



NSW GOVERNMENT
Department of Planning

***MAJOR PROJECT ASSESSMENT:
Bloomfield Coal Project
MP 07_0087***



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

August 2009

Cover Photograph: The rehabilitated southwestern portion of the Bloomfield Colliery site

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EXECUTIVE SUMMARY

The Bloomfield Colliery is located at Buttai, approximately 4 kilometres southwest of Cessnock and 20 kilometres northwest of Newcastle.

It has been operating in one form or another for the last 170 years, and is now solely an open cut mining operation.

Bloomfield is seeking approval for the extraction of a further 14 million tonnes of run-of-mine coal from the colliery, and the delivery of this coal to the Bloomfield Coal Handling and Preparation Plant for processing. The project, known as the Bloomfield Coal Project, would complete Bloomfield's mining operations on site, and result in the rehabilitation of the site to a vegetated landscape.

The project constitutes a 'major project' under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and consequently the Minister for Planning is the approval authority for the project.

During the exhibition period, the Department received 14 submissions on the project, including 6 from public authorities and 8 from the general public. None of the public authorities objected to the proposal, however most of the public submissions objected to the project, based on a broad array of concerns about the potential noise, air quality and visual impacts of the project.

The Department has assessed the project application, the EA, submissions and Bloomfield's response to submissions in accordance with the objects of the EP&A Act and the principles of ecological sustainable development.

Based on this assessment, the Department is satisfied that the project can meet applicable amenity, health and environmental standards. The Department is also satisfied that the residual environmental and socio-economic impacts of the project can be adequately mitigated and/or managed, and has recommended a comprehensive range of conditions to ensure this occurs.

As Bloomfield is an existing mine with established infrastructure the project's capital investment would not be significant. However, the mine would provide continued employment for its 66 workers for a further 12 years. Over its life, the mine would provide significant royalties and tax income to the Government. Bloomfield would also establish a Community Enhancement Fund of \$500,000 to assist with community development projects and offset the socio-economic impacts of the project.

After careful consideration, the Department considers that the project's benefits sufficiently outweigh its costs, and that it is therefore in the public interest. Consequently, the Department recommends that the Bloomfield Coal Project be approved subject to conditions.

1. PROPOSED PROJECT

1.1 Project Background and Description

The Bloomfield Colliery is located at Buttai, approximately 20 kilometres northwest of Newcastle (see Figure 1). It has been operating in one form or another for the last 170 years. Underground mining operations concluded in 1992, and the colliery is now solely an open cut mining operation.

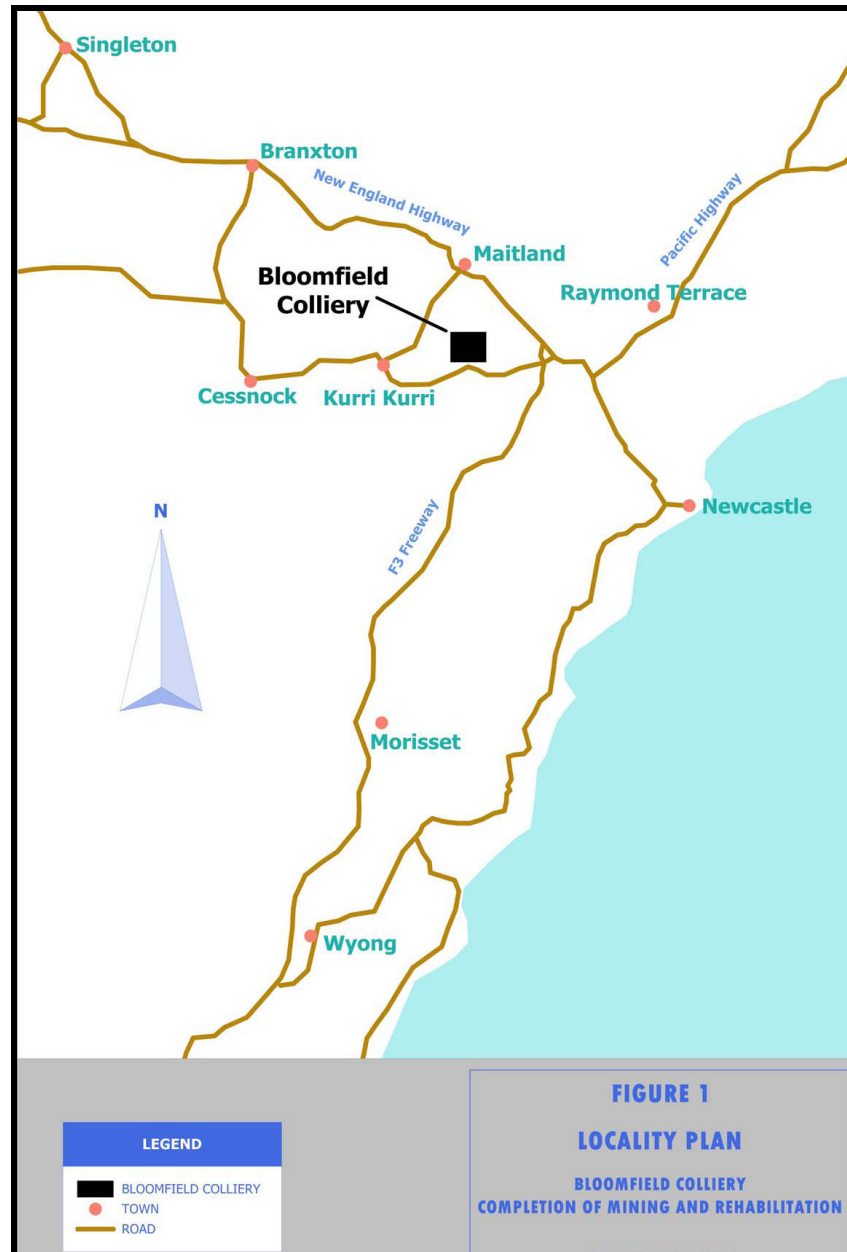


Figure 1: Project Location

Bloomfield has 'existing use' rights to operate the mine, which allow it to extract up to 1.3 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal. However Bloomfield is now required to gain project approval to complete its open cut mining operations and site rehabilitation by virtue of the provisions of *State Environmental Planning Policy (Major Development) 2005* (Major Development SEPP) – formerly the Major Projects SEPP. This SEPP provides that all development which in the opinion of the Minister for Planning is "development for the purpose of coal mining" is a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies (ie such development is a 'major project').

However, the SEPP also provides a five year transitional period during which mines operating under existing use rights are required to obtain a project approval under Part 3A. In August 2007 Bloomfield lodged its project application to comply with this requirement.

The key components of the project (known as the Bloomfield Coal Project) are summarised in Table 1 and depicted in Figures 2 - 3. The proposal is described in full in the Environmental Assessment (EA - see Appendix D).

Table 1: Key components of the Bloomfield Coal Project

Aspect	Description
Project Summary	• Continued operation of the Bloomfield Colliery and the completion of coal mining at the site. • Extraction of up to 14 million tonnes (Mt) of ROM coal and its delivery to the Bloomfield Coal Handling and Preparation Plant (CHPP) for processing and supply to export markets. • Rehabilitation of the site.
<i>Mining and Reserves</i>	Extraction from the Tomago Coal Measures at the S Cut and Creek Cut pits by open cut methods. Mineable reserve of 14 Mt.
<i>Project Life</i>	An expected project life of up to 12 years. Mining is expected to take 10 years with rehabilitation taking 2 years.
<i>Coal Production</i>	Production of up to 1.3 Mtpa of ROM coal.
<i>Minewater Management</i>	Pit inflows and run-off would be transferred to Lake Kennerson (the major mine water storage) for use in the CHPP.
<i>Employment</i>	Continued employment for up to 66 workers.
<i>Hours of Operation</i>	Mining operations would take place 24 hours a day, 7 days per week.
<i>Rehabilitation and Final Landform</i>	Rehabilitation would progressively be undertaken at the open cut pits whilst mining occurs. The aim would be to rehabilitate the site in accordance with its pre-mining land capability to create a stable, undulating landscape with a mix of pasture and tree areas suitable for grazing and general habitat, and the capability to support future industrial land uses if required.

