

Donaldson Coal Pty Limited

**ABEL UNDERGROUND MINE
PART 3A ENVIRONMENTAL
ASSESSMENT**

Appendix D

**Environmental Management
Plans and Procedures**



**Donaldson**Donaldson Coal Pty Ltd
ABN 87 073 088 945

ENVIRONMENTAL POLICY

Donaldson Coal recognises that it is operating in an environment that requires a genuine commitment to the environment. Donaldson aims to achieve and maintain a high standard of environmental care within all aspects of the operation.

Donaldson will achieve this by committing to the following principles:

- Compliance with all laws, regulations, consent conditions and standards applicable to the operation.
- Adopting a consultative approach and communicating openly with all stakeholders on the environmental issues;
- Ensuring that all employees, contractors and suppliers of goods and services are fully aware of their responsibilities by initiating regular communications and training;
- Always considering environmental factors when planning or making operational decisions or changes to the mining process;
- Ensuring continuous improvement through implementing and maintaining an Environmental Management Strategy (EMS) which aims to identify, control and monitor the environmental risks arising from the project;
- To develop, maintain and review environmental objectives, targets and performance indicators; and
- Managing all operational processes to minimise wastes, promote reuse and recycling principles so as to reduce the impacts upon the surrounding environments.

BRENDAN McPHERSON
Chief Executive Officer - Donaldson Project

SEPTEMBER 2000.

Abel underground coalmine: conveyor corridor and stockpile expansion areas flora and fauna management plan.

1. Introduction

Coal from the Abel underground coalmine is to be transported to the Bloomfield Coal Handling and Preparation Plant (CHPP) by way of a conveyor. Also the stockpile and some infrastructure areas will be expanded around the CHPP. Construction of the conveyor corridor and stockpile expansion areas will necessitate the clearing of about 13ha of remnant vegetation (Figure 1) and this flora and fauna management plan (F&FMP) provides for the minimisation of damage to surrounding remnant vegetation, protection of fauna and the rehabilitation of disturbed areas during and following construction.

2. Responsibility for this F&FMP

It will be the primary responsibility of the Abel principal environmental officer to ensure that the provisions of this F&FMP are met. The F&FMP should form part of the overall project Environmental Management Plan (EMP) and a report as to compliance with the F&FMP should be incorporated into the Annual Environmental Management Review (AEMR).

3. Components of the F&FMP

Vegetation clearance protocol
Rehabilitation of disturbed areas
Ongoing monitoring and management

3.1. Vegetation Clearance Protocol

This protocol 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.

3.1.1. Pre-clearance surveys

Areas to be cleared of vegetation should be inspected by a suitably qualified biologist. Searches should 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 first step should be to consult with the mine management to determine whether the cleared area can be adjusted in order to leave the plants in place. If this is not feasible then the plants should be translocated 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.

3.1.2. Fauna Management Strategies

Given that there is to be less than 5 ha of vegetation cleared the pre-clearing survey should be conducted about 7 days prior to commencement and involve the following

- Trees having potential habitat hollows should be clearly marked with a band of survey paint around the stem;
- Habitat trees should be watched at dusk to determine what if any fauna are using the hollows;
- At a minimum all marked trees should be left standing for at least 2 nights following the clearing to allow any 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;
- 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.

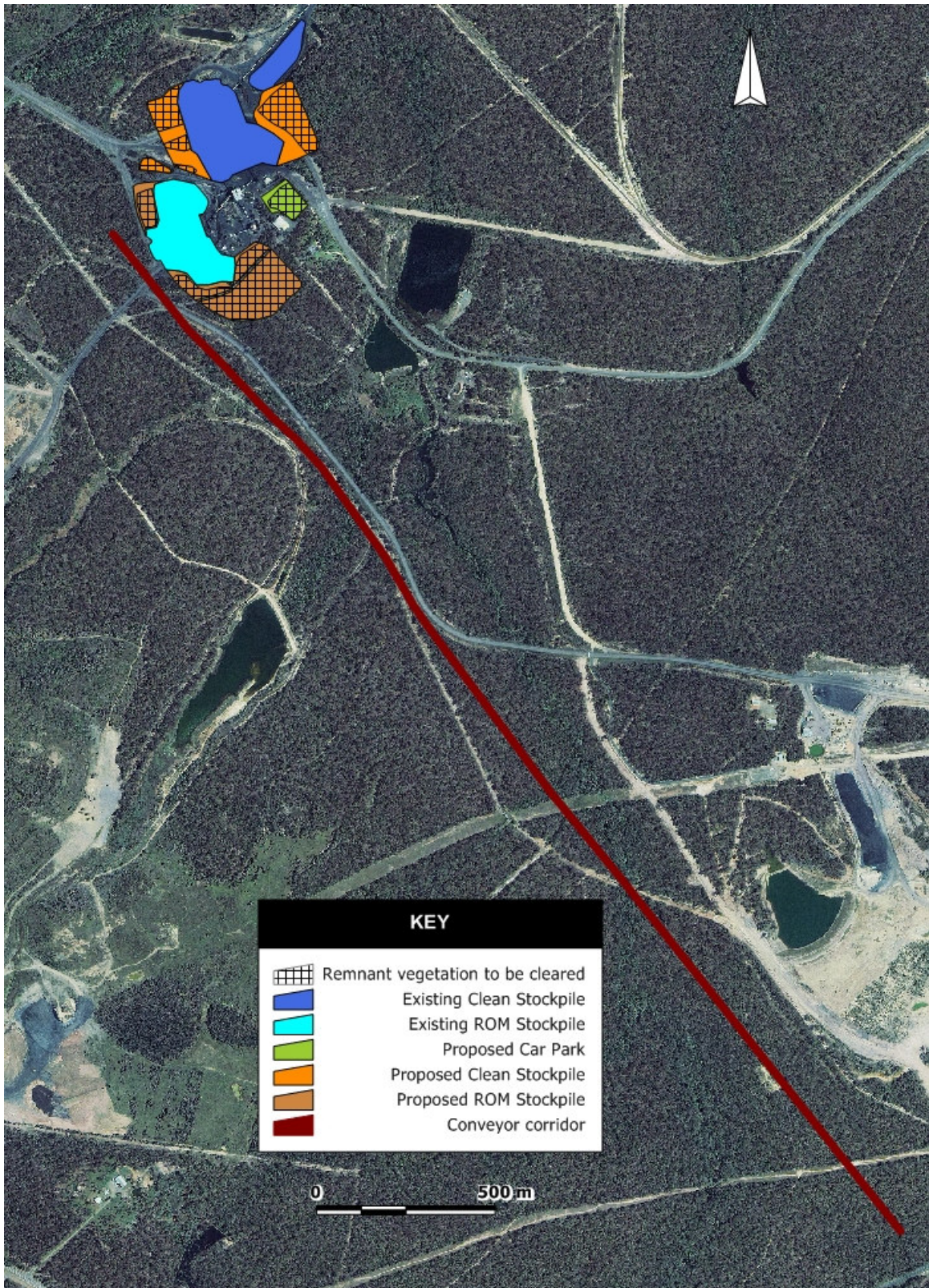


Figure 1: Conveyor and stockpile expansion areas

3.1.3. Reuse of material

Topsoil from cleared areas should be stockpiled for later spreading over areas needing revegetation following completion. Mulch should be prepared from the cleared vegetation sufficient to cover areas later requiring rehabilitation. Any trees having habitat hollows should be set aside following clearing so that they can be placed on rehabilitation areas.

