

Appendix I

Heritage Management Plan

DONALDSON COAL PTY LIMITED

ABEL MINE

Appendix I

Heritage Management Plan

EP / SMP Area 4

May 2014

Prepared by	Daniel Lee	Document No		EP / SMP - Area 4 Heritage Management Plan
Approved by	Phil Brown	Version No	1	
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Document Control

Description

Document No.	Abel EP / SMP Area 4
Title	Heritage Management Plan
General Description	To manage the potential environmental consequences of second workings on heritage sites or values from mining in Area 4 at Abel Mine
Key Support Documents	Abel Mine EP / SMP Area 4

Approvals

ORIGINATOR	Daniel Lee	Position Registered Surveyor	Signed	Date
APPROVED	Phillip Brown	Position Environment and Community Relations Manager	Signed	Date
APPROVED	Tony Sutherland	Position Technical Services Manager	Signed	Date

Revisions

Version #	Date	Description	By	Checked	Approved	
					Name	Signed
1	May 2014					

The nominated Coordinator for this document is	Environment and Community Relations Manager
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1 PURPOSE AND SCOPE

This Heritage Management Plan (HMP) is designed to provide Abel Mine with a consolidated framework and process for managing heritage responsibilities for EP / SMP Area 4 to achieve compliance with all heritage management requirements under legislation, guidelines and existing consents. This HMP aims to document protocols, procedures, time frames and responsibilities for the implementation of the HMP.

2 RESPONSIBILITIES AND RESOURCES

The Environment and Community Relations Manager is responsible for monitoring the implementation of this plan.

The Abel Manager of Mining Engineering is responsible for ensuring that sufficient resources are available to implement the requirements of this Plan.

Each of the management strategies developed to manage subsidence impacts allocates responsibilities in relation to their implementation. Relevant personnel will be provided with a copy of appropriate documents. Training will be provided.

3 SUBMISSION

This plan is submitted to Planning & Environment for approval.

4 BACKGROUND

Abel commenced coal production in May 2008 with secondary extraction commencing in July 2010. The EP / SMP application area contains 209ha, approximately 7.5% of the current lease area of 2755 ha.

Mining will take place in the application area under a combination of land owned by Donaldson Coal, and a number of private rural residential land holdings. The current application seeks approval to mine coal by the pillar extraction method from the Upper Donaldson Seam at depths of cover ranging generally from 50 to 280 metres.

The layout of the panels has been designed to provide management outcomes of subsidence impacts in line with the Statement of Commitments and Project Approval and to conduct the mining operations in a responsible manner, considering the existing and future environment and the community, while optimising resource recovery in the area in accordance with the principles of ecologically sustainable development. It is proposed to conduct mining in the proposed extraction panels generally bounded by the depth of cover and the lease to the north, the previously approved SMP Area 3 to the east and by resource thickness / quality of the Upper Donaldson seam to the south.

Maximum subsidence predicted for the pillar extraction panels in the application area is 1,450 mm, which represents 51% of the maximum extraction height of 2.8 metres, maximum predicted strains >30 mm/m and tilts up to 70 mm/m excluding areas nominated to be protected.

The EP / SMP application area surface is a combination of native bushland, residential rural properties, and public and private roads. Management measures are proposed to address any predicted environmental impacts for the surface above the application area.

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Natural features are generally limited to Four Mile Creek, a Schedule 1 stream and associated tributaries, with some steep slopes above the southern ends of the proposed panels. The ecology assessment outcome was that subsidence would not result in a significant impact on any threatened flora or fauna species or any threatened or conservation significant ecological communities unless there was a significant long term loss of available water.

Man – made features include:

- Principal residences, Other Surface Structures and outbuildings;
- Business or commercial premises;
- Ausgrid rural 11kV and 415V domestic power lines;
- Telstra copper communication cables;
- Private communication tower;
- State survey control marks;
- Public roads and culverts (Black Hill Road, Meredith Road and Browns Road);
- Access roads and tracks;
- Cattle stockyards, holding areas and water troughs;
- Various fences, gates and cattle grids;
- A number of dams; and
- Aboriginal places and sites.

There is no known European Heritage identified in EP / SMP Area 4.

This Management Plan includes the regular inspection of surface areas, subsidence monitoring and outlines procedures and actions to be implemented to manage the safety of the general public in the surface areas of the EP / SMP Area 4 approved area that may be affected by subsidence resulting from mining by Abel Mine.

