, including the emplacement of reject material, to continue after the completion of the Bloomfield Project.

5. THE MINING OPERATION

Mining is currently undertaken at the Colliery as a multi-seam truck and excavator or face shovel operation, conducted in sequential mining blocks. It is proposed to continue this existing method using the same or similar equipment. The majority of the Project Area has been previously cleared and additional clearing required for open cut mining is minimal.

ROM coal is trucked to the ROM coal stockpile at the Bloomfield washery for processing, which occurs under the Abel Project Approval.

Bloomfield Colliery operates 7 days per week, 24 hours per day operation. Approval is sought to continue the current hours of operation. Studies undertaken for this EA are based on these hours.

Bloomfield currently employs 66 personnel. This includes open cut mining and washery staff. It is proposed to continue operations with similar staffing levels.

6. INFRASTRUCTURE AND SUPPORTING FACILITIES

No new infrastructure is proposed to be constructed or brought onto the Project Area. Existing infrastructure (refer **Figure B**) that forms part of this Project includes:

- Open cut workshop, fuel storage area, offices and bathhouse;
- Temporary haul and access roads;
- Permanent roads linking major infrastructure components such as the open cuts, the workshop, and the ROM coal stockpile pad; and
- Water management system including 'clean' and mine water management structures.

The Project will not generate any additional vehicle movements. All product coal, once processed at the washery, is transported to Newcastle Port by rail from the Bloomfield rail loading facility.

7. INTEGRATION WITH OTHER MINING OPERATIONS

Integration of this Project with adjacent operations and any associated cumulative impact has been a key consideration in mine planning and in all impact assessment studies. Mining operations that are either in the vicinity of the Project or integrated with part of the Bloomfield Project include:

- Donaldson Open Cut Mine;
- Abel Underground Mine;
- Bloomfield washery and associated facilities (approved under the Abel Project Approval); and
- Tasman Underground Mine.

Key aspects of the Project that are integrated with the operations listed above include:

- Delivery of coal from the various mines to the ROM coal stockpile areas adjacent to the washery, which will continue after completion of the Project;
- Water management system components utilized by multiple operations, such as Bloomfield, Donaldson, Abel and the Bloomfield washery, with the open cut water management forming part of the overall integrated water balance;
- Provision of a final void that will be used for future management of washery reject and tailings;
- Integrated rehabilitation planning, considering the final land use proposed for multiple sites; and
- The Integrated Environmental Monitoring Program developed for these integrated operations under the Abel Project Approval.

The post-mining rehabilitation strategy also incorporates the requirements of the Abel Underground Mine and the washery, which will continue to operate after completion of the Project.

8. REHABILITATION & POST-MINING LAND USE

A key component of this Project is the completion of mining on the site and associated rehabilitation and development of post-mining land use.

Bloomfield will undertake progressive rehabilitation as per the Bloomfield Colliery Rehabilitation Plan in stages of landform reshaping, preparation of the ground surface, species planting and site monitoring and maintenance. Rehabilitation will follow the objectives and procedures provided by the Bloomfield Rehabilitation Management System.

Post-mining landform and land use requirements and design are influenced by the requirements of the land owner, various stakeholders including government agencies and the objectives of the Lower Hunter Regional Strategy (DoP, 2006), which provides concept plans for the site as part of 'future employment lands'. All infrastructure not required for ongoing washery operations or required by landowner will be removed at the end of the Project and the landform rehabilitated to a mix of grazing and habitat areas suitable to its rural zoning.

A final void will be retained on the site after completion of rehabilitation as part of an active disposal site for reject material from the washery.

9. IDENTIFICATION OF KEY ISSUES AND ENVIRONMENTAL ASSESSMENT

In order to undertake a comprehensive environmental assessment of the Project, Bloomfield has undertaken a consultation process and a comprehensive environmental risk assessment study. The consultation process involved discussions with various government agencies and active engagement with a community focus group that met during the project planning phase to discuss the various Project issues. A newsletter providing key information and mine contact details for feedback and questions was also provided to the local community as part of a comprehensive community 'door knock' programme undertaken by mine management.