3.2. Rehabilitation of disturbed areas

The construction of roads and work areas will result in the disturbance of a perimeter outside of the areas to be used. In order to minimise weed infestation, these areas should be rehabilitated immediately following the completion of the construction work.

Planting of seedlings or direct seed dispersal should not be required because the storage time for the topsoil will be short and the seedbank will still be viable:

- Following the completion of earthworks the topsoil should be spread across disturbance areas needing rehabilitation and then covered with mulch;
- Trees having hollows should be placed at regular intervals across these areas;
- A smoke chemical product such as Regen 2000 Seedstarter should be broadcast, according to the suppliers recommendations, across the spread topsoil to facilitate germination of smoke sensitive seed;
- The rehabilitation areas should be regularly watered in dry weather to stimulate germination and new seedling survival and development. Water quality should be assessed to ensure that low pH water is not applied to these areas;
- The rehabilitation areas should be regularly inspected for weed development and any weed patches should be treated early with the appropriate herbicide.

3.3. Ongoing monitoring program

The effectiveness of conservation measures should be monitored over time to ensure that target outcomes are met. The conservation measures are summarised as:

- erosion and sediment controls;
- dust suppression controls;
- vegetation clearing protocols;
- fauna management protocols; and
- rehabilitation protocols.

An inspection regime which records the status of the rehabilitated areas and the surrounding remnant vegetation should be implemented (Table 1).

Table 1: Monitoring program

Conservation measure	Inspection action	Inspection period	Management actions
Erosion & sediment controls	Inspection of drainage areas flowing from rehabilitation areas	Following or during heavy rain events	Repair or improve erosion and sediment control measures where necessary
Dust suppression controls	Visual inspection for excess dust being carried from the site	During times of dry, strong wind	Apply water to required areas
Vegetation clearing protocols	Engage a suitably qualified person to conduct the required inspections	7 days prior to clearing	Ensure that clearing does not proceed ahead of inspections
Fauna management protocols	Engage a suitably qualified person to conduct the required inspections	7 days prior to clearing	Ensure that clearing does not proceed ahead of inspections
Rehabilitation protocols	Monitor the development of the vegetation in rehabilitated areas	Annual inspection	Plant tube stock in areas where recovery has been inadequate. Properly manage any weed infestation

**ABEL UNDERGROUND MINE:
ABORIGINAL HERITAGE
MANAGEMENT PLAN**

WORKING DRAFT

DONALDSON COAL Pty Ltd

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August 2006

TABLE OF CONTENTS

1	INTRODUCTION.....	2
2	ABORIGINAL HERITAGE EVIDENCE.....	3
3	STATUTORY OBLIGATIONS.....	4
4	MANAGEMENT POLICIES AND ACTIONS	5
	4.1 Roles and Responsibilities.....	5
	4.2 Aboriginal Community Involvement	7
	4.3 Aboriginal Site Database	9
	4.4 Management of Recorded Aboriginal Sites in Surface Impact Area.....	10
	4.5 Management of Recorded Aboriginal Sites in Underground Area.....	13
	4.6 Further Archaeological Investigation and Section 138 Applications.....	15
	4.7 Identification of Previously Unrecorded Aboriginal Sites	17
	4.8 Identification of Human Skeletal Remains	19
	4.9 Monitoring.....	20
	4.10 Review of Plan.....	22
Table 1	Aboriginal Sites Recorded Within The Abel Project Area.....	23
Table 2	Monitoring Datum Points Within Donaldson Bushland Conservation Areas	26
Table 3	Sample Of Aboriginal Sites For Monitoring Within The Abel Underground Area For Which Subsidence-Related Impacts Are Not Expected To Occur	27
Table 4	Aboriginal Sites For Monitoring Within The Abel Underground Area For Which Subsidence-Related Impacts May Occur	28
Figure 1	Approximate Location Of Aboriginal Sites Recorded Within The Abel Project Area	29

1 INTRODUCTION

This Aboriginal Heritage Management Plan (the plan) applies to the following areas:

- The Project Abel surface impact area as marked on Figure 1;
- The Project Abel underground area as marked on Figure 1;

This plan has been prepared to address the requirements of the *National Parks and Wildlife Act 1974* (NP&W Act) and the *Environmental Planning and Assessment Act 1979* (EP&A Act), specifically the Statement of Commitments and Part 3A Major Project approval for the Abel Underground Mine.

This plan interfaces with the (name of) Plan.

This plan:

- Defines responsibilities of personnel;
- Defines procedures in relation to Aboriginal heritage;
- Establishes key performance indicators;
- Establishes policies and actions for compliance with the NP&W Act and EP&A Act and Part 3A Approval;
- Facilitates a process of communication and decision-making; and
- Assists Donaldson to meet legal and ethical obligations in relation to Aboriginal heritage.

Implementation of this plan is the responsibility of the Donaldson Environmental Manager.

2 ABORIGINAL HERITAGE EVIDENCE

The best current approximation of the names and locations of Aboriginal heritage evidence within the project area is marked on Figure 1 and listed in Table 1. This is based on information about previous recordings contained in archaeological reports, the Department of Environment and Conservation (DEC) Aboriginal Heritage Information Management System (AHIMS) register and DEC site records, along with information recorded during field inspections for the Part 3A application.

Approximately 38 Aboriginal heritage sites are present within the area, including 17 within the surface study area north of John Renshaw Drive and 21 within the underground area south of John Renshaw Drive. Apart from one grinding groove site, the remainder of the sites within the surface study area are artefact occurrences. The underground area hosts three grinding groove sites and a single scarred tree, with the remaining evidence comprising artefact occurrences.

No Aboriginal heritage sites are listed within the study area on other heritage registers or planning instruments, including the Maitland, Cessnock and Newcastle Local Environmental Plans and the Hunter Regional Environmental Plan and other registers under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, the *Environment Protection and Biodiversity Conservation Act 1999* or the *Australian Heritage Council Act 2003* such as the Register of the National Estate, Commonwealth Heritage List and National Heritage List.

Places may be of traditional or historical cultural significance to Aboriginal people, but do not necessarily host physical remains. Historical accounts identify at least two places of potential cultural significance within the underground area, a pathway along Black Hill Spur possibly extending south to Mount Sugarloaf and a ceremonial site known as 'the Doghole' in the vicinity of Stockrington and Long Gully.

In addition to the *identified* heritage evidence, there are *potential* heritage resources within the project area. Stone artefact evidence is likely to occur in a widespread distribution of variable density across virtually all landform units within the underground area. Other types of heritage evidence are known to occur or have some potential to occur within the underground area, particularly ceremonial sites, cultural sites of significance, grinding grooves, lithic quarries, rock shelters, shell middens and scarred trees.

The significance of Aboriginal heritage evidence, including scientific, cultural, educational, historic and aesthetic values, can be assessed against a range criteria commonly used in Aboriginal heritage management. Scientific value involves assessment of the potential usefulness of the heritage evidence to address further research questions (research potential), the representativeness of the evidence, the nature of the evidence and its state of preservation. Cultural significance refers to the contemporary, historic or traditional value placed upon the evidence by the local Aboriginal community. It is important to observe that all heritage evidence tends to have some contemporary significance to Aboriginal people, because it represents an important tangible link to their past and to the landscape.

