



**ABEL  
UNDERGROUND  
MINE**

**March 2011  
Modification  
(Upcast  
Ventilation Shaft)**

**Environmental  
Assessment**





## Abel Underground Mine

Project Approval No. 05\_0136

# March 2011 Modification (Upcast Ventilation Shaft) Environmental Assessment

Application for Modification of Project Approval Pursuant  
to Section 75W of the *Environmental Planning and  
Assessment Act, 1979*

By: Donaldson Coal Pty Limited

Date: March 2011



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### DOCUMENT CONTROL

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## TABLE OF CONTENTS

<b>1.</b>	<b>Introduction</b>	<b>1</b>
1.1	Existing Abel Underground Mine	1
1.2	Overview of the Modification	1
1.3	Consultation for the Modification	3
1.4	Structure of this Document	3
<b>2.</b>	<b>Description of the Modification</b>	<b>5</b>
2.1	Overview	5
2.2	Justification for the Proposed Modification	5
2.3	Construction/Development Activities	6
2.4	Operations	8
2.5	Donaldson Coal Bushland Conservation Area Management Plan	8
<b>3.</b>	<b>Statutory Context</b>	<b>10</b>
3.1	Section 75W of the Environmental Planning and Assessment Act, 1979	10
3.2	Environmental Planning Instruments	10
3.3	Other Approvals	12
<b>4.</b>	<b>Environmental Management Strategy and Plans</b>	<b>13</b>
4.1	Revisions to Existing Environmental Management Strategy and Plans	13
<b>5.</b>	<b>Environmental Assessment</b>	<b>14</b>
5.1	Noise	14
5.2	Flora and Fauna	16
5.3	Aboriginal Heritage	17
5.4	Other Environmental Aspects	17
<b>6.</b>	<b>References</b>	<b>20</b>

## LIST OF FIGURES

Figure 1	Project Layout
Figure 2	Proposed Modification
Figure 3	Noise Assessment Locations

## LIST OF PLATES

Plate 1	Proposed Upcast Ventilation Shaft Site
Plate 2	Abel Downcast Ventilation Shaft Construction Site
Plate 3	Existing Ventilation Fan in Abel Box Cut

## LIST OF ATTACHMENTS

Attachment 1	Consolidated Project Approval 05_0136
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## LIST OF APPENDICES

Appendix A	Community Consultation Committee Presentation
Appendix B	Mindaribba LALC Aboriginal Heritage Survey Report
Appendix C	Upcast Ventilation Shaft Site Layout
Appendix D	Donaldson Coal Bushland Conservation Area
Appendix E	Noise Impact Assessment
Appendix F	Ecology Survey and Assessment Report

## 1. Introduction

The Abel Underground Mine is an existing underground coal mining operation owned and operated by Donaldson Coal Pty Limited (Donaldson Coal). The Abel Underground Mine is located to the immediate south of the Donaldson Open Cut Mine, approximately 15 kilometres (km) north-west of Newcastle, New South Wales (NSW) (**Figure 1**).

This Environmental Assessment (EA) has been prepared by Donaldson Coal to support a request to modify Project Approval 05\_0136 pursuant to section 75W of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act) to allow for a ventilation upgrade, including the construction and operation of a new upcast ventilation shaft (the Modification).

### 1.1 Existing Abel Underground Mine

The Abel Underground Mine was assessed in the *Abel Underground Mine Part 3A Environmental Assessment* (the Abel Underground Mine EA) (Donaldson Coal, 2006a) and was approved by the NSW Minister for Planning on 7 June 2007. The location of the Abel Underground Mine is shown on **Figure 1**.

The Project consists of an underground mine operation which is approved to extract up to 4.5 million tonnes per annum (Mtpa) run-of-mine coal over an operating life of 21 years. Coal is extracted using a high productivity, continuous miner based bord and pillar system, using pillar extraction techniques.

Coal is brought to the surface via headings which have been established beneath John Renshaw Drive. These headings are accessed via a high wall in the existing Donaldson Open Cut Mine box cut, operated by Donaldson Coal. Coal is then transported approximately 4 km north to the Bloomfield washery for processing and rail loading to the Port of Newcastle for export.

The Abel Underground Mine mining lease (ML 1618) extends from the Donaldson Open Cut Mine which is north of John Renshaw Drive, southwards towards George Booth Drive. It is bounded on the eastern side by the F3 Freeway and on the western side by a geological feature in the vicinity of Buttai Creek.

In 2010, an application to modify Project Approval 05\_0136 for the Abel Underground Mine for the construction and operation of a downcast ventilation shaft was assessed in the *May 2010 Modification (Downcast Ventilation Shaft) Environmental Assessment* (the May 2010 Modification) (Donaldson Coal, 2010). The modification was approved by a delegate for the NSW Minister for Planning on 10 June 2010. A copy of the consolidated Project Approval 05\_0136 for the Abel Underground Mine is provided in **Attachment 1**.

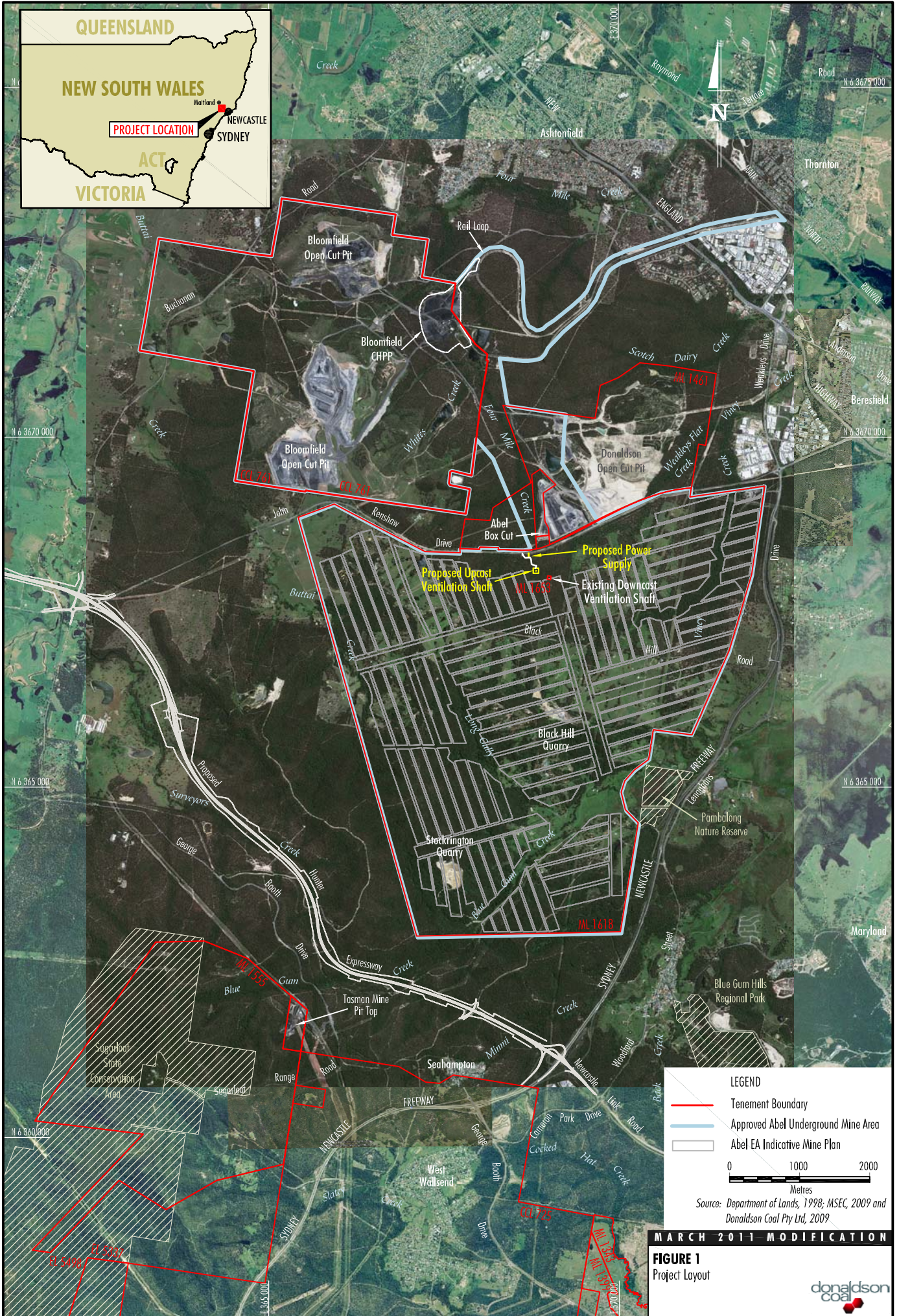
### 1.2 Overview of the Modification

Due to the ongoing development of the underground workings and associated increase in underground mine size and number of machines operating, there is a need for additional airflow through the underground mine.

Donaldson Coal proposes to install an upcast ventilation shaft south of John Renshaw Drive.

Two ventilation fans (a new ventilation fan and the relocation of the existing ventilation fan from the Abel box cut portal) will be installed on the surface of the upcast ventilation shaft to provide the additional air quantities to ventilate the mine.

By relocating the existing ventilation fan from the box cut, an additional intake airway will be provided to the underground ventilation circuit. This will minimise the velocity of air flow within the underground workings for the comfort and safety of the mine workers.



**LEGEND**

- Tenement Boundary
- Approved Abel Underground Mine Area
- Abel EA Indicative Mine Plan

0      1000      2000  
Metres

Source: Department of Lands, 1998; MSEC, 2009 and Donaldson Coal Pty Ltd, 2009

**MARCH 2011 MODIFICATION**

**FIGURE 1**  
Project Layout



A detailed description of the construction and operation of these works, and their need, is provided in **Section 2**. A description of the surrounding environment and any potential impacts is provided in **Section 5**.

The Modification is located within ML 1618 and on land owned by Donaldson Coal.

**Figure 2** shows the location of the proposed upcast ventilation shaft.

### 1.3 Consultation for the Modification

The need for the additional ventilation requirements have also been discussed with the existing Abel Community Consultative Committee on 22 February 2011 (**Appendix A**). Discussions relevant to the ventilation upgrade were focussed on the Modification process, location of the upcast ventilation shaft, noise associated with the upcast ventilation shaft and access to the upcast ventilation shaft.

The area of the upcast ventilation shaft was inspected by the Mindaribba Local Aboriginal Land Council (MLALC) on 24 January 2011.

**Appendix B** provides MLALC's report, stating that no artefacts were found and that no action is required to be taken to preserve artefacts. A member of MLALC would be on site during all clearing in accordance with standard Donaldson Coal protocols.

### 1.4 Structure of this Document

This EA is structured as follows:

Section 1 Provides an overview of the Abel Underground Mine, the Modification and the consultation undertaken in relation to the Modification.

Section 2 Provides a description of the Modification.

Section 3 Describes the general statutory context of the Modification.

Section 4 Describes the existing environmental management strategy and plans implemented at the Abel Underground Mine and identifies site management documents that would require review in support of the Modification.

Section 5 Provides an environmental assessment of the Modification and describes how the existing Donaldson Coal environmental management strategy, plans and measures are available to manage and monitor any potential impacts.

Section 6 Lists the documents cited in this EA.

Attachment 1 and Appendices A to F provide supporting information as follows:

Attachment 1 Abel Underground Mine Consolidated Project Approval

Appendix A Community Consultation Committee Presentation

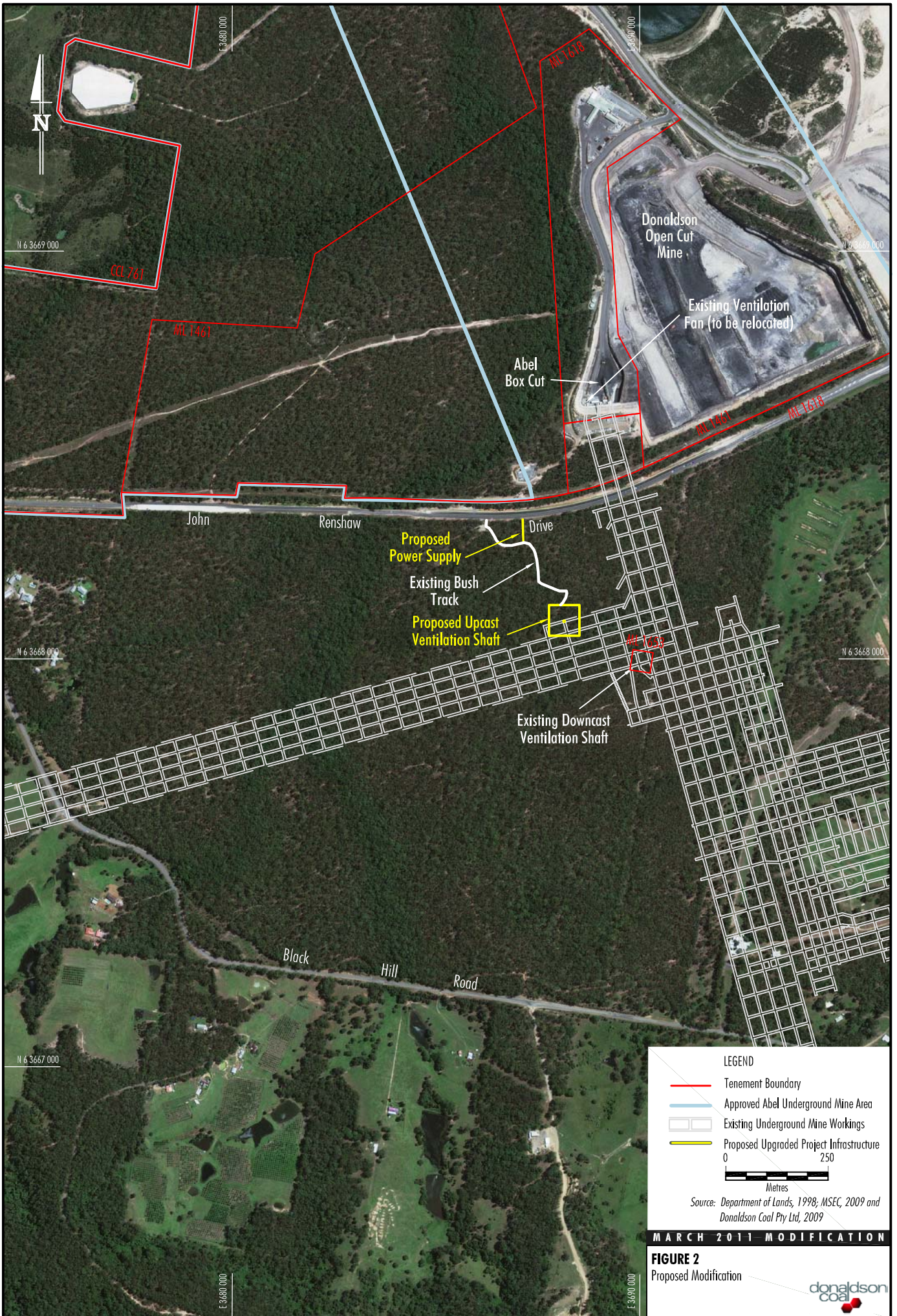
Appendix B Mindaribba LALC Aboriginal Heritage Survey Report

Appendix C Upcast Ventilation Shaft Site Layout

Appendix D Donaldson Coal Bushland Conservation Area

Appendix E Noise Impact Assessment

Appendix F Ecology Survey and Assessment Report



**LEGEND**

- Tenement Boundary
- Approved Abel Underground Mine Area
- Existing Underground Mine Workings
- Proposed Upgraded Project Infrastructure

0 250  
Metres

Source: Department of Lands, 1998; MSEC, 2009 and Donaldson Coal Pty Ltd, 2009

**MARCH 2011 MODIFICATION**

**FIGURE 2**  
Proposed Modification



## 2. Description of the Modification

### 2.1 Overview

**Figure 1** shows the approved Abel Underground Mine layout and the proposed extent of the Modification. Due to the ongoing development of the underground workings and associated increase in underground mine size, there is a need for additional airflow through the underground mine. To provide this additional ventilation, it is proposed to install a new upcast ventilation shaft approximately 250 metres (m) south of John Renshaw Drive (**Figure 2**).

A photograph showing the general location of the proposed upcast ventilation shaft site is provided in **Plate 1**.



**Plate 1**  
**Proposed Upcast Ventilation Shaft Site**

The existing approved ventilation fan is located in the Abel box cut north of John Renshaw Drive.

The Modification would involve the installation of two ventilation fans (a new ventilation fan and the relocation of the existing ventilation fan from the Abel box cut portal) to the proposed new upcast ventilation shaft. By relocating the existing ventilation fan from the box cut, an additional intake airway will be provided to the underground ventilation circuit. This will minimise the velocity of air flow within the underground workings for the comfort and safety of the mine workers.

### 2.2 Justification for the Proposed Modification

Adequate ventilation of the underground workings at the Abel Underground Mine is essential for a safe and efficient operation. Areas where people are working are ventilated by the existing downcast ventilation shaft and mine intake entries which provide intake air, and the existing ventilation return adit which expels exhaust air after the air has circulated the mine.

An ineffective ventilation system can result in high intake velocities, increasing the risk of liberating dust from the underground mine roadways and conveyor belts, which can contaminate the fresh intake air. As the underground mine size increases and the mine workings progress further away from the existing ventilation fan, a ventilation upgrade is required to reduce intake velocities and maintain safety and efficiency.

An assessment of ventilation requirements identified the need for an additional ventilation fan and an additional air intake point.

The Modification would involve the installation of two ventilation fans (a new ventilation fan and the relocation of the existing ventilation fan from the Abel box cut portal) on the surface of the new upcast shaft to provide the additional air quantities to ventilate the mine.

Alternatives to the proposed upcast ventilation shaft location were considered in the preparation of this EA. The proposed location was selected as the site would be:

- within land owned by Donaldson Coal;
- proximal to existing access tracks (**Section 2.3.3**) and power supply (**Section 2.3.4**);
- proximal to the existing administration and workshop facilities minimising travel distance for maintenance works;
- central location to effectively provide ventilation to eastern and western development workings;
- effectively screened from view by surrounding vegetation (**Section 5.4.5**); and
- remote from privately owned residences, and with the proposed north orientation of the ventilation fans would not result in any exceedance of noise limits in Project Approval 05\_0136 (**Section 5.1**).

## 2.3 Construction/Development Activities

### 2.3.1 Construction of New Upcast Ventilation Shaft

Construction of the upcast ventilation shaft site would involve:

- grading and levelling of existing bush tracks (**Section 2.3.3**);
- development of a 5.5 m diameter, 40 m deep, concrete lined shaft;
- relocation of the existing approved ventilation fan to the new upcast ventilation shaft site (**Section 2.3.2**);
- installation of an additional ventilation fan;
- installation of associated electrical switchrooms, transformers and ancillary infrastructure for the two ventilation fans;

- installation of a power supply to the upcast ventilation shaft site (**Section 2.3.4**); and
- installation of appropriate security (i.e. fencing) to prevent unauthorised access to the shaft site.

The shaft would be constructed using the 'raise bore' method by an IR RBM 211R raise bore machine. A pilot hole would be drilled from the surface prior to the remainder of the shaft being excavated from the bottom of the shaft upwards. Using this method, material from the excavation would be removed from the bottom of the shaft via the existing underground system, surfacing at the existing portal.

**Plate 2** shows the construction of the existing approved downcast ventilation shaft at the Abel Underground Mine while the shaft is being drilled.

Construction of the upcast ventilation shaft would require clearing of approximately 75 m by 75 m to enable the shaft installation (**Appendix C**). In addition, clearing of a corridor approximately 3 m wide and 60 m long would be required for installation of a power supply for the upcast ventilation shaft (**Section 2.3.4**). The total clearing required would be approximately 0.58 hectares (ha).

Drilling of the shaft would occur 24 hours a day, seven days per week, while the remainder of construction activities (e.g. vegetation clearance and installation of surface infrastructure) would be limited to daytime hours. The construction period is expected to be approximately 26 weeks.

The disturbance area is located within an area of Lower Hunter Spotted Gum-Ironbark Forest (LHSGIF), which is listed as an Endangered Ecological Community (EEC) under the NSW *Threatened Species Conservation Act, 1995*. An Ecology Survey and Assessment Report including a 7 part test assessing the impact of the proposed works on the LHSGIF community is provided in **Appendix F**.



**Plate 2**  
**Abel Downcast Ventilation Shaft Construction Site**

### 2.3.2 Relocation of Existing Ventilation Fan

The existing approved ventilation fan is located in the Abel box cut north of John Renshaw Drive and would be relocated to the new upcast ventilation shaft by truck. The existing ventilation fan in the Abel box cut is shown in **Plate 3**.

### 2.3.3 Access

Construction of the new upcast ventilation shaft would require access by trucks for construction purposes. Access to the proposed upcast ventilation shaft site would be via an existing bush track from John Renshaw Drive (**Figure 2**).

The bush track from John Renshaw Drive may require some grading and levelling but no widening or vegetation removal. The intersection between John Renshaw Drive and the existing bush track was approved and constructed by the NSW Roads and Traffic Authority (RTA).



**Plate 3**  
**Existing Ventilation Fan in Abel Box Cut**

### 2.3.4 Power Supply

An 11 kilovolt (kV) power supply would be provided to the upcast ventilation shaft site. An underground power cable is currently installed under John Renshaw Drive. An underground power cable would be installed from the existing cable to the upcast ventilation shaft site.

Clearing of a corridor approximately 3 m wide and 60 m long would be required to lay a new power cable in a trench from the existing power cable to an existing bush track (**Figure 2**). The remainder for the new power cable would be laid in a trench along the existing bush track therefore no vegetation clearance would be required for this section of the cable.

## 2.4 Operations

The operations associated with proposed ventilation upgrade would not alter the overall Mining Operations Plan for the Abel Underground Mine, and would not alter the mine life, method of mining, tonnages, hours of operation or employment levels as described in the Abel Underground Mine EA (Donaldson Coal, 2006a).

Operation of the new upcast ventilation shaft would require access by light vehicles for regular inspection and maintenance.

## 2.5 Donaldson Coal Bushland Conservation Area Management Plan

The proposed upcast ventilation shaft is located within the Donaldson Coal Bushland Conservation Area (BCA) which was implemented in accordance with the Donaldson Open Cut Mine Development Consent (DA 98/01173 and 118/698/22).

The Donaldson Coal BCA is shown in **Appendix D**. The Donaldson Coal BCA was required to "*adequately compensate for the impact of the mine on biodiversity, provide compensatory habitat and be managed for the primary purposes of conservation*" (Item 70 of DA 98/01173 and DA 118/698/22).

The Donaldson Coal BCA was selected in consultation with the NSW National Parks and Wildlife Service (now Department of Environment, Climate Change and Water [DECCW]), Maitland and Cessnock City Councils and the Director-General of the NSW Department of Planning (DoP).

The Donaldson Coal BCA was required to be of a ratio size of "*2:1 in terms of compensatory habitat to the area to be directly impacted by mining and associated infrastructure*" (Item 71 of DA 98/01173 and DA 118/698/22). The Donaldson Coal BCA is managed via the Donaldson Coal BCA Management Plan (Donaldson Coal, 2005).

Donaldson Coal have set aside 662 ha of compensatory habitat for the BCA. There is approximately 318 ha of approved disturbance associated with the Donaldson Open Cut Mine. The existing ratio of compensatory habitat to disturbance is 2.081. Clearing associated with construction of the upcast ventilation shaft (i.e. an additional 0.58 ha of clearing) would change the ratio of compensatory habitat to disturbance to 2.080. Therefore removal of a minor area of vegetation for the construction of the upcast ventilation shaft would retain the Donaldson Coal BCA within the required ratio.

No changes to the Donaldson Open Cut Mine Development Consent are proposed as the compensatory habitat ratio for the BCA would remain intact.

The Donaldson Coal BCA Management Plan would be revised to show, on a plan, the new BCA extent following disturbance associated with the upcast ventilation shaft (i.e. the removal of 0.58 ha of vegetation from the BCA). No changes to management measures or strategies presented in the BCA Management Plan area would be required as a result of the Modification.

The disturbance would be revegetated with local native seed consistent with species present in the LHSGIF EEC at the completion of the Abel Underground Mine life, in accordance with the Landscape Management Plan (GSS Environmental, 2008).

### 3. Statutory Context

#### 3.1 Section 75W of the Environmental Planning and Assessment Act, 1979

The Abel Underground Mine was approved under Part 3A of the EP&A Act by the Minister for Planning on 7 June 2007 (Project Approval 05\_0136, **Attachment 1**).

This EA has been prepared to support a request to modify Project Approval 05\_0136 pursuant to section 75W of the EP&A Act.

Section 75W of the EP&A Act states:

***75W Modification of Minister's approval***

(1) *In this section:*

***Minister's approval*** means an approval to carry out a project under this Part, and includes an approval of a concept plan.

***modification of approval*** means changing the terms of a Minister's approval, including:

- (a) *revoking or varying a condition of the approval or imposing an additional condition of the approval, and*
- (b) *changing the terms of any determination made by the Minister under Division 3 in connection with the approval.*

(2) *The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.*

(3) *The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*

(4) *The Minister may modify the approval (with or without conditions) or disapprove of the modification.*

...

#### 3.2 Environmental Planning Instruments

##### 3.2.1 Local Environmental Plans

The Abel Underground Mine is located within the Cessnock, Newcastle and Maitland Local Government Areas (LGAs).

The activities associated with the Modification would be conducted on land within the Cessnock LGA which is zoned as "1(a) Rural A Zone" in the *Cessnock Local Environmental Plan, 1989* (Cessnock LEP). Mining and associated surface activities are permitted with consent within "1(a) Rural A Zone" in the Cessnock LEP as mining is not listed as being a prohibited use in the zoning table in Part 2.

##### 3.2.2 State Environmental Planning Policy (Major Development) 2005

As described in **Section 3.1**, the Abel Underground Mine was approved under Part 3A of the EP&A Act by the Minister for Planning on 7 June 2007 (Project Approval 05\_0136, **Attachment 1**).

3.2.3 *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) regularises the various environmental planning instruments that previously controlled mining activities.

Clause 5(3) of the Mining SEPP gives it primacy where there is any inconsistency between the provisions in the SEPP and the provisions in any other environmental planning instrument (with the exception of *State Environmental Planning Policy (Major Development) 2005*, *State Environmental Planning Policy No. 14 [Coastal Wetlands]* and *State Environmental Planning Policy No. 26 [Littoral Rainforest]*).

Clause 7 (1) of the Mining SEPP states that development for the following purposes may be carried out only with development consent:

- (a) *underground mining carried out on any land,*

The Abel Underground Mine and the Modification comprise underground mining as defined in Clause 3(2) of the Mining SEPP.

Clause 2 sets out the aims of the Mining SEPP as follows:

- (a) *to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and*
- (b) *to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and*
- (c) *to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.*

The Modification would not change any of the major elements of the Abel Underground Mine, such as the total or annual tonnages of coal to be extracted, mining methods, employment rates, or key environmental aspects such as subsidence. Potential impacts on noise, ecology, Aboriginal cultural heritage, air quality and water management are addressed in **Section 5**.

3.2.4 *State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)*

Clause 13 of *State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)* (SEPP 33) requires the consent authority, in considering a Development Application for a potentially hazardous or a potentially offensive industry, to take into account:

- (c) *in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and*
- (d) *any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application)...*

The proposed Modification does not significantly alter the consequences or likelihood of a hazardous event occurring at the Abel Underground Mine, as the operational activities on-site would be generally unchanged (**Section 2**).

### 3.2.5 State Environmental Planning Policy No. 44 (Koala Habitat Protection)

*State Environmental Planning Policy No. 44 (Koala Habitat Protection)* (SEPP 44) requires the consent authority for any Development Application in certain LGAs (including the Cessnock, Newcastle and Maitland LGAs) to consider whether land subject to a Development Application is potential Koala habitat or core Koala habitat.

An assessment of potential Koala habitat was conducted in the Abel Underground Mine EA (Donaldson Coal, 2006a). The assessment concluded that the land associated with the Abel Underground Mine was not core Koala habitat (Donaldson Coal, 2006a). Therefore the provisions of SEPP 44 are not considered applicable to the proposed Modification.