The risk assessment assisted in identifying and prioritising potential environmental impacts associated with the Project so that key issues could be addressed and subjected to detailed assessment. Key issues were also provided by the DoP Director-General's requirements for the EA.

Detailed assessment has been undertaken for the following key issues:

- Flora, fauna & threatened species;
- Aboriginal & European heritage;
- Surface and ground water;
- Integrated management;
- Rehabilitation, post mining landform and final void management;
- Noise, blasting and vibration;
- Air quality;

- Greenhouse gases;
- Social and economic; and
- Visual.

The following sections provide a summary of the main findings arising from each of these assessment studies. Integrated management and rehabilitation, post mining landform and final void management are described in the previous sections.

10. FLORA, FAUNA & THREATENED SPECIES

A large part of the Project Area is cleared of vegetation and disturbed by mining. The survey therefore focussed investigations on two vegetated areas of approximately 9 hectares near the western boundary. Approximately 1.7 hectares of this vegetated area will be cleared for the Project. A total of 123 native plant species were recorded. Three vegetation communities were identified within the survey area, of which the *Lower Hunter Spotted Gum-Ironbark Forest* community is listed as an Endangered Ecological Community ('EEC') in the *Threatened Species Conservation Act 1995* ('TSC Act'). There is 0.8 hectares of this EEC in the Project Area.

73 native fauna species were recorded, of which 6 are listed as Vulnerable in the Schedules of the TSC Act. A further 5 species listed under the Schedules as being observed or recorded within 5 km of the Project Area were included in the assessment.

The study concluded that due to the nature of the existing environment and the implementation of the safeguards described below, there would be minimal impact on flora, fauna, threatened species and the *Lower Hunter Spotted Gum-Ironbark Forest* EEC.

Mitigation measures include the continuation of erosion and sediment control measures and pre-clearance protocols for protecting hollow dwelling fauna. A contribution by Bloomfield to research into the conservation of the *Lower Hunter Spotted Gum-Ironbark Forest* EEC in the Hunter Region may be appropriate if this 0.8 ha EEC area is to be cleared for mining.

11. ABORIGINAL & EUROPEAN HERITAGE

The Aboriginal Heritage Study was conducted in accordance with the DECC's *Interim Community Consultation Requirements for Applicants*.

The Project Area was divided according to land use history. In the "unmodified" area (the area proposed to be mined), 6 stone artefact sites were identified and assessed as being of low scientific significance. The remainder of the Project Area which has been previously mined was classed as "modified" and was considered to have negligible potential for heritage evidence.

The assessment concluded that, with the implementation of an Aboriginal Heritage Management Plan and continued consultation with registered Aboriginal stakeholders, potential impacts on Aboriginal heritage will be very low.

Searches of relevant databases and plans did not identify any recorded European heritage sites on or in close proximity to the Project Area.

12. NOISE, VIBRATION & BLASTING

The Noise, Vibration & Blasting assessment identified the potential impacts of noise, vibration and blasting of the Project, including the cumulative impact from nearby mining activities. Construction noise was not assessed as there will not be any construction associated with the Project.

Background noise levels were calculated for representative locations and project specific noise assessment criteria for each location were established in accordance with the Industrial Noise Policy. Prediction of noise sources using modelling was carried out for representative operational 'worst-case' scenarios of Year 1 (end Stage 1), Year 5 (end Stage 2), and Year 10 (end Stage 4) applying the following noise mitigation and management procedures:

- The excavator and dump site would be situated in a shielded location during night-time operation in Years 1, 5 and 10;
- No dozer operation at the drill location would occur during night and morning shoulder periods (i.e. between 10.00 pm and 7.00 am) in Years 1, 5 and 10; and
- The front end loader would replace the dozer at the dump site during the night-time period unless 4 dBA of noise suppression is achieved in Year 1 and 5.