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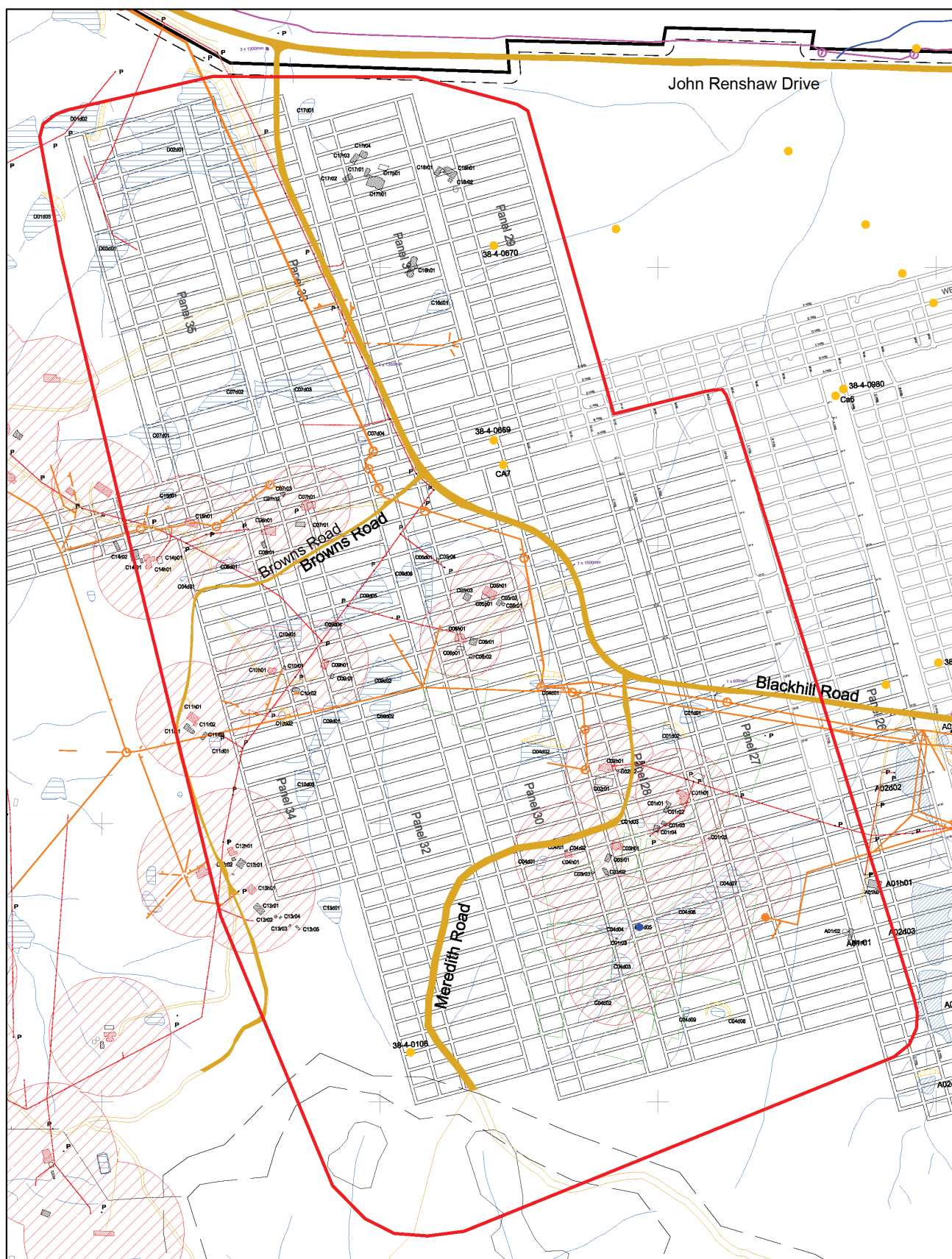


Figure 1 – Abel Mine EP / SMP Area 4

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5 ABORIGINAL HERITAGE WITHIN EP / SMP AREA 4

There are five (5) Aboriginal Heritage sites and places identified within the proposed EP / SMP Area 4 which are shown in Figure 2. A summary of these sites is provided in Table 1.

Table 1. Aboriginal Heritage Sites within EP / SMP Area 4

Site Reference	Site Name	Type	Location
38-4-0106	Black Hill Open Site	Open Artefact Site	Directly above Panel 32
38-4-0669	FMC7 Donaldson Mine	Open Artefact Site	Directly above West Mains
38-4-0670	FMC8 Donaldson Mine	Scarred Tree	Directly above Panel 29
CA7	CA7	Open Artefact Site	Directly above West Mains
Black Hill Pathway	Black Hill Pathway	Cultural Place	Directly above Panel 32

Further descriptions of the archaeological sites and cultural places are provided in the report prepared by South East Archaeology in **Appendix B**.