### 3.2.6 State Environmental Planning Policy No. 55 (Remediation of Land)

*State Environmental Planning Policy No. 55 (Remediation of Land)* (SEPP 55) aims to provide a State-wide planning approach to the remediation of contaminated land. Under SEPP 55, planning authorities are required to consider the potential for contamination to adversely affect the suitability of the site for its proposed use.

A consent authority must consider the following under clause 7(1):

- (a) *whether the land is contaminated, and*
- (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
- (c) *if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

Further, under clause 7(2), before determining an application for consent to carry out development that would involve a change of use of land, the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned, carried out in accordance with the contaminated land planning guidelines.

No change of use is proposed and no preliminary land contamination investigation is required, because the proposed Modification is within the existing ML 1618.

### 3.3 Other Approvals

Donaldson Coal would apply for a mining lease for a mining purpose only under section 51 of the *Mining Act, 1992*. The construction, maintenance and use of a ventilation shaft are included in the meaning of a mining purpose under clause 7(f) of the *Mining Regulation, 2010*. An application for the Mining Lease will be lodged with Industry & Investment NSW (I&I NSW) in March 2011.

Donaldson Coal would also prepare a modification or addendum to the Mining Operations Plan for Abel Underground Mine in consultation with I&I NSW.

No changes to the existing Environmental Protection Licences issued for the Abel Underground Mine or Donaldson Open Cut Mine are considered to be required.



#### 4. Environmental Management Strategy and Plans

Project Approval 05\_0136 for the Abel Underground Mine (**Attachment 1**) required a number of management strategies and plans to be prepared. These have been approved by or provided to the DoP in line with Project Approval requirements. The strategies and plans that are relevant to the proposed Modification to Project Approval 05\_0136 are as follows:

- Environmental Management Strategy (EMS) Integrated Manual;
- Abel Aboriginal Heritage Management Plan;
- Abel Mine Energy Saving Action Plan;
- Abel Air Quality Management Plan;
- Abel Noise Monitoring Program;
- Abel Water Management Plan;
- Abel Flora and Fauna Management Plan;
- Abel Erosion and Sediment Control Plan (ESCP);
- Donaldson Coal BCA Management Plan;
- Donaldson Open Cut and Abel Underground Coal Mine Landscape Management Plan; and
- Integrated Environmental Monitoring Program.

All activities associated with the Modification would be undertaken in accordance with these existing plans.

#### 4.1 Revisions to Existing Environmental Management Strategy and Plans

The Donaldson Coal BCA Management Plan would be revised to incorporate the ventilation upgrade (**Section 2.5**).

There are no additional impacts that cannot be managed through the continued implementation of the existing EMS and management plans. It is not considered necessary for items to be added to any other existing management plans in order to control or manage potential impacts from the construction and operation of the Modification.

No existing monitoring locations would require re-location to cater for the proposed ventilation upgrade, and it is considered that any impact associated with the proposed ventilation upgrade would be adequately managed by the existing monitoring activities.

## 5. Environmental Assessment

A review of the potential environmental impacts of the Modification is provided in the following subsections.

### 5.1 Noise

#### 5.1.1 Existing Environment

Since noise monitoring of the Abel Underground Mine commenced in 2008, noise emissions from the mine have been generally inaudible at all residential locations and have been found to be compliant with the relevant noise limits during all noise monitoring periods. **Figure 3** shows the monitoring locations specified for the noise limits within Project Approval 05\_0136.

No noise complaints relevant to the Abel Underground Mine have been received since the commencement of operations.

#### 5.1.2 Potential Impacts

A qualitative assessment of construction noise and a quantitative assessment of operational noise have been conducted by SLR Consulting (Heggies) to assess the potential noise impacts of the Modification (**Appendix E**).

Noise levels from the construction of the proposed Modification are likely to comply with the relevant criteria at all locations (**Appendix E**). This conclusion is supported by the results of night-time noise monitoring recently undertaken during the drilling of the approved downcast shaft (**Figure 2**). Drilling operations were inaudible at the nearest potentially affected receivers on Black Hill Road (**Appendix E**).

Operational noise levels are predicted to meet the noise limits specified in Condition 23, Schedule 4 of Project Approval 05\_0136 at all locations under all meteorological conditions (**Appendix E**). The fans will be directed in a horizontal northerly direction away from residents.

#### 5.1.3 Mitigation Measures and Management

The raise bore drill rig will be partially enclosed (by an acoustic designed cladded shed) to provide screening to the nearest affected receivers (**Plate 2**).

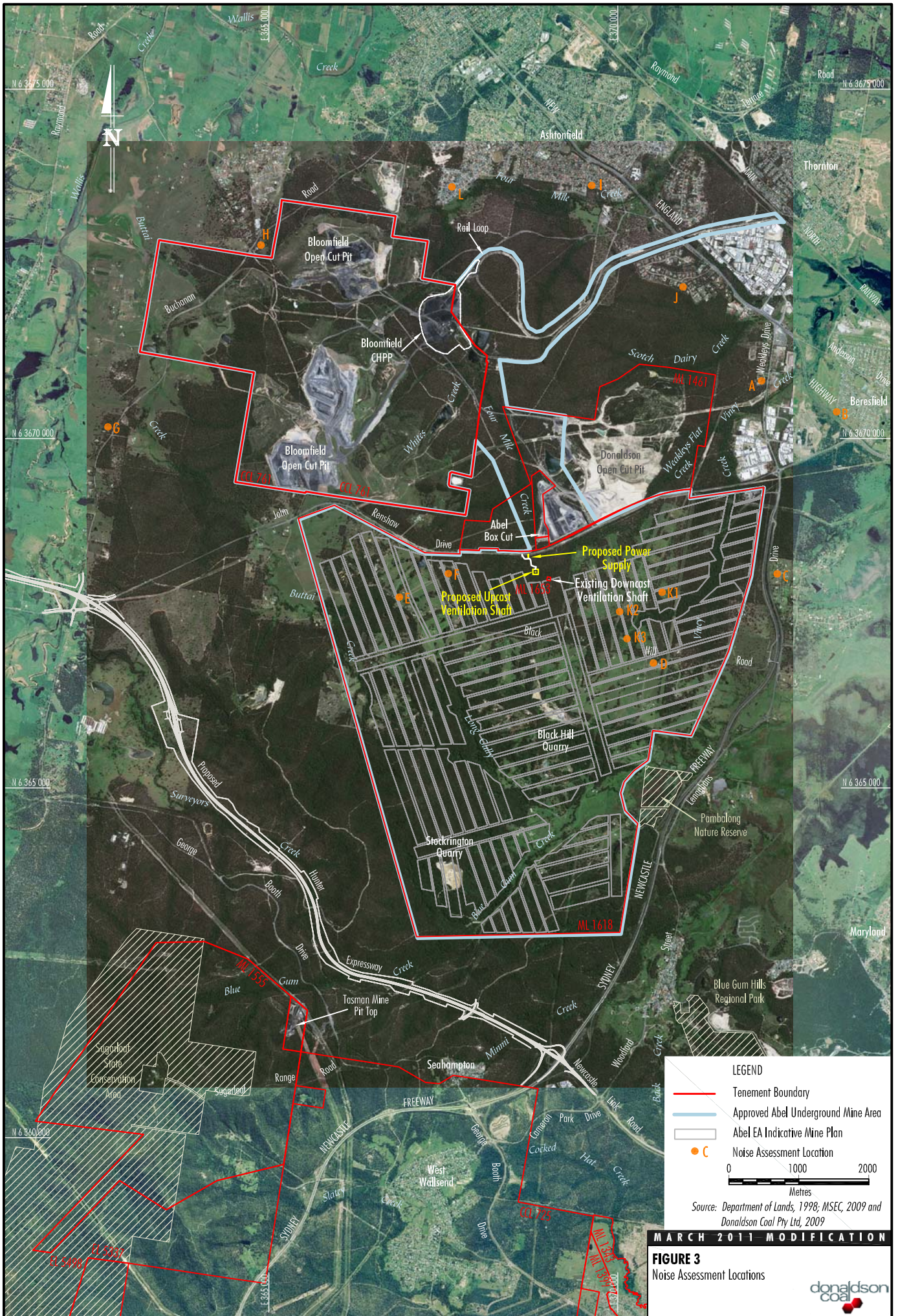
During the construction period of the upcast ventilation shaft, noise monitoring would be undertaken by Donaldson Coal to ensure that construction noise levels are in accordance with the noise criteria. Such monitoring would include attended or unattended continuous logged monitoring.

Should monitoring indicate that the construction noise levels exceed noise criteria, then construction activities would be stopped until noise mitigation actions can be implemented to achieve compliance with the criteria. Donaldson Coal will act immediately upon identification of non-compliance.

Mitigation actions that would be implemented to achieve compliance with the criteria following a non-compliance may include:

- alteration of the position of machinery (e.g. orientation of mufflers and other noise sources);
- acoustic insulation/housing of the generator; and/or
- additional acoustic screens.

Following implementation of the above noise mitigation actions, noise monitoring would be continued to demonstrate compliance with the noise criteria or identify if there is a need for additional noise mitigation works.



Following construction of the upcast ventilation shaft, monitoring of operational noise would continue to be undertaken in accordance with the approved Abel Noise Management Plan.

Donaldson Coal operates a 24 hour Environmental Hotline which is known to residents in the area. As per the approved Abel Noise Management Plan, additional monitoring would be undertaken should a complaint be received during construction or operation (i.e. noise monitoring at that residence). Should an exceedance of noise criteria be recorded at the residence, then the above mitigation actions would be undertaken.

## 5.2 Flora and Fauna

### 5.2.1 Existing Environment

The flora and fauna in the Abel Underground Mine area and surrounds was previously characterised by the Abel Underground Mine EA (Donaldson Coal, 2006a).

The Abel Underground Mine underground mining is characterised by approximately 1900 ha of relatively undisturbed vegetation and approximately 900 ha of fragmented vegetation in a farmland mosaic (Donaldson Coal, 2006a).

Donaldson Coal (2006b) identified eight vegetation units in the existing approved Abel Underground Mine area, namely: Sub-tropical Rainforest; Alluvial Tall Moist Forest; Hunter Valley Moist Forest; Coastal Foothills Spotted Gum – Ironbark Forest; Lower Hunter Spotted Gum – Ironbark Forest; Central Hunter Spotted Gum – Ironbark Forest; and Hunter Lowlands Redgum Forest.

Hunter Eco has undertaken a Flora Survey and Assessment of the proposed Modification disturbance area (**Appendix F**).

No threatened flora species were recorded within the Modification disturbance area (**Appendix F**).

The disturbance area for the shaft and the power supply were found to be located within LHSIGIF which is listed as an EEC under the NSW *Threatened Species Conservation Act, 1995* (**Appendix F**). In addition, 13 trees having potential habitat hollows and two dead stags were also mapped within the Modification disturbance area (**Appendix F**).

### 5.2.2 Potential Impacts

The Modification would require clearing of approximately 75 m by 75 m to enable the shaft installation and clearing of a corridor approximately 3 m wide and 60 m long for installation of a power supply (**Section 2**). The total clearing required would be approximately 0.58 ha.

Hunter Eco (**Appendix F**) assessed a power supply corridor 10 m wide, however actual clearance would only be a 3 m wide corridor within this assessed area.

No threatened flora species were found during the survey, and no impacts on threatened flora are expected (**Appendix F**).

Because the Modification would involve clearance of the LHSIGIF EEC, an assessment of the significance of the potential impact on the LHSIGIF EEC was conducted. The conclusion of this assessment was that, due to the small size of the disturbance area there would be no significant impact on the LHSIGIF EEC (**Appendix F**).

Threatened fauna species are unlikely to be impacted due to the small size of the disturbance area and the associated minor removal of habitat (**Appendix F**).

### 5.2.3 *Mitigation Measures and Management*

The potential impacts of the Abel Underground Mine on flora and fauna are currently managed by the implementation of the following existing management plans:

- Abel Flora and Fauna Management Plan;
- Donaldson Coal BCA Management Plan; and
- Donaldson Open Cut and Abel Underground Coal Mine Landscape Management Plan (including Rehabilitation Management Plan).

Potential impacts of the Modification on flora and fauna and their habitats would be managed by the continued implementation of the above management protocols, plans and programmes.

The Abel Flora and Fauna Management Plan (Ecobiological, 2007) establishes a Vegetation Clearance Protocol to minimise the impact of the Abel Underground Mine clearance activities on flora and fauna. Procedures have been put in place for delineating areas requiring clearing; conducting pre clearance surveys; and identification and clearance of potential habitat trees.

Marked habitat trees would be observed at dusk and into dark by an experienced fauna ecologist prior to clearing in order to determine whether any fauna are using the hollows; particularly bats.

Any trees found to have bats using hollows would be soft-felled in the evening after the bats have left the hollows provided that the weather is not particularly cold. For all other trees an experienced fauna ecologist would be in attendance during clearing to care for any fauna disturbed during the process.

Periodic inspections of the upcast ventilation shaft area would be conducted to ensure that no weed species have become established in the area.

Rehabilitation would be conducted in accordance with the existing Donaldson Open Cut and Abel Underground Coal Mine Rehabilitation Management Plan.

## 5.3 **Aboriginal Heritage**

### 5.3.1 *Existing Environment*

The disturbance area of the Modification was inspected by MLALC on 24 January 2011. **Appendix B** provides MLALC's report, stating that no artefacts were found and that no action is required to be taken to preserve artefacts.

### 5.3.2 *Potential Impacts*

Based on the survey conducted of the Modification disturbance area, there is expected to be negligible potential for impact on Aboriginal cultural heritage

### 5.3.3 *Mitigation Measures and Management*

A member of MLALC would be on site during all clearing in accordance with standard Donaldson Coal protocols.

## 5.4 **Other Environmental Aspects**

### 5.4.1 *Socio-Economic and Community Issues*

The Modification would not impact on employment, length of mine life or other aspects that may alter the socio-economic aspects of the Abel Underground Mine as assessed by the Abel Underground Mine EA (Donaldson Coal, 2006a).

There are no expected socio-economic or community impacts associated with the Modification. The upcast ventilation shaft site is located on land owned by Donaldson Coal and there are no residences on this land.

Donaldson Coal's existing community consultation procedures, including the involvement of the Abel Community Consultative Committee, require the local community to be notified of any construction works that would interfere with their access or land. Donaldson Coal's existing community consultation procedures would continue to be used for the construction of the upcast ventilation shaft. As described in **Section 1.3**, the need for the additional ventilation infrastructure has been discussed with the Abel Community Consultative Committee (**Appendix A**).

#### 5.4.2 *Water, Erosion & Sedimentation*

The upcast ventilation shaft construction site is located within an area of bushland approximately 250 m south of John Renshaw Drive. Sediment and erosion controls would be implemented at the construction site in accordance with the approved ESCP (Donaldson Coal, 2007). The concrete slab, shaft and ventilation fan infrastructure have minimal potential to generate erosion or sedimentation.

#### 5.4.3 *Bushfire*

Mitigation of potential changes in bushfire regime or potential impacts of bushfire on infrastructure would be managed in accordance with the current Bushfire Management Plan prepared for the Donaldson Open Cut Mine (Donaldson Coal, 2004). This fire management plan aims to *"ensure that land owned by the Company is managed in a way that minimise the risk of bushfire as far as is practicable, and reduces the risk of fire originating on Donaldson Coal owner land spreading to adjacent properties."*

#### 5.4.4 *Air Quality*

Minimal dust would be generated by the construction of the upcast ventilation shaft. The construction period would be limited to approximately 26 weeks, and the disturbance area is small and isolated from sensitive receptors. The two closest receivers are located approximately 1.3 km to the west and south-east, respectively.

Dust associated with the construction would be monitored as part of Donaldson Coal's existing air quality monitoring programme. Existing Donaldson Coal dust control procedures, such as the use of a water cart on the access road due to dry conditions, would be undertaken if required.

The total amount of air to be ventilated from the mine remains unchanged from that assessed by the Abel Underground Mine EA. No dust or air quality impacts are expected from with the operation of the upcast ventilation shaft.

#### 5.4.5 *Visual Aspects*

The upcast ventilation shaft is to be located within a bushland area, with the height of surrounding vegetation minimising the potential visual impact on John Renshaw Drive, residences and other public land and roads.

Glimpses of the upcast ventilation shaft site may be possible to the south-east of the site on Browns Road through the intervening vegetation. However, the Modification is expected to result in negligible impact on visual amenity given the minor scale of disturbance and the use of neutral colours for the fans and associated infrastructure.

The area will be provided with minimal lighting for security and safety reasons for employees attending the site. Such lighting will be directed towards the ground and would not be visible from adjoining properties.

#### *5.4.6 Traffic*

Very limited and short-term truck access would be required for construction of the upcast ventilation shaft site via John Renshaw Drive. Sporadic access by a maintenance vehicle would be required to check the upcast ventilation shaft for any maintenance requirements. Therefore it is unlikely that there would be a measurable impact on the traffic of the local area due to this modification.

#### *5.4.7 Subsidence*

There is no potential subsidence associated with construction and operation of the upcast ventilation shaft.

#### *5.4.8 Rehabilitation*

The upcast ventilation shaft would be sealed at the end of the mine life to I&I NSW standards and in accordance with the Landscape Management Plan (GSS Environmental, 2008). All surface disturbance works would be rehabilitated in accordance with the Landscape Management Plan (GSS Environmental, 2008).

The Landscape Management Plan includes rehabilitation management measures (e.g. revegetation, stabilisation of topsoil and management of weeds and pests etc.) and mine closure management measures for surface disturbance areas (e.g. ripping, revegetation and post-closure maintenance of rehabilitated areas) (GSS Environmental, 2008).

## 6. References

- Donaldson Coal Pty Ltd (2004) *Bushfire Management Plan*.
- Donaldson Coal Pty Ltd (2005) *Donaldson Bushland Conservation Area Management Plan (OP-8)*.
- Donaldson Coal Pty Limited (2006a) *Abel Underground Mine Part 3A Environmental Assessment*.
- Donaldson Coal Pty Limited (2006b) *Abel Underground Mine Part 3A Environmental Assessment – Flora and Fauna Lists and Descriptions*. Appendix J of the Abel Underground Mine Environmental Assessment.
- Donaldson Coal Pty Limited (2007) *Abel Mine Erosion and Sedimentation Control Plan*.
- Donaldson Coal Pty Limited (2010) *May 2010 Modification (Downcast Ventilation Shaft) Environmental Assessment*.
- Ecobiological (2007) *Abel Underground Coalmine Flora and Fauna Management Plan*.
- GSS Environmental (2008) *Donaldson Open Cut and Abel Underground Mines Landscape Management Plan*.



**Attachment 1 Consolidated Project Approval 05\_0136**

# Project Approval

## Section 75J of the *Environmental Planning and Assessment Act 1979*

I approve the project referred to in Schedule 1, subject to the conditions in Schedules 2 to 5.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

Frank Sartor MP  
**Minister for Planning**

Sydney **SIGNED 7 JUNE**

2007

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### **SCHEDULE 1**

<b>Application No:</b>	05_0136
<b>Proponent:</b>	Donaldson Coal Pty Limited
<b>Approval Authority:</b>	Minister for Planning
<b>Land:</b>	See Appendix 1
<b>Project:</b>	Abel Coal Project

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**June 2010 Modification in red**

## **TABLE OF CONTENTS**

<b>DEFINITIONS</b>	<b>3</b>
<b>ADMINISTRATIVE CONDITIONS</b>	<b>4</b>
Obligation to Minimise Harm to the Environment	4
Terms of Approval	4
Limits on Approval	4
Structural Adequacy	4
Demolition	4
Operation of Plant and Equipment	5
<b>SPECIFIC ENVIRONMENTAL CONDITIONS</b>	<b>6</b>
Subsidence	6
Water Management	7
Landscape Management	8
Noise	9
Air Quality	10
Meteorological Monitoring	10
Heritage	11
Greenhouse Gases	11
Waste	11
<b>ENVIRONMENTAL MANAGEMENT, MONITORING, REPORTING &amp; AUDITING</b>	<b>13</b>
Environmental Management Strategy	13
Environmental Monitoring Program	13
Incident Reporting	13
Annual Reporting	13
Independent Environmental Audit	14
Community Consultative Committee	14
Access to Information	15
<b>APPENDIX 1: SCHEDULE OF PROJECT LAND</b>	<b>16</b>
<b>APPENDIX 2: PROJECT MAPS</b>	<b>19</b>
<b>APPENDIX 3: STATEMENT OF COMMITMENTS</b>	<b>21</b>

## SCHEDULE 2 DEFINITIONS

Abel site	That part of the site set out in Part A of Appendix 1
AEMR	Annual Environmental Management Report
Affected Councils	Cessnock City Council, Maitland City Council and Newcastle City Council
Approval	This Project Approval
BCA	Building Code of Australia
Bloomfield site	That part of the site set out in Part B of Appendix 1
CCC	Community Consultative Committee
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
DECC	Department of Environment and Climate Change
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
DPI	Department of Primary Industries
DWE	Department of Water and Energy
EA	Environmental Assessment prepared for Donaldson Coal Pty Limited entitled <i>Abel Underground Mine Part 3A Environmental Assessment</i> , Volumes 1-5 (dated 22 September 2006) including the Response to Submissions (dated 19 January 2007) and the additional information on the Coal Handling and Preparation Plant (dated 5 February 2007)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the <i>Protection of the Environment Operations Act 1997</i>
Evening	The period from 6pm to 10pm
Minister	Minister for Planning, or delegate
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Privately-owned land	Land that is not owned by a public agency, or a mining company (or its subsidiary)
Product Coal	Coal the product of a Coal Handling and Preparation Plant
Proponent	Donaldson Coal Pty Limited or any other person or persons who rely on this approval to carry out the development that is subject to this approval
Project	The Abel Coal Project described in the EA
RTA	Roads and Traffic Authority
ROM Coal	Run-of-mine coal
Schedule 2 streams	Third and higher order streams, as shown in the EA
Site	Land to which the project application applies, which is a combination of the Abel site and Bloomfield site (see Appendix 1)
SMP	Subsidence Management Plan
Statement of Commitments	The commitments by Donaldson Coal Pty Limited set out in Appendix 3
Subsidence	Subsidence of the land surface caused by underground coal mining

## SCHEDULE 3 ADMINISTRATIVE CONDITIONS

### Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

### Terms of Approval

2. The Proponent shall carry out the project generally in accordance with the:
  - (a) EA;
  - (b) Statement of Commitments (see Appendix 3);
  - (c) modification application 05\_0136 – MOD 1 and the accompanying Environmental Assessment prepared by Donaldson Coal and dated May 2010; and
  - (d) the conditions of this approval.

*Note: The general layout of the project is shown in Figure 1 of Appendix 2.*

3. If there is any inconsistency between the above documents, the later document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent shall comply with any reasonable and feasible requirements of the Director-General arising from the Department's assessment of:
  - (a) any reports, plans or correspondence that are submitted in accordance with the conditions of this approval; and
  - (b) the implementation of any actions or measures contained in these reports, plans or correspondence.

### Limits on Approval

5. Mining operations may take place until 31 December 2028 on the Abel site.

*Note: Under this Approval, the Proponent is required to rehabilitate the site to the satisfaction of the Director-General and DPI. Consequently this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated to a satisfactory standard.*

6. The Proponent shall not extract more than 4.5 million tonnes of ROM coal a year from the Abel site.
7. No more than 6.5 million tonnes of ROM coal may be processed a year on the Bloomfield site.
8. All product coal produced on the Bloomfield site shall be transported by rail via the rail loading facility on the Bloomfield site, except in an emergency. In an emergency, product coal may be transported from the Bloomfield site by road with the prior written approval of the Director-General, subject to any restrictions that the Director-General may impose.

### Structural Adequacy

9. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

*Notes:*

- Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.
- Part 8 of the EP&A Regulation sets out the requirements for the certification of the Project.

### Demolition

10. The Proponent shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

### **Operation of Plant and Equipment**

11. The Proponent shall ensure that all plant and equipment used on site is:
  - (a) maintained in a proper and efficient condition; and
  - (b) operated in a proper and efficient manner.

## SCHEDULE 4 SPECIFIC ENVIRONMENTAL CONDITIONS

### SUBSIDENCE

#### Subsidence Impact Limits

*Note: These conditions should be read in conjunction with section 5 of the Statement of Commitments and that part of the Statement of Commitments titled "Specific Subsidence Commitments by the Company".*

1. The Proponent shall ensure that the project does not result in any subsidence impacts on the Pambalong Nature Reserve or the surface of the F3 Freeway.
2. The Proponent shall limit mining operations to first workings beneath, and ensure that mining causes no subsidence impacts requiring mitigation works on, the following features:
  - (a) all principal residences located above the mining area;
  - (b) Black Hill Public School;
  - (c) Black Hill Church and cemetery;
  - (d) all Schedule 2 streams and rainforest areas located above the mining area; and
  - (e) the Blue Gum Creek alluvium.

*Note: "Principal residence" is defined in the Statement of Commitments (see Appendix 3).*

3. The Proponent shall ensure that the following sites are treated as "principal residences" under this approval:
  - (a) all buildings and structures on, or proposed to be constructed on, the Catholic High School site (which is located on the south-eastern section of Lot 131 DP 1057179);
  - (b) all buildings and structures on the Boral Hotmix Plant site (Lot 30 DP 870411);
  - (c) the 4 largest dams on the commercial orchard situated on Properties 52 and 53 while these dams are being used as part of a commercial horticultural enterprise.
4. The Proponent shall ensure that not more than 60% of the coal seam is extracted beneath the cliff areas identified in Figure 2 of Appendix 2.
5. Within 6 years of this approval, the Proponent shall ensure that any subsidence caused by undermining the following land has been effectively completed:
  - (a) Catholic Diocese of Maitland-Newcastle owned land: (Lot 131 DP 1057179); and
  - (b) Coal & Allied Operations Pty Limited owned land: (Lot 30 DP 870411, which is also known as the Boral Hotmix Plant site).
6. With the written agreement of the relevant landowner, the Proponent may:
  - (a) conduct additional mining operations and/or cause additional subsidence impacts beyond those permitted under conditions 2(a) or (3); and
  - (b) increase the time within which subsidence must be effectively completed under condition 5.

#### Subsidence Management Plan

7. Prior to carrying out any underground mining operations that could cause subsidence, the Proponent shall prepare a Subsidence Management Plan (SMP) to the satisfaction of the Director-General of DPI. This plan must be prepared in accordance with the:
  - (a) *New Approval Process for Management of Coal Mining Subsidence - Policy*; and
  - (b) *Guideline for Applications for Subsidence Management Approvals* (or the latest versions or replacements of these documents).
8. In preparing the Subsidence Management Plan, the Proponent shall pay particular attention to assessing and limiting the potential surface impacts on all areas of the proposed underground mining area where:
  - (a) cover depths are less than 100 metres, or
  - (b) overlying abandoned mine workings occur (eg the Stockrington Colliery and beneath Blackhill Quarry).

## First Workings Hazard Management Plan

9. If the proponent intends to carry out first workings under the following surface features, then it shall include a First Workings Hazard Management Plan in the relevant Subsidence Management Plan for these workings, which describes in detail how these workings would be managed and monitored to ensure compliance with this approval and the contingency measures that would be implemented if the impacts on these surface features are greater than predicted:
- all buildings and structures on the Black Hill Public School, Black Hill Church and cemetery, and Boral Hotmix Plant sites;
  - all buildings and structures on, or proposed to be constructed on the Catholic High School site;
  - the 4 largest dams on the commercial orchard situated on Properties 52 and 53 while these dams are being used as part of a commercial horticultural enterprise; and
  - all Schedule 2 streams, rainforest areas and the Blue Gum Creek alluvium (see Figure 2 in Appendix 2).

## WATER MANAGEMENT

*Note: These conditions should be read in conjunction with sections 5, 6, 7 and 8 of the Statement of Commitments.*

### Discharge

10. Except as may be expressly provided for by an EPL, the Proponent shall not discharge any surface waters from the site. However, water may be transferred within the site, and between the site and the adjoining Donaldson, Bloomfield and Tasman mines, in accordance with any approved Water Management Plan (see below).