Further noise assessment in consultation with the relevant government agencies will be undertaken during the project to determine whether these mitigation procedures require modification in the future.

The assessment study concluded that project specific noise criteria is likely to be met in all years with the exception of:

- Location G (Buchanan Rd) where an exceedance of 1 dBA is predicted during a prevailing south east wind during the evening period in Years 1, 5 and 10 and during the night-time period in Years 1 and 10; and
- Location M (John Renshaw Drive) where an exceedance of 1 dBA is predicted during a prevailing north west wind during the night-time period in Year 1.

These minor exceedances of up to 1 dBA are unlikely to be noticeable.

The Project will meet the sleep disturbance criteria at all locations surrounding the development during calm and prevailing weather conditions with the exception of Location G where a 1 dBA exceedance during the morning shoulder period is predicted during a south east wind in Year 10. This 1 dBA exceedance is unlikely to cause sleep disturbance at this location.

The predicted airblast and ground vibration levels will meet DECC guidelines at all residences surrounding the Project during all operational stages of the Project. Blasting will only be undertaken during the hours of 9.00 am to 5.00 pm Monday to Saturday. Blasting will not occur on Sundays or Public Holidays.

The cumulative noise, vibration and blasting impact is predicted to comply with the INP. With implementation of the proposed controls and management procedures, environmental risk associated with noise and vibration is considered to be low.

13. AIR QUALITY & GREENHOUSE GASES

The air quality assessment focused on the potential impacts of particulate matter emissions. Modelling indicated that no residences were likely to experience either dust deposition or particulate matter concentrations above DECC's assessment criteria. Bloomfield will prepare and implement an Air Quality Monitoring Program. Bloomfield will also undertake the following ongoing actions to minimise dust generation:

- All vehicles will be operated in accordance with the existing Mine Transport Management Plan;
- Disturbed areas will be minimised where possible;
- Regular dust suppression water spraying will be undertaken;
- All mobile equipment will be maintained in good working order;
- Adequate stemming will be used in blast holes; and
- Meteorological conditions will be considered in blast timing.

The Project will liberate Scope 1 & 2 greenhouse gases as a result of the combustion of diesel and petrol to power mining and other equipment, the use of explosives and the use of electrical energy. The most significant Scope 1 & 2 greenhouse gases for the Project are CO₂ and N₂O.

Depending on ROM coal production, the Project is estimated to liberate between 19.5 million tonnes ('Mt') and 30.4 Mt of CO₂ equivalent greenhouse gases (including Scope 3 emissions) over the life of the mine. The estimated annual emission of CO₂ equivalent greenhouse gases for Australia in 2005 using the Kyoto accounting procedures was 559 Mt. This did not

include Scope 3 greenhouse gases liberated by the burning of the coal by the end user as they would be accounted for in the country in which the end user is located.

14. SURFACE HYDROLOGY AND WATER MANAGEMENT

The Project is located within the Four Mile Creek and Buttai Creek catchments. The surface water management system for the Project forms an integral part of the water management system for the Abel Underground Project.

The existing water management structures, facilities and systems are considered adequate to cater for the continued Bloomfield operation with minimal new works. The impacts of potential surface water issues associated with the Project are considered to be low. Safeguards include the implementation of an Erosion and Sediment Control Plan and ongoing water quality and quantity monitoring of as part of the Integrated Environmental Monitoring Program ('IEMP').

15. GROUNDWATER

Groundwater levels in the Project Area show the accumulated effects of long-term mining. Due to the long period of time mining has occurred on the site, there is no evidence to suggest what pre-mining groundwater levels might have been. However, the influence of mining on water levels is apparent by the marked differences in groundwater levels between shallow and deeper coal measures.