Relationship with other mines in the area

Two mines are located in close proximity to the Bloomfield site. These are the Donaldson open cut mine (Donaldson) and the Abel underground mine (Abel), both to Bloomfield's southeast (see Figure 3). Donaldson and Abel are both operated by Donaldson Coal Pty Limited, with Donaldson due to close in 2011 and Abel (approved in 2007) operational until 2028.

Bloomfield, Donaldson and Abel all share Bloomfield's infrastructure, including the CHPP, the water management system that supplies it, the rail load-out facility and tailings storage areas. This infrastructure handles coal and tailings from each of the 3 mines. Continued operation of the Bloomfield infrastructure was included in, and approved as part of, the Abel project application. Consequently, the Bloomfield Coal Project relates specifically to the completion of mining at, and rehabilitation of, the open cut pits at the Bloomfield site.

1.2 Project Setting

Bloomfield Colliery is located at Buttai, 20 km northwest of Newcastle (see Figure 1). The mine is bordered by the residential areas of Louth Park, Greenhills, Ashtonfield, Metford and Thornton to its north, the Donaldson and Abel mines to its east, and the rural residential areas of Buchanan and Black Hill to its west and south respectively (see Figure 3). The closest non-project related residence is located 800m from the southern boundary of the current active mining area.

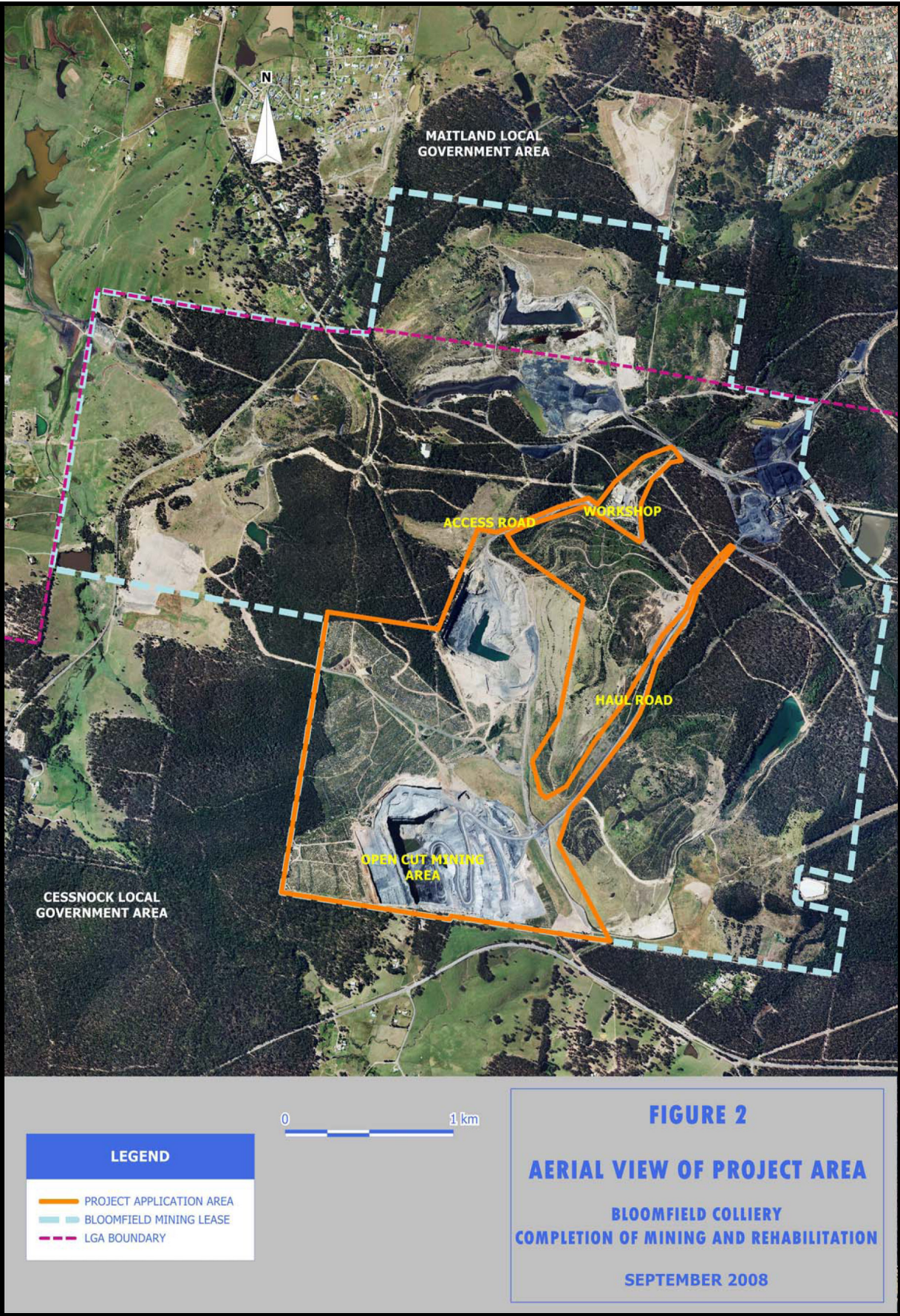


Figure 2: Bloomfield Coal Project – General Project Layout

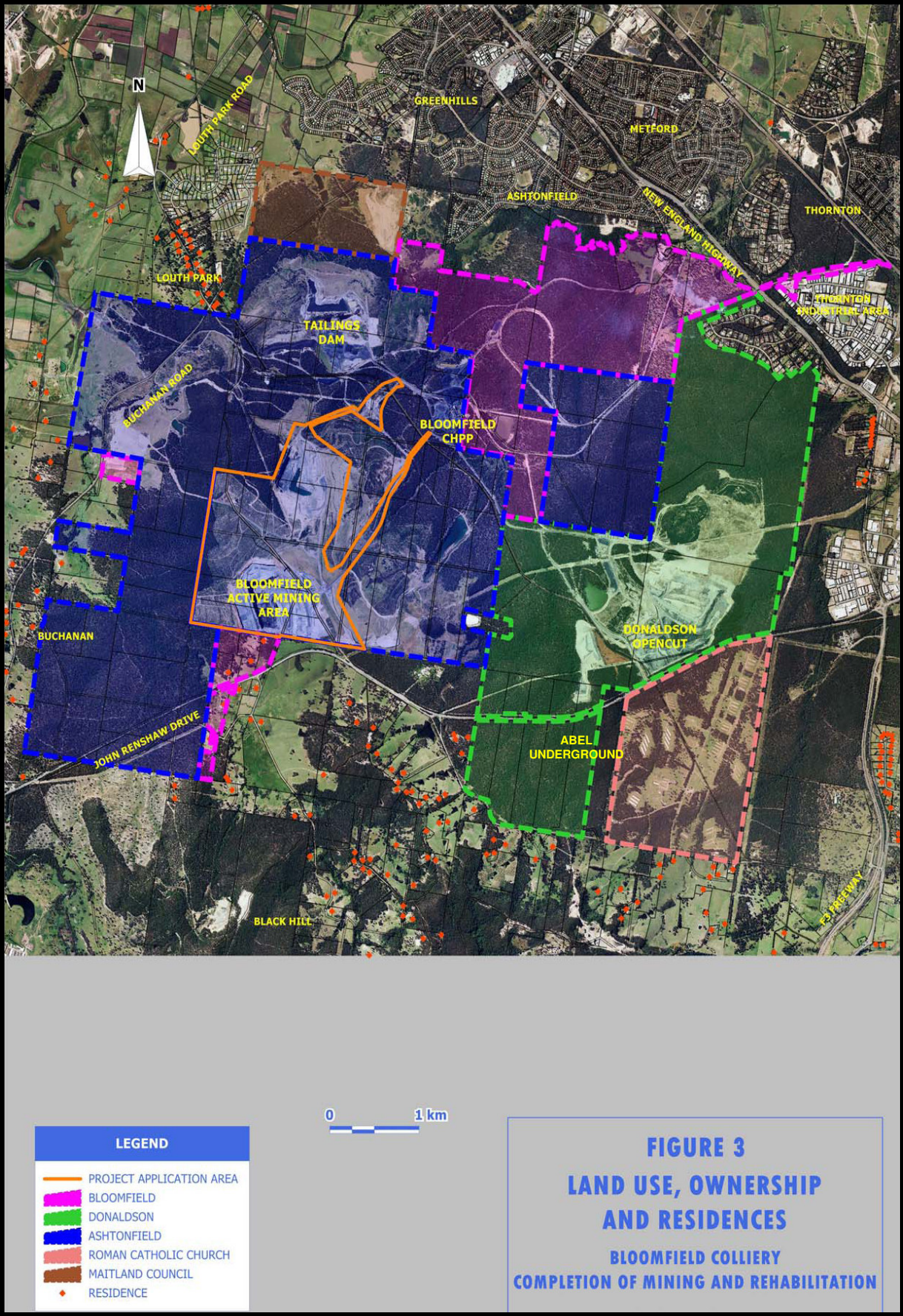


Figure 3: Bloomfield Coal Project – adjacent coal mines, land uses and land ownership

1.3 Project Need and Justification

The Department recognises that society is heavily reliant on coal to meet its basic energy needs (both at a domestic and international level). Coal provides 75% of Australia's energy needs and 24% of global energy needs. Coal also provides around 90% of NSW's electricity needs and 40% of global electricity needs.