### Water Management Plan

11. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be submitted to the Director-General for approval within 6 months of this approval;
  - be prepared by suitably qualified expert/s whose appointment/s have been approved by the Director-General,
  - be prepared in consultation with the DECC and DWE;
  - be integrated, as far as is practicable, with the water management plans of the adjoining Bloomfield, Donaldson and Tasman mines; and
  - include a:
    - Site Water Balance;
    - Erosion and Sediment Control Plan;
    - Surface Water Monitoring Plan;
    - Groundwater Monitoring Program; and
    - Surface and Groundwater Response Plan, setting out the procedures for:
      - investigating, and if necessary mitigating, any exceedances of the surface or groundwater assessment criteria (see below); and
      - responding to any unforeseen impacts of the project.

### Site Water Balance

12. The Site Water Balance must:
- include details of:
    - sources of water;
    - reliability of water supply;
    - water use on site;
    - water management on site;
    - off-site water transfers;
    - reporting procedures; and
  - describe measures to minimise water use by the project.

### Erosion and Sediment Control

13. The Erosion and Sediment Control Plan must:
- be consistent with the requirements of the Department of Housing's *Managing Urban Stormwater: Soils and Construction* manual;



- (b) identify activities that could cause soil erosion and generate sediment;
- (c) describe measures to minimise soil erosion and the potential for transport of sediment to downstream waters;
- (d) describe the location, function, and capacity of erosion and sediment control structures; and
- (e) describe what measures would be implemented to monitor and maintain the structures over time.

### **Surface Water Monitoring Program**

14. The Surface Water Management and Monitoring Plan must include:
- (a) detailed baseline data on surface water flows and quality in creeks and other waterbodies that could be affected by the project;
  - (b) surface water impact assessment criteria;
  - (c) a program to monitor the impact of the project on surface water flows and quality;
  - (d) procedures for reporting the results of this monitoring.

### **Groundwater Monitoring Program**

15. The Groundwater Monitoring Program must include:
- (a) further development of the regional and local groundwater model;
  - (b) detailed baseline data to benchmark the natural variation in groundwater levels, yield and quality (including at any privately-owned bores in the vicinity of the site);
  - (c) groundwater impact assessment criteria;
  - (d) monitoring of the Pambalong Nature Reserve and rainforest areas identified in Figure 2 of Appendix 2;
  - (e) a program to monitor the impact of the project on groundwater levels, yield and quality; and
  - (f) procedures for reporting the results of this monitoring.

## **LANDSCAPE MANAGEMENT**

*Note: These conditions should be read in conjunction with sections 10 and 12 of the Statement of Commitments.*

### **Rehabilitation**

16. The Proponent shall rehabilitate the site to the satisfaction of the Director-General and DPI.

### **Vegetation Offset**

17. The Proponent shall provide a suitable offset of at least 20 hectares for the 12.3 hectares of native vegetation that would be disturbed by the project, in consultation with DECC, and to the satisfaction of the Director-General. This offset must include the establishment of at least 10 hectares of Lower Hunter Spotted Gum Ironbark Forest to ensure that there is no net loss of this vegetation on site in the medium to long term. The offset must be contiguous with existing native vegetation and be capable of enhancing local and regional wildlife corridors.

### **Flora and Fauna Management in Farm Dams**

18. As part of its proposed Dam Monitoring and Management Strategy, the Proponent shall prepare a flora and fauna assessment of farm dams which may be impacted by subsidence (with particular reference to potential impacts on threatened species). The Dam Monitoring and Management Strategy shall include measures to minimise impacts on threatened species, to the satisfaction of the Director-General.

### **Landscape Management Plan**

19. The Proponent shall prepare and implement a detailed Landscape Management Plan for the site to the satisfaction of the Director-General and DPI. This plan must:
- (a) be submitted to the Director-General for approval within 6 months of this approval;
  - (b) be prepared by suitably qualified expert/s whose appointment/s have been endorsed by the Director-General;
  - (c) be prepared in consultation with DWE, DECC and affected Councils; and
  - (d) include a:
    - Rehabilitation Management Plan;
    - Final Void Management Plan; and
    - Mine Closure Plan.

## Rehabilitation Management Plan

20. The Rehabilitation Management Plan must include:
- (a) the rehabilitation objectives for the site;
  - (b) a strategic description of how the rehabilitation of the site would be integrated with the 4,400 hectares of land owned by the Proponent surrounding the site, with a view to improving or enhancing the regional landscape and flora and fauna habitat values;
  - (c) a general description of the short, medium and long term measures that would be implemented to rehabilitate the site;
  - (d) a detailed description of the measures that would be implemented over the next three years to rehabilitate the site, including the measures to be implemented for:
    - progressively rehabilitating areas disturbed by mining operations on the site;
    - managing the remnant vegetation and habitat on site;
    - revegetating, monitoring and maintaining the offset area;
    - undertaking additional pre-subsidence fauna surveys;
    - minimising impacts on threatened fauna;
    - minimising visual impacts;
    - conserving and reusing topsoil;
    - collecting and propagating seeds for rehabilitation works;
    - salvaging and reusing material from the site for habitat enhancement;
    - controlling weeds, feral pests, and access;
    - managing bushfires; and
    - managing any potential conflicts between the rehabilitation works and Aboriginal cultural heritage.
  - (e) detailed performance and completion criteria for the rehabilitation of the site;
  - (f) a detailed description of how the performance of the rehabilitation works would be monitored over time to achieve the stated objectives and against the relevant performance and completion criteria; and
  - (g) details of who is responsible for monitoring, reviewing and implementing the plan.

## Final Void Management

21. The Final Void Management Plan must describe what actions and measures would be implemented to:
- (a) minimise any potential adverse impacts associated with the modified final void of the Donaldson mine on the Abel site; and
  - (b) manage and monitor the potential impacts of this final void over time.

## Mine Closure Plan

22. The Mine Closure Plan must:
- (a) define the objectives and criteria for mine closure;
  - (b) investigate options for the future use of the site, including the final voids;
  - (c) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local and regional employment levels;
  - (d) describe the measures that would be implemented to minimise or manage the on-going environmental effects of the project; and
  - (e) describe how the performance of these measures would be monitored over time.

## NOISE

Note: These conditions should be read in conjunction with section 3 of the Statement of Commitments.

### Noise Limits

23. The Proponent shall ensure that the noise generated by the Project does not exceed at any privately-owned residence the levels set out in Table 1 for the monitoring location nearest that residence.

Table 1: Noise limits dB(A)

Day <i>L<sub>Aeq(15 min)</sub></i>	Evening <i>L<sub>Aeq(15 min)</sub></i>	Night		Location and Locality
		<i>L<sub>Aeq(15 min)</sub></i>	<i>L<sub>A1(1 min)</sub></i>	
50	48	41	51	A Weakleys Dr, Beresfield B Yarrum Rd, Beresfield
49	47	40	50	J Kilarney St, Avalon Estate
46	46	40	53	L Kilshanny Ave, Ashtonfield
44	46	38	48	I Lord Howe Dr, Ashtonfield
43	44	38	50	C Phoenix Rd, Black Hill
43	41	36	46	G Buchanan Rd, Buchanan H Mt Vincent Rd, Louth Park
41	40	37	46	K Catholic Diocese (Former Bartter) K1, K2, K3
41	40	36	46	D Black Hill School E Brown Rd, Black Hill F Black Hill Rd, Black Hill

#### Notes:

- To determine compliance with the *L<sub>Aeq(15 minute)</sub>* limit, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the *L<sub>A1(1 minute)</sub>* limit, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- These limits apply under the relevant meteorological conditions outlined in the assessment procedures in Chapter 5 of the NSW Industrial Noise Policy.
- These limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

### Noise Monitoring

24. The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:
- be submitted to the Director-General for approval within 6 months of this approval;
  - be prepared in consultation with the DECC; and
  - use a combination of attended and unattended monitoring measures to monitor the performance of the project.

## AIR QUALITY

Note: These conditions should be read in conjunction with section 4 of the Statement of Commitments.

### Impact Assessment Criteria

25. The Proponent shall ensure that dust generated by the project does not cause additional exceedances of the criteria listed in Tables 2 to 4 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 2: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>

Table 3: Short term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>

Table 4: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.

## Monitoring

26. The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General. This program must:
- be submitted to the Director-General for approval within 6 months of this approval;
  - be prepared in consultation with the DEC; and
  - use a combination of high volume samplers and dust deposition gauges to monitor the performance of the project.

## METEOROLOGICAL MONITORING

27. During the project, the Proponent shall maintain a suitable meteorological station on site to the satisfaction of the DECC and Director-General. This station must satisfy the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* publication.

## HERITAGE

Note: These conditions should be read in conjunction with sections 11 and 12 of the Statement of Commitments.

### Aboriginal Heritage Management Plan

28. The Proponent shall not destroy any known Aboriginal objects (as defined in the *National Parks and Wildlife Act 1974*) without the written approval of the Director-General.
29. The Proponent shall prepare and implement an Aboriginal Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be submitted the Director-General within 6 months of this approval;
  - be prepared in consultation with the DEC and the Mindaribba and Awakabal Local Aboriginal Land Councils;
  - include a:
    - comprehensive Aboriginal heritage surveys across both the Abel site and the Bloomfield site, staged so as to be complete prior to any disturbance;
    - salvage program for temporarily storing and then replacing retrieved material; and
    - protocol for the ongoing consultation and involvement of Aboriginal communities in the conservation and management of Aboriginal heritage on site;
  - describe the measures that would be implemented to protect Aboriginal sites on site, or if any new Aboriginal objects or skeletal remains are discovered during the project.

## **VISUAL IMPACT**

*Note: These conditions should be read in conjunction with section 9 of the Statement of Commitments.*

### **Visual Amenity**

30. The Proponent shall minimise the visual impacts of the project to the satisfaction of the Director-General.

### **Lighting Emissions**

31. The Proponent shall ensure that no outdoor lights on the site shine above the horizontal.

## **GREENHOUSE GASES**

### **Energy Savings Action Plan**

32. The Proponent shall prepare and implement an Energy Savings Action Plan for the project to the satisfaction of the Director-General. This plan must be prepared in accordance with any requirements or relevant guidelines of DWE, and submitted to the Director-General for approval within 6 months of this approval.

### **Recording and Reporting**

33. The Proponent shall:
- (a) record the greenhouse gas emissions generated by the project, and the effectiveness of the measures implemented under the Energy Savings Action Plan; and
  - (b) report on this monitoring in the AEMR.

## **WASTE**

### **Disposal of Tailings and Coarse Reject**

34. The Proponent shall ensure that the:
- (a) fine tailings generated by the project are disposed of within existing underground workings or open cut pits on the Bloomfield site; and
  - (b) coarse rejects generated by the project are disposed of within existing open cut pits on the Bloomfield site,
- to the satisfaction of the Director-General.

### **Waste Minimisation**

35. The Proponent shall:
- (a) monitor the amount of waste generated by the project;
  - (b) investigate ways to minimise waste generated by the project;
  - (c) implement reasonable and feasible measures to minimise waste generated by the project;
  - (d) ensure irrigation of treated wastewater is undertaken in accordance with DEC's *Environmental Guideline for the Utilisation of Treated Effluent*; and
  - (e) report on waste management and minimisation in the AEMR, to the satisfaction of the Director-General.

## SCHEDULE 5

### ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

*Note: This schedule should be read in conjunction with sections 12, 14, and 15 of the Statement of Commitments.*

#### ENVIRONMENTAL MANAGEMENT STRATEGY

1. The Proponent shall prepare and implement an Environmental Management Strategy for that project to the satisfaction of the Director-General. This strategy must be submitted to the Director-General within 6 months of this approval, and:
  - (a) provide the strategic context for environmental management of the project;
  - (b) identify the statutory requirements that apply to the project;
  - (c) describe in general how the environmental performance of the project would be monitored and managed;
  - (d) describe the procedures that would be implemented to:
    - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
    - receive, handle, respond to and record complaints;
    - resolve any disputes that may arise during the course of activities associated with the project;
    - respond to any non-compliance;
    - manage cumulative impacts; and
    - respond to emergencies; and
  - (e) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project.

#### ENVIRONMENTAL MONITORING PROGRAM

2. The Proponent shall prepare and implement an Environmental Monitoring Program for the project to the satisfaction of the Director-General. This program must be submitted to the Director-General within 6 months of this approval, consolidate the various monitoring requirements in schedule 4 of this approval into a single document, and be integrated as far as is practicable with the monitoring programs of the adjoining Bloomfield, Donaldson and Tasman mines.

#### INCIDENT REPORTING

3. Within 7 days of detecting an exceedance of the limits/performance criteria in this approval, or an incident causing (or threatening to cause) material harm to the environment, the Proponent shall report the exceedance/incident to the Department and any other relevant agency. This report must:
  - (a) describe the date, time and nature of the exceedance/incident;
  - (b) identify the cause (or likely cause) of the exceedance/incident;
  - (c) describe what action has been taken to date; and
  - (d) describe the proposed measures to address the exceedance/incident.

#### ANNUAL REPORTING

4. Within 12 months of this approval, and annually thereafter, the Proponent shall submit an AEMR to the Director-General and to all relevant agencies. This report must:
  - (a) identify the standards and performance measures that apply to the project;
  - (b) describe the works carried out in the last 12 months;
  - (c) describe the works that will be carried out in the next 12 months;
  - (d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
  - (e) include a summary of the monitoring results for the project during the past year;
  - (f) include an analysis of these monitoring results against the relevant:
    - impact assessment criteria/limits;
    - monitoring results from previous years; and
    - predictions in the EA;
  - (g) identify any trends in the monitoring results over the life of the project;
  - (h) identify any non-compliance during the previous year; and

- (i) describe what actions were, or are being, taken to ensure compliance.

#### **INDEPENDENT ENVIRONMENTAL AUDIT**

5. Within 1 year of this approval, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
- (a) be conducted by suitably qualified, experienced and independent expert/s whose appointment has been endorsed by the Director-General;
  - (b) include consultation with the relevant agencies;
  - (c) assess the various aspects of the environmental performance of the project, and its effects on the surrounding environment, with particular reference to surface waters and streams, groundwater and flora and fauna;
  - (d) assess whether the project is complying with the relevant standards, performance measures and statutory requirements;
  - (e) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
  - (f) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.
6. Within six weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.
7. Within 3 months of submitting the audit report to the Director-General, the Proponent shall review, and if necessary revise, all relevant strategies/plans/programs required under this approval to the satisfaction of the Director-General.

#### **COMMUNITY CONSULTATIVE COMMITTEE**

8. Within 3 months of this approval, the Proponent shall establish a Community Consultative Committee for the project. This committee shall:
- (a) be comprised of:
    - 2 representatives from the Proponent, including the person responsible for environmental management at the mine;
    - at least 1 representative from Council (if available); and
    - at least 3 representatives from the local community whose appointment has been approved by the Director-General;
  - (b) be chaired by an independent chairperson, whose appointment has been approved by the Director-General;
  - (c) meet at least four times per year during the construction phase and first year of mining operations, and thereafter at least twice per year;
  - (d) review the Proponent's performance with respect to environmental management and community relations;
  - (e) undertake regular inspections of the mining operations;
  - (f) review community concerns or complaints about the mine operations, and the Proponent's complaints handling procedures;
  - (g) provide advice to:
    - the Proponent on improved environmental management and community relations, including the provision of information to the community and the identification of community initiatives to which the Proponent could contribute;
    - the Department regarding the conditions of this approval; and
    - the general community on the performance of the mine with respect to environmental management and community relations; and
  - (h) be operated generally in accordance with any guidelines the Department may publish in regard to the operation of Community Consultative Committees for mining projects.

*Note: The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*

9. The Proponent shall, at its own expense:
- (a) ensure that 2 of its representatives attend CCC meetings;
  - (b) provide the CCC with regular information on the environmental performance of the project;
  - (c) provide meeting facilities for the CCC;

- (d) arrange site inspections for the CCC, if necessary;
- (e) respond to any advice or recommendations the CCC may have in relation to environmental management or community relations;
- (f) take minutes of the CCC meetings;
- (g) forward a copy of these minutes to the Director-General; and
- (h) put a copy these minutes on its website.

#### **ACCESS TO INFORMATION**

10. Within 3 months of the approval of any plan/strategy/program required under this approval (or any subsequent revision of these plans/strategies/programs), or the completion of the audits or AEMRs required under this approval, the Proponent shall:
  - (a) provide a copy of the relevant document/s to the relevant agencies;
  - (b) ensure that a copy of the relevant document/s is made publicly available at the mine; and
  - (c) put a copy of the relevant document/s on its website.
11. During the project, the Proponent shall:
  - (a) make a summary of monitoring results required under this approval publicly available at the mine and on its website; and
  - (b) update these results on a regular basis (at least every three months).



**APPENDIX 1  
SCHEDULE OF PROJECT LAND**

**PART A – ABEL SITE**

**Abel Underground Mining Area – South of John Renshaw Drive**

Map Ref	Lot	DP	Map Ref	Lot	DP	Map Ref	Lot	DP
1	94	755260	46	120	755260	70	1	228477
2	942	817442	47	101	755260	71	1	986196
3	1	858353	48	100	755260	72	2	602610
4	94	755260	49	11	11875	73	91	828299
5	11	804925	49	13	11875	74	92	828299
6	12	804925	49	122	567150	75	951	600488
7	1	583620	49	21	1019282	76	202	626192
8	8	1048112	49	22	1019282	77	2011	812939
9	7	1048112	50	1	120851	78	2012	812939
10	3	237431	51	A	418390	79	952	600488
11	210	833717	52	11	877937	80	A	155698
12	211	833717	52	12	877937	81	101	837562
13	5	237431	53	610	1035588	82	100	837562
14	1	1003988	53	611	1035588	83	1	602610
15	932	816814	54	2	219167	84	1	179002
16	1	189884	55	A	181350	85	2	228477
17	83	629112	56	1	536570	86	3	228477
18	3	1003988	56	1	957782	87	12	528093
19	2	1003988	57	8110	867955	88	21	1043285
20	223	841899	57	8111	867955	88	22	1043285
21	224	841899	58	810	730001	89	111	1035921
22	84	629112	58	1	951843	90	1	174428
23	116	755260	59	2	951843	91	10	837813
23	121	755260	59	1	119630	92	1	910932
23	122	755260	59	1	123945	93	1	359638
24	113	755260	59	1	505578	92	680	545657
25	112	755260	59	72	755260	94	683	619758
26	110	755260	59	79	755260	94	686	619758
26	111	755260	59	82	755260	95	685	619758
27	2	449834	59	83	755260	96	3	214493
27	21	773883	59	84	755260	97	2	214493
27	22	1080823	59	89	755260	98	1	214493
28	23	1080823	59	96	755260	98	4	214493
28	24	1080823	59	125	755260	99	684	619758
29	220	836874	59	1	877416	100	1	123949
30	2	531623	59	2	877416	100	2	123949
31	219	836874	59	3	877416	100	70	755260
32	218	836874	59	4	877416	101	82	627799
33	107	755260	59	101	881099	102	1131	1057179
34	1061	855759	59	13	1072499	103	1	811514
35	1062	855759	60	2	503566	104	10	829154
36	105	755260	61	1	433355	105	11	829154
37	118	755260	61	21	801283	106	11	746684
38	11	873821	62	22	801283	107	41	811191
39	8	873821	63	2	285375	108	8	755232
39	9	873821	64	100	881099	109	7	850020
40	5	873821	65	1	285375	108	8	850020
40	7	873821	66	3	285375	108	4	1049753
41	6	873821	67	4	285375	109	43	811191
42	104	755260	68	5	285375	110	6	850020
43	103	755260	69	6	285375	111	101	860867
44	102	755260	70	3	602610	112	13	1072499
45	14	1059212	71	1	34665			

*Note: Map Reference numbers refer to Fig 3.2 in the Environmental Assessment*

**Abel Surface Facilities Area – North of John Renshaw Drive**

Map Ref	Landowner	Lot	Deposited Plan
57	Donaldson Coal Pty Limited	PT92	755260
58	Donaldson Coal Pty Limited	PT13	11875
59	Donaldson Coal Pty Limited	121	567150
60	Donaldson Coal Pty Limited	PT11	11875
61	Donaldson Coal Pty Limited	21	1019282
62	Donaldson Coal Pty Limited	22	1019282
63	Donaldson Coal Pty Limited	81	627799
64	Donaldson Coal Pty Limited	1	838310
65	Donaldson Coal Pty Limited	PT13	755260
12	Hunter Water		2487-3070

*Note: Map Reference numbers refer to the Figure “Cadastral Data North of John Renshaw Drive”*

**PART B – BLOOMFIELD SITE**

**Bloomfield Lease Area**

Map Ref	Landowner	Lot	Deposited Plan
1	Ashtonfield Holdings	1	1045723
2	Ashtonfield Holdings	9	755237
3	Ashtonfields Pty Limited	223	755237
4	Ashtonfields Pty Limited	1	456999
5	Ashtonfields Pty Limited	15	241097
6	Ashtonfields Pty Limited	14	241097
7	Ashtonfields Pty Limited	1	982215
8	Hunter Water	1	724270
9	Ashtonfields Pty Limited	1	1045720
10	Ashtonfields Pty Limited	2	1045720
11	Ashtonfields Pty Limited	1	1045722
12	Hunter Water		2487-3070
13	Ashtonfields Pty Limited	2	1045722
14	Ashtonfields Pty Limited	13	241097
15	Ashtonfields Pty Limited	10	755237
16	Ashtonfields Pty Limited	11	755237
17	Ashtonfields Pty Limited	18	755237
18	Ashtonfields Pty Limited	20	755237
19	Ashtonfields Pty Limited	19	755237
20	Ashtonfields Pty Limited	30	755260
21	Ashtonfields Pty Limited	29	755260
22	Ashtonfields Pty Limited	28	755260
23	Ashtonfields Pty Limited	27	755260
24	Ashtonfields Pty Limited	26	755260
25	Ashtonfields Pty Limited	PT34	755260
26	Ashtonfields Pty Limited	1	722210
27	Ashtonfields Pty Limited	PT48	755260
28	Ashtonfields Pty Limited	PT35	755260
29	Ashtonfields Pty Limited	PT36	755260
30	Ashtonfields Pty Limited	1	42349
31	Ashtonfields Pty Limited	1	69246
32	Ashtonfields Pty Limited	3	1045720
33	Ashtonfields Pty Limited	4	1045720
34	Ashtonfields Pty Limited	1	58967
35	Ashtonfields Pty Limited	1	136865
36	Hunter Water	1	617909
37	Ashtonfields Pty Limited	2	136865
38	Ashtonfields Pty Limited	PT31	755237
39	Four Mile	35	755237
40	Four Mile	36	755237
41	Ashtonfields Pty Limited	23	755237

42	Ashtonfields Pty Limited	29	755237
43	Ashtonfields Pty Limited	1	1045719
44	Ashtonfields Pty Limited	PT37	755237
45	Ashtonfields Pty Limited	PT38	755237
46	Ashtonfields Pty Limited	PT39	755237
47	Ashtonfields Pty Limited	25	755260
48	Ashtonfields Pty Limited	24	755260
49	Ashtonfields Pty Limited	23	755260
50	Ashtonfields Pty Limited	22	755260
51	Ashtonfields Pty Limited	12	241097
52	Ashtonfields Pty Limited	43	755260
53	Ashtonfields Pty Limited	44	755260
54	Ashtonfields Pty Limited	45	755260
55	Ashtonfields Pty Limited	46	755260
56	Ashtonfields Pty Limited	2	456999
pipeline	Hunter Water	1	241097
pipeline	Hunter Water	2	241097
pipeline	Hunter Water	3	241097
pipeline	Hunter Water	4	241097
pipeline	Hunter Water	5	241097
pipeline	Hunter Water	6	241097
pipeline	Hunter Water	7	241097
pipeline	Hunter Water	8	241097
pipeline	Hunter Water	9	241097
pipeline	Hunter Water	10	241097
pipeline	Hunter Water	2	42349
pipeline	Hunter Water	3	42349
pipeline	Hunter Water	1	814843

**Out of Lease Areas**

Map Ref	Landowner	Lot	Deposited Plan
57	Donaldson Coal	PT92	755260
66	Big Ben Holdings	4	11988
67	Big Ben Holdings	849	852072
68	Cant Family Partnership	30	577638
69	Cant Family Partnership	101	616161
70	Four Mile	5	866929
71	Donaldson Coal	12	1007491
72	Ashtonfield Holdings	43	755237
73	Ashtonfield Holdings	44	755237
74	Ashtonfield Holdings	50	755237
75	Ashtonfield Holdings	51	755237
76	Big Ben Holdings	42	755237
77	Ashtonfield Holdings	45	755237
78	Ashtonfield Holdings	49	755237
79	Big Ben Holdings	41	755237
12	Hunter Water		2487-3070
pipeline	Hunter Water	11	241097

**Note:** Map Reference numbers refer to the Figure "Cadastral Data North of John Renshaw Drive"

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**APPENDIX 2  
PROJECT MAPS**

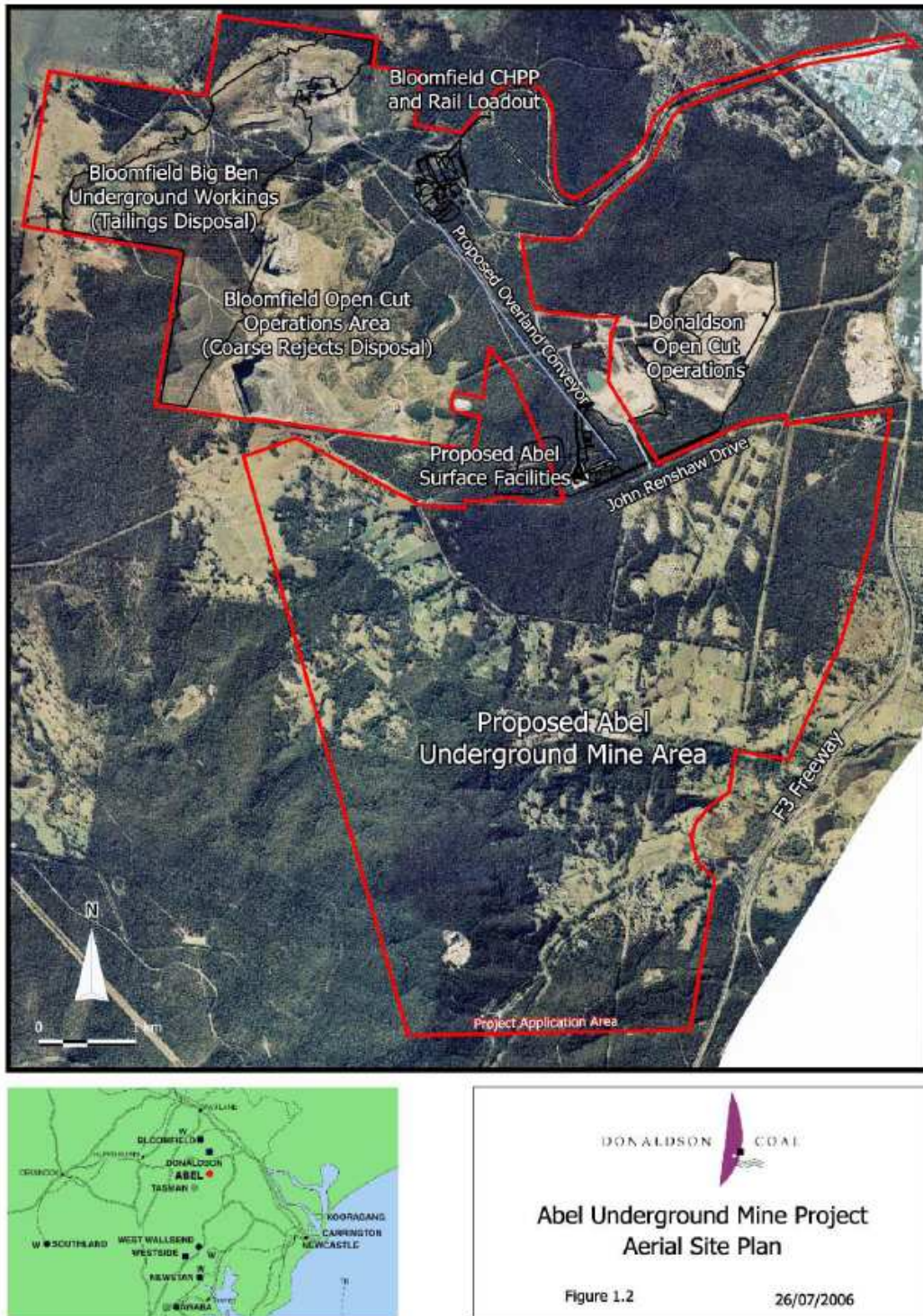
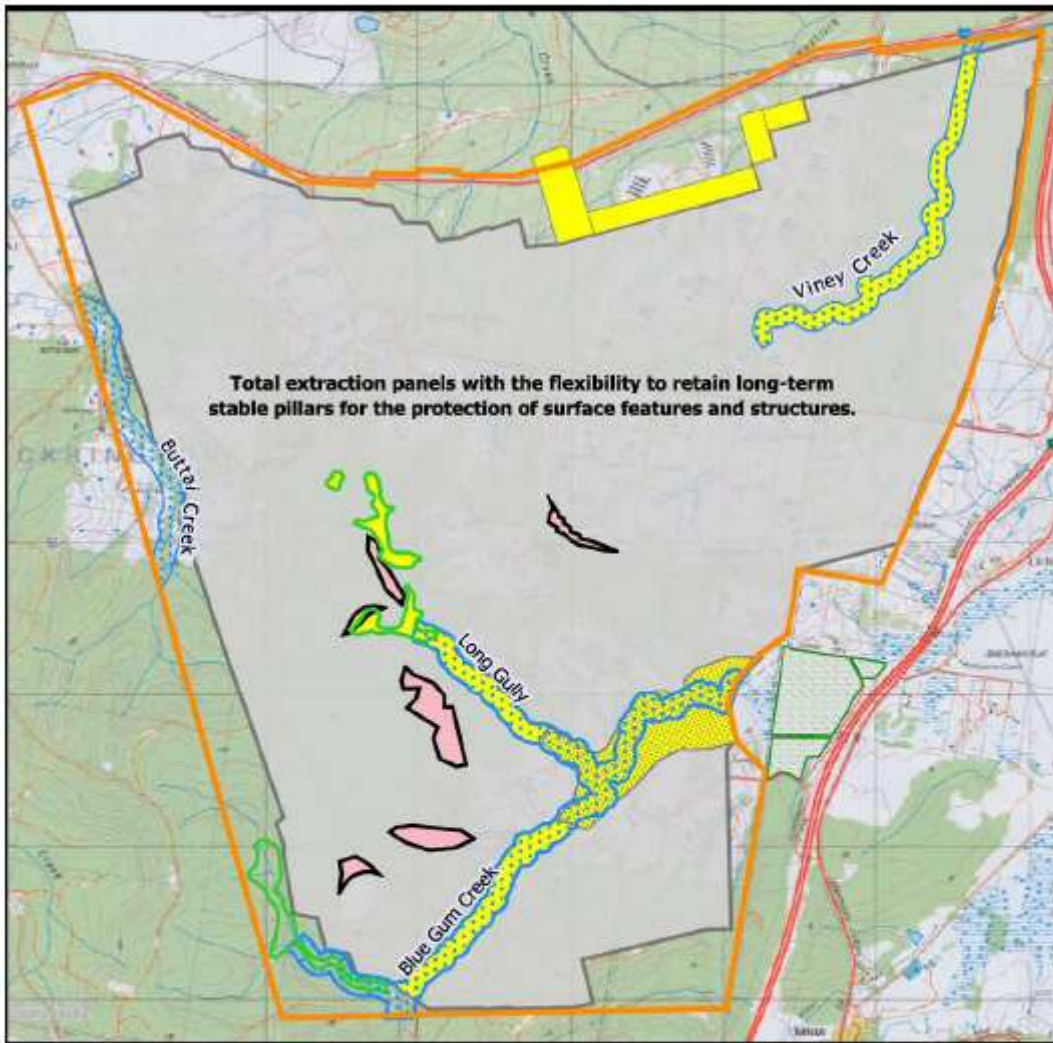