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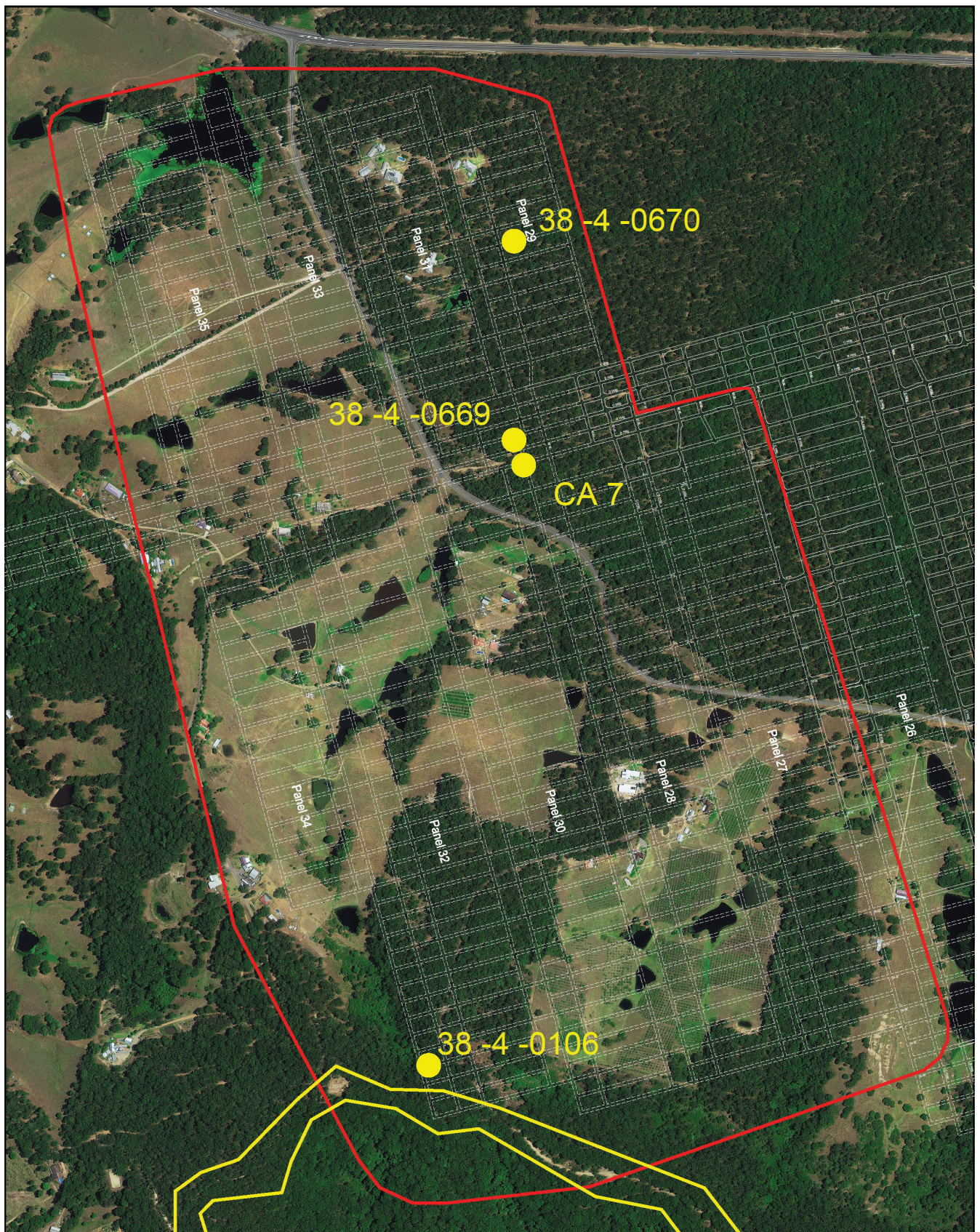


Figure 2 – Aboriginal Heritage Sites within EP / SMP Area 4

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6 PREDICTIONS FOR THE ABORIGINAL HERITAGE SITES

A summary of the maximum predicted subsidence, tilt and curvatures for the archaeological sites and cultural place is provided in **Table 2**. The parameters provide are the maximum values within a 20 metre radius of the sites. The tilt and curvatures are the maxima at any time during or after the completion of mining.

Table 2. Maximum Predicted Total Conventional Subsidence, Tilt and Curvatures for the Archaeological Sites and Cultural Place within the EP / SMP Area

Site Name	Maximum Predicted Total Conventional Subsidence (mm)	Maximum Predicted Total Conventional Tilt (mm/m)	Maximum Predicted Total Conventional Hogging Curvature (km ⁻¹)	Maximum Predicted Total Conventional Sagging Curvature (km ⁻¹)
38-4-0106	525	12	0.2	0.1
38-4-0669	<20	<0.5	<0.01	<0.01
38-4-0670	950	0.5	>30	>3.0
CA7	<20	<0.5	<0.01	<0.01
Black Hill Pathway	700	11	0.2	0.3

The maximum predicted conventional curvatures for Site 38-4-0670 are greater than 3.0 km⁻¹ hogging and sagging, which represents a minimum radius of curvature of less than 0.3 kilometres. The maximum predicted conventional curvatures for Site 38-4-0106 and the Black Hill Pathway are 0.2 km⁻¹ hogging and 0.3 km⁻¹ sagging, which represent minimum radii of curvature of 5 kilometres and 3 kilometres, respectively.