Access to energy remains a critical development need, particularly for the one-third of the world's population without electricity. As living standards and development in Third World countries increase, it is expected that international demand for coal will rise to satisfy increasing energy requirements. The Bloomfield Coal Project would contribute to supplying this annual coal demand. Therefore the ultimate need for the project is driven by both domestic and international energy markets.

The Department therefore considers that it is global energy demand that drives coal mining proposals in New South Wales. If the project was not allowed to proceed, any resultant shortfall in coal supply would be filled by another coal resource either in NSW, Australia or overseas. Consequently, the Department is satisfied that there is a demonstrable need for the project in terms of meeting society's need for adequate, reliable and affordable energy.

The project is justified by a combination of coal resource availability and market opportunity over the project life. Bloomfield has demonstrated the benefits that would accrue to the local, State and Federal economies, in addition to the continuation of a significant number of direct and indirect employment opportunities. Bloomfield is committed to continuing the operation of a safe and economically viable mine that maximises coal resource recovery, while minimising its environmental and social impacts.

The project would also deliver a number of key benefits, including continued permanent employment for its 66 workers, flow-on regional economic benefits, and significant royalty and tax income.

However, the Department also recognises that a balance must be found in the promotion and co-ordination of the orderly and economic use of land, the proper management and development of the State's resources, the protection of the environment and ecologically sustainable development.

2. STATUTORY CONTEXT

2.1 Major Project

The proposal is classified as a major project under Part 3A of the EP&A Act, as it is development for the purpose of coal mining and meets the criteria in clause 5 of schedule 1 of *State Environmental Planning Policy (Major Development) 2005*. The Minister for Planning is therefore the approval authority for the project. However, as less than 25 submissions were received on the project, and as the project has a capital investment value of less than \$50 million, the Director-General may determine the project under the Minister's delegation of 4 March 2009.

2.2 Permissibility

The proposal is located in the Cessnock LGA and is zoned 1(a) (Rural) under the *Cessnock Local Environmental Plan 1989*. This zone permits mining and associated surface activities with development consent.

2.3 Exhibition

Under Section 75H(3) of the EP&A Act, the Director-General is required to make the environmental assessment of a project publicly available for at least 30 days. This requirement was satisfied by:

- making the EA publicly available from 19 November 2008 until 19 December 2008:
 - on the Department's website; and
 - at the Department's Information Centre, the offices of both Maitland City and Cessnock City Councils and the Nature Conservation Council;
- notifying relevant State and local government authorities by letter; and
- advertising the public exhibition in the Newcastle Herald on 19 November 2008 and the Maitland Mercury and Cessnock Advertiser on both 19 November and 3 December 2008.

2.4 Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 5 of the Act. The objects of most relevance to the Minister's decision on whether or not to approve the project are found in Section 5(a)(i), (ii), (vi) & (vii). They are:

"The objects of this Act are:

(a) to encourage:

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- (ii) the promotion and co-ordination of the orderly and economic use and development of land,*
- (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) ecologically sustainable development."*

The EP&A Act adopts the definition of ecologically sustainable development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD "requires the effective integration of economic and environmental considerations in decision-making processes" and that ESD "can be achieved through" the implementation of principles and programs including the precautionary principle, inter-generational equity, conservation of biological diversity and ecological integrity, and improved valuation, pricing and incentive mechanisms. In applying the precautionary principle, public decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment and an assessment of the risk-weighted consequences of various options.

The Department has fully considered the objects of the EP&A Act (including the encouragement of ESD) in its assessment of the project application. The assessment integrates all significant economic and environmental considerations and seeks to avoid any potential serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences. Bloomfield has also considered alternatives to the proposed development, including that of not proceeding with the project, and considered the project in the light of ESD principles.

2.5 Environmental Planning Instruments

Under sections 75I(2)(d) and 75I(2)(e) of the EP&A Act respectively, the Director-General's Environmental Assessment Report is required to include a copy of, or reference to, the provisions of any:

- SEPP that substantially governs the carrying out of the project; and
- environmental planning instrument (EPI) that would (except for the application of Part 3A) substantially govern the carrying out of the project and has been taken into consideration during the assessment of the project.

The Department has considered the proposal against the provisions of relevant SEPPs and other EPIs and is satisfied that none of these substantially govern (or would govern) the carrying out of this project (refer to Appendix C).

2.6 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General's report is required to include a statement relating to compliance with the environmental assessment requirements with respect to the project. The Department is satisfied that the Director-General's environmental assessment requirements have been complied with.

3. ISSUES RAISED IN SUBMISSIONS

During the exhibition period the Department received 14 submissions, comprising 6 from public authorities, 3 from special interest groups and 5 from the general public. A summary of the issues raised in submissions is provided below. A copy of all submissions is attached in Appendix E.

3.1 Public Authorities

Department of Primary Industries - now the Department of Industry and Investment (**DII**) supports the project. DII requested that Bloomfield prepare a mining lease application and stated that integrated rehabilitation and environmental management reporting should be undertaken to its satisfaction.

Department of Environment and Climate Change - now the Department of Environment Climate Change and Water (**DECCW**) stated it was able to support the project and provided a set of recommended conditions of approval for consideration. It also provided the following key comments:

- the day time period should be extended and day time noise limits should be set with consideration of the influence of morning peak traffic on John Renshaw Drive;
- all proposed vegetation clearing should be offset through the protection and enhancement of land with similar habitat characteristics; and
- an Aboriginal Cultural Heritage Management Plan should be prepared for the project, with impact avoidance and impact management strategies strongly recommended.

Department of Water and Energy - now the Office of Water within DECCW (**OoW**), recommended conditions of approval that would:

- provide protection to the baseflow of local watercourses;
- ensure sufficient water is available for all stages of the project; and
- monitor impacts to groundwater and groundwater dependent ecosystems and offset any losses attributed to Bloomfield's mining operations.

Roads & Traffic Authority (RTA) offered no objection to the project.

Cessnock City Council (Council) did not object to the project and stated its satisfaction that proposed rehabilitation activities would consider the objectives of the Lower Hunter Regional Strategy.

Maitland City Council did not object to the project however raised concerns about potential impacts to the residential areas north of the project site within Maitland local government area.

3.2 Special Interest Groups and the General Public

The United Mineworkers' Federation of Australia was generally supportive of the project.

Buttai Valley Landcare Group objected to the project and offered the following comments:

- assumptions in the noise assessment regarding prevailing winds were derived from assessments of other local mines with different topographical conditions;
- the cumulative effect of local vegetation clearing should be considered;
- emplacement of washery tailings within the open cut void may cause acid mine drainage; and
- rehabilitation should include the creation of vegetation corridors to link to similar corridors in the region.

The Black Hill Environment Protection Group and the Buttai Community Development Group raised the following issues and concerns:

- cumulative air quality and noise impacts from Bloomfield and other nearby mining operations;
- noise modelling did not take into consideration temperature inversions;
- no blasting should occur at the site on Saturdays;
- a community enhancement fund should be created and land dedicated to the community for conservation and recreation purposes;
- additional noise mitigation should be considered, including buffer zones and machinery silencing;
- residents' tank water supplies would be impacted by dust from the mine;
- rehabilitation strategies should be linked to regional conservation objectives; and

- Bloomfield should reinstate the Buttai – Louth Park road which was previously removed to develop the mine.