Figure 1: Project Layout



### Abel Underground Mine Project

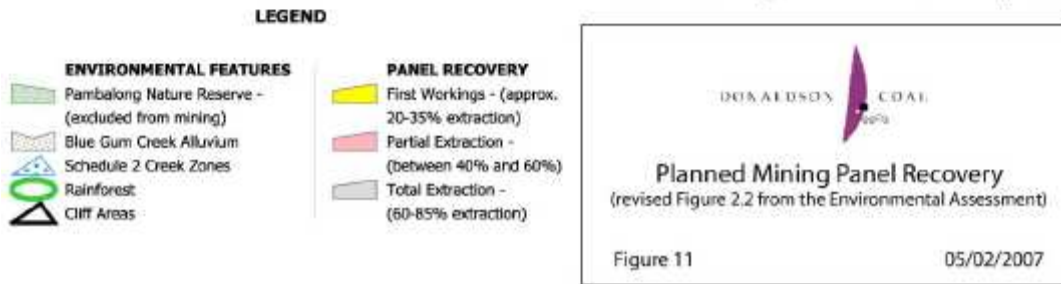


Figure 2: Planned Subsidence Management Outcomes

**APPENDIX 3  
STATEMENT OF COMMITMENTS**

## STATEMENT OF COMMITMENTS

The Director-General's requirements for the Abel Underground Mine project require that the Part 3A Environmental Assessment for the project include a Statement of Commitments which details the measures proposed by Donaldson Coal Pty Ltd (**'the Company'**) for environmental mitigation, management and monitoring of the proposed project. The Director-General specified the requirement for a Statement of Commitments in the Environmental Assessment Requirements for the project in accordance with Section 75F(6) of the *Environmental Planning and Assessment Act 1979*.

If approval is granted under Part 3A of the *Environmental Planning and Assessment Act 1979* the Company will commit to the following controls for construction and operation of the proposed Abel Underground Mine.

<p><b>0. General</b></p>	<p>The Applicant shall carry out the development generally in accordance with the:</p> <p>(a) Abel Underground Mine Part 3A Environmental Assessment.</p> <p>If there is any inconsistency between the conditions of this Statement of Commitments and a document listed above the conditions of this Statement of Commitments shall prevail to the extent of the inconsistency.</p>
<p><b>1. Production</b></p>	<p>1.1 No more than 4.5 million tonnes of ROM coal a year will be mined from the Abel Underground Mine.</p> <p>1.2 No more than 6.5 million tonnes of ROM coal a year will be processed at the Bloomfield CHPP.</p> <p>1.3 No more than 5.0 million tonnes per annum of product coal will be transported on the Bloomfield Rail Loop.</p>
<p><b>2. Hours of Operation</b></p>	<p>2.1 The Abel Underground Mine will operate 24 hours per day, seven days per week.</p> <p>2.2 The Bloomfield CHPP will operate 24 hours per day, seven days per week.</p> <p>2.3 The Bloomfield Rail Loop will operate 24 hours per day, seven days per week.</p>
<p><b>3. Noise</b></p>	<p><b>3.1 Construction Activities</b></p> <p>The following noise control measures will be implemented prior to commencement of construction of the Abel Underground Mine or the upgrade of the Bloomfield CHPP;</p> <p>(a) Maintain all machinery and equipment in working order;</p> <p>(b) No construction activities at the Abel pit top will take place on Sundays or Public Holidays;</p> <p>(c) Where possible locate noisy site equipment behind structures that act as barriers or at the greatest distance from noise sensitive areas;</p> <p>(d) Orient equipment so that noise emissions are directed away from noise sensitive areas;</p>

**3.2 Noise Control Measures**

(a) The following noise control measures will be implemented prior to the mining of coal from the Abel Underground Mine:

- orientation of the ventilation fan towards the north-west, away from residential receivers and angle the output parallel to the ground.
- The sound power level of the front end loader to be used near the portal should not exceed 113 dBA and will be fitted with a noise sensitive reversing alarm.

(b) The following noise control measures will be implemented prior to the Bloomfield CHPP receiving any ROM coal from the Abel Underground Mine:

- Noise mitigation works including partial enclosure and noise screening of drives and conveyors of the Bloomfield CHPP to screen residences to the north of the site.

**3.3 Monitoring**

Within 6 months of this approval being granted a Noise Monitoring Program shall be prepared and implemented for the Abel Underground Mine and the Bloomfield CHPP, to the satisfaction of the Director-General. The Noise Monitoring Program shall include a combination of real-time and supplementary attended monitoring measures, and a noise monitoring protocol for evaluating compliance with the noise environmental assessment. This plan will be integrated with the monitoring plans for the Tasman, Donaldson and Bloomfield Mines to provide a single integrated Noise Monitoring Program for all 4 mines.

**3.4 Continuous Improvement**

The Company shall:

(a) report on these investigations and the implementation of any new noise mitigation measures on site in the AEMR, to the satisfaction of the Director-General.

The operator of the Bloomfield CHPP shall:

(b) investigate ways to reduce the noise generated by the Bloomfield CHPP, including maximum noise levels which may result in sleep disturbance;

(c) implement all reasonable and feasible best practice noise mitigation measures on the site; and

(d) report on these investigations and the implementation of any new noise mitigation measures on site in the AEMR, to the



	satisfaction of the Director-General.
<p><b>4. Air Quality</b></p>	<p><b>4.1 Construction</b>  The following actions shall be adopted in relation to dust control on the site during construction of the proposed Abel Underground Mine and the modifications to the Bloomfield CHPP:</p> <ul style="list-style-type: none"> <li>• Minimise the area to be disturbed;</li> <li>• Progressively rehabilitate disturbed areas as soon as practicable;</li> <li>• Restrict vehicle movements to specified routes;</li> <li>• Provide speed limited signage around the mine site;</li> <li>• Dust suppression using water sprays;</li> <li>• Commence landscaping as soon as practicable;</li> <li>• Install dust gauges to monitor dust deposition levels at sensitive receptors. A minimum of 11 locations are proposed.</li> </ul> <p><b>4.2 Air Quality Control Measures</b>  (a) The following actions would be adopted in relation to dust control on the site during operation of the proposed Abel Underground Mine and the operation of the Bloomfield CHPP:</p> <ul style="list-style-type: none"> <li>• All mobile equipment will be maintained in good working order to limit exhaust fumes.</li> <li>• Regular watering of all roads;</li> <li>• Use water sprays periodically on open stockpile areas and regular visual inspection will be undertaken and water sprays activated as required.</li> </ul> <p>(b) Dust emissions generated by the Abel Underground Mine and the Bloomfield CHPP will not exceed any statutory limits.</p> <p>(c) Dust control on site is to be aimed at prevention of air pollution and prevention of the degradation of local amenity.</p> <p>(d) Dust controls on the site will comply with all relevant NSW DEC guidelines and any applicable Environment Protection Licence issued under the POEO Act 1997.</p> <p>(e) Regular inspections for excessive visible dust generation will be undertaken and appropriate controls will be implemented when such events occur. This will include ceasing operations during high wind conditions if necessary to ensure effective dust control.</p> <p><b>4.4 Monitoring</b>  (a) Within 6 months of the grant of this approval a Air Quality Monitoring Program shall be prepared and implemented for the Abel Underground Mine and the Bloomfield CHPP, to the satisfaction of the Director-General. The Air Quality Monitoring Program shall include a combination of real-time and</p>

	<p>supplementary attended monitoring measures (including real-time air quality monitoring for 24-hour average PM10 and the recording of required meteorological monitoring data) and an air quality monitoring protocol for evaluating compliance with the air quality environmental assessment. This plan will be integrated with the existing monitoring plans for the Tasman, Donaldson and Bloomfield Mines to provide a single integrated Air Monitoring Program for all 4 mines.</p> <p>(b) Within 6 months of this approval, the Company shall ensure that there is a suitable meteorological station operating in the vicinity of the development in accordance with the requirements in Approved Methods for Sampling of Air Pollutants in New South Wales.</p>
<p><b>5.Surface Water Management - Abel Underground Mine</b></p>	<p><b>5.1 Schedule 1 streams</b></p> <p>(a) Schedule 1 streams (as defined in the DIPNR 2005 guideline, "Management of stream/aquifer systems in coal mining developments") will be managed via the implementation of mitigation and remediation works where needed to ensure that:</p> <ul style="list-style-type: none"> <li>• stream stability is maintained where subsidence occurs</li> <li>• stream fractures are minimised</li> <li>• stream channels are maintained with minimal incision from bed grade change; and</li> <li>• stream bed grade change is minimised to provide stable stream length.</li> </ul> <p>(b) Where any stream stability controls are required they will be designed in accordance with the <i>Rehabilitation Manual for Australian Streams</i> (Land and Water Resources Research and Development Corporation, 2000) and will be provided primarily by vegetation.</p> <p><b>5.2 Schedule 2 streams</b></p> <p>(a) Schedule 2 streams (as defined by DIPNR, 2005) will be managed so as to ensure that:</p> <ul style="list-style-type: none"> <li>• they maintain pre-mining course, and maintain bed channel gradients which do not initiate erosion;</li> <li>• they maintain pool riffle sequences where they pre-existed, or have pool riffle sequences installed where appropriate;</li> <li>• they maintain connectivity to underground workings, and flow loss to fracture zones in similar levels to pre-mining;</li> <li>• they maintain geomorphic integrity of the stream;</li> <li>• the ecosystem habitat values of the stream are protected;</li> <li>• no significant alteration of the water quality occurs in the stream.</li> </ul>

(b) The above commitments for Schedule 2 streams will be achieved by:

- the provision of a minimum barrier of 40m between the 20 millimetre line of subsidence and the bank of any Schedule 2 streams; or
- the carrying out of further detailed studies and the development of a Surface Water Management Plan for the Abel Underground Mine which clearly demonstrates that the above commitments can be met prior to any mining occurring which will impact on any Schedule 2 streams.

### **5.3 Pambalong Alluvium**

For the lower reach of Blue Gum Creek (from the confluence of Long Gully and Blue Gum Creek downstream), a buffer will be provided which provides for no more than 20mm of subsidence at 40m from the edge of the alluvium will be adopted, and within the buffer zone no significant subsidence will occur.

### **5.4 Rainforest Communities**

Subsidence in the rain forest protection zones identified on Figure 2.2 will be limited to 20mm of subsidence at the edge of the zone identified unless further studies can demonstrate that there will be no significant impact on the rainforest communities within the buffer zone with greater subsidence impacts.

### **5.5 Surface Water Management Plan**

Prior to mining occurring that will impact on any Schedule 1 streams the Surface Water Management Plan for the Abel Underground Mine will be developed so as to address the following in relation to schedule 1 streams:

- detailed identification of risk factors on a case-by-case basis;
- setting up of permanent monitoring locations along watercourses as well as regular inspection regimes;
- continuation of baseline data collection on water flow conditions and health indicators (such as macro-invertebrates);
- establishment of trigger levels that will be used to assess whether any changes observed through monitoring warrant responsive action; and
- details of responsive and remedial action to be undertaken if required.
- require the identification of any existing degradation in the streams prior to mining to allow differentiation of that degradation induced by the mining.
- provide for a post-mining assessment of any streams within the area of mine subsidence within six (6) months of the initial subsidence.

	<ul style="list-style-type: none"> <li>• provide for a subsequent assessment within eighteen ( 18) months of the initial subsidence to confirm that post-mining degradation resulting from the mining is successfully remediated.</li> <li>• require any remediation works to be implemented to a standard approved by DNR, where the assessment has indicated degradation of the streams in the area of mining induced subsidence, and thereafter on an annual basis until any mining induced stream instability is addressed to the standard approved.</li> <li>• require a photographic record of stream stability for areas where either fracturing is detected (at maximum strain points), or at maximum tilts within the subsidence envelope.</li> </ul> <p>Where it is proposed not to leave a barrier around a Schedule 2 stream a detailed assessment will be undertaken for the stream and provided to DNR addressing the proposed impacts on it. The detailed assessment will include as a minimum:</p> <ul style="list-style-type: none"> <li>• assessment of the geomorphic and vegetation condition and aquatic habitat for the stream;</li> <li>• selective measurements of channel boundary sediment size;</li> <li>• predications of subsidence and cracks/fractures throughout the stream;</li> <li>• a detailed photographic record of the existing stream condition;</li> <li>• a map of the spatial distribution of alluvium and colluvial aprons throughout the stream;</li> <li>• collection of background data for the main areas of alluvium for the shallow alluvial aquifer by the installation and regular monitoring of a network of piezometers and/or wells in the main areas of alluvium for the shallow alluvial aquifer;</li> <li>• assessment of the location and activity of springs, pipes/tunnels and/or salt seepages/efflorescences;</li> <li>• measurement of current bed slope and any pool-riffle sequences on each channel and periodic assessments of changes over time;</li> <li>• an assessment of likely erosion points, fracturing or seepage zones from the mining area to the stream, along the stream channel occurring as a result of mining activities.</li> <li>• an assessment of any required remedial works on the affected stream, including:             <ul style="list-style-type: none"> <li>- options considered for the remediation program</li> <li>- anticipated lifetime of the remedial works</li> <li>- details of the engineering design or process for engineering</li> <li>- design of the remediation works</li> <li>- long term remediation requirements, including revegetation.</li> </ul> </li> <li>• details of the proposed monitoring regime. It will provide for:             <ul style="list-style-type: none"> <li>- post-mining assessment, to a standard approved by DNR, within six (6) months of the initial subsidence.</li> </ul> </li> </ul>
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	<p>- provide for a subsequent assessment within eighteen ( 18) months of the initial subsidence to confirm that post-mining degradation resulting from the mining is successfully remediated.</p> <p>Following consultation with DNR on the above assessment for each schedule 2 stream the Surface Water Management Plan for the Abel Underground Mine will be developed to implement the findings of the above assessment.</p>
<p><b>6. Surface Water Management – Bloomfield CHPP and the Abel Underground Pit Top Facilities</b></p>	<p>6.1 Separate surface water management systems will be designed for the Bloomfield CHPP and the Abel Underground Pit Top Facilities which provide for:</p> <ul style="list-style-type: none"> <li>• Separation of clean and dirty water;</li> <li>• Management and control of stormwater flows;</li> <li>• Minimisation of sediment generation, soil erosion and transport off site;</li> <li>• Recycling of water where to minimise demand for potable water; and</li> <li>• Provision of water for fire fighting.</li> <li>• Maintain water supply for the coal handling and preparation plant and for dust suppression at all times;</li> <li>• Achieve zero discharge to the environment from Big Kahuna;</li> <li>• Minimise discharge from the Stockpile Dam;</li> <li>• Minimise discharge from Lake Foster and Lake Kennerson;</li> <li>• Where controlled discharge is necessary, preference is given to Lake Kennerson.</li> </ul> <p>6.2 The surface water management systems shall be based on the following principles:</p> <ul style="list-style-type: none"> <li>• Minimise demand for fresh water supply by recycling water collected on the site;</li> <li>• Store recycled water on site to reduce water consumption during operation of the proposed development;</li> <li>• Design drainage and sediment control for the operation in accordance with the Landcom (2004) guidelines;</li> <li>• Provide a water supply for fire fighting and provision for containment of firewater;</li> <li>• Use of a first flush system to ensure “dirty” water is captured in accordance with DEC guidelines.</li> </ul> <p>6.3 The surface water management systems will include an Erosion and Sediment Control Plan (ESCP). The ESCP will outline the measures that will be implemented to ensure that no undue pollution of receiving waters occurs during any earthworks construction or during the operation of the facilities.</p> <p>6.4 The following erosion and sediment control works will be implemented as part of the project:</p>

	<ul style="list-style-type: none"> <li>• All works for the Abel box cut and subsequent construction of surface facilities will be undertaken within the boundaries of the existing Donaldson Mine lease area. These activities will be undertaken in accordance with the approved procedures for erosion protection and sediment control for the Donaldson Mine.</li> <li>• The majority of works in the vicinity of the stockpile area for the Bloomfield CHPP will be undertaken within an area that reports to the existing Stockpile Dam and Dam F. These facilities provide adequate erosion and sediment control for those areas. For minor bunding works to be undertaken on the southern boundary of the enlarged stockpile area, standard erosion control practices such as silt fences will be used.</li> <li>• For any earthworks associated with increasing the capacity of the bypass channel around Lake Foster, standard erosion control practices such as silt fences will be used.</li> <li>• If a conveyor is eventually constructed between the Abel box cut and the Bloomfield CHPP, a separate Erosion and Sediment Control Plan will be prepared that takes account of the details of the conveyor, particularly the crossing of Four Mile Creek.</li> </ul>
<p><b>7. Surface Water Monitoring Program</b></p>	<p>7.1 An integrated surface monitoring program will be undertaken for the Abel Mine, Donaldson Mine and the Bloomfield CHPP covering all potentially affected catchments including Four Mile Creek, Blue Gum Creek and other creeks on the land overlying the Abel underground lease area.</p> <p>7.2 Monitoring of surface water in the creeks that overlie the Abel Underground Mine will commence just prior to mining and continue until one year after mining has passed the contributing catchment and will be undertaken at the following locations:</p> <ul style="list-style-type: none"> <li>• Four Mile Creek at John Renshaw Drive (same as existing Donaldson site);</li> <li>• Weakleys Flat Ck at John Renshaw Drive (same as existing Donaldson site);</li> <li>• Buttai Creek at Lings Road;</li> <li>• Blue Gum Creek at Stockrington Road; and</li> <li>• Long Gully (downstream).</li> </ul> <p>7.3. The following monitoring regime is proposed:</p> <ul style="list-style-type: none"> <li>• Routine monthly baseline sampling;</li> <li>• Daily water samples collected from the discharge point on any occasion when there is controlled discharge from Lake Kennerson. Water samples will also be collected at the flow gauging station behind the Four Mile Workshops. These samples will be analysed for: total suspended solids, conductivity, pH and filterable Iron;</li> <li>• Daily water samples will be collected from any overflow from</li> </ul>

	<p>the Stockpile Dam. Water samples will also be collected at the flow gauging station behind the Four Mile Workshops. These samples will be analysed for: total suspended solids, conductivity, pH and filterable Iron.</p> <ul style="list-style-type: none"> <li>• Collection of extensive baseline data prior to mining, including the ability to collect at least 15 years of baseline data for Blue Gum Creek and Pambalong Nature Reserve;</li> <li>• Monthly monitoring during any substantial subsidence period for each monitoring site, and annual monitoring for all sites;</li> <li>• Water quality sampling from each of the sampling locations shown in Figure 8.2 in the EA with analytes measured including pH, Electrical Conductivity, Total Dissolved Solids, Total Suspended Solids, Chloride, Sulfates, Alkalinity (Bicarbonate), Alkalinity (Carbonate), Calcium, Magnesium, Sodium and Potassium;</li> <li>• Flow gauging stations established on Blue Gum Creek to monitor water flow and level; and</li> <li>• Macro-invertebrate monitoring within Blue Gum Creek and Pambalong Nature Reserve, including the use of AUSRIVAS (Australian River Assessment System) to assess biological health.</li> </ul>
<p><b>8. Groundwater Management Plan and Ground Water Monitoring Program</b></p>	<p>8.1 Within 6 months of the granting of approval an Groundwater Management Plan will be prepared. The Plan will comply with all relevant guidelines and will address:</p> <ul style="list-style-type: none"> <li>• Groundwater management within the Abel Underground Mine area, including protection, management, mitigation and remediation of groundwaters as required;</li> <li>• Groundwater management within the area of proposed tailings disposal within Bloomfield Colliery;</li> <li>• Proposed groundwater monitoring program;</li> <li>• Proposed groundwater reporting schedule; and</li> <li>• Feedback mechanisms to alter mining methods if documented groundwater monitoring values are triggered.</li> </ul> <p>8.2 The following response plan will be implemented in the event of significant unforeseen variances from the predicted inflow rates and/or groundwater level impacts:</p> <ul style="list-style-type: none"> <li>• Additional sampling and/or water level measurements to confirm the variance from expected behaviour.</li> <li>• Immediate referral to a competent hydrogeologist for assessment of the significance of the variance from expected behaviour. The review hydrogeologist would be requested to recommend an appropriate remedial action plan or amendment to the mining or water management approach. If appropriate, this recommended action plan would be discussed with DNR and other agencies for endorsement.</li> </ul> <p>8.3 The groundwater monitoring program will be an integrated monitoring program for the Abel Mine, Tasman Mine, Donaldson</p>

	<p>Mine and the Bloomfield CHPP (including the tailings disposal area)_and will include:</p> <ul style="list-style-type: none"> <li>• Monthly measurement of water levels in a representative network of piezometers. Initially, all piezometers currently available would be monitored, however it is recommended that the representativeness of the piezometers be reviewed after the first two years of the project, and an appropriate suite of piezometers be selected on the basis of this review for ongoing monitoring. All piezometers located around Pambalong Nature Reserve would continue to be monitored through the life of the project.</li> <li>• Quarterly sampling of all standpipe piezometers, for laboratory analysis of electrical conductivity (EC), total dissolved solids (TDS) and pH.</li> <li>• Annual collection of water samples from all standpipe piezometers for laboratory analysis of a broader suite of parameters             <ul style="list-style-type: none"> <li>- Physical properties (EC, TDS and pH)</li> <li>- Major cations and anions</li> <li>- Nutrients</li> <li>- Dissolved metals</li> </ul> </li> <li>• Additional sampling and/or water level measurements to confirm any variance from expected behaviour.</li> <li>• Additional regional monitoring piezometers will be installed in the following areas:             <ul style="list-style-type: none"> <li>- Multi-level piezometers to the north and west of Pambalong Nature Reserve, to provide additional data on groundwater pressures in the intervening strata between the Donaldson seams and the alluvium (supplementing the existing data from piezometers C081A and B and C082).</li> <li>- Multi-level piezometers along the eastern side of the Abel project area, located at nominally 3 sites between the F3 Freeway and the lease boundary, to resolve the apparent anomalous water levels below sea level at C063A and B, and to provide additional data on groundwater pressures in the intervening strata between the Donaldson seams and the Hexham Swamp alluvium.</li> <li>- Multi-level piezometers near the western and southern boundaries of the Abel project area to provide information on groundwater pressures at various depths, as this area currently lacks monitoring points. These piezometers would also aim to provide information on the current status of groundwater in the West Borehole seam near the former workings, prior to mining of the Donaldson seams approaching that area.</li> </ul> </li> <li>• The additional Pambalong and Hexham Swamp monitoring bores will be installed prior to commencement of coal extraction. The western piezometers will be installed at least five years prior to mining reaching that part of the lease.</li> </ul>
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	<ul style="list-style-type: none"> <li>• The subsidence/fracturing monitoring piezometer network should comprise the following:             <ul style="list-style-type: none"> <li>– Multi-level piezometers situated centrally within the extraction panels (at least 2 locations per panel) with vibrating wire piezometers set at nominally 30m intervals from the surface down to 30m above the Upper Donaldson roof level.</li> <li>– Shallow standpipe piezometers adjacent to each of the above multi-level piezometers, set to the base of the colluvium/weathered bedrock zone, to monitor any impact on the surficial unconfined aquifer. Standpipe piezometers will allow repeat hydraulic testing and water quality sampling, as well as water level monitoring.</li> </ul> </li> <li>• The above monitoring network will be implemented prior to commencement of each extraction panel, and would be monitored closely before, during and after extraction. Based on the monitoring results during extraction of the first 4 or 5 panels, an appropriate ongoing monitoring program would be developed for the subsequent deeper panels as the mining progresses downdip.</li> </ul> <p>8.4 At the end of the second year of underground mining, a comprehensive review will be undertaken of the performance of the groundwater system. This would include re-running the groundwater model in transient calibration mode, to verify that the actual inflow rates and groundwater level impacts are in accordance with the model predictions described in this report. If necessary, further adjustment would be made to the model at that time, and new forward predictions of mine inflows and water level impacts be undertaken.</p> <p>8.5 The current groundwater model will be expanded to include deeper layers and a larger area that will incorporate the Bloomfield operations and areas of possible groundwater impact around Bloomfield. It is proposed to calibrate this expanded model with ongoing monitoring data from Bloomfield, and more detailed simulation of the Donaldson mining and backfilling. Details of this model and scheduling for completion will be included in the Groundwater Management Plan.</p>
<p><b>9. Visual Amenity</b></p>	<p>Visual impacts of the Abel Underground Mine portal and the Bloomfield CHPP will be ameliorated by the following strategies:</p> <p>(a) The access portals for the Abel underground Mine will be located in the high wall of the existing Donaldson Open Cut Pit.</p> <p>(b) If the overland conveyor to the Bloomfield CHPP to the Abel Underground Mine portal is constructed its maximum height will not exceed 15 metres so to ensure that it is concealed from view</p>