3 STATUTORY OBLIGATIONS

The *National Parks and Wildlife Act 1974* (NP&W Act) provides the primary basis for the legal protection and management of Aboriginal heritage evidence within NSW. The Act provides various controls for the protection, management and destruction of Aboriginal objects. Under the Part 3A Major Project amendments to the *Environmental Planning and Assessment Act 1979* (EP&A Act), subsequent to approval being granted, Section 90 Consent under the NP&W Act may not be required to impact Aboriginal objects. *In lieu* however, a Part 3A application involving a Statement of Commitments outlining proposed heritage management and mitigation measures must be approved.

While the primary legislation offering protection to Aboriginal heritage in NSW is enacted by the state, several Acts administered by the Commonwealth may also be relevant. The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* provides for the protection of areas and objects which are of significance to Aboriginal people in accordance with Aboriginal tradition. The amended *Environment Protection and Biodiversity Conservation Act 1999* and the *Australian Heritage Council Act 2003* include a National Heritage List of places of national heritage significance, a Commonwealth Heritage List of heritage places owned or managed by the Commonwealth and continued management of the Register of the National Estate. In addition to these Commonwealth acts, local planning instruments also contain provisions relating to indigenous heritage and development. At present, no Aboriginal sites identified within the study area are listed on these registers or plans.

4 MANAGEMENT POLICIES AND ACTIONS

This section outlines the policies for management of the identified and potential Aboriginal heritage evidence within the project area, along with the actions necessary to implement these policies.

4.1 Roles and Responsibilities

The personnel responsible for implementation of this plan to ensure compliance with regulatory requirements and safe and effective management of Aboriginal heritage within the project area is specified here.

DONALDSON ENVIRONMENTAL MANAGER:

The Donaldson Environmental Manager is responsible for:

- Developing, implementing and maintaining this plan;
- Reviewing and updating this plan;
- Educating relevant staff and contractors to ensure all are aware of their obligations under this plan;
- Coordinating all activities and investigations required under this plan;
- Coordinating all consultation with the Aboriginal community required under this plan;
- Being the first point of contact at Donaldson in relation to Aboriginal heritage issues.

ABORIGINAL COMMUNITY:

The Mindaribba and Awabakal Local Aboriginal Land Councils are responsible in relation to their respective Land Council areas for:

- Providing suitably qualified and/or experienced representatives to attend meetings, site inspections and surveys with 10 working days notice;
- Providing written comment to Donaldson on the draft of any heritage assessment or heritage monitoring report or in relation to any other heritage issue where requested by Donaldson, within 15 working days of a verbal or written request by Donaldson;
- Complying with all Occupational Health and Safety, Equal Opportunity and Donaldson Development Consent and Plan of Management requirements at all times when on Donaldson lease areas;
- Undertaking other duties as reasonably requested by Donaldson in relation to Aboriginal heritage.

OTHER PERSONNEL:

Other staff and contractors of Donaldson are responsible for:

- Being aware of their obligations under this plan;
- Being aware of the existence of Aboriginal heritage evidence in their work area and specific actions required under this plan to protect or manage that evidence;
- Immediately informing their supervisor should any new Aboriginal heritage evidence be identified;
- Immediately ceasing work in that area and informing their supervisor should any impacts occur to Aboriginal heritage evidence that are not consistent with this plan.

4.2 Aboriginal Community Involvement

POLICY:

Donaldson acknowledges that Aboriginal heritage is of primary interest to the Aboriginal community and that Aboriginal people have the right to be consulted and involved in all aspects of decision-making in relation to their heritage.

Donaldson recognises that the Aboriginal community has a paramount role in identifying cultural significance and cultural values.

Donaldson recognises that the Local Aboriginal Land Councils (LALCs) are the democratically elected and representative bodies responsible under the *Aboriginal Land Rights Act 1983* for providing advice and expertise on Aboriginal matters and will therefore function as the central point of contact with the Aboriginal community in relation to heritage issues. Much of the lease area lies within the boundaries of the Mindaribba LALC and the south-eastern portion of the lease area lies within the boundaries of the Awabakal LALC (refer to Figure 1).

Donaldson recognises that at times the input of Registered Native Title Claimants and other registered Aboriginal stakeholders with demonstrated qualifications in cultural heritage, skills or experience in the conduct of heritage studies in the local area, and/or specific cultural knowledge of the lease area may be sought in relation to specific heritage issues.

ACTIONS:

- Donaldson will provide the relevant LALC with details of the proposed methodology of any archaeological survey (excluding monitoring) or excavation planned for the lease area and allow the LALC a minimum of 15 working days to provide comment, including identification of issues or areas of cultural significance that might affect, inform or allow refinement of the methodology. Donaldson will document and take into account all comment provided by the LALC and identify in the final report how these comments were considered in finalising the methodology;
- Donaldson will engage representatives of the relevant LALC to participate in any archaeological survey, excavation or monitoring required under this plan. Donaldson will provide the LALC with a minimum of 10 working days notice of the date of commencement of the field investigation, unless a shorter period is agreed to by the LALC. Donaldson will provide safe access to the investigation area and induct LALC representatives to an appropriate level for Occupational Health and Safety and mine procedures and requirements for that investigation area;
- The relevant LALC will provide suitably qualified and/or experienced representatives to participate in any archaeological survey, excavation or monitoring required under this plan. The LALC representatives will comply with all requirements of Donaldson, including Occupational Health and Safety requirements, at all times when on Donaldson lease areas;
- Donaldson will provide the relevant LALC with draft copies of all heritage assessment and heritage monitoring reports produced under this plan and allow the LALC 15 working days to provide written comment. Donaldson will document and take into account all comment provided by the LALC and demonstrate in the final report how these comments have been taken into consideration;

- The relevant LALC will provide written comment to Donaldson on the draft of any heritage assessment or heritage monitoring report or in relation to any other heritage issue where requested by Donaldson, within 15 working days of a verbal or written request by Donaldson;
- Donaldson will provide the relevant LALC with final copies of all heritage assessment and heritage monitoring reports produced under this plan, within 25 working days of the completion of the report;
- Donaldson will consult with Registered Native Title Claimants and other registered Aboriginal stakeholders with demonstrated qualifications in cultural heritage, skills or experience in the conduct of heritage studies in the local area, and/or specific cultural knowledge of the lease area in relation to specific heritage issues where Donaldson determines that such consultation may be beneficial to the completion of a heritage survey, excavation or report;
- Donaldson will make available to Registered Native Title Claimants and other registered Aboriginal stakeholders final copies of any heritage assessment and heritage monitoring reports produced under this plan, within 25 working days of the completion of the report and receipt of a verbal or written request from such a party;
- Donaldson will arrange and host a meeting on an annual basis with the nominated executives of the LALCs to discuss the operation and effectiveness of this plan, any heritage reports or work conducted under this plan, and any other heritage issues that are deemed relevant by either Donaldson or the LALCs. Donaldson will maintain and distribute minutes of such meetings to the LALCs;
- Donaldson will assist the relevant LALC to collect and curate any items that are salvaged as per Sections 4.4 and 4.5 of this plan;
- Donaldson will immediately notify the relevant LALC should human skeletal material be identified within the lease area;
- Donaldson will permit LALC representatives access to inspect recorded Aboriginal heritage evidence on Donaldson controlled land subject to the receipt of 3 working days written notice, and safety and operational considerations at that time.