Four individuals objected to the project and one was supportive of the project. The objections and concerns included:

- noise from the mine would impact the amenity of local residents and blasts may cause structural damage to residences;
- emplacement of washery tailings within the open cut void would cause acid mine drainage;
- airborne mine dust would impact upon tank water, agricultural land and livestock; and
- the mine and its overburden emplacement areas would be visually intrusive to local residents and travellers on local roads.

4. ASSESSMENT

The Department considers the key environmental issues for the Bloomfield Coal Project to be noise and blasting, water management, air quality, flora and fauna and site rehabilitation. Assessment of these and other relevant issues is provided below.

4.1 Noise & Blasting

Operational Noise

Bloomfield's noise impact assessment was undertaken in accordance with DECCW's *Industrial Noise Policy* (INP). Site-based noise sources under a range of meteorological conditions were modelled. Figure 4 shows the locations used to measure background noise levels.

Areas west and south of the site, which have the closest residential receivers, are characterised by their rural residential nature. However, their noise environments are strongly influenced by traffic on John Renshaw Drive. Background noise measurements (see Table 2) were derived using data from previous noise assessments for the Donaldson and Abel mines for locations north, east and west of the mine, with Bloomfield undertaking new measurements at locations to the south.

Table 2: Background noise levels

Location (see Figure 4)	Background noise levels dB(A) _{L_{Aeq}15min}			
	Morning Shoulder	Day	Evening	Night
E - Browns Road, Black Hill	39	36	37	31
F - Black Hill Road, Black Hill	42	39	35	31
G - Buchanan Road, Buchanan	40	39	37	34
H - Mt Vincent Road, Louth Park	37	38	36	31
L - Kilshanny Avenue, Ashtonfield	46	41	41	38
M - John Renshaw Drive & N - Lings Road, Buttai	48	40	38	31

As shown in Table 2, a separate measurement was taken for the "morning shoulder" period (between 6am and 7am, usually within the night period). Road traffic noise from John Renshaw Drive, the F3 Freeway and New England Highway dominates the mine's noise catchment during the morning shoulder period and operational noise was found to be inaudible above the traffic noise at locations M & N when measurements were taken (see Figure 4). As a result, the project specific noise levels (PSNLs) would be masked by the level of road traffic noise during this period. Bloomfield requested the morning shoulder be given separate consideration, particularly for locations M & N.

DECCW concurred that it would be difficult for Bloomfield to achieve compliance with the night-time noise criterion between 6am and 7am, and recommended the issue be resolved by extending the day period to include the morning shoulder, with the PSNLs for the full day period set at the highest noise levels predicted during the morning shoulder period.

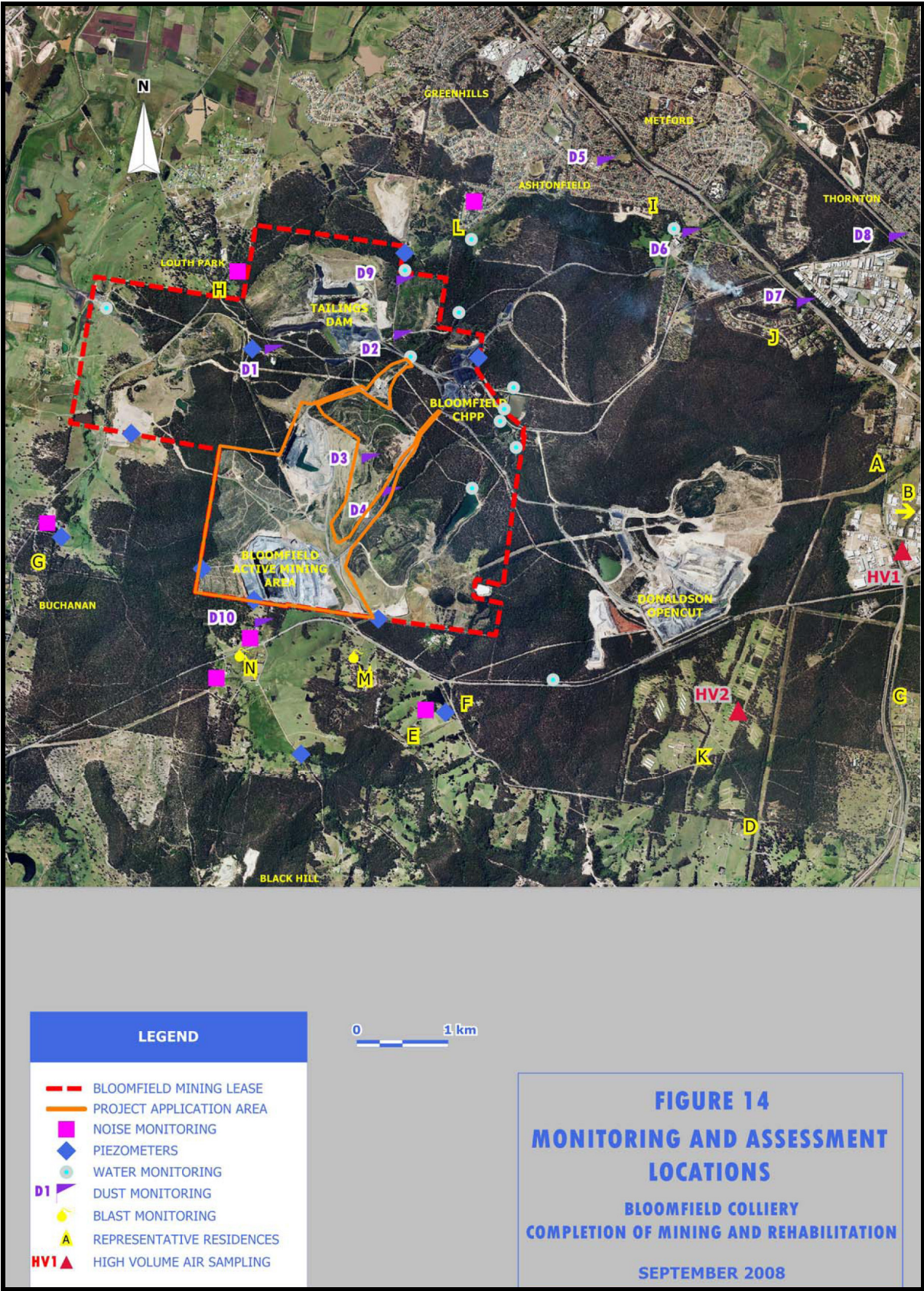


Figure 4: Noise measurement locations

However, the Department considers that applying this “worst case” scenario throughout the day period would allow Bloomfield access to higher noise limits than would be appropriate for much of the day (ie up to 6pm), with potential unwarranted impacts to neighbouring residents.

The Department believes that, by retaining the separation of morning shoulder and day periods, Bloomfield would be able to comply with acceptable noise limits in both noise measurement periods, and residents would not be subject to unnecessarily high noise levels. DECCW subsequently agreed with this approach.

The INP advises that PSNLs for projects such as Bloomfield should be derived by adding 5 dB(A) to the background noise measurement. The Department and DECCW considered that, due to the high background noise measurements in the morning shoulder period, unacceptable noise limits would result if 5 dB(A) was added to these levels. It is also the Department's general practice in approvals for mining projects to restrict PSNLs to the highest predicted project-related noise levels not exceeding the PSNLs as calculated under the INP.

The Department and DECCW therefore agreed to the approach of applying the highest predicted project-related noise levels as the PSNLs for most locations and most noise measurement periods (see Table 3). DECCW's recommended exceptions to this approach are the application of the highest predicted noise levels in the evening and night at location M and night at location G, and adding 5dB(A) to the PSNL where predicted noise levels are 30dB(A) or less. The Department notes that predicted noise levels are under worst case meteorological conditions for each of the locations assessed, and that actual noise levels are not likely to reach these predictions in most circumstances. The Department and DECCW therefore believe that the proposed PSNLs are reasonable and that Bloomfield would be able to achieve compliance with these limits throughout the life of the project.