	<p>by the surrounding tree cover. Where possible the route will follow the existing haul roads and tree clearing will be minimised where possible to reduce the visual impact of the conveyor.</p> <p>(c) New buildings and structures, as well as existing buildings and structures at the Bloomfield CHPP, visible from the surrounding areas will be painted a dark charcoal colour.</p> <p>(d) All reasonable measures will be taken to design the stockpiles at the Bloomfield CHPP so as to minimise their visual impact on the surrounding East Maitland and Ashtonfield Areas.</p> <p>(e) Existing lighting will be redesigned and new lighting be designed, so as to minimise, via the use of directional lighting, light spill affecting residents in the East Mainland, Ashtonfield Areas and Black Hill areas.</p>
<p><b>10. Flora and Fauna</b></p>	<p>A Flora and Fauna Management Plan for the proposed conveyor corridor and stockpile expansion areas will be developed and implemented prior to any clearing occurring for the conveyor corridor and stockpile expansion: This plan will include:</p> <ul style="list-style-type: none"> <li>• a vegetation clearance protocol that describes the measures to be taken in order to minimise and ameliorate any impact on flora and fauna in general, and threatened species in particular, during the clearing process.</li> <li>• a commitment to conduct pre-clearance surveys of areas to be cleared of vegetation by a suitably qualified biologist. Searches will be conducted for threatened species of flora or fauna, trees having potential habitat hollows and any habitat assets such as large hollow logs or rocks which could be used in later rehabilitation. If any threatened species of flora are found in the planned clearing areas the Flora and Fauna Management will provide for the consideration of the following options to minimise any impact to the threatened species of flora: <ul style="list-style-type: none"> <li>- modification of the area to be cleared in order to leave the flora in place.</li> <li>- translocation of the flora to an area of similar habitat within the Donaldson or Bloomfield properties, applying the best available knowledge about the ecology and translocation of the species.</li> </ul> </li> <li>• the pre-clearing survey will be conducted about 7 days prior to commencement and involve the following: <ul style="list-style-type: none"> <li>- Trees having potential habitat hollows should be clearly marked with a band of survey paint around the stem;</li> <li>- Habitat trees watched at dusk to determine what if any fauna are using the hollows;</li> <li>- At a minimum all marked trees will be left standing for at least 2 nights following the clearing to allow any</li> </ul> </li> </ul>

	<p>mammals to vacate the trees. However as most of the areas to be cleared are narrow or in close proximity to standing forest, it cannot be guaranteed that the mammals will leave and a person experienced in capturing and handling native fauna should be in attendance when these trees are pushed over;</p> <p>- Any trees found to contain bats should be left standing and soft-felled at dusk after the bats have left the hollows. This should be conducted under the supervision of a suitably experienced fauna ecologist.</p> <p>An Ecological Monitoring Plan will be drafted and implemented prior to any mining which will impact on the areas of sub-tropical rainforest above Abel Underground Mining, and for Pambalong Nature Reserve, outside of the mining area to the south-east. These two areas will be monitored as follows:</p> <p><b>Sub-tropical Rainforest Monitoring plan</b></p> <p>The collection of the following data:</p> <ul style="list-style-type: none"> <li>• At suitable locations, record the outer boundary between the rainforest and the surrounding dry forest in order to monitor the stability of the community;</li> <li>• Establish groundwater piezometers at suitable locations and record water depth;</li> <li>• Establish permanent transects along which floristic content is recorded; and</li> <li>• Monitor the stability of selected major rock formations that occur in or near the rainforest.</li> </ul> <p><b>Pambalong Nature Reserve Monitoring</b></p> <p>The data to be collected would be as follows:</p> <ul style="list-style-type: none"> <li>• Rainfall in the catchments supplying water to Pambalong Nature Reserve (PNR);</li> <li>• Water levels in PNR;</li> <li>• Annual fauna monitoring with emphasis on birds and amphibians; and</li> <li>• Broad vegetation communities and their boundaries.</li> </ul>
<p><b>11. Aboriginal Heritage</b></p>	<p>11.1 During any construction phase if any Aboriginal sites or relics are uncovered the NSW DEC will be informed. In the event that a site or relic is found then work in the area of the find will cease until it is assessed for significance and an appropriate management strategy is devised if necessary.</p> <p>11.2 An Aboriginal Heritage Management Plan will be implemented in consultation with the relevant Aboriginal stakeholders to specify the policies and actions required to mitigate and manage the potential impacts of the proposal on Aboriginal heritage.</p>

	<p>11.3 The plan will provide procedures for:</p> <ul style="list-style-type: none"> <li>• ongoing Aboriginal consultation and involvement,</li> <li>• maintenance of an Aboriginal site database,</li> <li>• management of recorded sites within the investigation area,</li> <li>• further archaeological investigation prior to undermining,</li> </ul> <p>The plan will be regularly verified to establish that it is functioning as designed (ie. policies adhered to and actions implemented) to the standard required.</p> <p>11.4 Continued use of surface infrastructure and construction of new surface infrastructure will be assessed against the location of identified Aboriginal heritage evidence and where impacts may occur, mitigation measures will be implemented as specified in the Aboriginal Heritage Management Plan.</p> <p>11.5 The Company will seek to minimise impacts to identified and potential Aboriginal heritage evidence within the northern investigation area and to conserve identified evidence where impacts are not required to occur for operational reasons.</p> <p>11.6 The Company will seek to mitigate impacts to identified and potential Aboriginal heritage evidence within the northern investigation area where impacts must occur for operational reasons.</p> <p>Staged systematic archaeological survey of each section proposed to be undermined in the southern investigation area will occur with the participation of the Aboriginal stakeholders prior to any underground mining in that section. The survey will sample the geographic extent of each section. The nature, level of integrity, potential impacts and scientific and cultural significance of any evidence identified will be assessed in consultation with the Aboriginal stakeholders and mitigation measures implemented as per the Aboriginal Heritage Management Plan.</p> <p>11.7 Where site types susceptible to subsidence impacts (grinding grooves and rock shelters) are identified within the southern investigation area, an assessment of the potential impacts of subsidence will be undertaken by an appropriately qualified expert. Where it is determined that subsidence may impact a grinding groove or rock shelter site (including shelters with 'Potential Archaeological Deposits'), mitigation measures will be implemented to ensure that any impact is acceptable.</p> <p>11.8 A regional monitoring network for Aboriginal heritage across the Abel, Tasman, Donaldson and Bloomfield sites will be established, including continuation of the existing programme of monitoring in the Donaldson Bushland Conservation Areas, monitoring before and after undermining for a sample of</p>
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	<p>Aboriginal sites within the southern investigation area for which it is not anticipated that subsidence related impacts will occur, monitoring before and after undermining for all Aboriginal sites for which it is inferred that undermining may result in impacts in order to ensure the adequacy of conservation measures around those sites, and documentation of the results of all monitoring in an annual report.</p> <p>11.9 The Company will continue to consult with and involve the registered Aboriginal stakeholders, particularly the Local Aboriginal Land Councils, in the ongoing management of the heritage resources within the investigation area as per the Aboriginal Heritage Management Plan.</p> <p>Should any previously unrecorded Aboriginal heritage evidence be identified within the lease area during the course of operations, Donaldson will ensure that this evidence is subject to temporary conservation and is recorded and appropriate management strategies are implemented in consultation with the Aboriginal community as per the Aboriginal Heritage Management Plan. Donaldson will maintain a current database providing details of all identified Aboriginal heritage evidence within the lease area so that the Aboriginal Heritage Management Plan can be effectively implemented and records for any Aboriginal sites identified and copies of all reports prepared in relation to ongoing monitoring and archaeological studies associated with the project will be lodged in a timely manner with DEC.</p> <p>11.10 In order to form an integrated monitoring network for Aboriginal heritage across the Abel, Tasman, Donaldson and Bloomfield sites, it is proposed for the duration of the mining leases to:</p> <ul style="list-style-type: none"> <li>• Continue the existing programme of monitoring in the Donaldson Bushland Conservation Areas to ensure that the condition of a sample of Aboriginal heritage sites that occur within the northern investigation area is regularly assessed. This will involve monitoring on an annual basis the seven existing datum points within the Conservation Area by a qualified archaeologist and representatives of the Mindaribba LALC;</li> <li>• A sample of Aboriginal heritage sites within the southern investigation area, comprising site types for which it is not anticipated that subsidence related impacts will occur, will be monitored before and after undermining in their vicinity to confirm the accuracy of these predictions. This will involve inspections prior to undermining then at set periods after undermining by a qualified archaeologist and representatives of the relevant LALC;</li> <li>• All Aboriginal heritage sites for which it is inferred that undermining may result in impacts (ie. rock shelter and grinding groove sites) will be monitored before and after</li> </ul>
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	<p>undermining in their vicinity to ensure the adequacy of conservation measures around those sites. This will involve inspections prior to undermining then at set periods after undermining by a qualified archaeologist and representatives of the relevant LALC;</p> <ul style="list-style-type: none"> <li>• An annual report documenting the results of monitoring will be prepared and provided to the relevant LALC and DEC detailing the methodology of the inspections, conditions of the environment and Aboriginal heritage evidence at the relevant sites, comparisons with previously reported descriptions of each site, identification of any natural and/or human impacts during the intervening period, and identification of any implications for ongoing management and protection of the Aboriginal heritage evidence throughout the lease areas.</li> </ul>
<p><b>12. Environmental Management System</b></p>	<p>The Environmental Management Plan outlined in Chapter 8 of the Environmental Assessment will be prepared within 6 months of this approval being granted, to the satisfaction of the Department of Planning.</p> <p>The EMP will address, separately for the Abel Underground Mine and the Bloomfield CHPP (unless otherwise specified), the following specific issues for both construction and operation of the proposed mine:</p> <ul style="list-style-type: none"> <li>• Construction Management Plan;</li> <li>• Community Involvement Plan;</li> <li>• Noise Management Plan;</li> <li>• Water Management Plan;</li> <li>• Waste Management Plan;</li> <li>• Air Quality Management Plan;</li> <li>• Erosion and Sediment Control Plan;</li> <li>• Flora and Fauna Management Plan;</li> <li>• Heritage and Archaeology Area Management Plans;</li> <li>• Landscape Management Plan;</li> <li>• Rehabilitation Management Plan;</li> <li>• <i>Tetratheca juncea</i> management plan;</li> <li>• Groundwater Management Plan;</li> <li>• Subsidence Management Plan;</li> <li>• Watercourse Subsidence Management Plan;</li> <li>• Dam Subsidence and Repair Management Plan;</li> <li>• Gas Management Plan</li> <li>• Bloomfield CHPP and RLF Environmental Management Plan</li> </ul> <p>Where appropriate the above plans will be integrated plans which will apply across the following mining operation areas:</p> <ul style="list-style-type: none"> <li>• Proposed Abel Underground Mine;</li> <li>• Tasman Underground Mine;</li> </ul>

	<ul style="list-style-type: none"> <li>• Donaldson Open Cut Mine; and</li> <li>• Bloomfield Coal Handling and Preparation Plant (CHPP) and Rail Loading Facility (RLF).</li> </ul> <p>The Environmental Management Plan will include:</p> <ul style="list-style-type: none"> <li>• The Company Environmental Policy that guides the direction of environmental management and provides Company commitment to environmental protection, mitigation and management.</li> <li>• Objectives, including legislative requirements to be met and relevant guidelines and Standards;</li> <li>• Work procedures, which detail in practical terms what will be undertaken, when and by whom;</li> <li>• Monitoring, including what will be monitored, when and where this will occur, and reporting of results;</li> <li>• Review procedures, being when the management plan and contents will be reviewed;</li> <li>• Feedback mechanisms, to ensure that any required changes to the Plan, due to a review or other mechanism such as other risk assessment, are made and the plan updated;</li> <li>• Training, describing how employees and contractors are trained in the documented procedures and updated on an ongoing basis when changes are made; and</li> <li>• Emergency response procedures.</li> </ul> <p>The Company will prepare and implement an Environmental Due Diligence Training Program which will focus on the following matters:</p> <ul style="list-style-type: none"> <li>• The EMS;</li> <li>• Environment Protection legislation;</li> <li>• Understanding Due Diligence;</li> <li>• Specific Environmental Impacts of construction and operation of the mine;</li> <li>• The Company Safety Health Environmental Policy;</li> <li>• Reporting and recording environmental incidents;</li> <li>• Site environmental management.</li> </ul> <p>The mine Site Manager or his/her nominee shall be responsible for implementing the EMS.</p>
<p><b>12. Rehabilitation</b></p>	<p>The Company commits to rehabilitating the Abel Underground Mine area and Abel pit top in accordance with DOP and DPI guidelines. This includes ongoing rehabilitation in response to mine subsidence as well as rehabilitation of pit top areas after completion of mining.</p> <p>The Company will provide a Mine Closure Plan as part of the MOP required under the relevant condition of the mining lease for the Abel Underground Mine. This Mine Closure Plan will be produced in consultation with DOP, DPI and other stakeholders</p>

	as required.
<b>13. Site Security</b>	Unauthorised entry of people into the Abel Underground Mine Portal Surface works and the Bloomfield CHPP is to be prevented to ensure site security and to prevent damage to components of the mine particularly damage which may result in harm to the environment.
<b>14. Community Consultation</b>	<p>A Community Liaison Committee will be created which will meet on a regular basis to review environmental performance of the Abel Underground Mine and the Bloomfield CHPP.</p> <p>Membership of the Committee is to be determined by the Company and the Committee is to be chaired by an Independent Facilitator and will include representatives of the local community and adjoining property holders, DOP, the DEC and local councils.</p> <p>The Environment Protection Licence for the mine will require the Company to keep a record of all complaints made in relation to pollution arising from any activity to which this Licence applies and will also specify the details to be provided in the record and a complaints handling procedure.</p> <p>The Environment Protection Licence for the mine will require that a telephone complaints line operates during the operating hours of the premises for the purpose of receiving any complaints from members of the public and that the telephone number of this line be notified to the community.</p> <p>A 24 hour telephone complaints line will be established and the local community will be notified of the phone number. Complaints received would be recorded. All information from the complainant, including the nature of the complaint would also be recorded.</p> <p>The appropriate site manager or his/her nominee will undertake an immediate investigation into the cause of any complaint relating to operations of the site and in particular environmental issues and will ensure that corrective action is taken as required.</p> <p>The appropriate site manager or his/her nominee will provide the complainant with an explanation of the cause of any environmental incident and details of any actions taken to mitigate its effect.</p> <p>If necessary, the appropriate site manager would initiate further corrective action, such as introducing changes in operational procedures, work instructions or modifications to equipment etc as may be required to reduce the possibility of further environmental incidents.</p> <p>A record of all complaints received will be kept on site for 4 years.</p>



<p><b>15. Environmental Incidents</b></p>	<p>15.1 Prior to commencement of construction an Emergency Response Plan (ERP) will be prepared for the site which will describe the general policy and approach to be adopted by The Company when managing and responding to an emergency or incident at the site. The ERP will contain a specific definition of 'incident' and 'environmental incident' which is to be consistent with the definition of 'incident' in the POEO Act.</p> <p>15.2 In accordance with Part 5.7 of the POEO Act , the appropriate site manager must notify the NSW DEC of 'incidents' which occur in the course of operations of the AUP where material harm to the environment is caused or threatened, as soon as practicable after they become aware of the incident or threatened material harm.</p> <p>15.3 Initial notification of an 'incident' (as defined) is to be made by telephoning the NSW DEC's Pollution Line.</p> <p>15.4 The following information will be required by Donaldson:</p> <ul style="list-style-type: none"> <li>• The time, date, nature, duration and location of the incident;</li> <li>• The location of the place where pollution is occurring or is likely to occur;</li> <li>• The nature, the estimated quantity or volume and the concentration of any pollutants involved;</li> <li>• The circumstances in which the incident occurred (including the cause of the incident, if known);</li> <li>• The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution;</li> <li>and</li> <li>• Other relevant information.</li> </ul> <p>15.5 The appropriate site manager will assess specific incidents taking into consideration the impact(s) on the environment, to determine whether what resources are required to determine what response is required , or to assist in responding to the impacts. The appropriate site manager would contact an outside agency if required.</p> <p>15.6 All employees working on the site will be responsible for ensuring that the appropriate site manager is informed of any environmental incidents. All environmental incidents would be recorded on an Environmental Incident Report form. As required by Part 5.7 of the POEO Act and the EPL, the Site Manager must notify the NSW DEC of incidents, or the threat of material harm to the environment, as soon as practicable after they become aware of the incident or threat of material harm.</p> <p>15.7 The management strategies for responding to and controlling incidents/emergencies will include the following:</p>
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	<p><b>General Procedures</b></p> <ul style="list-style-type: none"> <li>• Provide adequate resources including staffing and fire fighting equipment;</li> <li>• Training of staff so that a high level of preparedness is maintained by all people who could be involved in an emergency;</li> <li>• Provide a first aid station which would be fully equipped and maintained at the site; and</li> <li>• Periodic review and update of emergency procedures for the site.</li> </ul> <p><b>Fire</b></p> <ul style="list-style-type: none"> <li>• Consultation has been initiated with the NSW Rural Fire Service and this would be ongoing;</li> <li>• Consult with adjoining landholders;</li> <li>• Undertake hazard reduction as required;</li> <li>• Provide fire fighting equipment at site buildings;</li> <li>• Provide clear signposting and access for all fire fighting equipment;</li> <li>• Make available water for fire fighting from water holding tanks or mains; and</li> <li>• Regularly inspect and maintain fire fighting equipment.</li> </ul> <p><b>Chemicals</b></p> <ul style="list-style-type: none"> <li>• Store all chemicals in appropriately banded areas in accordance with their Material Safety Data Sheets (MSDS) and the relevant Australian Standards; and</li> <li>• Store all fuels or flammable solvents in adequately ventilated areas</li> </ul> <p>15.8 All environmental incidents are to be recorded on an Environmental Incident Report form.</p> <p>15.9 An Environmental Incident Folder is to be maintained and shall contain the following:</p> <ul style="list-style-type: none"> <li>• Copies of work instructions on how to deal with particular situations;</li> <li>• Incident contact names/numbers; and</li> <li>• Environmental Incident Report form containing all the details required in the “Notification of Environmental Harm” procedure.</li> </ul>
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**Company Contribution Initiatives**

Donaldson Coal Pty Ltd commits to providing the following monetary contributions towards environmental and community enhancements:

<b>No.</b>	<b>Proposed Activities</b>	<b>Monetary Value</b>
1.	<p><b>Conservation</b></p> <p>The company will contribute \$1,000,000 to be distributed over ten years by a community trust to be established for the purpose.</p> <p>These monies will be able to be expended by the trust on environmental education or research or environmental management works or activities in State Conservation Area lands or other environmentally valuable lands that lie within or above Donaldson's mining leases and exploration licences or other land owned by the company.</p>	\$1,000,000
2.	<p><b>Community Welfare</b></p> <p>The company will contribute \$250,000 over 5 years to be spent as decided by a community trust on educational needs, community works or other works or activities of benefit to the community within the Abel underground mine area.</p>	\$250,000
3.	<p><b>Road Safety</b></p> <p>The company will contribute \$250,000 towards the cost of upgrading the intersection of Black Hill Rd and John Renshaw Drive, provided that construction of the upgrade is initiated by June 2009.</p>	\$250,000
4.	<p><b>Employment Generation</b></p> <p>The Company also operates the <b>Donaldson Job Creation Trust</b>, a charitable trust already in operation set up to distribute \$1,000,000 over ten years. Monies are expended on job training, job creation and Youth at Risk programs in the Lower Hunter. \$500,000 of these monies remain to be spent.</p>	\$500,000
<b>Total</b>		<b>\$2,000,000</b>

**Subsidence Specific Commitments by the Company**

<p>A. Principal Residences</p>	<p>The Company commits to producing and implementing a plan of management for each Principal Residence existing at the date of approval of this project. A Principal Residence is defined as an existing building capable of being occupied as a separate domicile and used for such purpose. The plan of management will be produced and implemented as follows:</p> <p>A1. Each Principal Residence will be individually assessed by the Mines Subsidence Board /structural engineer who will determine tolerable levels for individual subsidence parameters. Tolerable limits are those limits which will result in no mitigation works being required to the Principal Residence due to subsidence impacts from the Abel Underground Mine.</p> <p>A2. Each Principal Residence will have a pre-mining survey to identify and record pre-existing imperfections that will not be covered by the Mines Subsidence Board.</p> <p>A3. Such assessments will be done as and when the progression of the mining process dictates – i.e. mining may have commenced in other areas prior to the individual Principal Residence assessment being undertaken.</p> <p>A4. Tolerable levels will be set according to such factors as dwelling construction (e.g. brick veneer, clad), type (single, double storey), size (length and width), footings (slab, strip footings, piers), surface conditions (sand, rock, clay, steep slope) etc, with reference to the MSB Graduated Guidelines (compatible with AS 2870 and the Building Code of Australia).</p> <p>A5. The mine plan in proximity to each Principal Residence will be modified by the Company to maintain subsidence parameters within the tolerable levels determined above for each Principal Residence.</p> <p>A6. The mine plan will be reviewed by the MSB and the DPI prior to any Subsidence Management Plan being approved under the relevant lease.</p> <p>A7. Each Principal Residence will have a specific subsidence monitoring plan to monitor subsidence impacts before and after mining at the Principal Residence and to ensure that tolerable limits are achieved in practice.</p> <p>A8. The Mines Subsidence Board has the responsibility to rectify any impacts to structures that may occur as a result of mining.</p> <p>In cases where the owner of the Principal Residence and the Company can agree to terms which permit second workings under the Principal Residence greater than those permitted above, the Company agrees to negotiate a plan of management similar to that</p>
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	proposed in the section of this Statement of Commitments titled "All Other Surface Structures"..
B. Future Principal Residence	<p>If there is no existing residence on a landholding and a residence is planned to be built, the site for this Future Principal Residence will be protected in the same way as that proposed above for Principal Residences. This commitment applies to a maximum of one Future Principal Residence per landholding.</p> <p>NOTE: Once the Mine Subsidence District is declared for the area all Future Principal Residences will require approval from the Mine Subsidence Board and must comply with the <i>Mine Subsidence Compensation Act 1961</i>.</p>
C. Black Hill School	All buildings and structures located at Black Hill School will be managed as if they were a Principal Residence.
D. Black Hill Church and Cemetery	The Black Hill Church and cemetery will be managed as if they were a Principal Residence.
E. All Other Surface Structures	<p>"All Other Surface Structures" is defined as any building or structure impacted by mining-induced subsidence from the Abel Underground Mine Project which is not categorised as a Principal Residence, Future Principal Residence, Black Hill Church and Cemetery or Black Hill School.</p> <p>The Company shall prepare and implement plans of management for the mitigation and remediation of any damage to All Other Surface Structures prior to any mining occurring that would impact on them.</p> <p>The plan of management will include:</p> <p>(a) pre-mining audit of the structure;  (b) the provision of a plan of management as part of the SMP approval process which requires the Company to mitigate/remediate any damage to improvements associated with the structure in conjunction with the Mines Subsidence Board;  (c) post-mining monitoring of the improvements associated with the Structure.</p> <p>The mitigation/remediation measures to be undertaken will be related to the extent of damage experienced – see Schedule 1 for details.</p>
F. Dams	<p>A Dam Monitoring and Management Strategy (DMMS) will be formulated for all dams prior to any mining occurring which will impact on the dams. The DMMS will provide for:</p> <p>F1. The individual inspection of each dam by a qualified engineer for:</p> <ul style="list-style-type: none"> <li>• current water storage level;</li> <li>• current water quality (EC and pH);</li> </ul>

	<ul style="list-style-type: none"> <li>• wall orientation relative to the potential cracking;</li> <li>• wall size (length, width and thickness);</li> <li>• construction method and soil / fill materials;</li> <li>• wall status (presence of rilling / piping / erosion / vegetation cover);</li> <li>• potential for safety risk to people or animals;</li> <li>• downstream receptors, such as minor or major streams, roads, tracks or other farm infrastructure; and</li> <li>• potential outwash effects.</li> </ul> <p>F2. Photographs of each dam will be taken prior to and after undermining, when the majority of predicted subsidence has occurred.</p> <p>F3. Dam water levels, pH and EC will be monitored prior to and after undermining to assess the baseline and post mining dam water level and water quality in order to determine whether rehabilitation is required.</p> <p>F4. In the event that subsidence / crack development monitoring indicates a significant potential for dam wall failure, dam water will be managed in one of the following manners:</p> <ul style="list-style-type: none"> <li>• pumped to an adjacent dam to lower the water level to a manageable height that reduces the risk of dam wall failure,</li> <li>• discharged to a lower dam via existing channels if the water can not be transferred, or</li> <li>• not transferred if the dam water level is sufficiently low to pose a minor risk.</li> </ul> <p>An alternate water supply will be provided to the dam owner until the dam can be reinstated.</p> <p>F5. In the event of subsidence damage to any dams the Company shall remediate the damage and reinstate the dam in conjunction with the Mine Subsidence Board.</p>
G. Public Roads	The Company shall prepare and implement a plan of management as part of the SMP process implemented under the mining lease for the Abel Underground Mine. This plan of management will ensure the safety and serviceability of public roads and 4WD tracks and existing fire fighting access tracks.
H. Powerlines	The Company shall prepare and implement a plan of management as part of the SMP process which will ensure the safety and serviceability of powerlines.
I. Gas Pipeline	The Company shall prepare and implement a plan of management as part of the SMP process which will ensure the safety and serviceability of the gas pipeline.

J. Survey Marks	At the completion of subsidence or otherwise as required by Government Authorities, the functionalities of any survey marks affected by subsidence will be fully restored to the satisfaction of the Government Authorities.
K. Cliffs	<p>Trigger-action response plans (TARPs) will be developed by the Company based on consultation with DEC and Local Councils to ensure the general public and employees working in the vicinity of the cliffs are not exposed to rock falls caused by mine subsidence damage.</p> <p>Appropriate rock fall hazard controls may include such items as rock fall catch ditches, barrier fencing, earth mounds and warning signs installed at appropriate locations to promote awareness that a rock fall hazard could exist along the top and bottom of cliff lines that will be undermined.</p>
L. Water Supply	In the event of interruptions to water supplies due to subsidence impacts on farm dams, water tank pipelines, water mains and irrigation systems within the application area, the Company commits to providing water supplies of equivalent quality and quantity to locations convenient to those affected until such time that the affected farm dams, water tanks, pipelines, water mains and irrigation systems are restored.
M. General Surface Water Flow	<p>The Company shall prepare and implement a plan of management to maintain the surface drainage of areas surrounding any dwellings and other structures or infrastructure, where required. This plan shall include but not be limited to monitoring, mitigation or remediation of mining-induced ponding, drainage pattern changes and any resulting serviceability difficulties and/or hazards to the public.</p> <p>NOTE: Also see Water Supply.</p>
N. Public Safety	The Company shall prepare and implement a surface safety management program to ensure public safety in any surface areas that may be affected by subsidence arising from the proposed underground mining. This program shall include, but not be limited to, regular monitoring of areas posing safety risks, erection of warning signs, entry restrictions, backfilling of dangerous surface cracks and securing of unstable man-made structures or rockmass, where required and appropriate, and the provision of timely notification of mining progress to the community and any other relevant Stakeholders where management of public safety is required.
O. Landowner Agreements	The Company will enter into separate arrangements with Coal and Allied for its Black Hill land and with the Catholic Diocese of Maitland and Newcastle with regard to an agreed mining schedule underneath these respective lands. These arrangements will set timeframes for the completion of mining beneath these areas.

### Schedule 1 - Subsidence Effects on All Other Surface Structures

This Schedule only applies to All Other Surface Structures and does not apply to Principal Residences as they are protected in accordance with the above commitments which relate only to them.

The main features that determine impact on buildings/structures are tilt and strain. Subsidence effects on buildings/structures are categorised according to the degree of structural damage that is likely to result from underground mining (Tables 1 and 2). These tables have been developed to assist the categorising of the subsidence impacts of this project. Accordingly, to determine the appropriate Preventative Mitigation Measures the following must occur in relation to the relevant surface structure:

1. Look at Table 1 and determine the appropriate Strain Damage Category
2. Look at Table 2 and determine the appropriate Tilt Damage Category
3. Look at Table 3 and using the Strain Damage Category from Table 1 and the Tilt Damage Category from Table 2 determine the appropriate Preventative Mitigation Measures.
4. Look at Table 4 and see the outlined of the Preventative Mitigation Measures provided by Table 3.