The maximum predicted conventional curvatures for Sites 38-4-0669 and CA7 are less than 0.01 km⁻¹ hogging and sagging, which represents a minimum radius of curvature greater than 100 kilometres. The maximum predicted conventional strains, based on applying a factor of 10 to the maximum predicted conventional curvatures, are greater than 30 mm/m tensile and compressive for Site 38-4-0670, 2 mm/m tensile and 3 mm/m compressive for Site 38-4-0106 and the Black Hill Pathway, and less than 0.3 mm/m tensile and compressive for Sites 38-4-0669 and CA7.

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7 IMPACT ASSESSMENT FOR THE ABORIGINAL HERITAGE SITES

Sites 38-4-0106, 38-4-0669 and CA7 are Open Artefact Sites. Site 38-4-0106 is located directly above the proposed Panel 32 and, therefore, could potentially be affected by cracking of the surface soils as a result of mine subsidence movements. The other two sites are located outside the extents of secondary extraction and, therefore, are unlikely to be affected by surface cracking.

It is unlikely, that the scattered artefacts or isolated finds themselves would be impacted by surface cracking.

Site 38-4-0670 is a Scarred Tree which is located directly above the proposed Panel 29. Extensive experience from mining in SMP Areas 1, 2 and 3 and the NSW Coalfields shows that the incidence of impacts on trees is extremely rare. Impacts on trees have only been previously observed where the depths of cover were extremely shallow, in the order of 50 metres or less, or on very steeply sloping terrain, in the order of 1 in 1 or greater. It is unlikely that the Scarred Trees would be impacted by the proposed mining, as the depth of cover is around 60 metres and the natural surface slopes are less than 1 in 3.

The cultural places identified within the EP / SMP Area 4 are the Black Hill Pathway. The potential impacts on the cultural places include surface cracking and deformations and changes in surface water drainage.

8 MANAGEMENT OF POTENTIAL IMPACTS FOR THE ABORIGINAL HERITAGE SITES

Management policies and actions including roles and responsibilities, notification, inspection regimes and monitoring and reviews has been prepared by South East Archaeology can be found in **Appendix B**.

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9 REFERENCES

HMS, 2014, Donaldson Coal, Extraction Plan / Subsidence Management Plan Area 4 Risk Assessment Final Report, April 2014, Report No. HMS1283

MSEC, 2014, Abel Underground Mine: EP / SMP Area 4 – Proposed Panels 27 to 35, Subsidence Predictions and Impact Assessments for the Natural and Built Features in Support of the EP / SMP Application, Report No. MSEC676, Revision A

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APPENDIX A – ABEL MINE EP / SMP AREA 4 STAKEHOLDER LIST

Position	Name	Phone
DONALDSON COAL		
Operations Manager	David Gibson	4015 1102
Technical Services Manager	Tony Sutherland	4015 1105
Environment and Community Relations Manager	Phillip Brown	4015 2502
Registered Mine Surveyor	Matthew Wright	4015 1118
Abel Mine After Hours	Control Room	4015 1140
GOVERNMENT		
DRE Mine Safety – Coal Inspectors	Maitland Office	4931 6666
DRE – Principal Subsidence Engineer	Maitland Office	4931 6666
MSB District Manager	Richard Pickles	4908 4300
Cessnock City Council After Hours Contact Number (emergency)	-	4940 7816
Cessnock City Council Operations – Works Delivery Manager	Geoff Bent	4993 4284
Cessnock City Council Asset Engineer	Les Morgan	0413 314 434
Ausgrid – Manager of Customer Supply, Planning and Reliability, Lower Hunter	Pat Boyle	4910 1701
Telstra – Senior Technical Specialist	Mark Schneider	8851 2297
Land and Property Information – Senior Surveyor, Hunter Survey Infrastructure & Geodesy	Peter O’Kane	4925 9984
Planning and Environment	Paul Freeman	9228 6111
LANDHOLDERS	Refer to Abel Mine internal contact register	

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APPENDIX B – ABORIGINAL HERITAGE MANAGEMENT PLAN

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ABEL UNDERGROUND MINE: ABORIGINAL HERITAGE MANAGEMENT PLAN

DONALDSON COAL Pty Limited

PO Box 2275
Greenhills NSW 2323

May 2014

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1 INTRODUCTION

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

- The Abel Underground Mine surface disturbance area north of John Renshaw Drive as marked on Figure 1;
- The area above the Abel Underground Mine workings south of John Renshaw Drive, which may be the subject of subsidence, 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 MP 05_0136 dated 7 June 2007 for the Abel Underground Mine and the Modification Approval for the Abel Upgrade Modification.