Table 3: Project specific noise levels

Location	Project Specific Noise Levels dB(A) $L_{Aeq15min}$			
	Morning shoulder	Day	Evening	Night
E - Browns Road, Black Hill	40	35	35	35
F - Black Hill Road, Black Hill	42	35	35	35
G - Buchanan Road, Buchanan	43	39	42	37
H - Mt Vincent Road, Louth Park	35	35	35	35
L - Kilshanny Avenue, Ashtonfield	35	35	35	35
M - John Renshaw Drive	48	39	39	37
N - Lings Road, Buttai	43	42	42	35

Bloomfield also requested that the morning shoulder period apply also on Saturdays, as the INP lists Saturday as a normal work day. The Department considers this request to be reasonable, and that it would avoid confusion that would potentially arise through applying separate noise limits to Saturdays. Therefore the PSNLs in Table 3 would apply from Monday to Saturday, and not on Sundays or Public Holidays.

Bloomfield's operational noise modelling considered three operating scenarios, representative of the commencement, middle and conclusion of the project's four mining stages. The results show that operational noise would not exceed the PSNLs in Table 3 throughout each stage of the project under a range of meteorological conditions. Bloomfield would actively manage its noise emissions through the adoption of the following practices:

- the excavator or face shovel and the dump site would be situated in a shielded location during night-time operations;
- no dozer operations would occur at drill locations during the night period; and
- the dozer would be replaced by other less noisy equipment during the night period (unless the dozer noise level is able to be suppressed by 4 dB(A)).

Bloomfield has also committed to the preparation of a noise management plan that would detail its noise monitoring program and identify additional management actions that would assist the project to comply with its PSNLs.

The Department considers that this noise monitoring program could benefit through integration with the existing noise monitoring regime in Donaldson Coal's Integrated Environmental Monitoring

Program (IEMP). The IEMP is a comprehensive environmental impact monitoring program prepared for the Abel and Donaldson mines and the Bloomfield CHPP and rail load out facility. The Department has therefore recommended that Bloomfield prepare a noise monitoring program and that this program be integrated with the IEMP to provide a cumulative approach to noise monitoring at the three mines.

Blasting and Vibration

Bloomfield's blasting assessment concluded that predicted airblast overpressure and ground vibration levels would not exceed DECCW criteria at all residences surrounding the mine throughout the life of the project. The Department has however recommended that Bloomfield undertake structural inspections at the closest residences to the mine, if requested by the landowner, and take appropriate action if there is any suggestion that the mining operations are causing structural damage to any of the surrounding properties.

To ensure that blasting is effectively managed, the Department has recommended conditions that would require Bloomfield to:

- comply with applicable blast criteria;
- restrict blasting to 9am to 5pm Monday to Saturday;
- keep residents informed about blasting operations and facilitate feedback/complaint management;
- provide for structural property inspections and investigations; and
- prepare and maintain a comprehensive blast monitoring program to monitor the ground vibration and airblast levels at the closest residences to the mine.

Conclusion

The Department considers that noise impacts from the project would not be significant and that Bloomfield would be able to meet its PSNLs during all stages of the project. The Department has recommended conditions of approval that would require Bloomfield to prepare a noise monitoring program and for this monitoring to be integrated within the existing Donaldson IEMP. The Department has also recommended that Bloomfield comply with cumulative noise criteria and seek to continually improve its noise performance. The Department is also satisfied that the project is able to be managed in such a way that it would not result in any significant blast-related impacts to private residences or infrastructure.

4.2 Water Management

Integrated Water Management System

Bloomfield's water management is already integrated with the water management system approved for the Abel Coal Project. The system provides for pumping of groundwater from Bloomfield's old underground workings and diversion of run-off and pit inflows to 2 major storage dams within the Bloomfield mining lease area (Lake Kennerson and Lake Foster). Water from the storage dams is transferred for use in the Bloomfield CHPP. Tailings from the CHPP are pumped to a tailings dam in the north of the Bloomfield lease area. Figure 5 shows a schematic diagram of the integrated water management system (IWMS).

No changes would be required to the IWMS until Year 7 when a series of diversion drains and a small sediment dam would be constructed on the overburden dumps near the western boundary of the site at the headwaters of Buttai Creek. The diversion drains and dam would divert run-off to the northern and western extraction areas and away from Buttai Creek. These diversion drains would be progressively decommissioned during the rehabilitation stage of the project.

Mining would increase the catchment area draining into Four Mile Creek by a maximum of 118 hectares (ha) and lead to a loss of run-off from the Buttai Creek catchment of 0.9 megalitres (ML) per ha. This equates to an average annual loss of flow from Buttai Creek of 3% in Year 1, rising to 7% in Year 7 and remaining at that level until site rehabilitation has been completed.

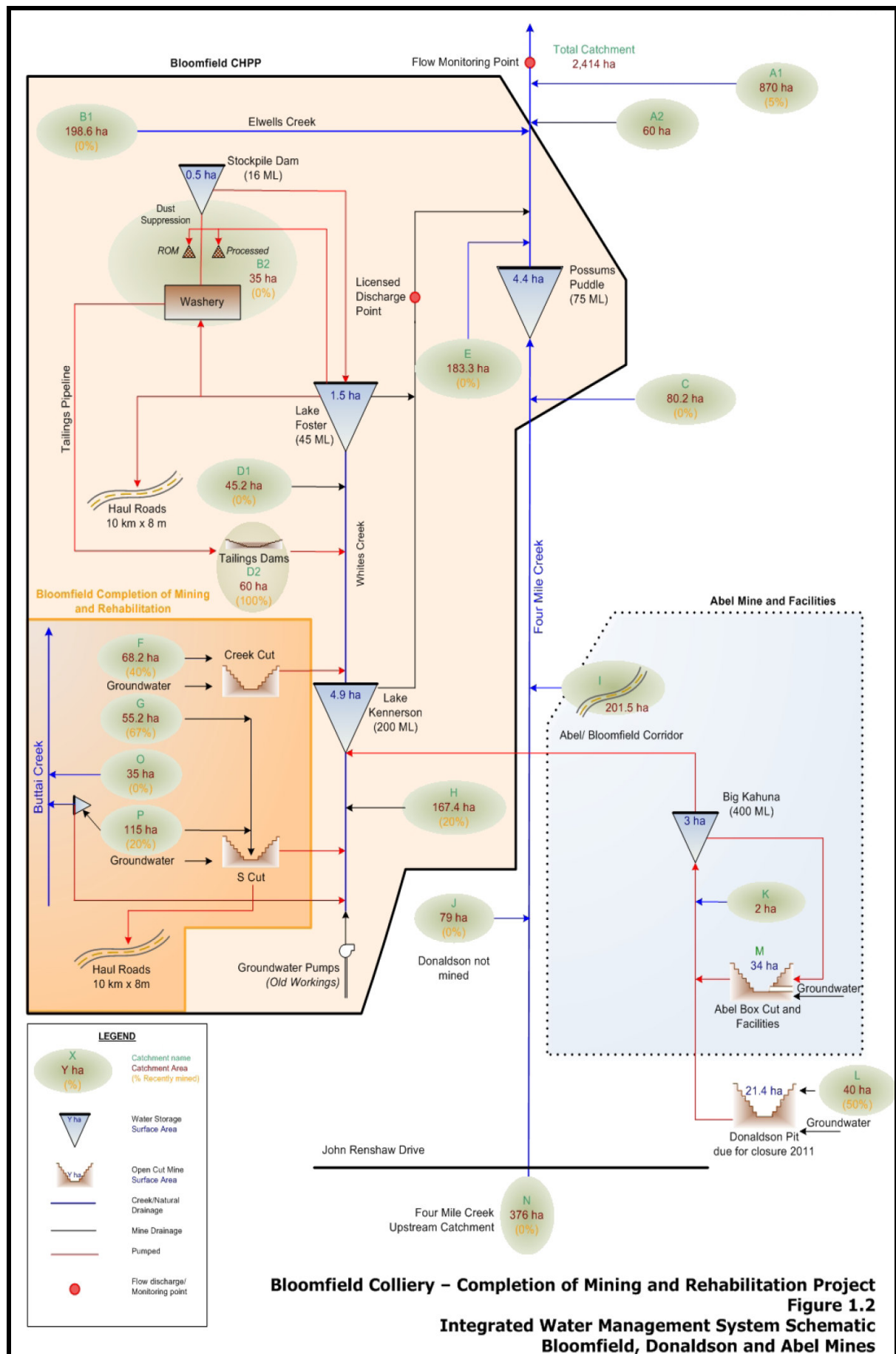


Figure 5: Integrated Water Management System

Progressive rehabilitation of the mining areas would restore Buttai Creek's catchment area and flow rates would be quickly restored in relative terms when the site is fully rehabilitated. The Department has recommended conditions that require Bloomfield to prepare a surface water response plan, with contingency actions should impacts exceed predictions.