RESPONSIBILITY:

- The Environmental Manager will coordinate all consultation with the Aboriginal community required under this plan;
- Mindaribba LALC will coordinate the involvement of the Land Council with Donaldson for all heritage issues within their Land Council boundary;
- Awabakal LALC will coordinate the involvement of the Land Council with Donaldson for all heritage issues within their Land Council boundary;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.3 Aboriginal Site Database

POLICY:

Donaldson will maintain a current database providing details of all identified Aboriginal heritage evidence within the lease area so that this plan can be effectively implemented.

ACTIONS:

- Donaldson will maintain an Aboriginal Site Database in both tabular and graphical form that presents the locations and names and other relevant details of all identified Aboriginal heritage evidence within the lease area (eg. Table 1 and Figure 1);
- Donaldson will update the database within 3 working days after becoming aware or being informed of the identification of any previously unrecorded Aboriginal heritage evidence within the lease area;
- Donaldson will make the Database available to all relevant personnel, contractors and LALC representatives where necessary to ensure that this plan can be effectively implemented;
- Donaldson will not make the Database publically available without obtaining the prior written consent of the LALCs.

RESPONSIBILITY:

- The Environmental Manager will create, maintain and update the Database;
- The Environmental Manager will make the Database available where necessary;
- The Environmental Manager will liaise with the LALCs should it be necessary to make any information in the Database available to the public;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.4 Management of Recorded Aboriginal Sites in Surface Impact Area

POLICY:

Donaldson will seek to *minimise* impacts to identified and potential Aboriginal heritage evidence within the surface impact area (refer to Figure 1) and to conserve identified evidence where impacts are not required to occur for operational reasons.

Donaldson will seek to *mitigate* impacts to identified and potential Aboriginal heritage evidence within the surface impact area where impacts must occur for operational reasons.

Donaldson will manage specific recorded Aboriginal heritage sites and implement procedures to manage other types of Aboriginal heritage evidence should they be identified within the surface impact area as specified below and consistent with the Part 3A approval and relevant legislation.

Human skeletal remains are excluded here and dealt with in Section 4.8.

ACTIONS:

- Approximately 17 artefact scatter sites (refer to Table 1, Figure 1) have been identified within the surface impact area north of John Renshaw Drive. Also, artefact scatter sites F1/A and F2/A may be impacted by construction of the fan site south of John Renshaw Drive (refer to Table 1, Figure 1). In addition, a widespread distribution of stone artefacts (currently obscured by vegetation and/or soil) occurring at a generally low density is predicted to occur throughout the surface impact area (apart from ground already subject to high impacts). The continued use of existing facilities and infrastructure (including roads) and the construction plans for new facilities and infrastructure (including all areas where impacts to the ground surface may occur) will be assessed against the location plan of identified Aboriginal heritage evidence (Figure 1). Where impacts may occur from either existing use or newly proposed uses, the artefact evidence will be assessed by a qualified archaeologist and the relevant LALC, its significance will be assessed and mitigation and management strategies formulated by Donaldson, the archaeologist and relevant LALC. Any evidence assessed as being of scientific and/or cultural significance within a regional context will be subject to conservation. In this circumstance, no work shall be undertaken that will cause any impacts to the site and fencing and/or marking of the site location, erection of signage and notification of relevant personnel may be required to ensure that impacts do not occur. Any evidence assessed as being of scientific and/or cultural significance within a local context but not a regional context may be subject to impacts but only with mitigation measures agreed to by Donaldson, the independent archaeologist and relevant LALC. For artefact scatter sites such mitigation measures may include surface collection and/or archaeological excavation of evidence, curation of evidence and provision of a report with reference to the DEC *Aboriginal Heritage Standards and Guidelines Kit* (1997). Any evidence assessed as being of low scientific and/or cultural significance may be impacted without mitigation measures, but only after the evidence has been recorded in detail, with reference to the DEC *Aboriginal Heritage Standards and Guidelines Kit* (1997);

- One grinding groove site (#38-4-0665, refer to Table 1, Figure 1) has been identified within the surface impact area. This site will be subject to conservation. No work shall be undertaken that will cause any impacts to this site. As per the procedures in Section 4.7, fencing and/or marking of the site location, erection of signage and notification of relevant personnel may be required to ensure that impacts do not occur;
- Other grinding groove sites may occur within the surface impact area. Where identified, such evidence will be assessed by a qualified archaeologist and the relevant LALC, its significance will be assessed and mitigation and management strategies formulated by Donaldson, the archaeologist and relevant LALC. Any evidence assessed as being of scientific and/or cultural significance within a regional context will be subject to conservation. In this circumstance, no work shall be undertaken that will cause any impacts to the site and fencing and/or marking of the site location, erection of signage and notification of relevant personnel may be required to ensure that impacts do not occur. Any evidence assessed as being of scientific and/or cultural significance within a local context but not a regional context may be subject to impacts but only with mitigation measures agreed to by Donaldson, the independent archaeologist and relevant LALC. For grinding groove sites such mitigation measures may include removal of the rock hosting the grooves and curation of the evidence with the relevant LALC or another heritage or educational place approved by the LALC. Any evidence assessed as being of low scientific and/or cultural significance may be impacted without mitigation measures, but only after the evidence has been recorded in detail, with reference to the DEC *Aboriginal Heritage Standards and Guidelines Kit* (1997);
- Although not identified to date and predicted to have a low to very low potential to occur, should cultural sites of significance¹ be identified within the surface impact area, an assessment by a qualified archaeologist and/or anthropologist and the relevant Aboriginal stakeholders will occur. The assessment will identify the nature of the evidence, the identity of the informants, and the significance of the site. Donaldson will seek to minimise surface impacts in the location of any such site, to the extent feasible within operational requirements;

¹ Cultural sites may be of traditional or historical cultural significance to Aboriginal people but do not necessarily host physical remains. This category does not include the contemporary significance or cultural value that may be attributed in the present time to physical evidence such as artefact scatters. Sites of traditional significance may include places related to beliefs that date from the pre-contact period and have persisted until the present time such as mythological sites. Sites of historic significance may include places related to Aboriginal use or knowledge during the post-contact period such as massacre sites, historic camp sites and resource-use areas, and contact sites.

- Although not identified to date and predicted to have a low to very low potential to occur, should evidence of lithic quarry or shell midden sites be identified within the surface impact area, such evidence will be assessed by a qualified archaeologist and the relevant LALC, its significance will be assessed and mitigation and management strategies formulated by Donaldson, the archaeologist and relevant LALC. Any evidence assessed as being of scientific and/or cultural significance within a regional context will be subject to conservation. In this circumstance, no work shall be undertaken that will cause any impacts to the site and fencing and/or marking of the site location, erection of signage and notification of relevant personnel may be required to ensure that impacts do not occur. Any evidence assessed as being of scientific and/or cultural significance within a local context but not a regional context may be subject to impacts but only with mitigation measures agreed to by Donaldson, the independent archaeologist and relevant LALC. For lithic quarry and midden sites such mitigation measures may include surface collection and/or archaeological excavation of evidence, dating of shell/charcoal deposits, curation of evidence and provision of a report with reference to the DEC *Aboriginal Heritage Standards and Guidelines Kit* (1997). Any evidence assessed as being of low scientific and/or cultural significance may be impacted without mitigation measures, but only after the evidence has been recorded in detail, with reference to the DEC *Aboriginal Heritage Standards and Guidelines Kit* (1997);
- Although not predicted to occur, should evidence of bora/ceremonial, carved tree, rock shelter with art and/or occupation deposit, scarred tree or stone arrangement sites be identified within the surface impact area, these site types would potentially be of regional significance and will therefore be subject to conservation. No work shall be undertaken that will cause any impacts to any such site. As per the procedures in Section 4.7, fencing and/or marking of the site location, erection of signage and notification of relevant personnel may be required to ensure that impacts do not occur.