Groundwater in the vicinity of the Project Area is saline and of negligible value for beneficial users. No adverse impacts on groundwater supply, quality or any groundwater dependent ecosystems are expected as a result of the Project.

Dewatering associated with the Project is likely to lead to groundwater recovery levels occurring above present levels before the completion of the Project and then stabilizing within 20-30 years.

Small impacts on stream base flows are predicted for Wallis and Buttai Creeks with rapid recovery post-mining.

16. SOCIO-ECONOMIC IMPACTS

The mining industry is the largest employer within the Cessnock Local Government Area. The Project is predicted to have the following beneficial social and economic impacts:

- Continued employment of 66 employees;
- The continuation of direct and flow-on economic benefits;
- No additional need for additional accommodation and community services;

- Additional royalty and tax payments to State and Commonwealth governments; and
- Site rehabilitation enabling the land to be developed for other purposes.

Ongoing community consultation by Bloomfield will ensure that community concerns are addressed in a timely manner.

17. VISUAL AND LIGHTING

Residences near the Project Area are generally rural in nature and have existing rural and bushland views, with some viewing sections of existing mine disturbance. While the Project will be visible from some southern residences in its early stages, intervening vegetation and topography generally screens operations and the visual impact associated with the completion of mining is considered to be low.

Bloomfield will undertake the following measures to mitigate the visual impact of the Project:

- Priority will be given to rehabilitation along the southern boundary of the Project Area;
- Progressive rehabilitation will occur;
- Mobile lighting will be directed away from potential external viewpoints; and
- Mine contact details will be provided to the community to enable prompt action if issues with mobile lighting need to be addressed.

Progressive rehabilitation of the Project Area will improve the visual amenity of the site and will enable visual improvement of an area historically disturbed by mining.

18. ECOLOGICALLY SUSTAINABLE DEVELOPMENT ('ESD')

The design of the Project has addressed each of the ESD principles and it is concluded that the Project is consistent with the principles of ESD and achieves a sustainable outcome for the local and wider environment.

19. CUMULATIVE IMPACT

Due to the interaction of the Project with nearby operations such as the Bloomfield washery and rail loading facility, Donaldson Open Cut Mine and the Abel Underground Mine, cumulative impact has formed an integral part of each assessment study undertaken for this EA.

Bloomfield Colliery forms part of the Integrated Environmental Monitoring Program ('IEMP') that integrates monitoring stations and data between the Bloomfield, Donaldson and Abel Mines and to some degree Tasman Underground Mine to the south. The IEMP forms part of

the Abel Project Approval and will be modified as necessary to take into account any additional requirements for the Bloomfield Project.

Each assessment study has concluded that potential impacts remain low when cumulative impacts are taken into account.

20. JUSTIFICATION FOR THE PROJECT

This Environmental Assessment for the Completion of Mining and Rehabilitation of Bloomfield Colliery has considered in detail potential impacts on the environment and potential benefits to the local and wider community.

An evaluation of the Project was undertaken by assessing the risks posed to the environment by Project activities currently and then with the implementation of controls to determine the residual risk. The Project was also evaluated according to the principles of ESD.

This evaluation found that many aspects of the Project would have a low to medium environmental risk, even when no environmental controls or mitigation measures were put in place. The application of additional mitigation measures by Bloomfield ensures a low environmental risk in all key assessment areas.

Bloomfield has provided a draft Statement of Commitments as part of this EA which commits it to a range of mitigation and monitoring measures that will further mitigate, manage and/or monitor any potential impact.

21. CONCLUSION

Approval of this Project will enable Bloomfield to extract the remaining economic reserves from the Project Area in a safe, efficient and controlled manner which minimises environmental impacts, while providing continued employment for their employees and numerous associated suppliers and contractors in the local and broader area. Approval will also enable Bloomfield to rehabilitate and enhance the site in accordance with the requirements of the various relevant stakeholders and policies in place for the Lower Hunter Region.