Groundwater

Bloomfield's groundwater assessment contains predictions of groundwater inflows to both the S Cut and Creek Cut pits, as well as, for impacts to groundwater quantity and quality in the vicinity of the site.

Historic dewatering at both the Bloomfield and Donaldson mines has caused cones of drawdown in groundwater levels along the southern boundary of the S Cut pit. However this drawdown only extends for a short distance. Dewatering has also had little impact on groundwater levels in the alluvium or in the Permian coal measures above the seams intersected by Bloomfield's open cut mining.

Dewatering would continue to be required at Bloomfield. The total groundwater inflow rate is predicted to average 1.4 ML/day, or approximately 500 ML/year, with a peak inflow rate of 2.1 ML/day occurring around Year 6. These inflow rates are similar to those currently occurring at the mine.

The assessment also showed that, although drawdown would occur to groundwater bores in the vicinity of the mine, standing water levels in these bores would not be impacted. Water quality in the bores would also not be impacted. The Department is therefore satisfied that local groundwater users would not be adversely impacted by the project. However, as a precautionary measure, the Department has recommended a condition requiring Bloomfield to prepare a groundwater management plan, including proposed impact trigger levels and appropriate response mechanisms to avoid or mitigate groundwater impacts.

Water Balance

Pit inflows, captured run-off and groundwater in old underground workings would continue to be transferred to Lake Kennerson. Bloomfield modelled the water balance for each year of the project for dry, median and wet years. The results show that the project would contribute to a surplus of water in the IWMS under all rainfall conditions and that, under worst case conditions, controlled discharges of up to 105 ML from Lake Kennerson to Four Mile Creek would be required. This discharge level is well within the limits of Bloomfield's current EPL and is significantly less than historic discharge rates.

The water balance shows that the IWMS contains adequate storage and transfer capacity to meet all CHPP requirements. The Department is therefore satisfied that the project would not affect the continued effective operation of the IWMS for the Bloomfield, Donaldson and Abel mines.

Conclusion

The Department is generally satisfied that the project would have minimal impacts on the IMWS and on existing water management practices at the Bloomfield site. The Department is also satisfied that the project would not have an impact on the continuity of water supply to the CHPP. Impacts to surface water resources would be minor and flow loss in Buttai Creek would be restored once mining has been completed and the site rehabilitated. The Department is also satisfied that Bloomfield has adequately assessed the potential impacts of the project on the groundwater regime and groundwater users.

The Department has concluded that:

- negligible impacts would occur at private groundwater bores;
- impacts to water quality and flow rates in Buttai Creek would be minimal; and
- adequate water storage and transfer capacity would be available to accept water from the Bloomfield site at all stages of the project.

The Department recommends a number of conditions of approval to ensure that potential impacts to water resources are satisfactorily managed and/or mitigated, including requirements for Bloomfield to:

- prepare and implement a detailed site water management plan;
- validate and update the site water balance annually;
- establish a groundwater monitoring program;

- develop management and mitigation measures to avoid and or minimise adverse groundwater impacts based on monitoring results and validated model outcomes;
- establish a surface and groundwater response plan, including contingency measures should unexpected impacts occur; and
- enable these plans and programs to be integrated with the water management plan approved for the Abel Coal Project.

4.3 Air Quality

Bloomfield's air quality assessment was undertaken in accordance with DECCW's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*. The assessment was based on the use of the ISCMOD air dispersion model, which uses estimated emissions and local meteorological data to predict resultant dust concentration and deposition levels.

Table 4 provides a summary of the **maximum** predicted air quality impacts at the closest residences to the mine. In all cases, the relevant DECCW air quality criteria would be comfortably met. The Department considers the incremental increases in particulate concentrations or dust deposition rates are low, both in relative and absolute terms.

Table 4: Air Quality Predictions

Location (see Figure 9)	Air quality parameters (DECCW criteria)		
	Deposited Dust (4g/m ² /month)	PM ₁₀ Max 24-hour average (50 µg/m ³)	PM ₁₀ Annual average (30 µg/m ³)
E – Browns Road, Black Hill			
F – Black Hill Road, Black Hill	0.8	25.1	3.5
G – Buchanan Road, Buchanan	0.1	13.4	1.7
H – Mt Vincent Road, Louth Park	0.1	23.1	4.1
L – Kilshanny Avenue, Ashtonfield	0.1	16.9	1.6
M – John Renshaw Drive, Buttai	1.2	45.5	5.7
N – Lings Road, Buttai	0.4	28.7	3.8

The Department is satisfied that air quality impacts would be minor at all stages of the project. However, the Department has recommended conditions of approval that require Bloomfield to implement a comprehensive air quality monitoring program to ensure that the predicted low level of air quality impacts is achieved and maintained over the life of the project.

4.4 Flora and Fauna

Impacts to flora and fauna would be minor, as only a small amount of clearing would be necessary to extend the S Cut and Creek Cut pits. Bloomfield's flora and fauna assessment found no threatened flora species in the area it proposes to clear. A total of 1.7 ha of remnant vegetation would be cleared, containing 0.8 ha of Lower Hunter Spotted Gum – Ironbark Forest. This community is listed as an Endangered Ecological Community (EEC) under the *Threatened Species Conservation Act 1995*. Bloomfield's assessment found that a number of threatened fauna species have the potential to occur in the proposed disturbance area or within its locality. However impacts to these species would be minor, as approximately 145 ha of Lower Hunter Spotted Gum – Ironbark Forest EEC occurs within the immediate vicinity of the proposed disturbance area.

Local community groups requested that Bloomfield dedicate an area of rehabilitated land to the community for conservation and recreation purposes. Bloomfield responded that this would be difficult to achieve as it is not the landowner (Bloomfield leases the site from Ashtonfield Pty Limited). DECCW also recommended that Bloomfield develop and apply a biodiversity offset strategy, involving the ongoing conservation and enhancement of land with similar ecological attributes and greater in area than the land proposed to be cleared. The Department considers that the amount of native vegetation to be cleared (including the EEC) is very small when considered in either a local or regional context. The Department also believes that the costs which Bloomfield would incur in acquiring and securing land for such a small offset, as well as the ongoing maintenance costs, may outweigh the benefits that would accrue from the offset itself.

As an alternative, the Department considers that the provision of funds to local conservation projects such as weed eradication projects or habitat enhancement projects are likely to result in greater local benefits and achieve conservation objectives in a more efficient fashion.

Overall, the Department is satisfied that the minor nature of the proposed vegetation clearing would not have a significant impact on flora and fauna populations or EECs, either locally or regionally. The Department is not persuaded that the proposed vegetation clearing warrants the development of a biodiversity offset, due to the high cost involved in acquiring, securing and managing a suitable offset of such small size. The Department has therefore recommended a condition that requires Bloomfield to fund local conservation projects up to a maximum of \$20,000 to offset the project's future flora and fauna impacts.

4.5 Rehabilitation

Bloomfield Site Rehabilitation

Rehabilitation of the open cut mining pits would occur progressively while mining continues, with rehabilitation based on the current Landscape and Rehabilitation Management Strategy (LRMS), prepared as part of Bloomfield's Mining Operations Plan (MOP). Rehabilitation would involve the creation of suitable landforms, planting vegetation to create suitable habitat, and monitoring and maintenance of rehabilitated areas to ensure long term objectives are met. These objectives include:

- rehabilitating the site to relevant standards and to minimise off-site impacts;
- effective removal of all Bloomfield's infrastructure;
- rehabilitating land so that no greater management input is necessary than to similar surrounding land; and
- rehabilitating the site to promote compatibility with its proposed end land-use.