RESPONSIBILITY:

- The Environmental Manager will coordinate all actions required to comply with the management of recorded Aboriginal sites within the surface impact area;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.5 Management of Recorded Aboriginal Sites in Underground Area

POLICY:

Donaldson will seek to *minimise* impacts to identified and potential Aboriginal heritage evidence within the underground area, including all evidence (grinding grooves and rock shelters) susceptible to impacts from subsidence (refer to Figure 1).

Donaldson will seek to *mitigate* impacts to identified and potential Aboriginal heritage evidence within the underground area where impacts must occur for operational reasons.

Donaldson will manage specific recorded Aboriginal heritage sites and implement procedures to manage other types of Aboriginal heritage evidence should they be identified within the underground area as specified below and consistent with the Part 3A approval and relevant legislation.

Human skeletal remains are excluded here and dealt with in Section 4.8.

ACTIONS:

- Approximately 17 stone artefact sites, one scarred tree and two cultural sites, including a bora/ceremonial place, (refer to Table 1, Figure 1) have been identified within the underground area south of John Renshaw Drive. In addition, there is a high potential for further stone artefacts to occur in a widespread distribution of variable density across virtually all landform units. There is also potential, albeit generally low to very low, for other bora/ceremonial, carved tree, cultural, lithic quarry, shell midden, scarred tree and stone arrangement sites to occur within the underground area. Subsidence is not anticipated to result in impacts to these forms of heritage evidence. As such, the key management actions required are those specified in Sections 4.3, 4.6 and 4.7;
- Three grinding groove sites (#38-4-0158, Abel 1 and Abel 2, refer to Table 1, Figure 1) have been identified within the underground area. Other grinding groove sites may occur within the underground area, particularly within drainage depressions where sandstone bedrock outcrops, but also in other areas of outcropping sandstone. Grinding groove sites are susceptible to mining induced subsidence impacts through cracking to the grooves and the rocks hosting them. These sites and any other grinding groove sites identified within the underground area will be subject to conservation. Therefore, no work shall be undertaken that will cause any impacts to these sites. An assessment of the potential impacts of subsidence will be undertaken at each identified grinding groove site by an appropriately qualified expert. The mine plan will be altered to ensure that all risk of subsidence impact to each grinding groove site is avoided;

- Where sandstone rock formations are present, there is potential for overhangs, shelters or caves which may host evidence of Aboriginal occupation (eg. stone artefacts, deposits and/or art). Such rock shelter sites (including those with potential deposits, but no identified heritage evidence) are susceptible to mining induced subsidence impacts through rock fall and cracking. Where identified within the underground area, these sites will be subject to conservation. Therefore, no work shall be undertaken that will cause any impacts to these sites. An assessment of the potential impacts of subsidence will be undertaken at each identified rock shelter site by an appropriately qualified expert. The mine plan will be altered to ensure that all risk of subsidence impact to each rock shelter site is avoided.

RESPONSIBILITY:

- The Environmental Manager will coordinate all actions required to comply with the management of recorded Aboriginal sites within the underground area;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.6 Further Archaeological Investigation and Section 138 Applications

POLICY:

Donaldson will ensure that where required, prior to obtaining approval under Section 138 of the *Coal Mines Regulations Act 1982* for underground mining, Aboriginal heritage will be addressed in a Subsidence Management Plan (SMP) prepared in accordance with the Department of Primary Industries (DPI) (2003) *Guidelines for Subsidence Management Approval Applications*.

Irrespective of any Section 138 requirements, staged systematic archaeological survey of each section proposed to be undermined will occur with the participation of the Aboriginal stakeholders prior to any underground mining in each section, in order to ensure that the nature and extent of Aboriginal heritage evidence that may be susceptible to impacts is identified and managed according to this plan and Part 3A approval.

ACTIONS:

Donaldson will engage a suitably qualified and experienced archaeologist to identify and address the relevant SMP guidelines and other statutory requirements, including through:

- Description of the existing environment and potential impacts;
- Detailing baseline studies and monitoring;
- Undertaking an archaeological survey to identify and record any Aboriginal heritage evidence or areas of potential evidence within the SMP application area. The survey will encompass the geographic extent of the application area and will be undertaken within each area to be undermined in advance of mining, irrespective of specific SMP requirements;
- Assessing the significance of any identified heritage evidence within the SMP application area;
- Assessing the potential impacts of the proposed activity upon the identified or potential Aboriginal heritage evidence, including with reference to previous experience of subsidence impact in existing mined areas;
- Consultation with the local Aboriginal community, including the participation of relevant LALC representatives in the archaeological survey;
- Identification and assessment of management and mitigation options for any Aboriginal heritage evidence identified, consistent with this plan and Part 3A approval;
- Provision and implementation of recommendations for the most appropriate management and mitigation options, consistent with this plan and Part 3A approval;
- Provision of a report detailing the above for each SMP application area, produced with reference to the DEC *Aboriginal Heritage Standards and Guidelines Kit* (1997), with copies distributed to DPI, DEC and the relevant LALC within 25 working days of finalisation of the report.

RESPONSIBILITY:

- The Environmental Manager will coordinate all actions required to comply with the Aboriginal heritage aspects of a Section 138 SMP application and further archaeological studies in advance of underground mining;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.7 Identification of Previously Unrecorded Aboriginal Sites

POLICY:

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 consistent with the Part 3A approval and this plan are implemented in consultation with the Aboriginal community.

Human skeletal remains are excluded here and dealt with in Section 4.8.

ACTIONS:

- Upon identification of any previously unrecorded Aboriginal heritage evidence, all work that may cause impacts to that evidence shall immediately cease and the Environmental Manager be notified;
- Temporary fencing and/or marking of the site location and signage may be required to ensure inadvertent impacts do not occur;
- Relevant personnel may need to be notified to ensure that inadvertent impacts do not occur;
- Should the Aboriginal heritage evidence occur in the surface impact area, it will be managed in accordance with the specific procedures set out in Section 4.4;
- Should the Aboriginal heritage evidence occur in the underground area, it will be managed in accordance with the specific procedures set out in Section 4.5;
- Should the Aboriginal heritage evidence comprise a type of evidence different to those addressed in Sections 4.4 and 4.5 (for example, rare and otherwise unexpected forms of evidence such as Pleistocene age artefact sites that relate to Aboriginal occupation earlier than 10,000 years ago) it will be recorded by a qualified archaeologist and the relevant LALC, its significance will be assessed and mitigation and management strategies formulated by Donaldson, the archaeologist and relevant LALC. Any evidence assessed as being of scientific and/or cultural significance within a regional context will be subject to conservation. Any evidence assessed as being of scientific and/or cultural significance within a local context but not a regional context may be subject to impacts but only with mitigation measures agreed to by Donaldson, the independent archaeologist and relevant LALC;
- The relevant LALC will be notified within 10 working days of the identification of the Aboriginal heritage evidence and the management actions to be implemented in accordance with this plan and Part 3A approval;
- A site record will be lodged with DEC within 15 working days to comply with Section 91 of the NP&W Act;
- Work that may impact upon the Aboriginal heritage evidence may only recommence with the approval of the Environmental Manager and after actions set out in this plan and Part 3A approval have been implemented.