Table 1 – Determine Strain Damage Category

Damage Category	Description of typical damage to walls and required repair	Approximate crack width limit
0 (negligible)	Hairline cracks.	<0.1 mm
1 (very slight)	Fine cracks that do not need repair.	0.1 mm to 1.0 mm
2 (slight)	Cracks noticeable but easily filled. Doors and windows stick slightly.	1.0 mm to 5.0 mm
3 (moderate)	Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weather-tightness often impaired.	5.00 mm to 15.0 mm (or a number of cracks 3mm to 5mm in one group)



Table 1 – Determine Strain Damage Category (Cont.)

Damage Category	Description of typical damage to walls and required repair	Approximate crack width limit
4 (severe)	Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window or doorframes distort. Walls lean or bulge noticeably. Some loss of bearing in beams. Service pipes disrupted.	15 mm to 25 mm but also depends on number of cracks
5 (very severe)	As above but worse, and requiring partial or complete rebuilding. Roof and floor beams lose bearing and need shoring up. Windows have been broken with distortion. If compressive damage, severe buckling and bulging of the roof and walls.	>25 mm

Table 2 - Tilt Damage Category

Damage Category	Tilt	Description of typical damage to walls and required repair
A (negligible)	<5	Unlikely that remedial work will be required.
B (tolerable)	5 to 7	Adjustment to roof drainage and wet area floors might be required.
C (questionable)	7 to 10	Minor structural work might be required to rectify tilt. Adjustments to roof drainage and wet area floors will probably be required and remedial work to surface water drainage and sewerage systems might be necessary.
D (intolerable)	>10	Considerable structural work might be required to rectify tilt. Jacking to level or rebuilding could be necessary in the worst cases. Remedial work to surface water drainage and sewerage systems might be necessary.

For some structures, the levels of damage shown in Tables 1 and 2 can be significantly reduced by various simple, preventative measures. The general types of management measures, and the residence types and categories of structural damage to which they apply, are provided in Table 4. The specific management measures for individual residences will be developed in consultation with the improvement owner and the Mine Subsidence Board, prior to mining.

Table 3 – Determine Preventative Mitigation Measures

Type of Construction		Strain Damage Category						Tilt Damage Category			
		0	1	2	3	4	5	A	B	C	D
1	Flat slab or waffle slab on ground	None	14	14 & 15	1, 15, 17, 18 & 19	1, 15, 17, 18, 20 & 25	1, 15, 17, 18, 20 & 25 or 21 & 26	None	16	11	11 & 25 or 21 & 26
2	Strip footing	None	14	14 & 15	1, 2, 15, 17, 18 & 19	1, 2, 15, 17, 18, 2 & 25	1, 2, 15, 17, 18, 20 & 25 or 21 & 26	None	16	12	13 & 25 or 21 & 26
3	In-ground concrete or steel piers	None	14	14 & 15	1, 2, 15, 17, 18 & 19	1, 2, 15, 17, 18, 2 & 25	1, 2, 15, 17, 18, 20 & 25 or 21 & 26	None	16	13	13 & 25 or 21 & 26
4	Below-ground construction with retaining walls or basement walls	None	14	14 & 15	1, 2, 15, 17, 18 & 19	1, 2, 15, 17, 18, 2 & 25	1, 2, 15, 17, 18, 20 & 25 or 21 & 26	None	16	13	13 & 25 or 21 & 26
5	Stiffened waffle slab on secondary foundations	None	14	14 & 15	1, 5, 14 & 18	1, 5, 14, 18, 19 & 25	1, 5, 14, 18, 20 & 25	None	5 & 18	5 & 18	5, 18 & 25
6	Suspended floor with ground clearance less than 600 mm	None	14	14 & 15	1, 3, 6 & 14	1, 3, 6, 14, 19 & 25	1, 3, 6, 14, 20 & 25	None	6 & 16	3 & 6	3, 6 & 25
7	Above-ground stilts or poles	None	14	14 & 15	1, 4, 6 & 14	1, 4, 6, 14, 19 & 25	1, 4, 6, 14, 20 & 25	None	4 & 6	4 & 6	4, 6 & 25
8	Above-ground brick piers	None	14	14 & 15	1, 3, 6 & 15	1, 3, 6, 14, 19 & 25	1, 3, 6, 14, 20 & 25	None	3 & 6	3 & 6	3, 6 & 25
9	Demountable building	None	14	5, 6 & 14	5, 6 & 14	5, 6 & 14	5, 6 & 14	None	5 & 6	5 & 6	5, 6 & 25
10	Paved areas, paths and driveways	None	None	None	7 or 8	7 or 8 & 24	7 or 8 & 24	None	None	None	11 or 24
11	Steel sheds & outbuildings	None	None	None	1 & 14	1, 9 & 17	9, 22 & 11 or 23	None	None	None	22 & 11 or 23
12	Fences & handrails	None	None	None	10	10	10	None	None	None	None

Strategies that can be used to ameliorate damage to building structures as mine subsidence occurs or to remedy the damage on completion of subsidence are listed below.

**Table 4 - Preventative Mitigation Measures**

1. Increase the capacity of structures to articulate by cutting vertical slots in the walls or slabs.
2. Excavate trenches or slots alongside the building to isolate the structure from ground strains.
3. Install jacks and relevel the structure as subsidence occurs. Rebuild piers on completion.
4. Install steel beams and jacks and relevel the structure as subsidence occurs.
5. Install jacks to relevel the building and provide packs and shims beneath bearers.
6. Provide flexible couplings to service pipes.
7. Remove pavers or paving slabs and replace after mining.
8. Cut slots in paths and drives and repair on completion of mining.
9. Provide temporary supports, bracings and ties if required to ensure the safety of the structure during mining.
10. Provide expansion or contraction joints in fences and handrails or temporarily remove a section.

**Remedial Rehabilitation Measures**

11. Raise slabs up to 300 mm using grout injection.
12. Raise walls using grout injection.
13. Underpin and jack walls to level.
14. Cosmetic repair and repainting.
15. Rehang sticking doors and adjust windows.
16. Releveling of wet area floors and roof gutters.
17. Major repairs and painting.
18. Repairs to service pipes.
19. Demolish small area of brickwork and repair.
20. Demolish brick walls and rebuild.
21. Completely demolish building and rebuild.
22. Provide jacks and relevel steel structure.
23. Break out and replace concrete floor slab to required levels.
24. Possibly remove paving or slabs, relevel subgrade and replace on completion of mining.
25. Possible repairs to drainage and sewerage pipes or septic tanks.
26. Provide temporary replacement structure.

**Appendix A      Community Consultation Committee  
Presentation**

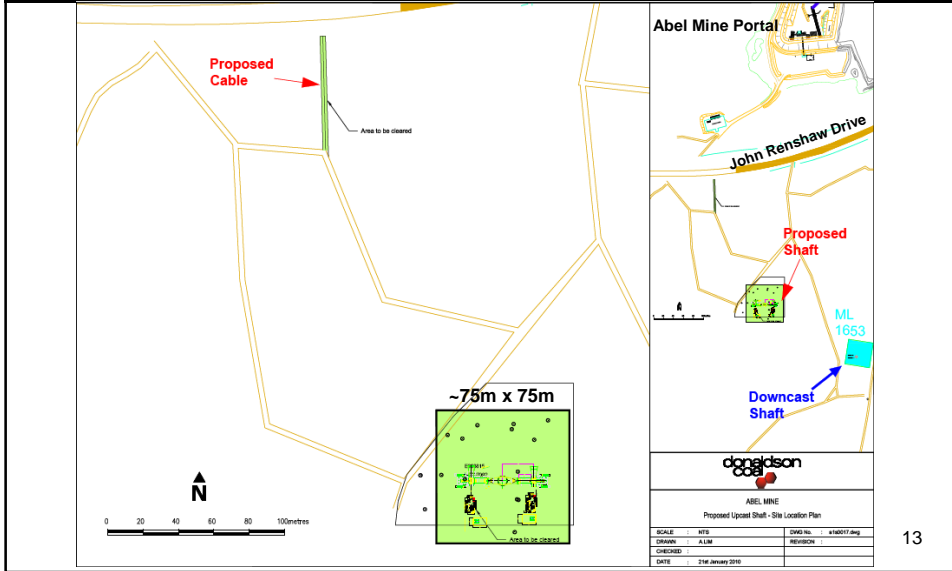
# Upcast Shaft

- ◆ Part of original Abel EA
- ◆ s75W modification to lodge with DOP
- ◆ Mining lease application (Mining purposes) to lodge with I&I.
- ◆ Similar process to downcast shaft.
- ◆ Driveage in West Mains – May 2011.
- ◆ Upcast shaft to be raise bored – Jun/July 2011
- ◆ 2 Fans to be installed on the surface – Sep/Oct 2011

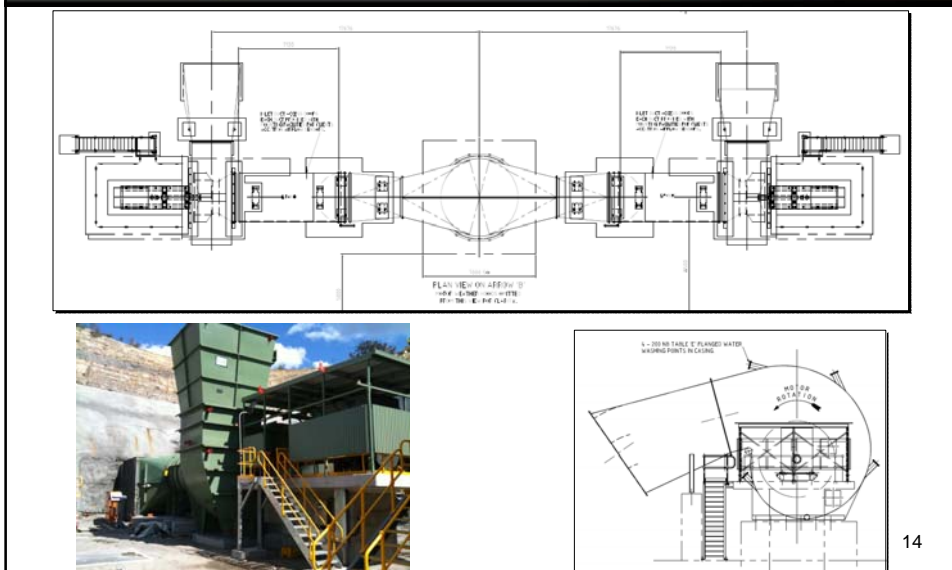
## Upcast Ventilation Shaft



# Upcast shaft



# Main Fan installation



**Appendix B      Mindaribba LALC Aboriginal Heritage Survey  
Report**



# Mindaribba Local Aboriginal Land Council

Phone: 02 4934 8511 Fax: 02 4934 8544

P.O. Box 401, East Maitland NSW 2323

1A Chelmsford Drive, Metford NSW 2323

ABN 8282 6020 881

Mr Phil Brown  
Environment Manager  
Donaldson Coal Pty Limited

Re: Archaeological Field Survey,

On the 24<sup>th</sup> January 2011 I carried out a pre-clearance survey.

The pre-clearance survey included the proposed upcast ventilation shaft construction area (i.e, a 75 m by 75 m square shown on the attached Figure 1) and the underground power cable route also shown on the attached Figure 1.

The pre-clearance surveys were undertaken in accordance with the Abel Aboriginal Heritage Management Plan (Donaldson 2007) and the Integrated Environmental Monitoring Program (GSS Environmental, 2007) for the Abel Underground Mine (Integrated with Donaldson Open Cut, Tasman Underground and Bloomfield Open Cut Coal Mines),

Upon completion of the inspection it has been determined that, **no artefacts/the following artefacts were found** (cross out whichever no applicable),

List Artefacts:

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Action taken to preserve artefacts:

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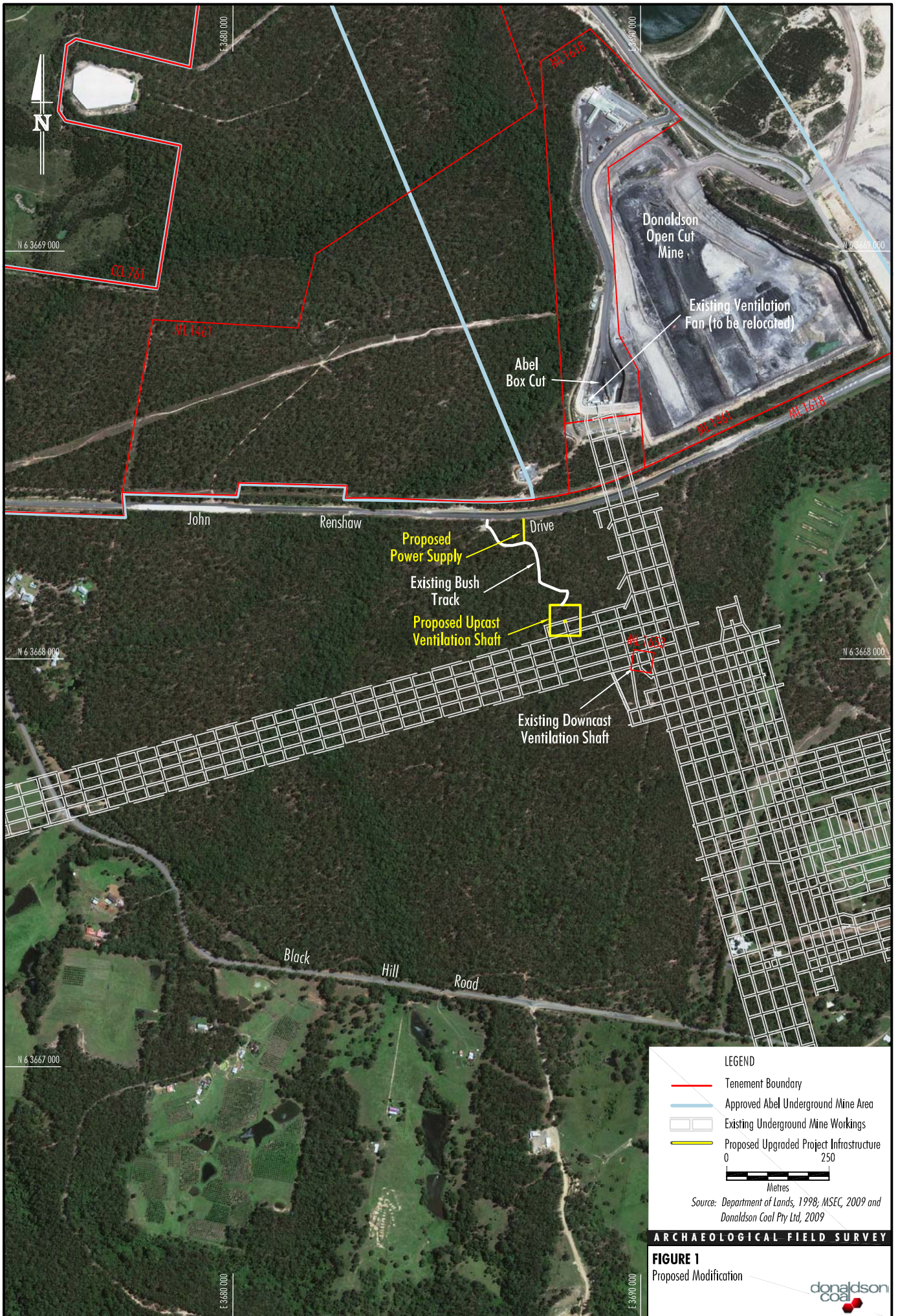
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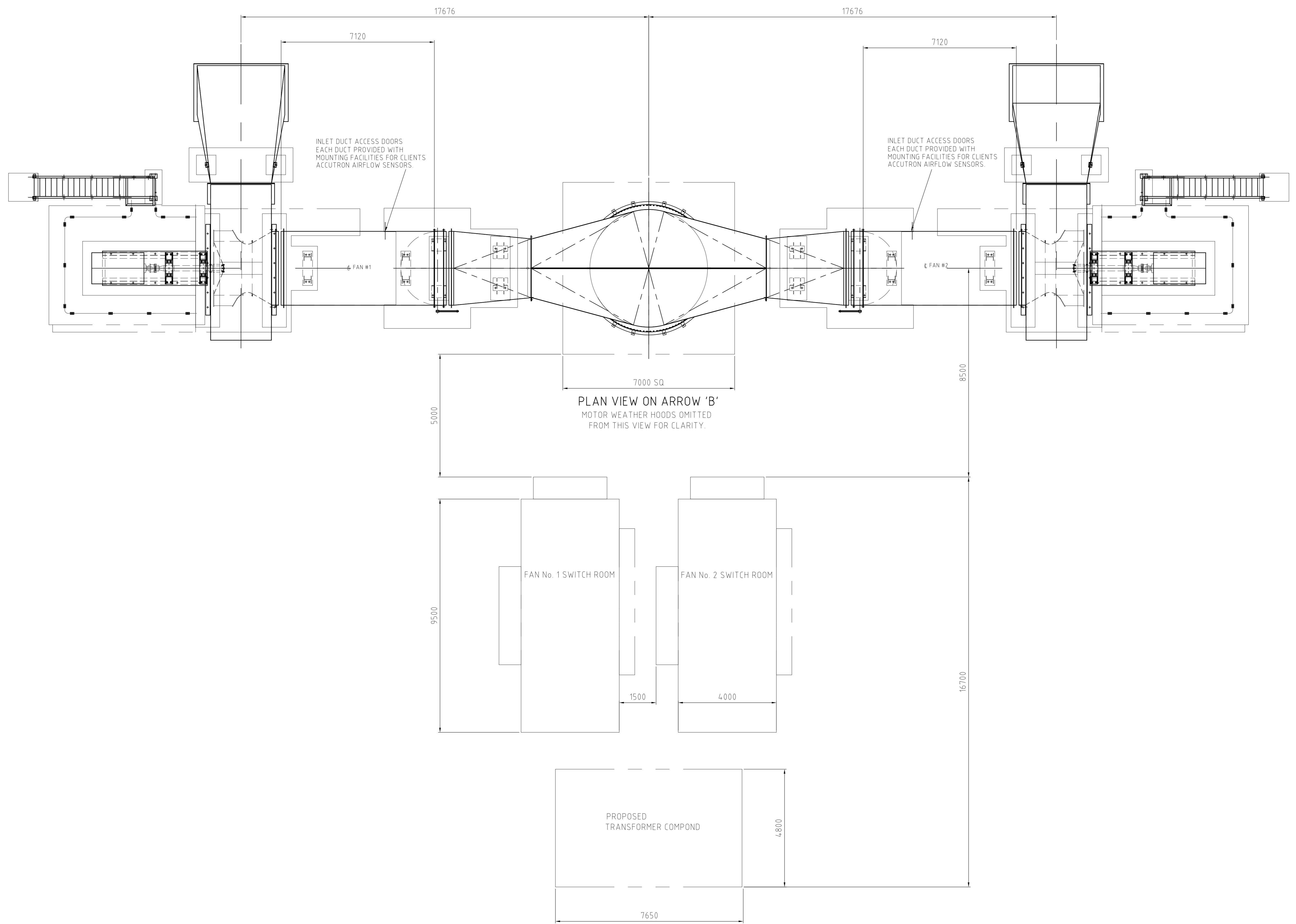
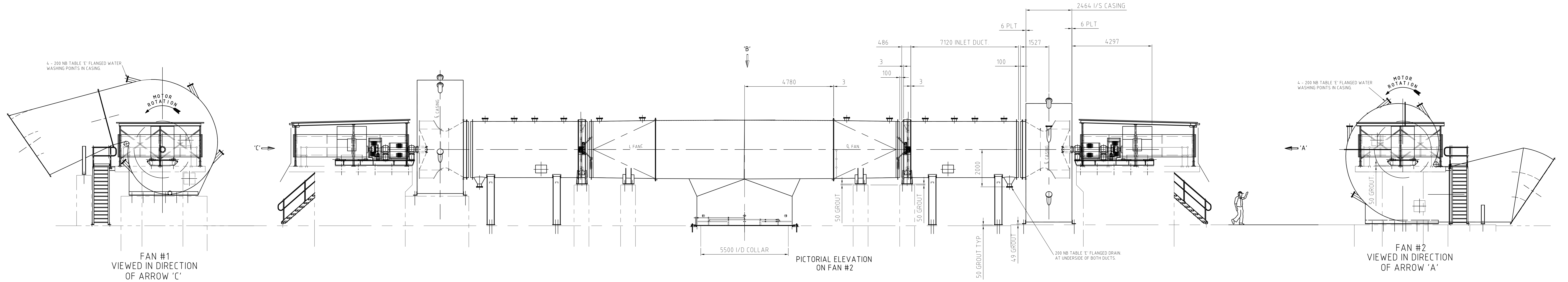
Signed: *J. McDonald* Date: *2.3.2011.*

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For  
Mindaribba



## **Appendix C      Upcast Ventilation Shaft Site Layout**



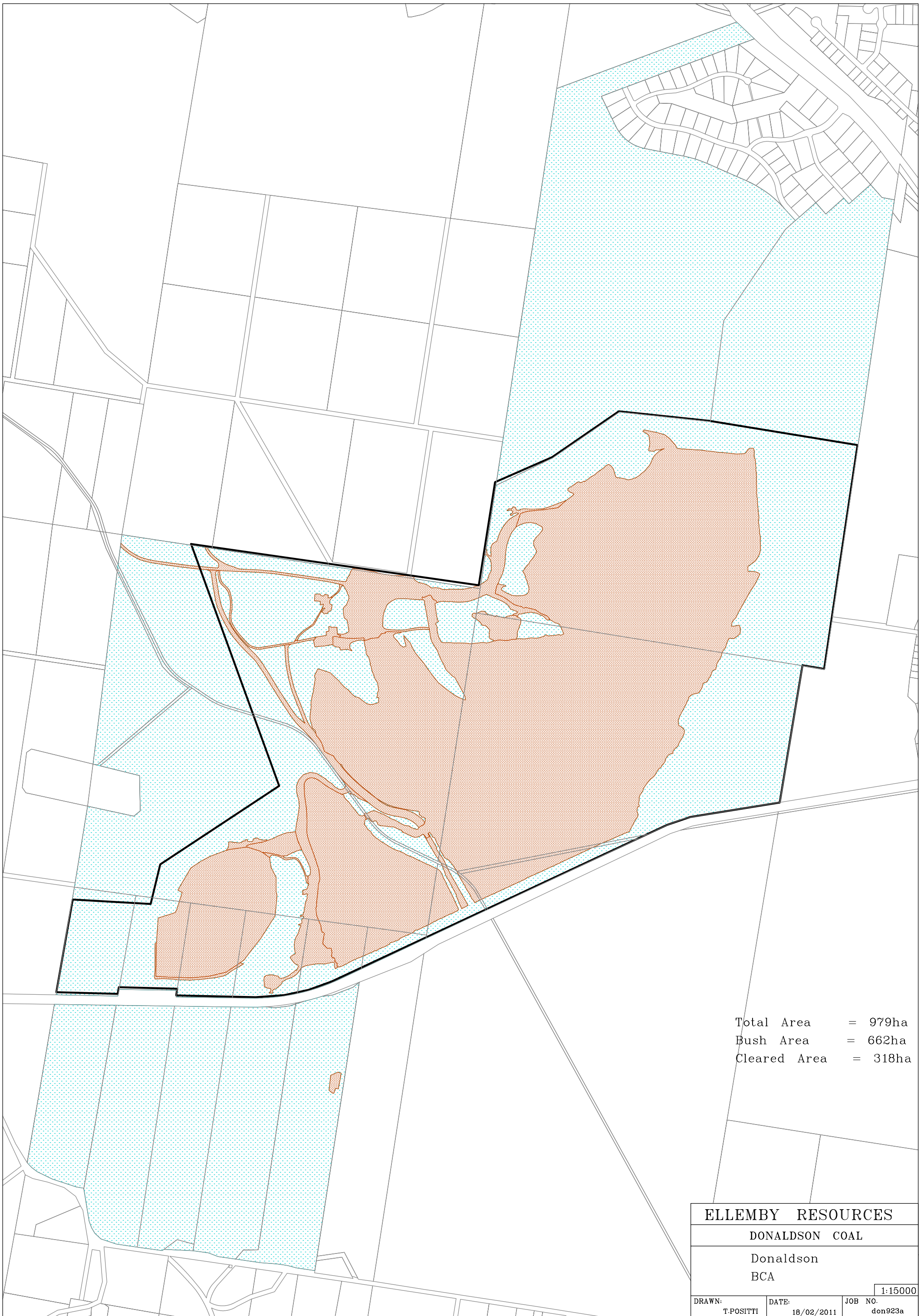
REVISION	DATE	DESCRIPTION
RB	3-2-11	ORIGINAL ISSUE

GENERAL LINEAR TOLERANCES	
0 - 1000	±1.0
1000 +	±2.0

ALL DIMENSIONS IN MILLIMETRES		UNLIMITED MACHINED SIZES ±0.25mm	TOTAL MASS
<small>THIS DRAWING IS THE SOLE PROPERTY OF HOWDEN AUSTRALIA PTY LTD AND IT IS RETURNABLE ON REQUEST. THE DRAWING AND REPRESENTATIONS ARE CONFIDENTIAL AND ARE NOT TO BE COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN CONSENT OF HOWDEN AUSTRALIA PTY LTD. AND MAY BE USED FOR MANUFACTURE ONLY WHEN ACCOMPANIED BY A WRITTEN ORDER FROM THE COMPANY.</small>			
<b>HOWDEN AUSTRALIA PTY. LTD.</b>			
<b>SIZE 3050.00.00 TYPE MVC TWIN MINE VENTILATION FANS GENERAL ARRANGEMENT.</b>			
Drawn	RB	3-2-11	Scale NTS
Checked			
Approved			
Contract No.	QS7544-0000		Drawing No.
Rev.			



## **Appendix D      Donaldson Coal Bushland Conservation Area**



Total Area = 979ha  
Bush Area = 662ha  
Cleared Area = 318ha

<b>ELLEMBY RESOURCES</b>		
DONALDSON COAL		
Donaldson BCA		
1:15000		
DRAWN: T.POSITTI	DATE: 18/02/2011	JOB NO. don923a

## **Appendix E      Noise Impact Assessment**

14 March 2011

630 10097 R1 20110314

Donaldson Coal Pty Ltd  
C/- Resource Strategies Pty Ltd  
PO Box 1842  
Milton QLD 4064

**Attention: Tony Sutherland**

Dear Tony

## **Abel Underground Coal Mine Upcast Ventilation Shaft 75W Modification Noise Assessment**

### **1 Introduction**

SLR Consulting Pty Ltd (SLR Consulting) (formerly Heggies) has been commissioned by Donaldson Coal Pty Ltd (Donaldson Coal) to undertake an assessment of the noise impacts associated with the proposed modification to the approved Abel Underground Mine (Project Approval 05\_0136 dated 7 June 2007). This report has been prepared to support an application to modify the Project Approval under Section 75W of the *Environment Planning and Assessment Act, 1979*.

Broadly, the objective of this assessment was to identify the potential impacts of noise associated with the proposed modification and to compare the overall noise impact to that presented in the *Abel Underground Mine Environmental Assessment* (Newcastle Coal Company Pty Ltd, 2006) and the *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006).

The noise assessment has been prepared with reference to Australian Standard AS 1055:1997 *Description and Measurement of Environmental Noise* Parts 1, 2 and 3 and in accordance with the Department of Environment, Climate Change and Water's (DECCW's) NSW Industrial Noise Policy (INP) (and associated Application Notes) and the Interim Construction Noise Guideline (ICNG). Where issues relating to noise are not addressed in the INP, such as sleep disturbance, reference has been made to the NSW Environmental Noise Control Manual (ENCM).

### **2 Proposal Details**

Due to the ongoing development of the underground workings and associated increase in underground mine size, there is a need for additional airflow through the underground mine. To provide this additional ventilation, it is proposed to install a new upcast ventilation shaft approximately 250 metres (m) south of John Renshaw Drive (**Figure 1**).