This plan interfaces with the Donaldson Mine Operations 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 Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) and information collected during archaeological surveys of the project area.

Approximately 63 Aboriginal heritage sites and Potential Archaeological Deposits (PADs) are present within the Project area, including 18 within the surface area north of John Renshaw Drive and 45 within the underground area south of John Renshaw Drive. Apart from one open artefact and grinding groove site, the remainder of the sites within the surface area are open artefact sites. The underground area hosts eight open grinding groove sites, three scarred trees, one rock shelter with PAD, one PAD and 32 open artefact sites.

No Aboriginal heritage sites are listed within the 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 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 cultural significance within the underground area, a pathway along Black Hill Spur extending south to Mount Sugarloaf and a ceremonial site known as 'the Doghole' in the vicinity of Stockrington and Long Gully. In addition, the Black Hill locality is a cultural landscape of traditional, historical and contemporary cultural significance to the Aboriginal community.

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, a Section 90 Aboriginal Heritage Impact Permit (AHIP) under the NP&W Act is not required to impact Aboriginal objects. *In lieu* however, the Part 3A project approval conditions, including the Statement of Commitments outlining proposed heritage management and mitigation measures, must be adhered to.

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 and a Commonwealth Heritage List of heritage places owned or managed by the Commonwealth. 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 project 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 are 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 5 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, Part 3A Approval 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 any area where new Aboriginal heritage evidence is identified 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 project area lies within the boundaries of the Mindaribba LALC and the southeastern portion of the project 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 within the project 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 5 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 project 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 for that specific report;
- 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 project 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 project 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 project 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 disturbance 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 disturbance 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:

- A comprehensive archaeological survey of the surface disturbance area north of John Renshaw Drive, including land both within the Abel site and Bloomfield site, has been conducted as part of the Environmental Assessment (Kuskie 2006) and fulfils a relevant component of Part 3A Major Project approval MP 05_0136 Condition 29(c).
- Approximately 17 artefact scatter sites (refer to Table 1, Figure 1) have been identified within the area of surface disturbance 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 DECC *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 DECC *Aboriginal Heritage Standards and Guidelines Kit* (1997);

- Where surface collection of stone artefacts occurs (refer to procedure above), where agreed to by the relevant LALC this may involve temporary storage of collected and clearly labelled artefacts in a secure facility, followed by their replacement as close as possible to their original positions after the completion of mining works. The relevant LALC will be invited to participate in the collection and replacement of artefacts and the location of the temporary storage facility will be established in consultation with the relevant LALC;
- One open grinding groove and artefact site (#38-4-0665, refer to Table 1, Figure 1) has been identified within the surface disturbance 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 will be implemented as deemed necessary to ensure that impacts do not occur;
- Other grinding groove sites may occur within the surface disturbance 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 will be implemented as deemed necessary 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 DECC *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 disturbance 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 disturbance 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 will be implemented as deemed necessary 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 DECC *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 DECC *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 disturbance 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 will be implemented as deemed necessary 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 disturbance area;
- Other Personnel will provide support to Donaldson where requested to implement these actions.

4.5 Management of Recorded Aboriginal Sites in Underground Area

4.5.1 Bord and Pillar Underground Mining Area

POLICY:

Donaldson will seek to *minimise* impacts to identified and potential Aboriginal heritage evidence within the bord and pillar underground mining 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 bord and pillar underground mining 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 bord and pillar underground mining 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 three scarred trees, one PAD and 32 open artefact sites, along with two cultural sites, including a ceremonial place and Aboriginal pathway, (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;
- Eight open grinding groove sites (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 avoidance of impacts from bord and pillar mining. Therefore, no bord and pillar mining 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 bord and pillar mine plan will be altered to ensure that the assessed risk of subsidence impact to each grinding groove site is minimised to less than one percent;

- 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). One rock shelter with PAD has been identified in the underground mining area. 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 avoidance of impacts from bord and pillar mining. Therefore, no bord and pillar mining 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 the assessed risk of subsidence impact to each rock shelter site is minimised to less than one percent.
- Minor direct surface impacts may occur within the Underground Mining Area in relation to ventilation shafts and other infrastructure. Where such impacts are proposed, archaeological investigation will occur as outlined in Section 4.6, and any Aboriginal sites identified will be managed in accordance with the procedures outlined for each site type in Section 4.4.

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.

4.5.2 Longwall and Shortwall Underground Mining Area

POLICY:

Donaldson will seek to *minimise* impacts to identified and potential Aboriginal heritage evidence within the longwall and shortwall underground area, including evidence (grinding grooves and rock shelters) susceptible to impacts from subsidence (refer to Figure 1 and Kuskie 2012).