Bloomfield has considered possible post-mining landforms and land uses (including residential, industrial, open forest/bushland and an undulating grazing/rural landscape). It proposes that post mining land-uses should take into account the requirements of the landowner (ie Ashtonfield Pty Limited) and the objectives of the Lower Hunter Regional Strategy (LHRS), which covers the wider regional area and indicates the site's potential as part of a future freight processing hub and employment lands. Bloomfield has proposed that the land is rehabilitated such as to support a variety of future land uses, including the retention of habitat areas. However, as the site has been identified as having potential for future industrial-type use, it should be rehabilitated in such a way that it does not conflict with this possibility. Such rehabilitation would mean providing a flat to undulating topography suitable for mixed use industrial, seeded with grasses to stabilize, 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 project area in accordance with its pre-mining land capability to create a stable, undulating landscape with a mix of pasture and tree areas suitable for grazing and general habitat. The Department supports this position.

Rehabilitation would commence with overburden emplacement in the open cut pits, followed by landform shaping to create landscapes that would blend with surrounding topography, with slopes no greater than 10 degrees. The landforms would then be capped with topsoil material. Pasture or tree seed mix would then be sown to create a stable landscape having the potential for light grazing. Trees would also be planted to create habitat linkage and reduce the visual impact of the former overburden emplacement areas. The conceptual final rehabilitated landform is shown in Figure 6.

Final Void Rehabilitation

The Creek Cut pit would be the final void left at the site following rehabilitation of the S Cut Pit. The Creek Cut pit would be progressively filled with tailings from the Bloomfield CHPP, as already approved under the Abel Coal Mine project approval. The Creek Cut final void has sufficient capacity to accept the majority of tailings from the CHPP (the remainder would be pumped to Bloomfield's former underground workings) and emplacement would continue until the Abel Coal Project is completed in 2028.

Final void management is approved under the Integrated Mine Closure Plan (IMCP) which forms part of the Landscape Management Plan for the Abel and Donaldson mines. The IMCP states *"while certain aspects of the Bloomfield Colliery are being utilised by Abel (ie tailings disposal, CHPP, rail load-out etc) the responsibility for mine closure and meeting the lease relinquishment requirements of the DPI-MR will be retained by Bloomfield."* Therefore Bloomfield would retain the responsibility for the

rehabilitation of the Creek Cut once it has been filled with tailings from the CHPP. The Department has accordingly recommended that Bloomfield prepare a final void management plan for the Creek Cut to guide the rehabilitation of that part of the Bloomfield project area.

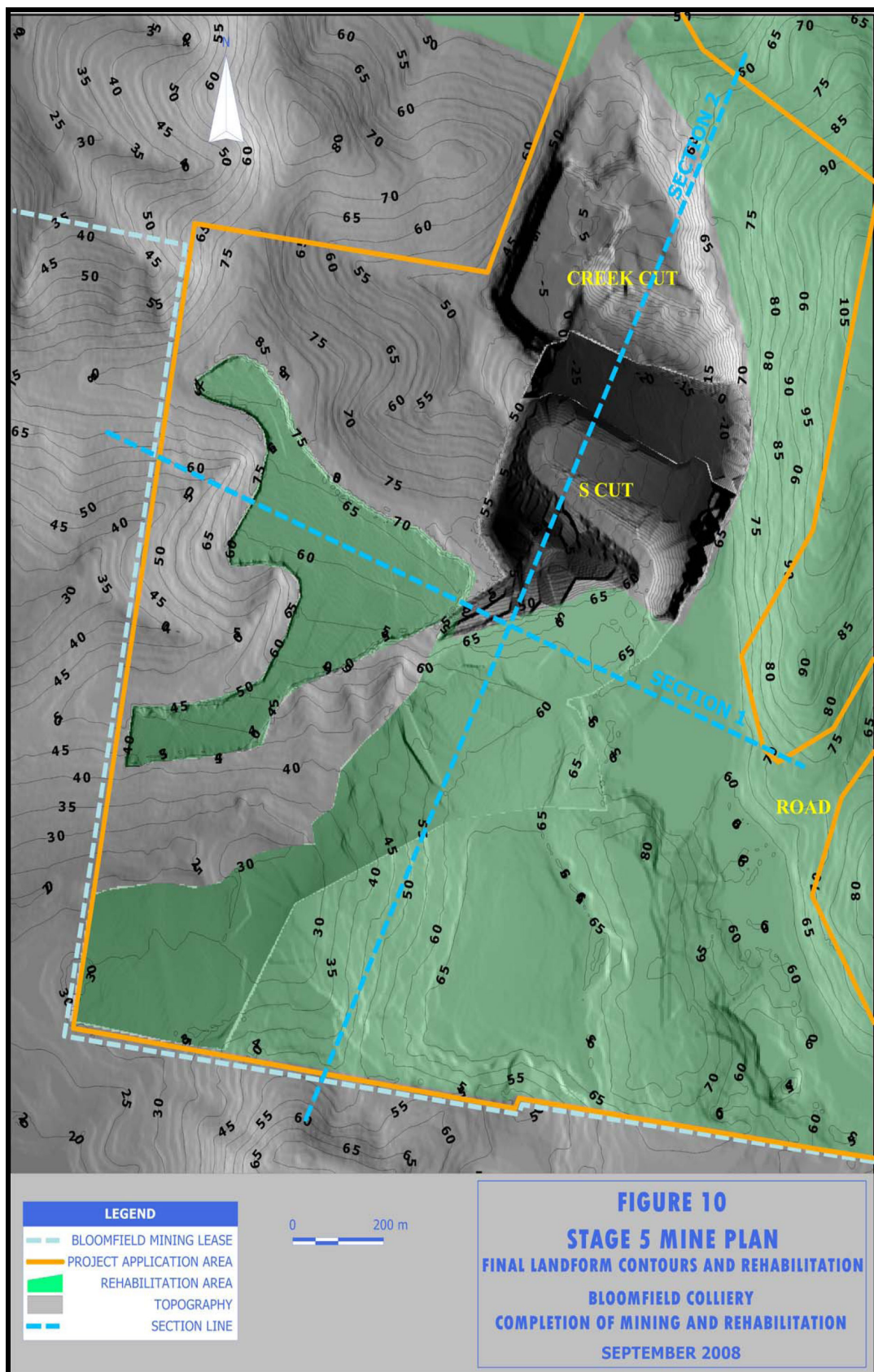


Figure 6: Conceptual Final Rehabilitated Landform

Conclusion

The Department considers that Bloomfield's rehabilitation proposals are appropriate, and that progressively rehabilitating the mining areas would allow the early integration of the site with surrounding rural land-uses. The Department has recommended conditions requiring preparation of a comprehensive Landscape Management Plan, including a Rehabilitation Management Plan, Mine Closure Plan and Final Void Management Plan. The Department has also recommended that these plans be integrated with the Landscape Management Plan for the Donaldson open cut and Abel underground mines.

4.6 Other Issues

The project is likely to generate a range of other environmental impacts – including heritage, visual, greenhouse gas emissions and socio-economic impacts. These impacts are not expected to be significant and the Department is satisfied that they can be controlled, mitigated or managed through the imposition of appropriate conditions of approval. These issues are addressed in Table 5.

Table 5: Other Issues

Issue	Potential Impacts	Consideration
Aboriginal Cultural Heritage	A number of Aboriginal heritage sites have been identified within the S Cut pit extensions.	- Bloomfield's archaeological assessment found the sites to be of low significance. - Bloomfield would prepare and implement an Aboriginal Cultural Heritage Management Plan.
Visual & Lighting	- The project would be visible from neighbouring residences and travellers on John Renshaw Drive. - Lighting from the mine could impact on the amenity of neighbouring residences.	- Lighting would be directed downwards (below the horizontal) and away from residences. - Tree screens would be planted on the overburden emplacement areas to reduce visual impacts. - Lighting impacts at nearby residences would be reduced after Year 2 of the project.
Greenhouse Gas (GHG) Emissions	The project would contribute both directly and indirectly to climate change.	- The direct GHG emissions from the project would average 51,986 tonnes a year CO₂-e, which represents 0.014% of all annual net Australian GHG emissions. - The indirect GHG emissions from the burning of coal from the project would be an average of 2.85 Mtpa CO₂-e over the life of the project, which represents less than 0.01% of estimated annual global emissions from fuel burning. - The Department has recommended that Bloomfield develop and implement a comprehensive Energy Savings Action Plan to reduce its on-site GHG emissions.
Socio-Economic	- The project would place minor strain on local services and infrastructure. - The project would provide employment and income for local workers.	- The project would ensure continued employment for its 66 workers. - Employees would continue to be sourced from local areas. - Bloomfield would establish a \$500,000 Community Enhancement Fund, to fund Council projects and local charities. - The project would contribute continued royalty and tax income to the State.