RESPONSIBILITY:

- The Environmental Manager will coordinate and instigate all action required;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.8 Identification of Human Skeletal Remains

POLICY:

Should any human skeletal remains be identified during work, Donaldson will ensure that actions are implemented to comply with statutory obligations and will consider the special needs of the Aboriginal community should those remains be identified as Aboriginal.

ACTIONS:

- If human skeletal material is identified during work, all work in the area of the material will cease immediately;
- Donaldson will immediately notify the NSW Police, relevant LALC and DEC;
- Donaldson will facilitate, in cooperation with the Police, LALC and DEC, the identification of the skeletal remains by an appropriately qualified person;
- Should the remains be identified as Aboriginal and the Police require no further involvement, Donaldson will manage the remains in accordance with the requirements of DEC in consultation with the Aboriginal community and with advice from a heritage expert. Possibly strategies may involve conservation *in situ* through avoidance of works in that location, conservation *in situ* by emplacement of a protective barrier and fill above the evidence, or excavation and reburial elsewhere.

RESPONSIBILITY:

- The Environmental Manager will coordinate all action required, including notification of and consultation with the Aboriginal community, Police and DEC;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.9 Monitoring

POLICY:

A regional monitoring network for Aboriginal heritage across the Abel, Tasman, Donaldson and Bloomfield leases will be formed for the duration of the mining leases.

The existing programme of monitoring in the Donaldson Bushland Conservation Areas will continue to ensure that the condition of a sample of Aboriginal heritage sites that occur within the surface area north of John Renshaw Drive is regularly assessed.

A sample of Aboriginal heritage sites within the underground 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.

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 undermining in their vicinity to ensure the adequacy of conservation measures (ie. mining exclusion zones) around those sites.

ACTIONS:

- Monitoring of the seven existing datum points within the Donaldson Conservation Area (refer to Table 2) will continue on an annual basis, involving inspection by a qualified archaeologist and a representative of the Mindaribba LALC. The inspection will occur during August and will involve recording of data on surface exposure, visibility, environmental conditions, human impacts, natural impacts, and condition of markings and signs relating to the Conservation Areas, in a manner consistent with previous monitoring, along with details of Aboriginal participation and any issues raised by the Aboriginal community regarding management of the Conservation Areas. These actions will be reported on in the annual monitoring report (refer below);
- Monitoring will occur for a sample of Aboriginal sites within the Abel Underground Area for which subsidence related impacts are not expected to occur (refer to Table 3). The inspections will occur prior to undermining and three months and six months after undermining, and thereafter on an annual basis for five years. The inspections will be undertaken by a qualified archaeologist and a representative of the relevant LALC. Each inspection will involve recording of data on surface exposure, visibility, environmental conditions, pre-existing human and natural impacts, heritage evidence present and any identified changes to these environmental and heritage data from previous monitoring inspections, along with details of Aboriginal participation. The potential cause (eg. subsidence or other impacts) of changes to the condition of individual sites will be assessed. These actions will be reported on in the annual monitoring report (refer below);

- Monitoring will occur for all Aboriginal sites within the Abel Underground Area and Tasman Underground Area for which subsidence related impacts may occur in order to ensure the adequacy of conservation measures (ie. mining exclusion zones) around those sites (refer to Table 4). The inspections will occur prior to undermining and three months and six months after undermining, and thereafter on an annual basis for five years. The inspections will be undertaken by a qualified archaeologist and a representative of the relevant LALC. Each inspection will involve recording of data on surface exposure, visibility, environmental conditions, pre-existing human and natural impacts, heritage evidence present and any identified changes to these environmental and heritage data from previous monitoring inspections, along with details of Aboriginal participation. The potential cause (eg. subsidence or other impacts) of changes to the condition of individual sites will be assessed. These actions will be reported on in the annual monitoring report (refer below);
- An annual report documenting the results of monitoring will be prepared and provided to the relevant LALC and DEC within 25 working days of finalisation of the report, 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;
- Tables 3 and 4 will be updated as required on the basis of the results of further archaeological surveys within the lease areas. Any newly identified rock shelter, stone arrangement and grinding groove sites and any other site types deemed susceptible to subsidence impacts will be added to Table 4.

RESPONSIBILITY:

- The Environmental Manager will coordinate and instigate all monitoring action required;
- The Environmental Manager will ensure Tables 3 and 4 are updated as required;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.10 Review of Plan

POLICY:

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.

ACTIONS:

- On an annual basis, Donaldson or an independent expert engaged by Donaldson will review this plan to identify the degree to which the policy objectives are being met, the suitability of the actions in terms of addressing the policy objectives, the quality of performance of the actions, and any additional policies or actions or modifications to existing policies or actions that may be required to enable better functioning of the plan;
- Assess the performance of the plan against key performance indicators, such as the protection of Aboriginal heritage, extent of impacts to Aboriginal heritage, number of mining days lost due to actions under the plan, and the number and nature of any adverse responses or input from relevant government authorities or the Aboriginal community;
- Verification may include, where deemed necessary in response to requests of the LALCs, Environmental Manager or DEC, independent review of any heritage assessment report generated under this plan.

RESPONSIBILITY:

- The Environmental Manager will be responsible for undertaking or engaging experts to review the operation of this plan on an annual basis.