Donaldson will seek to *mitigate* impacts to identified and potential Aboriginal heritage evidence within the longwall and shortwall 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 longwall and shortwall 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 six open artefact sites, two scarred trees and two cultural sites, including a ceremonial place and Aboriginal pathway, (refer to Figure 1) have been identified within the longwall and shortwall underground area. 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 longwall and shortwall 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;
- Seven open grinding groove sites (refer to Figure 1) have been identified within the longwall and shortwall underground area. Other grinding groove sites may occur within the longwall and shortwall 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. In relation to open grinding groove sites, the significance assessment would be undertaken by appropriately qualified and experienced archaeologists, in consultation with the registered Aboriginal stakeholders (refer to Section 4.2):
 - For open grinding groove sites assessed as being of low significance, following detailed recording of the evidence, impacts will be permitted to occur without further action;
 - For open grinding groove sites assessed as being of low to moderate or higher significance, following detailed recording of the evidence, a qualified subsidence expert will provide an assessment of potential subsidence impacts:
 - Where the potential for subsidence impacts is assessed as unlikely or very unlikely, impacts will be permitted to occur without further action;
 - Where the potential for subsidence impacts is assessed as anything more than unlikely, impacts will be permitted to occur with detailed analysis of a sample of individual grinding grooves at each site using residue and use-wear techniques and experimental data, along with monitoring.
 - For open grinding groove sites assessed as being of high significance and where the potential for subsidence impacts is assessed as anything more than unlikely, in addition to the above, mitigation options such as slotting of the bedrock around the site to isolate it from ground curvatures and strains will be investigated by a qualified subsidence expert and implemented where feasible (ie. the potential benefit of mitigating impacts outweighs the potential risk that the mitigation procedure will itself cause impacts to the site).

- 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). One rock shelter with PAD has been identified in the longwall and shortwall underground area. 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. In relation to rock shelter sites:
 - For rock shelter sites/PADs assessed as being of low significance, following detailed recording of the evidence, impacts will be permitted to occur without further action;
 - For rock shelter sites/PADs assessed as being of low to moderate, moderate or high significance, following detailed recording of the evidence, a qualified subsidence expert will provide an assessment of potential subsidence impacts:
 - Where the potential for subsidence impacts is assessed as unlikely or very unlikely, impacts will be permitted to occur without further action;
 - Where the potential for subsidence impacts is assessed as anything more than unlikely, and the significance is assessed as low to moderate, or moderate, impacts will be permitted to occur with monitoring;
 - Where the potential for subsidence impacts is assessed as anything more than unlikely, and the significance is assessed as moderate to high, or high, the site will be subject to test excavation and consideration of further mitigation (salvage excavation). Subsequently, impacts will be permitted to occur with monitoring;
 - Where the potential for subsidence impacts is assessed as anything more than unlikely, and grinding grooves are present within the shelter on portable rock formations, these will be removed prior to undermining for temporary storage at the Donaldson Coal office, then replaced at or as close to their original positions after undermining has occurred;
 - Where the potential for subsidence impacts is assessed as anything more than unlikely, and grinding grooves are present within the shelter on the main body of the rock mass, impacts will be permitted to occur with detailed analysis of the grooves using residue and use-wear techniques and experimental data, along with monitoring.
 - In relation to rock shelter sites, the assessment of significance and conduct of any test or salvage excavations would occur as per the following procedures:
 - The significance assessment and any excavation would be undertaken by appropriately qualified and experienced archaeologists, in consultation with the registered Aboriginal stakeholders (refer to Section 4.2);
 - The significance assessment and any excavation would be undertaken prior to any subsidence impacts occurring to any of those specific areas or sites;
 - An initial small test excavation would occur, with the aim to identify the nature of deposits, site integrity and research potential, and enable a reassessment of significance;

- A baseline would be established in the shelter and an accurate plan prepared;
- A 2 metre x 0.5 metre trench would be pegged out in the central portion of the main habitable floor area of the shelter, extending from near or at the rear of the shelter towards or across the dripline;
- The excavation would be dug by trowel in 0.5 x 0.5 metre units to the depth of the visible or predicted cultural deposits or to bedrock. Each unit would be labelled using an alphanumerical grid. Major rock would be excavated around and not removed;
- Excavation units would be dug in successive levels ('spits') of five centimetres depth, within individual soil units. Where pits or lenses are identified, these may also be excavated and sieved separately as a sub-unit. Where stratigraphy/soil profile changes occur, a new spit may be commenced;
- Vertical control (depth below surface) would be established using levels off a datum point;
- Data would be recorded for each excavation unit on an 'Excavation Unit Recording Form', including the position of any features or key evidence and soil descriptions;
- Soil from each level within an excavation unit would be placed into separate buckets and separately dry-sieved through 2-3 millimetre mesh. Material (both natural and cultural) remaining in the sieve would be sorted by a qualified archaeologist to retain all probable and potential cultural items and dispose of the natural items;
- Samples of soil would be retained;
- Charcoal samples would be retained where identified and where suitable for radiocarbon or other methods of direct dating, submitted to an accredited laboratory for dating;
- At the completion of excavation the trench would be lined with plastic and backfilled with the excavated/sieved sediment;
- The excavation and site would be photographed;
- Retrieved artefacts would be washed and dried if necessary and recorded by a qualified archaeologist. A minimal level of information would be recorded for every artefact collected (provenance, stone material type, lithic item type, size, weight, nature and quantity of cortex, and presence and nature of any use-wear or residues) with additional attributes recorded where necessary. Individual artefacts of significance may be photographed and/or illustrated;
- Any shell and bone material retrieved would be recorded, with identification to genus or species level where possible and counts of minimum numbers undertaken. Similar shell and bone items would be bagged together for each unit spit;