The Modification would involve the installation of a new upcast ventilation fan and the relocation of the existing upcast ventilation fan from the Abel boxcut to the proposed new upcast ventilation shaft (**Figure 2**). The existing upcast ventilation fan and new upcast ventilation fan would be Howden MVC150 3050 millimetre (mm) centrifugal fans with volume flows of 170 cubic metres per second ( $\text{m}^3/\text{s}$ ).

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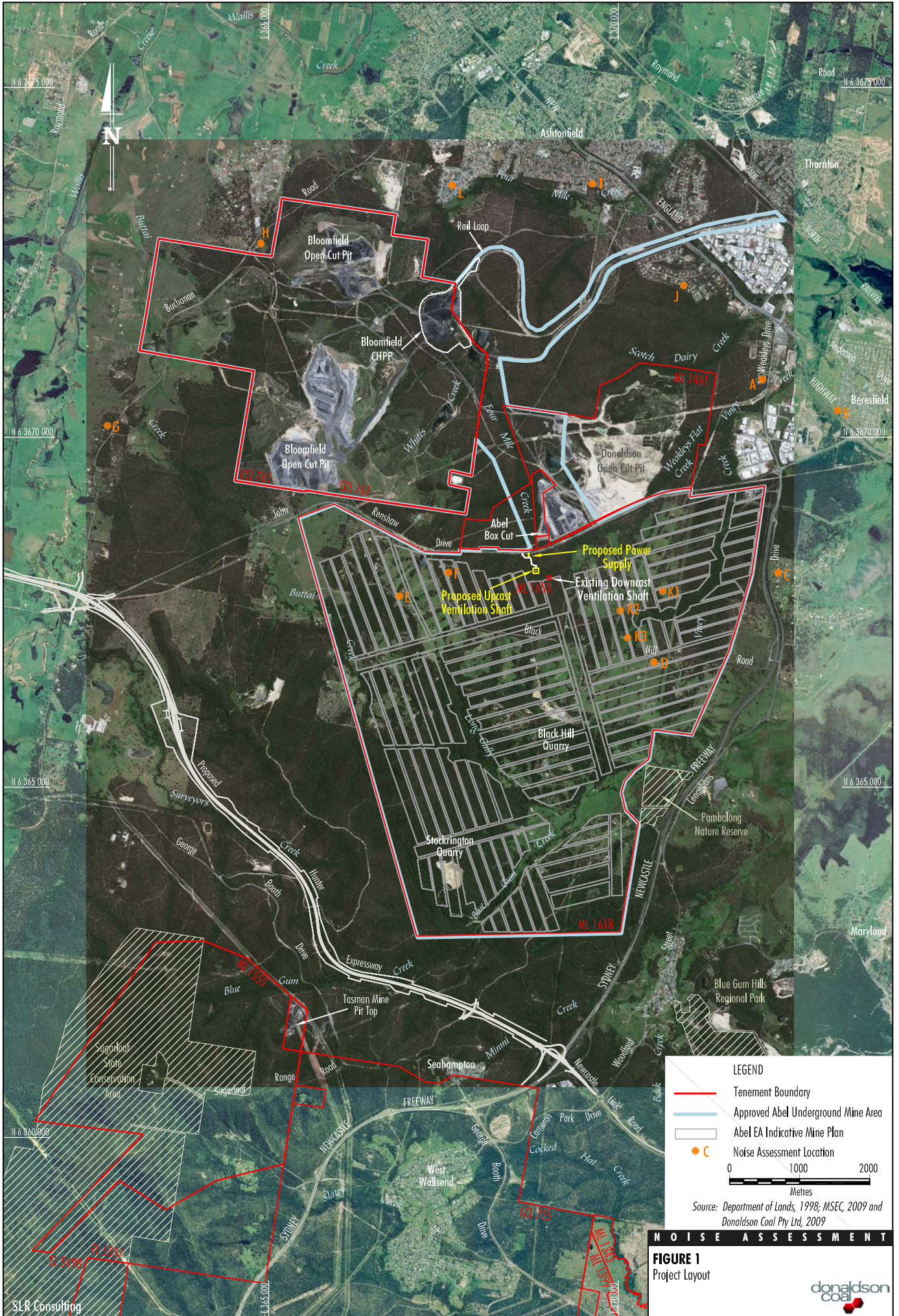
Heggies Pty Ltd was renamed to SLR Consulting Australia Pty Ltd effective 17 December 2010 with no change to ACN/ABN

SLR Consulting Australia Pty Ltd Level 1, 14 Watt Street Newcastle NSW 2300 Australia  
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ABN 29 001 584 612





**LEGEND**

- Tenement Boundary
- Approved Abel Underground Mine Area
- Abel EA Indicative Mine Plan
- Noise Assessment Location

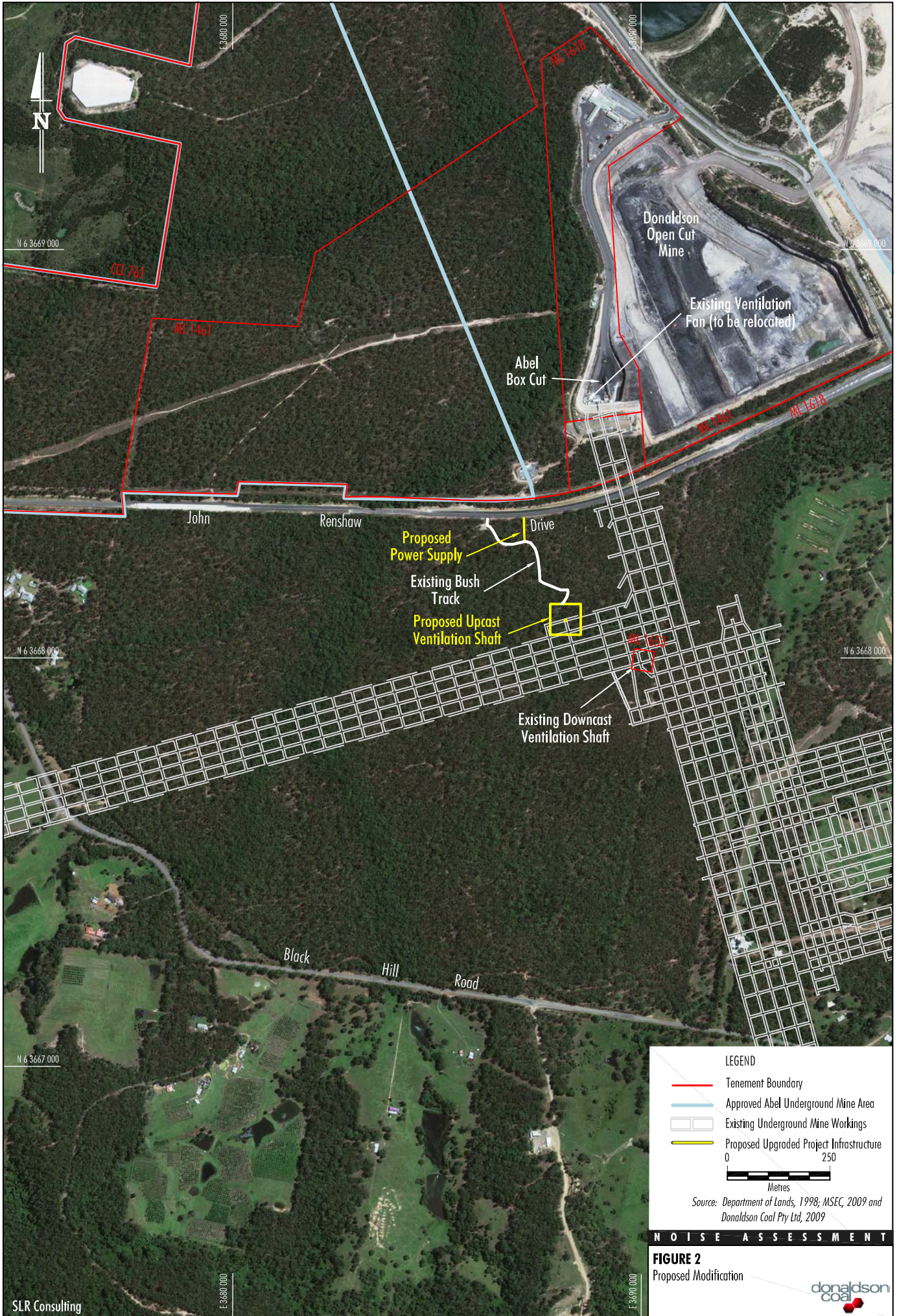
0      1000      2000  
Metres

Source: Department of Lands, 1998; MSEC, 2009 and Donaldson Coal Pty Ltd, 2009

**NOISE ASSESSMENT**

**FIGURE 1**  
Project Layout





**LEGEND**

- Tenement Boundary
- Approved Abel Underground Mine Area
- Existing Underground Mine Workings
- Proposed Upgraded Project Infrastructure



Source: Department of Lands, 1998; MSEC, 2009 and Donaldson Coal Pty Ltd, 2009

**NOISE ASSESSMENT**

**FIGURE 2**  
Proposed Modification



The upcast ventilation shaft would be constructed using the 'raise bore' method. A pilot hole would be drilled from the surface prior to the remainder of the shaft being excavated from the bottom of the shaft upwards. Drilling of the shaft would occur 24 hours a day, seven days per week, while the remainder of construction activities (e.g. vegetation clearance and installation of ancillary infrastructure) would be limited to daytime hours.

### **3 Abel Underground Mine Environmental Assessment and Noise Impact Assessment**

The key findings of the *Abel Underground Mine Environmental Assessment* (Newcastle Coal Company Pty Ltd, 2006) and the *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006) are detailed below:

#### **Operational Noise Predictions**

*Operational noise levels from the proposed Abel Coal Mine are predicted to meet the project specific noise criteria at all receiver locations under prevailing weather conditions with the exception of Location K where an exceedance of 1 dBA is predicted during a prevailing north west wind. This minor exceedance of 1 dBA during the night-time periods is unlikely to be noticeable by most people. Furthermore, the proponent has a negotiated agreement, in relation to noise impacts, with the current owners of this property for the life of the Donaldson Open cut mine.*

*Since the operational scenario modelled is likely to represent an acoustically worst-case scenario, actual operational noise levels from the proposed Abel Coal mine are likely to be less than those predicted.*

#### **Sleep Disturbance Assessment**

*The predicted  $L_{Amax}$  noise levels from operation of Abel Coal Mine meet the sleep disturbance criteria at all locations with the exception of Location K.*

*External  $L_{Amax}$  noise levels up to 52 dBA may occur at Location K. The ECRTN provides further guidance with regard to sleep disturbance and calls upon a number of studies that have been conducted into the effect of maximum noise levels on sleep. The DEC policy document acknowledges that, at the current level of understanding, it is not possible to establish absolute noise level criteria that would correlate to an acceptable level of sleep disturbance. However, the ECRTN provides that maximum internal noise levels below 50 dBA to 55 dBA are unlikely to cause awakening reactions and one or two events per night, with maximum internal noise levels of 65 dBA to 70 dBA (inside dwellings) are not likely to significantly affect health and wellbeing. Maximum noise predictions have shown that external noise levels up to 52 dBA may occur at Location K during the night-time period as a result of the proposed Abel Coal Mine operation. This correlates to noise levels significantly below 50 dBA inside dwellings. Based on the preceding, maximum noise levels produced by operation of the proposed Abel Coal Mine are not likely to cause sleep disturbance at this location.*

#### **Rail Traffic Noise Assessment**

*The increase in rail traffic generated by trains using the Bloomfield rail loop is predicted to increase the existing daytime  $L_{Aeq(15hour)}$  rail noise level by approximately 0.2 dBA and the existing night-time  $L_{Aeq(9hour)}$  rail noise level by approximately 0.1 dBA. These increases are negligible and such an increase would not be discernible by receivers near the rail line.*

*This increase in noise level is considered to be overstated as existing Donaldson and Bloomfield rail traffic would likely be included in the existing rail traffic numbers.*

### **Construction Noise Assessment**

*Construction noise levels are predicted to be below the relevant noise goals at each of the residential receivers considered.*

### **Cumulative Impact Assessment**

*The cumulative impact of mining in the area surrounding the Abel Coal Mine including existing Bloomfield Coal Mine, existing Donaldson Coal Mine and approved Tasman Coal Mine is predicted to comply with the relevant amenity criteria set in accordance with the INP.*

Subsequent to the *Abel Underground Mine Environmental Assessment* (Newcastle Coal Company Pty Ltd, 2006), the location of the ventilation fan was moved as described in the Department of Planning's (DoP's) *Major Project Assessment: Abel Coal Project* dated June 2007:

*The Proponent has since stated that, in response to concerns raised, it would relocate its proposed ventilation shaft and fan from south of John Renshaw Drive to within the void of the Donaldson open cut, close to the other proposed surface facilities. The Proponent's noise consultant notes that "the revised ventilation fan location has advantages in terms of noise emission as additional noise attenuation is provided by the mine pit surrounding the portal. The additional topographic screening will result in a reduction on noise levels at receivers surrounding the site. The relocation...will result in a decrease of noise from the ventilation fan at noise sensitive receivers."*

## **4 Justification of the Proposal**

Adequate ventilation of the underground workings at the Abel Underground Mine is essential for a safe and efficient operation. As the underground mine size increases and mine workings progress further away from the existing upcast ventilation fan, a ventilation upgrade is required to reduce intake velocities and maintain safety and efficiency.

An assessment of ventilation requirements identified the need for an additional upcast ventilation fan and an additional air intake point. Therefore, the proposed modification would involve the installation of a new upcast ventilation shaft and conversion of the existing upcast ventilation shaft in the Abel boxcut to an additional air intake and mine entry point to the underground workings.

The Abel Underground Mine has shown continued compliance with Project Approval noise limits since the commencement of operations (**Section 5.3**). This report demonstrates that the ventilation upgrade can be implemented within the existing Project Approval noise limits (**Section 7**).

## 5 Existing Approvals and Noise Criteria

### 5.1 Existing Project Approval and Consent Conditions

Project Approval was granted on 7 June 2007 for the Abel Underground Mine (Application No: 05\_0136). The relevant Consent Conditions relating to noise are reproduced below.

#### Schedule 4

#### NOISE

*Note: These conditions should be read in conjunction with Section 3 of the Statement of Commitments.*

#### Noise Limits

23 *The Proponent shall ensure that the noise generated by the Project does not exceed at any privately-owned residence the levels set out in the following table for the monitoring location nearest that residence.*

Table 1: Noise limits dB(A)

<i>Day</i>	<i>Evening</i>	<i>Night</i>		<i>Location and Locality*</i>
<i>LAeq(15 minutes)</i>	<i>LAeq(15 minutes)</i>	<i>LAeq(15 minutes)</i>	<i>LA1(1 minute)</i>	
50	48	41	51	<b>A</b> Weakleys Dr, Beresfield
50	48	41	51	<b>B</b> Yarrum Rd, Beresfield
43	44	38	50	<b>C</b> Phoenix Rd, Black Hill
41	40	36	46	<b>D</b> Black Hill School
41	40	36	46	<b>E</b> Brown Rd, Black Hill
41	40	36	46	<b>F</b> Black Hill Rd, Black Hill
43	41	36	46	<b>G</b> Buchanan Rd, Buchanan
43	41	36	46	<b>H</b> Mt Vincent Rd, Louth Park
44	46	38	48	<b>I</b> Lord Howe Dr, Ashtonfield
49	47	40	50	<b>J</b> Kilarney St, Avalon Estate
41	40	37	46	<b>K</b> Catholic Diocese (Former Barter) K1, K2, K3
46	46	40	53	<b>L</b> Kilshanny Ave, Ashtonfield

Notes:

- To determine compliance with the LAeq(15 minute) limit, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the LA1(1 minute) limit, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- These limits apply under the relevant meteorological conditions outlined in the assessment procedures in Chapter 5 of the NSW Industrial Noise Policy.
- These limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

\* Revised to list alphabetically

### **Noise Monitoring**

24 *The Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General. This program must:*

- (a) be submitted to the Director-General for approval within 6 months of this approval;*
- (b) be prepared in consultation with the DECC; and*
- (c) use a combination of attended and unattended monitoring measures to monitor the performance of the project.*

### **Statement of Commitments**

#### **3.3 Monitoring**

*Within 6 months of this approval being granted a Noise Monitoring Program shall be prepared and implemented for the Abel Underground Mine and the Bloomfield CHPP, to the satisfaction of the Director-General. The Noise Monitoring Program shall include a combination of real-time and supplementary attended monitoring measures, and a noise monitoring protocol for evaluating compliance with the noise environmental assessment. This plan will be integrated with the monitoring plans for the Tasman, Donaldson and Bloomfield Mines to provide a single integrated Noise Monitoring Program for all 4 mines.*

## **5.2 Existing Background Noise Levels and Ambient Noise Environment**

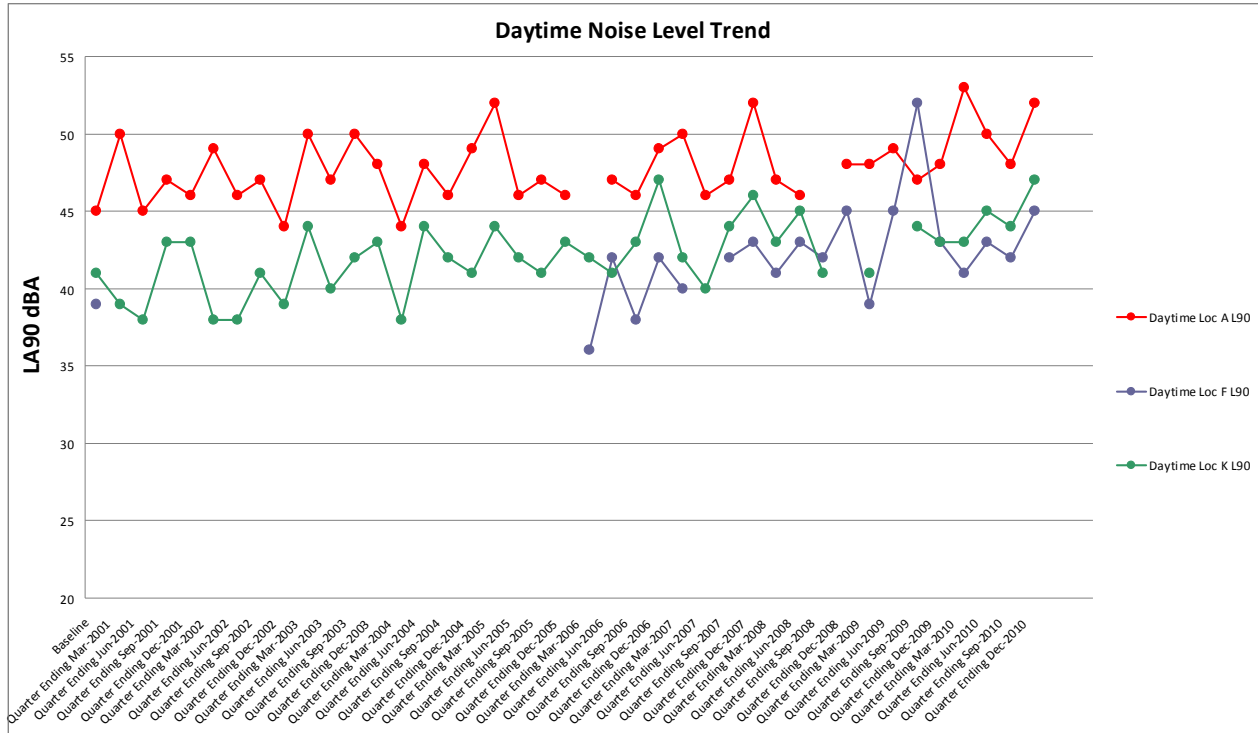
Baseline ambient noise surveys were conducted in October 2000 to characterise and quantify the acoustical environment in the area surrounding the proposed Abel Underground Mine, approved Donaldson Open Cut Mine and existing Bloomfield Coal Mine prior to the commencement of the Donaldson Open Cut Mine operation.

Following the commencement of Donaldson Coal operations, SLR Consulting has monitored ambient and background noise levels at various locations in the area on a quarterly basis since 2001 as part of the Donaldson Coal Mine Noise Monitoring Program.

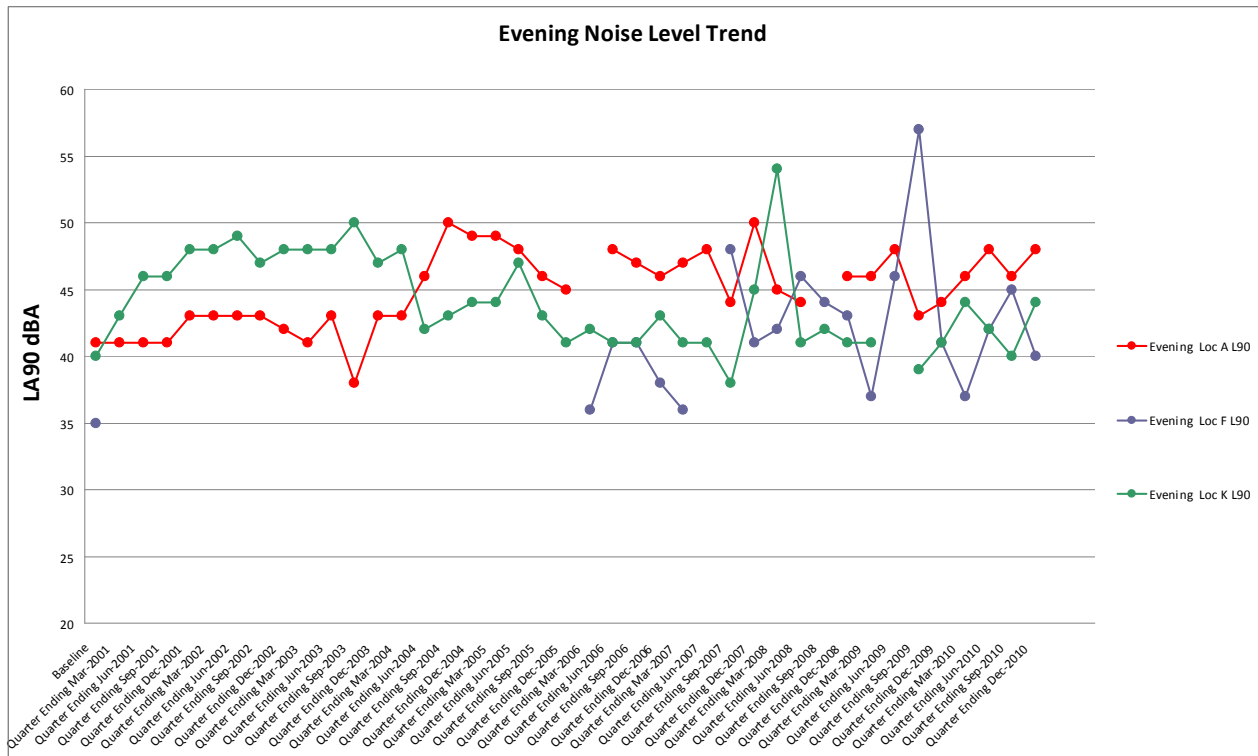
Following the approval of the Abel Underground Mine in 2007, in accordance with the requirements of Schedule 4 of the Project Approval and Section 3.3 of the Statement of Commitments, a Noise Monitoring Program (NMP) was prepared for the Abel Underground Mine (*Abel Mine Project Noise Monitoring Program* [Heggies, 2007]). In accordance with this NMP, SLR Consulting has conducted *Donaldson Coal Mine and Abel Coal Project Quarterly Noise Monitoring* from December 2008 to the present.

**Figure 3** , **Figure 4** and **Figure 5** present the background noise levels recorded since 2001 at the nearest residences for the daytime, evening and night-time respectively. It should be noted that the noise monitoring locations have changed over time as mining operations have progressed to ensure that monitoring has been conducted at the potentially most affected residential receiver locations to Donaldson Open Cut Mine and Abel Underground Mine operations. Noise levels are presented for locations A, F and K since they contain the longest continuous record of noise levels in the area. Additionally, locations F and K represent the nearest potentially affected receivers to the proposed modification.

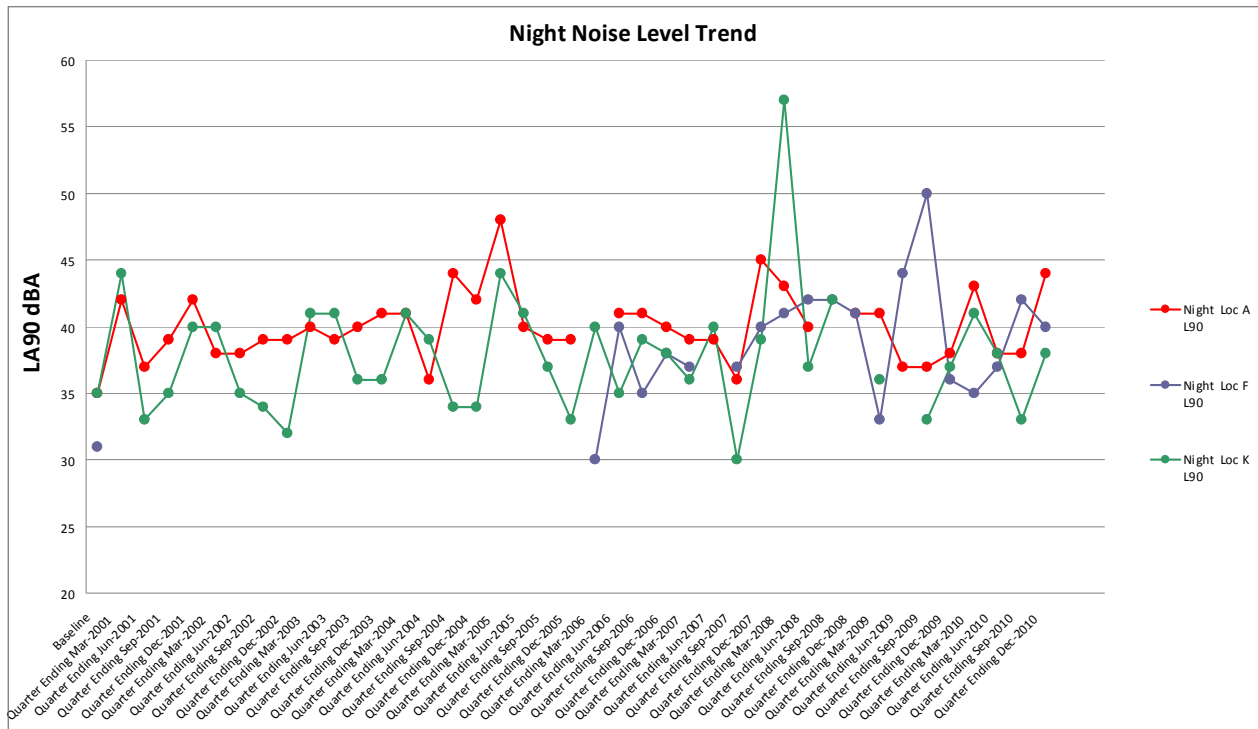
**Figure 3 Daytime Background Noise Levels – 2001 to Present**



**Figure 4 Evening Background Noise Levels – 2001 to Present**



**Figure 5 Night-time Background Noise Levels – 2001 to Present**



As indicated in **Figure 3** to **Figure 5** there is significant seasonal variation in background noise levels recorded at all the locations during the daytime, evening and night-time periods.

In all cases, it is apparent that background noise levels in the area have generally increased over time since the baseline noise surveys were carried out in October 2000. Operator attended noise surveys accompanying the unattended noise monitoring generally note that the noise environment at these locations is dominated by road traffic noise and natural noises such as insect, cricket and bird noise.

As such, noise criteria contained in the Project Approval, which were derived based on ambient noise data collected prior to the commencement of Donaldson Open Cut Mine, are seen as conservative because ambient levels in the general area have risen since 2001.

### 5.3 Abel Underground Mine Contribution

Since Abel Underground Mine noise monitoring commenced in 2008, noise emissions from the mine have been generally inaudible at all residential locations and have been found to be compliant with the relevant noise criteria during all noise monitoring periods.

No noise complaints relevant to the Abel Underground Mine have been received since the commencement of operations.



## 6 Construction Noise Assessment

### 6.1 Construction Activities

Construction activities involve the clearing of vegetation, installation of ancillary equipment and drilling of the upcast ventilation shaft.