Table 1 Aboriginal Sites Recorded Within The Abel Project Area

DEC Site # ¹	Site Name ²	Site Type ³	AMG Grid Reference Eastings ⁴	AMG Grid Reference Northings	MGA Grid Reference Eastings ⁵	MGA Grid Reference Northings	Locality Within Project Abel Study Area
38-4-0106	Black Hill Open Site	Artefact scatter	367450	6365400	367555	6365589	Underground Area
38-4-0139	Four Mile Creek 1	Artefact scatter	368130	6367020	368235	6367209	Underground Area
38-4-0140	Four Mile Creek 2	Artefact scatter	367820	6366880	367925	6367069	Underground Area
38-4-0158	Reynolds Rock	Grinding groove	366250	6364610	366355	6364799	Underground Area
38-4-0338	Ironbark 1 ¹⁴	Artefact scatter	367603	6369690	367708	6369879	Surface Area
38-4-0339	Ironbark 2	Artefact scatter	369190	6367890	369295	6368079	Surface Area
38-4-0341	Black Hill Quarry 1	Artefact scatter	369240	6364730	369345	6364919	Underground Area
38-4-0620	Donaldson Monitoring Site 3 (DMS3)	Artefact scatter	369090	6367962	369195	6368151	Surface Area
38-4-0640	Donaldson Monitoring Site 4 (DMS4) ¹⁵	Artefact scatter	368663	6368173	368768	6368362	Surface Area
38-4-0665	FMC3 Donaldson Mine	Artefact scatter, Grinding groove	368300	6368900	368405 ¹⁶	6369089	Surface Area
38-4-0666	FMC4 Donaldson Mine	Artefact scatter	368250	6368650	368355 ¹⁹	6368839	Surface Area
38-4-0667	FMC5 Donaldson Mine	Artefact scatter	368500	6368700	368605	6368889	Surface Area
38-4-0668	FMC6 Donaldson Mine	Artefact scatter	368305	6366060	368410 ^{12, 17}	6366250	Underground Area
38-4-0669	FMC7 Donaldson Mine	Artefact scatter	367600	6366500	367705	6366689	Underground Area
38-4-0670	FMC8 Donaldson Mine	Scarred tree	367600	6366850	367705	6367039	Underground Area
38-4-0672	ISF3 Donaldson Mine	Artefact scatter	368695	6367620	368800 ^{12, 20}	6367810	Surface Area
38-4-0684	ERM site 1-3	Artefact scatter	368360	6367205	368465 ²¹	6367394	Underground Area ²¹
38-4-0685	ERM site 5-6	Artefact scatter	369148	6367385	369253 ⁶	6367574	Underground Area ⁶
38-4-0686	ERM site 4	Artefact scatter	369275	6367572	369380 ⁷	6367761	Underground Area
38-4-0687	ERM site 7	Artefact scatter	366500	6367650	366604 ⁸	6367839	Underground Area ⁸
	Abel 1 ¹⁸	Grinding groove	367718	6364241	367823	6364430	Underground Area
	Abel 2 ¹⁸	Grinding groove	367405	6364148	367510	6364337	Underground Area
	A7/A ¹⁸	Artefact scatter	366734	6370498	366839	6370687	Surface Area
	A15/A ¹⁸	Artefact scatter	367776	6369588	367881	6369777	Surface Area
	A17/A ¹⁸	Artefact scatter	368095	6368717	368200	6368906	Surface Area
	A17/B ¹⁸	Artefact scatter	367965	6369204	368070	6369393	Surface Area
	A17/C ¹⁸	Artefact scatter	367929	6369123	368034	6369312	Surface Area
	A20/A ¹⁸	Artefact scatter	368574	6368448	368679	6368637	Surface Area
	A20/C ¹⁸	Artefact scatter	368728	6367911	368833	6368100	Surface Area
	A21/A ¹⁸	Artefact scatter	368515	6368461	368620	6368650	Surface Area
	A22/A ¹⁸	Artefact scatter	368733	6367650	368838	6367839	Surface Area
	CA5 ^{9, 13}	Isolated artefact	368335	6366800	368440 ¹²	6366990	Underground Area
	CA6 ^{10, 13}	Isolated artefact	368215	6366580	368320 ¹²	6366770	Underground Area
	CA7 ^{11, 13}	Isolated artefact	367615	6366450	367720 ¹²	6366640	Underground Area
	F1/A ¹⁸	Artefact scatter	368767	6367030	368872	6367219	Underground Area
	F1/B ¹⁸	Artefact scatter	368229	6366601	368334	6366790	Underground Area
	F1/C ¹⁸	Artefact scatter	368269	6366888	368374	6367077	Underground Area
	F2/A ¹⁸	Artefact scatter	368816	6366887	368921	6367076	Underground Area

1. DEC Site # - site number as listed on DEC AHIMS;
2. Site name of visible, spatially separate locations of heritage evidence/Aboriginal objects;
3. Description of site as recorded. 'Isolated artefacts' often comprise the only visible evidence of a larger artefact scatter and the terms can be used interchangeably;
4. AMG grid reference listed here is approximate to within 100 metres only and is, on the basis of available evidence, believed to be the most accurate reference in the case where multiple and conflicting grid references occur. The listed grid reference only refers to a single point within a site - often sites extend over broader areas of land, as mapped in Figure 1;
5. MGA grid reference - conversion of AMG reference (eastings +105m, northings +189m);
6. ERM Sites 5 and 6 (probably a single artefact scatter) have the same reported grid references, placing the site on the northern side of John Renshaw Drive. However, ERM (1998) mapping places the sites on the southern side of John Renshaw Drive. The site locations are mapped here to include both localities. The evidence may have been impacted by improvements to John Renshaw Drive;
7. ERM Site 4 reported grid references place the site on the northern side of John Renshaw Drive, although ERM (1998) mapping places the site on the southern side of John Renshaw Drive. The site location is mapped here to include both localities. The evidence may have been impacted by improvements to John Renshaw Drive;
8. ERM Site 7 may be located within the John Renshaw Drive road reserve and marginally outside of the underground study area. ERM Site 7 reported grid references place the site on the northern side of John Renshaw Drive, although ERM (1998) mapping places the site on the southern side of John Renshaw Drive. The site location is mapped here to include both localities. The evidence may have been impacted by improvements to John Renshaw Drive;
9. CA5 was recorded by Umwelt (2001) but is not registered on the DEC AHIMS. It may correspond with F1/C located during the present study;
10. CA6 was recorded by Umwelt (2001) but is not registered on the DEC AHIMS. It may correspond with F1/B located during the present study;
11. CA7 was recorded by Umwelt (2001) but is not registered on the DEC AHIMS. It is located close to site #38-4-0669;
12. New grid references have been created for these sites on the basis of previous mapping and reported site descriptions;
13. Umwelt (2001) moved artefacts from Sites CA5, CA6 and CA7 0.5 metres off the track on which they were situated;
14. Site 'Ironbark 1' was presumably relocated during the present study and recorded as A12/A;
15. Site DMS4 was presumably relocated during the present study and recorded as A20/B;
16. Description from the DEC #38-4-0665 site record places this site on the eastern side of Four Mile Creek, although reported grid references place this site on the western side of the creek. Umwelt (2002) also map this site on the western side of the creek;
17. Umwelt (2002) map this site 3.5 kilometres east of the reported grid references. It is inferred that the DEC AHIMS grid reference is incorrect with interchanging of the easting "6" and "8";
18. Site identified and recorded during the present study;
19. Description from the DEC #38-4-0666 site record places this site 100 metres west of Four Mile Creek, although reported grid references place this site approximately 200 metres west of the creek. Umwelt (2002) also map this site 200 metres west of the creek;
20. DEC site record has incorrect grid references (c. 1 kilometre in error, probably a single digit error). The description from the DEC site record states that the site is under a powerline easement c. 30 metres east of Four Mile Creek. The mapping in Umwelt (2002) concurs. This item probably corresponds with A22/A located during the present study;
21. ERM sites 1, 2 and 3 (probable a single artefact scatter) have the same reported grid references, placing the site on the northern side of John Renshaw Drive. However, ERM (1998) mapping places the sites on the southern side of John Renshaw Drive. The site locations are mapped here to include both localities. The evidence may have been impacted by improvements to John Renshaw Drive;

Additional Notes: While DEC grid references place site #38-4-0552 within the present underground study area, descriptions from the site card place this site on the northern side of John Renshaw Drive outside of the present study area and it has therefore been omitted from this table. Sites of potential cultural significance are excluded from the Table and do not represent 'Aboriginal Objects' under the NP&W Act.

REFERENCES:

ERM Mitchell McCotter Pty Ltd 1998

John Renshaw Drive MR 588 Passing Lanes Archaeological Survey. Unpublished report to Young Consulting Engineers.

Umwelt (Australia) Pty Ltd 2001

Draft for Consultation: Aboriginal Archaeological Assessment: Bushland Conservation Areas, Donaldson Mine, Beresfield. Unpublished report to Donaldson Coal Pty Ltd.

Umwelt (Australia) Pty Ltd 2002

Aboriginal Sites Management Plan, Year 2: Donaldson Open Cut Coal Mine, Beresfield near Newcastle. Unpublished report to Donaldson Coal Pty Ltd.