- Following recording of artefacts into a computer database, individual objects would be bagged separately in resealable, labelled plastic bags, with provenance information recorded on waterproof ink on the plastic bag label strips. Artefact bags would be grouped together for each excavation area and further provenance information included on metal tags;
- After recording and undermining has occurred, retrieved artefacts would be reburied in a container within the excavated/backfilled trench, unless a Care Agreement from the OEH is obtained by the relevant LALC;
- A report would be prepared by a qualified archaeologist with reference to the *Aboriginal Heritage Standards and Guidelines Kit* (1997) and the requirements of the AHMP, documenting the methods, results (including a plan of the site and excavation area, artefact databases and analysis with respect to relevant research questions) and Aboriginal involvement. The report would include a revised assessment of the significance of the site. Hard copies would be distributed to the DP&I, OEH and the relevant LALC within 25 working days of completion;
- Updated site records would be lodged with the OEH;
- On the basis of the initial test excavation, the qualified archaeologist in consultation with the relevant LALC, would determine whether more detailed salvage excavation is required. This decision would be made in consideration of the:
 - Revised significance assessment of the site;
 - Probability for serious and substantial and irreversible impacts to occur to the heritage resource from mining-induced subsidence and the consequent permanent loss of heritage value;
 - Potential for impacts to occur to the heritage resource from salvage excavation, should excavation occur but subsequent impacts from subsidence do not eventuate;
 - Potential for information obtained through salvage to contribute to address locally relevant research questions, refine the occupation model and further understanding of Aboriginal occupation of the locality, thereby offsetting impacts of the Project and assisting the ongoing management of heritage with respect to development impacts; and
 - Principles of ecologically sustainable development (integration of economic and cultural heritage considerations in the decision-making process), including the principle of intergenerational equity and the precautionary principle;
- Any salvage excavation, analysis, reporting and curation would occur in accordance with the methods outlined above for test excavation, but involve a larger sample from the rock shelter;
- The aim of any salvage excavation would be to mitigate the impacts of the Project on scientific and cultural values, through the retrieval and analysis of evidence and contribution to an improved understanding of Aboriginal occupation of the locality; and

- The excavation area and location would be determined by an appropriately qualified and experienced archaeologist, in consultation with the relevant LALC, with consideration of the potential subsidence impacts, extent of the habitable floor area and PAD, nature of the evidence, and the spatial area and quantity of data required to address relevant research questions and thereby successfully mitigate the impacts of the Project.
- Minor direct surface impacts may occur within the Underground Mining Area in relation to ventilation shafts and other infrastructure. Where such impacts are proposed, archaeological investigation will occur as outlined in Section 4.6, and any Aboriginal sites identified will be managed in accordance with the procedures outlined for each site type in Section 4.4.

RESPONSIBILITY:

- The Environmental Manager will coordinate all actions required to comply with the management of recorded Aboriginal sites within the longwall and shortwall 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 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* (or the latest version or replacement of this document).

As part of the SMP process, 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.

Donaldson will ensure that any variations to the proposed works that will cause surface impacts north of John Renshaw Drive to areas outside of those previously subject to heritage surveys shall be investigated by an archaeologist with the participation of the Aboriginal stakeholders prior to any impacts occurring, 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.