5. RECOMMENDED CONDITIONS

The Department has recommended conditions of approval for the project. These conditions are summarised in Appendix A and presented in full in Appendix B. The recommended conditions are required to:

- avoid, prevent and/or minimise any adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting in accordance with current best practice;

- provide for the ongoing environmental management of the project; and
- ensure that long term rehabilitation and final land use objectives for the mine are satisfactorily achieved.

The recommended conditions effectively manage noise and air quality impacts, water resource impacts, flora and fauna impacts, Aboriginal heritage impacts, greenhouse gas emissions, and the mine's environmental management system, on-going environmental monitoring, community consultation, community enhancement measures, complaints management and performance audits. Bloomfield has reviewed these conditions and accepted them. The Department believes these conditions reflect current best practice for the regulation of coal mining projects in NSW.

6. CONCLUSION

The Department has assessed the project application, the EA, submissions on the project and Bloomfield's response to submissions in accordance with relevant statutory requirements. As the mine has been operating for many years, future environmental impacts are limited. The most significant issues include noise, water management, flora and fauna and post-mining rehabilitation.

Noise impacts would be effectively managed through implementing effective on-site noise management practices. A comprehensive noise monitoring program would effectively monitor compliance with project specific noise levels.

Shared water management systems would continue to be effectively used to ensure supply is maintained to the Bloomfield CHPP and off-site discharges remain within approved limits. Impacts to groundwater would be minor and flow loss in Buttai Creek would be negligible and restored on completion of site rehabilitation.

Flora and fauna impacts would also be relatively minor and the site is proposed to be rehabilitated in a manner that would lead to beneficial outcomes in terms of meeting regional conservation objectives.

The Department also recognises that the project has a number of socio-economic benefits, including continued employment for the mine's 66 workers, a \$500,000 Community Enhancement Fund and royalty and tax income to the State throughout the life of the project.

On balance, the Department believes the project's benefits outweigh any residual costs, that it is in the public interest and that it should be approved, subject to conditions.

7. RECOMMENDATION

It is RECOMMENDED that the Director-General:

- consider the findings and recommendations of this report;
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached instrument of approval (Tagged B).

David Kitto
Director, MDA

Chris Wilson
Executive Director, MPA

Richard Pearson
Deputy Director-General, DASP

Sam Haddad
Director-General

APPENDIX A. CONDITIONS OF APPROVAL SUMMARY

Aspect	Condition	Requirement
Schedule 2: Administrative Conditions		
<i>Terms of Approval</i>	5	Approval for mining operations until 2021
	6	Restriction on production to 1.3 million tonnes of ROM coal a year
	13	Establishment of a \$500,000 Community Enhancement Fund
Schedule 3: Specific Environmental Conditions		
<i>Noise</i>	1	Noise impact assessment criteria
	2	Cumulative noise criteria
	3	Requirement to seek continual improvement of noise performance
	4	Noise Monitoring Program
<i>Blasting</i>	5	Blast impact assessment criteria
	7-8	Restriction on blasting frequency and hours
	12	Rights for structural property inspections for properties potentially affected by blasting
	14	Blast Monitoring Program
<i>Air Quality</i>	15	Air quality impact assessment criteria
	16-17	Air Quality Monitoring Program, and meteorological monitoring
<i>Surface and Groundwater</i>	18	Restriction on discharge of water from the site
	19-23	Water management and monitoring
	24	Surface and Groundwater Response Plan
<i>Rehabilitation and Landscape Management</i>	25	Requirement to rehabilitate the site
	26	Landscape Management Plan
	27	Rehabilitation Management Plan
	28	Final Void Management Plan
	29	Mine Closure Plan
	30	Conservation Funding
<i>Heritage</i>	31	Aboriginal Cultural Heritage Management Plan
<i>Visual Impact</i>	32	Requirement to minimise the project's visual and lighting impacts
<i>Greenhouse Gas</i>	33	Energy Savings Action Plan and GHG minimisation
<i>Waste Minimisation</i>	34	Requirement to monitor and minimise waste
Schedule 4: Additional Procedures		
<i>Notification</i>	1	Notification of Director-General and residents of monitoring results
<i>Independent Review of Impacts</i>	2-4	Right to independent review of predicted impacts for affected residents
	5	Requirement to undertake measures to ensure compliance if independent review shows non-compliance or to reach agreement with affected residents
Schedule 5: Environmental Management, Monitoring Auditing and Reporting		
<i>Environmental Management Strategy/ Monitoring Program</i>	1-2	Environmental Management Strategy / Environmental Monitoring Program
<i>Incident Reporting</i>	3-4	Requirement to report incidents
<i>Annual Reporting</i>	5	Annual Environmental Management Report
<i>Auditing</i>	6-8	Requirement to undertake regular independent environmental audits
<i>CCC</i>	9	Requirement for Community Consultative Committee
<i>Access to Information</i>	10-11	Requirement to publicly report environmental management plans/programs/strategies, and monitoring results

APPENDIX B. RECOMMENDED CONDITIONS OF APPROVAL

APPENDIX C. CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

SEPP (Major Development) 2005

See discussion in Sections 1.1 and 2.1.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

The Department is satisfied the project is consistent with the aims, objectives and requirements of the Mining SEPP.

SEPP (Infrastructure) 2007

In accordance with clause 104 of the Infrastructure SEPP (and the now repealed SEPP 11 – Traffic Generating Development), the application was referred to the RTA, which subsequently raised no objection to the project.

SEPP No. 33 – Hazardous and Offensive Development

SEPP 33 requires consideration of whether an industrial proposal is a potentially hazardous or offensive industry. This is defined as a development that *“would pose a significant risk in relation the locality: to human health, life or property; or to the biophysical environment, and includes a hazardous industry and a hazardous storage establishment”*.

The EA details management considerations for various aspects such as waste management, fuel storage and emergency response. All hazardous materials would be managed in general accordance with the company's existing management procedures. An EPL would be obtained for the proposed development. As such, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

SEPP No. 44 – Koala Habitat

The site contains a minor number of Koala feed trees however the potential for Koala habitat is negligible. The Department is therefore satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 44.

SEPP No. 55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. In particular, this policy requires consideration of whether a development requires a consent for remediation works or not and requires that remediation works meet certain standards and notification requirements. It also requires a consent authority to consider whether, if land is contaminated, it is suitable in this state for the proposed development.

The project area does not contain contaminated land and the Department is satisfied that the proposal is generally consistent with the aims, objectives and requirements of SEPP 55.

Cessnock Local Environmental Plan 1989 (Cessnock LEP)

The project location is zoned 1(a) (Rural) under the Cessnock LEP 1989. Objectives of this zone include *“the preservation of the agricultural, mineral and extractive production potential of the land”* and mining and associated surface activities are permissible with development consent. Therefore the Department is satisfied the project is compatible with the aims and objectives of the LEP.

APPENDIX D. PROPONENT'S RESPONSE TO SUBMISSIONS & STATEMENT OF COMMITMENTS

See attached CD-ROM containing files entitled *Bloomfield Coal Project Response to Submissions* (dated February 2009) and *Bloomfield Coal Project Final Statement of Commitments* (dated August 2009).

APPENDIX E. SUBMISSIONS

See the attached CD-ROM containing a folder entitled *Bloomfield Coal Project Submissions*.

APPENDIX F. ENVIRONMENTAL ASSESSMENT

See the attached CD-ROM containing folders entitled *Bloomfield Coal Project Environmental Assessment Volumes 1-3*, dated November 2008.