Table 2 Monitoring Datum Points Within Donaldson Bushland Conservation Areas

Datum Point #	Datum Point Location (AMG references)	Justification ¹
1	368585E 6368203N	Located on a lower slope, within 50 metres of Four Mile Creek, and adjacent to a confluence. This is an archaeologically sensitive area and is relatively undisturbed. This datum will provide information on any human or natural impacts which may be affecting such locations in the conservation areas.
2	368778E 6368204N	Located on an upper slope. This area is relatively undisturbed and is within 50 metres of the active mine area. This datum will provide information regarding the impact of mining operations on adjacent conservation areas.
3	368089E 6366977N	Located on the bank of Four Mile Creek. This datum is the location of an artefact scatter recorded by Brayshaw in 1985 (38-4-139). The site could not be relocated during the recent survey (Umwelt 2001), probably due to dense vegetation cover and low visibility. This datum will provide information on any human or natural impacts which may be affecting such locations in the conservation areas.
4	368513E 6366656N	Located on a mid slope typical of this environment. This datum will provide information on any human or natural impacts which may be affecting such locations in the conservation areas.
5	370699E 6368184N	Located on a vehicle track on a mid slope at site DMS5. This is a typical site location within the Bushland Conservation Areas. This datum will provide information on any human or natural impacts which may be affecting Aboriginal cultural heritage sites and/or their context.
6	370704E 6369768N	Located on a stream channel bank, within 100 metres of a mine impact area. This is an archaeologically sensitive area and is relatively undisturbed. This datum will provide information on any human or natural impacts which may be affecting such locations in the conservation areas.
7	370837E 6370639N	Located on a vehicle track on a lower slope. This datum will provide information on any human or natural impacts which may be affecting such locations in the conservation areas.

¹ Umwelt (Australia) Pty Ltd 2005 Aboriginal Sites Management Plan, Year 5: Donaldson Open Cut Coal Mine, Beresfield near Newcastle.

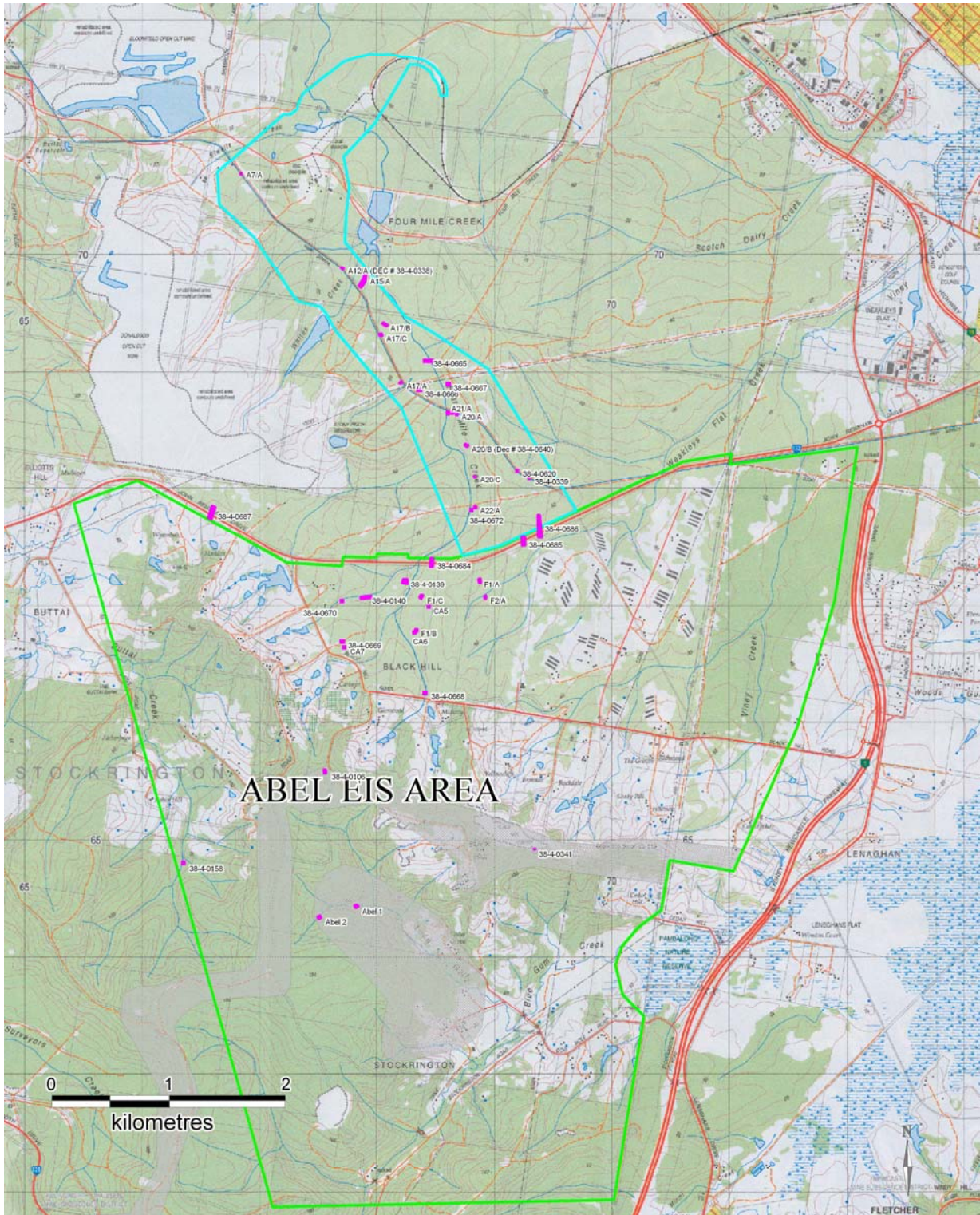
Table 3 Sample Of Aboriginal Sites For Monitoring Within The Abel Underground Area For Which Subsidence-Related Impacts Are Not Expected To Occur

Datum Point #	Site Name/Number	Datum Point Location (MGA references)	Justification
8	38-4-0140 (Four Mile Creek 2)	367925E 6367069N	Artefact scatter located on margin of Four Mile Creek. Assess impacts of subsidence on erosion in the drainage depression and any consequent impacts on heritage.
9	F1/C	368374E 6367077N	Artefact scatter located on vehicle track on simple slope. Assess impacts of subsidence on the simple slope and vehicle track and any consequent impacts on heritage.
10	38-4-0670 (FMC8)	367705E 6367039N	Scarred tree site. Assess impacts of subsidence on tree.

Table 4 Aboriginal Sites For Monitoring Within The Abel Underground Area For Which Subsidence-Related Impacts May Occur

Datum Point #	Site Name/Number	Datum Point Location (MGA references)	Justification
11	38-4-0158 (Reynolds Rock)	366355E 6364799N	Grinding groove site. Assess impacts of subsidence on grooves and their context.
12	Abel 1	367823E 6364430N	Grinding groove site. Assess impacts of subsidence on grooves and their context.
13	Abel 2	367510E 6364337N	Grinding groove site. Assess impacts of subsidence on grooves and their context.

Figure 1 Approximate Location Of Aboriginal Sites Recorded Within The Abel Project Area



- Southern Investigation Area
- Northern Investigation Area
- Aboriginal Heritage Site (approximate location)
- Area of Potential Cultural Significance