Drilling will occur 24 hours a day, seven days a week. All other construction activities will occur during daytime hours only.

### 6.2 Construction Noise Assessment Criteria

The Interim Construction Noise Guideline (ICNG) (DECCW, 2009) sets out noise management levels, in relation to construction type activities, for residential and other sensitive receivers and how they are to be applied. A summary of the noise management levels from the ICNG is contained in **Table 1** and **Table 2**.

**Table 1 Interim Construction Noise Guideline (Residences)**

Time of day	Management level LAeq(15minute)	How to apply
Recommended standard hours Monday to Friday 7am to 6pm Saturday 8am to 1pm No work Sundays or public holidays	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. <ul style="list-style-type: none"> <li>Where the predicted or measured LAeq (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level.</li> <li>The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.</li> </ul>
	Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. <ul style="list-style-type: none"> <li>Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account:               <ol style="list-style-type: none"> <li>times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences.</li> <li>if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.</li> </ol> </li> </ul>
Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. <ul style="list-style-type: none"> <li>The proponent should apply all feasible and reasonable work practices to meet the noise affected level.</li> <li>Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community.</li> </ul>

**Table 2 Interim Construction Noise Guideline at Sensitive Land Uses (other than residences)**

Land Use	Management Level, LAeq(15minute) (applies when properties are being used)
Classrooms at schools and other educational institutions	Internal noise level 45 dBA
Hospital wards and operating theatres	Internal noise level 45 dBA
Places of worship	Internal noise level 45 dBA
Active recreation areas <sup>1</sup>	External noise level 65 dBA
Passive recreation areas <sup>2</sup>	External noise level 60 dBA
Community Centres	Depends on the intended use of the centre Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.

1. Characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion.
2. Characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation.

### 6.3 Qualitative Construction Noise Assessment

As presented in **Section 3**, the construction noise assessment conducted for the *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006) predicted that construction activities associated with the proposed Abel Underground Mine would comply with construction noise criteria at surrounding receivers derived from the guidance contained in the ENCM. It is anticipated that construction activities for the proposed modification will be similar to those previously assessed.

As indicated in **Table 1**, based on the ICNG the *noise affected* level for operations during standard hours is RBL plus 10 dBA. This represents a 5 dBA increase in the noise criteria from those used during the 2006 Noise Impact Assessment.

The night-time *noise affected* level under the ICNG is RBL plus 5 dBA. Night-time noise monitoring has recently been undertaken during the drilling of the downcast shaft (refer to **Figure 2** for downcast shaft location). Drilling operations were inaudible at the nearest potentially affected receivers on Black Hill Road.

Based on the preceding, it is unlikely that noise emissions from the construction of the proposed upcast ventilation fans will result in exceedences of the noise criteria contained in the ICNG.

### 6.4 Noise Mitigation and Management Strategies

Notwithstanding the above, Donaldson Coal will undertake the following mitigation and management strategies during the construction period (consistent with the mitigation and management strategies implemented for the construction of the existing downcast ventilation shaft):

- The raise bore drill rig would be partially enclosed (by an acoustic designed cladded shed) to provide screening to the nearest affected receivers.
- Noise monitoring would be undertaken by Donaldson Coal to ensure that construction noise levels are in accordance with the noise criteria. Such monitoring would include attended or unattended continuous logged monitoring.
- Should monitoring indicate that the construction noise levels exceed noise criteria, then construction activities would be stopped until noise mitigation actions can be implemented to achieve compliance with the criteria.
- Donaldson Coal would act immediately upon identification of any non-compliance. In this regard, the attended monitoring would allow this on a real time basis (i.e. within hours). The unattended monitoring would typically result in a response time of up to 24 hours. Remedial actions proposed to achieve compliance would include:

- alteration of the position of machinery (e.g. orientation of mufflers and other noise sources).
- acoustic insulation/housing of the generator.
- additional acoustic screens.
- Following implementation of the above noise mitigation actions, noise monitoring would be continued to demonstrate compliance with the noise criteria or identify if there is a need for additional noise mitigation works.

## 7 Operational Noise Assessment

### 7.1 Noise Modelling Parameters

A computer model was used to predict cumulative noise emissions from existing Abel Underground Mine operations and the proposed upcast ventilation shaft. The Environmental Noise Model (ENM) used has been produced in conjunction with the DECCW. A three-dimensional digital terrain map giving all relevant topographic information was used in the modelling process. The model used this map, together with noise source data, ground cover, shielding by barriers and/or adjacent buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

Topographic contours and drawings of the proposed site were supplied by Donaldson Coal.

Prediction of noise under calm and prevailing atmospheric conditions (prevailing winds) was conducted. Atmospheric parameters under which noise predictions were made are given in **Table 3** and are consistent with the parameters modelled in the *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006).

**Table 3 Meteorological Parameters for Noise Predictions**

	Temperature	Humidity	Wind Speed	Wind Direction (degrees from north)	Temperature Gradient
Calm (All periods)	20°C	65%	N/A	N/A	N/A
South Easterly Wind (Evening and night)	10°C	65%	3 m/s	135°	N/A
North West Wind (Night)	10°C	65%	3 m/s	315°	N/A

### 7.2 Operational Noise Modelling Scenario

The operational scenario modelled during each period is consistent with the *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006). The noise modelling scenario has been updated and refined to include the proposed additional upcast ventilation fan and relocation of the existing upcast ventilation fan.

### 7.3 Sound Power Levels

Sound power levels of relevant existing operational equipment have been obtained from *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006).

The proposed plant and equipment for the proposed modification is as follows:

- Two (2) Howden MVC150 3050mm fans @ 488 RPM.

Fan source noise levels have been obtained from manufacturer data. The proposed ventilation fan sound power levels are provided in **Table 4**.

**Table 4 Proposed Ventilation Fan Sound Power Levels**

Source Description	Octave Band Centre Frequency (Hz) - dBL re 1pW								dBL	dBA
	63	125	250	500	1000	2000	4000	8000		
Howden MVC150 3050mm Fans @ 495 RPM	121	123	124	118	111	110	105	99	129	120

#### 7.4 Noise Mitigation and Management Strategies

The following assumptions have been made with regard to mitigation and management strategies for the operation of the proposed ventilation fans:

- The fans will operate continuously 24 hours a day, 7 days a week.
- The proposed fans will be horizontal discharge (one overcast and one undercast) and will be orientated with the outlets pointing in a northerly direction, away from the nearest noise sensitive receivers.
- The centre points of the overcast and undercast fans are approximately 3.2m and 1.7m above ground level respectively.

#### 7.5 Operational Noise Modelling Results & Discussion

Noise level predictions to the nearest potentially affected residential receivers as well as relevant project noise criteria are displayed in **Table 5** for the proposed mine ventilation fan. Noise level predictions including the contribution of existing mine operations and the proposed additional upcast ventilation fan and relocation of the existing upcast ventilation fan are provided in **Table 6**.

The Project Noise Criteria have been obtained from the Abel Underground Mine Project Approval.

**Table 5 Proposed Modification Predicted Noise Levels – Modified Ventilation Fan Only**

Location	Period	Predicted LAeq,15min Noise Level dBA <sup>1</sup>			Project Noise Criteria (LAeq,15min)
		Calm (LAeq,15min)	NW Wind (LAeq,15min)	SE Wind (LAeq,15min)	
D	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	<30 (< 30 )	<30 (< 30)	36
E	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	<30 (< 30 )	<30 (< 30)	36
F	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	<30 (< 30)	< 30 (< 30)	36
K2	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	<30 (< 30 )	<30 (< 30)	37

1. Bracketed noise levels indicate 2006 Noise Impact Assessment predicted fan noise levels.
2. Weather condition not applicable during this time period.

As indicated in **Table 5** the noise levels from the proposed mine ventilation fans are predicted to less than 30 dBA at all the nearest affected receiver locations during all periods with the exception of Locations D and K2 where fan noise levels of 31 dBA are predicted during the night-time under north-westerly winds.

**Table 6 Proposed Modification Predicted Noise Levels – All Abel Underground Mine Operations**

Location	Period	Predicted LAeq,15min Noise Level dBA <sup>1</sup>			Project Noise Criteria (LAeq,15min)
		Calm (LAeq,15min)	NW Wind (LAeq,15min)	SE Wind (LAeq,15min)	
D	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	31 (30)	<30 (< 30)	36
E	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	30 (30)	<30 (< 30)	36
F	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	30 (< 30)	40
	Night	<30 (< 30 )	33 (33)	30 (< 30)	36
K2	Day	<30 (< 30 )	n/a <sup>2</sup>	n/a <sup>2</sup>	41
	Evening	<30 (< 30 )	n/a <sup>2</sup>	<30 (< 30)	40
	Night	<30 (< 30 )	37 (37)	<30 (< 30)	37

1. Bracketed noise levels indicate 2006 Noise Impact Assessment predicted fan noise levels.
2. Weather condition not applicable during this time period.

As indicated in **Table 6**, Abel Underground Mine operations including the proposed modification are predicted to meet the Project Noise Criteria at all locations under all meteorological conditions.

Predicted noise levels at location D have increased from those predicted during the *Noise Impact Assessment Proposed Abel Coal Mine* (Heggies, 2006) by 1 dBA under north-westerly winds during the night-time. However, a 1 dBA increase is unlikely to be noticed by the receiver, the total predicted noise level is only 31 dBA and Location D represents Black Hill School and therefore will not be occupied during the night-time period.

At all other locations noise levels are no higher than those predicted as part of the approved *Abel Underground Mine Environmental Assessment* (Newcastle Coal Company Pty Ltd, 2006).

## **8 Conclusion**

SLR Consulting (formerly Heggies) were commissioned by Donaldson Coal to undertake an assessment of the noise impacts associated with the proposed modification to the approved Abel Underground Mine (Project Approval 05\_0136).

Construction noise levels have been qualitatively assessed. It is likely that noise levels from the construction of the proposed modification will comply with the relevant criteria at all locations. Notwithstanding this, a number of noise mitigation and management strategies will be undertaken during the construction period.

Since Abel Underground Mine noise monitoring commenced in 2008, noise emissions from the mine have been generally inaudible at all residential locations and have been found to be compliant with the relevant noise criteria during all noise monitoring periods. No noise complaints relevant to the Abel Underground Mine have been received since the commencement of operations.

Operational noise levels are predicted to meet the Project Noise Criteria at all locations under all meteorological conditions. Notwithstanding, operational noise monitoring would continue to be conducted in accordance with the *Abel Mine Project Noise Monitoring Program* (Heggies, 2007).

At all locations, predicted noise levels are no higher than those predicted as part of the approved *Abel Underground Mine Environmental Assessment* (Newcastle Coal Company Pty Ltd, 2006) with the exception of Location D where a 1 dBA increase is predicted under north-westerly winds during the night-time. However, a 1 dBA increase is unlikely to be noticed by the receiver, the total predicted noise level is only 31 dBA and Location D represents Black Hill School and therefore will not be occupied during the night-time period.

## 9 Closure

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Donaldson Coal Pty Ltd. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

I trust the preceding meets your current requirements. If you have any questions or would like any further information please do not hesitate to contact me on (02) 4908 4500 or email [narcher@slrconsulting.com](mailto:narcher@slrconsulting.com).

Regards,



Nathan Archer  
**Senior Consultant – Noise and Vibration**  
**SLR Consulting Australia Pty Ltd**

## **Appendix F Ecology Survey and Assessment Report**





Donaldson Coal Pty Ltd  
PO Box 2275  
Greenhills NSW 2323

15 February 2011

Attn Phil Brown

Dear Phil

### **Proposed Abel Upcast Ventilation Shaft - Ecology Survey and Assessment Report**

This ecology survey and assessment report has been prepared for inclusion in an application to modify the Abel Underground Mine through the installation and operation of an upcast ventilation shaft with associated power supply (**Attachment 1**).

#### ***Project Description Summary***

The Abel Underground Mine would be modified by the addition of one upcast ventilation shaft south of John Renshaw Drive. The upcast deep shaft will consist of a 5.5 metre (m) diameter, 40 m deep bore, concrete lined with a concrete collar foundation on the surface. Two Howden MVC 3050 centrifugal fans will be installed on the surface on concrete footings along with two electrical switchrooms. The surface area needed for the construction of the upshaft and the installation of the two fans and two electrical switchrooms is 75m x 75m. The upcast shaft will be constructed by the 'raise bore' method, meaning the shaft is excavated from the bottom of the shaft upwards. Using this method, material from the excavation will be removed inwards via the existing underground roadway network, surfacing at the existing portal.

A narrow strip approximately 10 m by 60 m for a power supply cable would be cleared from John Renshaw Drive into the access track.

Access to the proposed upcast ventilation shaft site would be from John Renshaw Drive via an existing track that is used to access the recently constructed downcast shaft.

#### ***Inspection and Survey Methods***

On 24 January 2011 I inspected the proposed Abel upcast ventilation shaft site and power supply easement. Each site was traversed systematically and a comprehensive list of plant species was compiled. The dominant plant species were used to identify the vegetation community present in the disturbance area, referring to the classification in NPWS (2000). Particular attention was given to the possible presence of threatened flora species and threatened ecological communities as listed in the schedules of the NSW *Threatened Species Conservation Act 1995*. Two threatened flora species are known to occur in the Donaldson Bushland Conservation Area (BCA) in which the proposed upcast ventilation shaft and access would be constructed: *Grevillea parviflora* subsp *parviflora* and *Tetradlea juncea*. The Atlas of NSW Wildlife also has records for *Rutidosia heterogama* a few kilometres west of the subject site. Also, any trees having potential fauna habitat hollows that were in or near the disturbance area were marked with a band of survey paint.

### **Survey results**

**Attachment 2** shows the habitat typical of each disturbance area. The full floristic list for each disturbance area is provided in **Attachments 4 & 5**; 30 species were recorded in the power supply easement and 49 species in the proposed upcast shaft site. No threatened flora species were found.

Both disturbance areas were found to be located within *Lower Hunter Spotted Gum – Ironbark Forest* (LHSGIF). The LHSGIF community is a listed endangered ecological community (EEC).

The dominant species in the LHSGIF community within the disturbance areas were:

- Canopy: *Eucalyptus fibrosa*, *Corymbia maculata*, *Eucalyptus umbra* and *Eucalyptus punctata*.
- Shrubs: *Acacia fimbriata*, *Bursaria spinosa*, *Macrozamia reducta*
- Ground: *Entolasia stricta*, *Imperata cylindrica*, *Aristida vagans*, *Joycea pallida*, *Dianella longifolia*, *Lomandra filiformis* subsp *coriacea*

Thirteen trees having potential habitat hollows and two dead stags were mapped within the bounds of the upcast shaft disturbance area (**Attachment 1**).

### **Impact assessment**

Because the site is located in an EEC, a 7-part test assessing the impact on the LHSGIF is provided in **Attachment 3**. The conclusion of the 7-part test was that, due to the small size of the disturbance areas (i.e. 0.06 and 0.56 ha) there would be no significant impact.

No threatened flora species were found during the survey, and no impacts on threatened flora are expected.

A number of threatened fauna species may occur in the area. Annual fauna monitoring within the BCA since the commencement of mining in 2000 has shown the following species of threatened fauna to be present at various locations and times: Squirrel Glider, Powerful Owl, Sooty Owl, Barking Owl, Masked Owl, Large Footed Myotis, Yellow-bellied Sheathtail Bat, Eastern Bent-wing Bat, Eastern Freetail Bat, Greater Broad-nosed Bat and the Little Bent-winged Bat. These threatened fauna species are unlikely to be impacted due to the small size of the disturbance area and the associated minor removal of habitat.

### **Recommendations**

There are some large trees with habitat hollows that would need to be removed. Prior to clearing, these trees should be observed at dusk and into dark to determine what if any fauna occupy hollows. At the time of removal of any habitat trees, a suitably qualified fauna ecologist should be present to ensure that any fauna are adequately cared for, in accordance with the Donaldson Flora and Fauna Management Plan (Ecobiological, 2007).

Following the completion of construction all disturbance at the edge of the existing vegetation should be rehabilitated in a manner consistent with the surrounding vegetation. Periodic inspections should be conducted to ensure that no weed species have become established in these areas.

Yours Faithfully

HUNTER ECO



Colin Driscoll  
Environmental Biologist  
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### **References**

Ecobiological (2007) *Abel Underground Coalmine – Flora and Fauna Management Plan*.

NPWS (2000) *Vegetation Survey, Classification and Mapping Lower Hunter and Central Coast Region*. Version 1.2. A project undertaken for The Lower Hunter and Central Coast Regional Environment Management Strategy CRA Unit Sydney Zone National Parks and Wildlife Service.

## Attachment 1

The proposed disturbance areas, habitat trees and mine plan.



## Attachment 2



Power supply corridor



Upcast shaft

### Attachment 3

#### The 7-part test

The 7-part test is here applied to the EEC *Lower Hunter Spotted Gum – Ironbark Forest* (LHSGIF) at the proposed study area. The 'local occurrence' is the amount of LHSGIF on the study area.

**(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,**

Not applicable to the consideration of an EEC.

**(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,**

Not applicable to the consideration of an EEC.

**(c) in the case of an endangered ecological community, whether the action proposed:**

**(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**

**(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,**

Mapping of the vegetation communities (Driscoll & Bell 2004) showed that approximately 123 ha of LHSGIF was present within the 150 ha portion of the Donaldson BCA south of John Renshaw Drive. The disturbance for the upcast ventilation shaft and power supply would involve clearing about 0.5% of this mapped community.

The bush tracks established through the area have had no discernable detrimental effect on the LHSGIF.

The proposed works would not place the local occurrence of LHSGIF at risk of extinction.

**(d) in relation to the habitat of a threatened species, population or ecological community:**

**(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and**

**(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and**

**(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,**

Fragmentation occurs where a disturbance creates a barrier to fauna movement or to dispersal vectors. A total of 0.3% of the local occurrence of LHSGIF would be disturbed and the disturbance would be a narrow linear and cul-de-sac feature. This disturbance would not result in fragmentation or isolation and would not impact on the long-term survival of LHSGIF in the locality.

**(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),**

No critical habitat was present.

**(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,**

No recovery plan or threat abatement plan for LHSGIF has been prepared. However the upcast ventilation shaft disturbance area falls within the Donaldson Open Cut Coal Mine Bushland Conservation Area (BCA), an offset area formed under the Donaldson Open Cut Mine Development Consent. The BCA Management Plan (Donaldson, 2006) was prepared to "*adequately compensate for the impact of the mine on biodiversity, provide compensatory habitat and be managed for the primary purposes of conservation.*" (Item 70 of the Donaldson Open Cut Mine Development Consent, 1999). The BCA Management Plan would be revised to show the disturbance associated with the upcast ventilation shaft and would remain within the 2:1 ratio in terms of compensatory habitat.

Priority actions for this EEC are:

**1. *Ensure that the fire sensitivity of the community is considered when planning hazard reduction and asset management burning. (High priority)***

Donaldson Coal has a Bushfire Management Plan in place to control the frequency and intensity of any burning. The BCA Management Plan also addresses bushfire control. The Bushfire Management Plan aims to "ensure that land owned by the Company is managed in a way that minimise the risk of bushfire as far as is practicable, and reduces the risk of fire originating on Donaldson Coal owner land spreading to adjacent properties."

**2. *Fence remnants where necessary to protect from off-road vehicle use and rubbish dumping. (Medium priority)***

The area in which the subject site is located is fenced from John Renshaw Drive but not from Black Hill Road to the south. The BCA Management Plan also addresses management of access, including fencing.

**3. *Identify and map priority site for conservation and restoration. (Medium priority)***

Not applicable.

**4. *Map and describe the EEC across its entire range in the Lower Hunter. (Medium priority)***

Not applicable.

**5. Promote public involvement in restoration activities. (Medium priority)**

Not applicable.

**6. Promote regeneration by avoiding prolonged or heavy grazing. (High priority)**

No grazing occurs in the area. The BCA Management Plan addresses management of access by stock.

**7. Protect habitat by minimising further clearing of the community. This requires recognition of the values of all remnants in the land use planning process, particularly development consents, rezonings and regional planning. (High priority)**

Clearing required for construction of the upcast ventilation shaft has been kept to a minimum. The BCA Management Plan addresses management of clearing within the BCA.

**8. Undertake research into aspects of restoration of the EEC. (Medium priority)**

Not applicable.

**9. Undertake restoration including bush regeneration and revegetation. (Medium priority)**

Rehabilitation of disturbed areas would be undertaken following completion of construction in accordance with Donaldson's Rehabilitation Management Plan.

**(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.**

The following listed Key Threatening processes are considered to be relevant to the construction and operation of the Abel upcast ventilation shaft:

- *Clearing of native vegetation*

Clearing of up to 0.62 ha would be necessary but would be kept to a minimum.

- *High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition*

Fire frequency is controlled by the Donaldson Bushfire Management Plan. The Bushfire Management Plan aims to "ensure that land owned by the Company is managed in a way that minimise the risk of bushfire as far as is practicable, and reduces the risk of fire originating on Donaldson Coal owner land spreading to adjacent properties."

- *Invasion and establishment of exotic vines and scramblers*

The Donaldson Rehabilitation Management Plan addresses weed control at the Abel Underground Mine.

- *Invasion of native plant communities by exotic perennial grasses*



The Donaldson Rehabilitation Management Plan addresses weed control at the Abel Underground Mine.

- *Invasion, establishment and spread of Lantana camara*

The Donaldson Rehabilitation Management Plan addresses weed control at the Abel Underground Mine.

- *Loss of Hollow-bearing Trees*

Thirteen hollow bearing trees would need to be removed.

- *Removal of dead wood and dead trees*

There is very little dead wood on the ground, probably as a result of a high frequency fire history prior to ownership and management by Donaldson Coal. No dead trees would need to be removed.

**The conclusion of the 7-part test is that there would be no significant impact on the local occurrence of LHSGIF and that no further investigation is required.**

## References

Donaldson Coal Pty Ltd (2004) *Donaldson Bushfire Management Plan*.

Donaldson Coal Pty Ltd (2006) *Donaldson Bushland Conservation Area Management Plan (OP-8)*.

Driscoll C & Bell S (2004) *The Vegetation of Donaldson Coal Property: Beresfield NSW Part 1: The Vegetation of the Donaldson Coal Property. Part 2: A Re-classification of Spotted Gum – Ironbark Communities within the Lower Hunter & Central Coast Region*. A report prepared by Ecobiological for Donaldson Coal. August 2004.

GSS Environmental (2007) *Donaldson Open Cut and Abel Underground Coal Mines Rehabilitation Management Plan*.

**Attachment 4**

Flora species recorded from within the power supply easement

<b>Family Name</b>	<b>Scientific Name</b>
<b>Anthericaceae</b>	<i>Caesia parviflora</i> var. <i>parviflora</i>
<b>Asteraceae</b>	<i>Vittadinia cuneata</i> var. <i>cuneata</i>
<b>Bignoniaceae</b>	<i>Pandorea pandorana</i> subsp. <i>pandorana</i>
<b>Celastraceae</b>	<i>Maytenus silvestris</i>
<b>Convolvulaceae</b>	<i>Cuscuta australis</i>
<b>Dilleniaceae</b>	<i>Hibbertia pedunculata</i>
<b>Fabaceae (Faboideae)</b>	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>
<b>Fabaceae (Faboideae)</b>	<i>Dillwynia retorta</i>
<b>Fabaceae (Faboideae)</b>	<i>Hardenbergia violacea</i>
<b>Fabaceae (Faboideae)</b>	<i>Pultenaea euchila</i>
<b>Fabaceae (Faboideae)</b>	<i>Pultenaea spinosa</i>
<b>Fabaceae (Mimosoideae)</b>	<i>Acacia elongata</i>
<b>Fabaceae (Mimosoideae)</b>	<i>Acacia fimbriata</i>
<b>Goodeniaceae</b>	<i>Goodenia hederacea</i> subsp. <i>hederacea</i>
<b>Goodeniaceae</b>	<i>Goodenia heterophylla</i>
<b>Lomandraceae</b>	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>
<b>Myrtaceae</b>	<i>Corymbia maculata</i>
<b>Myrtaceae</b>	<i>Eucalyptus fibrosa</i>
<b>Myrtaceae</b>	<i>Eucalyptus umbra</i>
<b>Phormiaceae</b>	<i>Dianella caerulea</i> var. <i>caerulea</i>
<b>Pittosporaceae</b>	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>
<b>Poaceae</b>	<i>Aristida vagans</i>
<b>Poaceae</b>	<i>Austrodanthonia fulva</i>
<b>Poaceae</b>	<i>Cymbopogon refractus</i>
<b>Poaceae</b>	<i>Dichelachne rara</i>
<b>Poaceae</b>	<i>Entolasia stricta</i>
<b>Poaceae</b>	<i>Imperata cylindrica</i>
<b>Poaceae</b>	<i>Joycea pallida</i>
<b>Poaceae</b>	<i>Panicum simile</i>
<b>Poaceae</b>	<i>Themeda australis</i>

## Attachment 5

Flora species recorded from within the upcast shaft disturbance area

Family Name	Scientific Name
Acanthaceae	<i>Pseuderanthemum variabile</i>
Anthericaceae	<i>Caesia parviflora</i> var. <i>parviflora</i>
Asteraceae	<i>Vittadinia cuneata</i> var. <i>cuneata</i>
Bignoniaceae	<i>Pandorea pandorana</i> subsp. <i>pandorana</i>
Celastraceae	<i>Maytenus silvestris</i>
Convolvulaceae	<i>Cuscuta australis</i>
Convolvulaceae	<i>Polymeria calycina</i>
Cyperaceae	<i>Lepidosperma laterale</i>
Dilleniaceae	<i>Hibbertia pedunculata</i>
Fabaceae (Faboideae)	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>
Fabaceae (Faboideae)	<i>Dillwynia retorta</i>
Fabaceae (Faboideae)	<i>Glycine microphylla</i>
Fabaceae (Faboideae)	<i>Hardenbergia violacea</i>
Fabaceae (Faboideae)	<i>Kennedia rubicunda</i>
Fabaceae (Faboideae)	<i>Pultenaea euchila</i>
Fabaceae (Faboideae)	<i>Pultenaea spinosa</i>
Fabaceae (Faboideae)	<i>Pultenaea villosa</i>
Fabaceae (Mimosoideae)	<i>Acacia elongata</i>
Fabaceae (Mimosoideae)	<i>Acacia falcata</i>
Fabaceae (Mimosoideae)	<i>Acacia fimbriata</i>
Goodeniaceae	<i>Goodenia hederacea</i> subsp. <i>hederacea</i>
Goodeniaceae	<i>Goodenia heterophylla</i>
Lomandraceae	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>
Lomandraceae	<i>Lomandra obliqua</i>
Luzuriagaceae	<i>Geitonoplesium cymosum</i>
Myrtaceae	<i>Corymbia maculata</i>
Myrtaceae	<i>Eucalyptus acmenoides</i>
Myrtaceae	<i>Eucalyptus fibrosa</i>
Myrtaceae	<i>Eucalyptus punctata</i>
Myrtaceae	<i>Eucalyptus umbra</i>
Myrtaceae	<i>Melaleuca styphelioides</i> var. <i>styphelioides</i>
Oleaceae	<i>Notelaea longifolia</i> forma <i>longifolia</i>
Oleaceae	<i>Notelaea venosa</i>
Phormiaceae	<i>Dianella caerulea</i> var. <i>caerulea</i>
Phormiaceae	<i>Dianella longifolia</i>
Pittosporaceae	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>
Poaceae	<i>Aristida vagans</i>
Poaceae	<i>Austrodanthonia fulva</i>
Poaceae	<i>Cymbopogon refractus</i>

<b>Poaceae</b>	<i>Dichelachne rara</i>
<b>Poaceae</b>	<i>Echinopogon caespitosus var. caespitosus</i>
<b>Poaceae</b>	<i>Entolasia stricta</i>
<b>Poaceae</b>	<i>Eragrostis brownii</i>
<b>Poaceae</b>	<i>Imperata cylindrica</i>
<b>Poaceae</b>	<i>Joycea pallida</i>
<b>Poaceae</b>	<i>Panicum simile</i>
<b>Poaceae</b>	<i>Poa labillardierei var. labillardierei</i>
<b>Poaceae</b>	<i>Themeda australis</i>
<b>Zamiaceae</b>	<i>Macrozamia reducta</i>