Donaldson will ensure that the potential impacts of any variations to the proposed underground mine plan on the identified Aboriginal heritage resource will be assessed, in order to ensure that Aboriginal heritage evidence is managed in accordance with 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 *DECC Aboriginal Heritage Standards and Guidelines Kit* (1997), with copies distributed to the NSW Department of Trade, Investment, Regional Infrastructure and Services (DTIRIS), OEH, Department of Planning and Infrastructure (DP&I) and the relevant LALC within 25 working days of finalisation of the report;
- Where surface impacts are proposed north of John Renshaw Drive in any areas outside of those previously subject to detailed heritage survey, a new heritage survey will be undertaken of those areas by a qualified archaeologist with the relevant LALC. Any identified Aboriginal heritage evidence or potential evidence will be managed in accordance with Section 4.4 of this plan;
- Where direct surface impacts are proposed in the Underground Mine Area south of John Renshaw Drive in any areas outside of those previously subject to detailed heritage survey, a new heritage survey will be undertaken of those areas by a qualified archaeologist with the relevant LALC. Any identified Aboriginal heritage evidence or potential evidence will be managed in accordance with the specific procedures set out in Sections 4.4 and 4.5;
- Where future alterations are proposed to the underground mine plan, the potential impacts of any changes on the identified and potential Aboriginal heritage resource will be assessed:
 - Where the alterations to the underground mine plan are proposed in areas already subject to heritage survey sampling (consistent with current standards), this will involve an assessment of potential subsidence impacts by a qualified subsidence expert and reconsideration of the management strategies for relevant identified sites by an appropriately qualified and experienced archaeologist, in consultation with the relevant LALC;
 - Where the alterations to the underground mine plan are proposed in areas that have not been subject to heritage survey sampling consistent with current standards, the procedures outlined in Section 4.6 will be implemented, followed by the assessment of potential subsidence impacts by a qualified subsidence expert and consideration of management strategies for relevant identified sites by an appropriately qualified and experienced archaeologist, in consultation with the relevant LALC.

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 or in relation to changes to the underground mine plan;
- The Environmental Manager will coordinate all actions required in relation to heritage surveys of areas of potential surface impacts that are located outside of the areas previously subject to heritage investigation;

- 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 project 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 implemented as deemed necessary to ensure inadvertent impacts do not occur;
- Relevant personnel may be notified as deemed necessary 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 the OEH 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, DP&I and OEH;
- Donaldson will facilitate, in cooperation with the Police, LALC, DP&I and OEH, 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 the DP&I and OEH 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, DP&I and OEH;
- 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 be continued 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 or close to the month of 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 specific sites, identify if any subsidence related impacts have occurred, assist with refining the modelling involved in assessing potential subsidence impacts and thereby guide future assessments within the locality, and enable documentation of the actual impacts of the Project and provide an understanding of the intact heritage resource post-mining (refer to Table 4). The inspections will occur prior to undermining and approximately three months after undermining. 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, DP&I and the OEH 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 project areas;
- Tables 3 and 4 will be updated as required on the basis of the results of further archaeological surveys within the project 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;
- The performance of the plan will be assessed 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, DP&I or OEH, 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

OEH Site #¹	Site Name²	Site Type / Features³	MGA Eastings⁴	MGA Northings⁴	Locality Within Abel Mine
38-4-0106	Black Hill Open Site	open artefact site	367555	6365589	Underground Area
38-4-0139	Four Mile Creek 1	open artefact site	368235	6367209	Underground Area
38-4-0140	Four Mile Creek 2	open artefact site	367925	6367069	Underground Area
38-4-0158	Reynolds Rock	open grinding groove site	366355	6364799	Underground Area
38-4-0338	Ironbark 1 ⁵	open artefact site	367708	6369879	Surface Area
38-4-0339	Ironbark 2	open artefact site	369295	6368079	Surface Area
38-4-0341	Black Hill Quarry 1	open artefact site	369345	6364919	Underground Area
38-4-0620	Donaldson Monitoring Site 3 (DMS3)	open artefact site	369195	6368151	Surface Area
38-4-0640	Donaldson Monitoring Site 4 (DMS4) ⁶	open artefact site	368768	6368362	Surface Area
38-4-0665	FMC3 Donaldson Mine ⁷	open grinding groove and artefact site	368405	6369089	Surface Area
38-4-0666	FMC4 Donaldson Mine ⁸	open artefact site	368355	6368839	Surface Area
38-4-0667	FMC5 Donaldson Mine	open artefact site	368605	6368889	Surface Area
38-4-0668	FMC6 Donaldson Mine ⁹	open artefact site	368410	6366250	Underground Area
38-4-0669	FMC7 Donaldson Mine	open artefact site	367705	6366689	Underground Area
38-4-0670	FMC8 Donaldson Mine	scarred tree	367705	6367039	Underground Area
38-4-0672	ISF3 Donaldson Mine ¹⁰	open artefact site	368800	6367810	Surface Area
38-4-0684	ERM site 1-3 ¹¹	open artefact site	368465	6367394	Underground Area
38-4-0685	ERM site 5-6 ¹²	open artefact site	369253	6367574	Underground Area
38-4-0686	ERM site 4 ^{13, 14}	open artefact site	369380	6367761	Underground Area
38-4-958	A20/C ¹⁵	open artefact site	368833	6368100	Surface Area
38-4-959	A20/A ¹⁵	open artefact site	368679	6368637	Surface Area
38-4-979	F1/C ¹⁵	open artefact site	368374	6367077	Underground Area
38-4-980	F1/B ¹⁵	open artefact site	368334	6366790	Underground Area
38-4-981	F1/A ¹⁵	open artefact site	368872	6367219	Underground Area
38-4-984	A17/A ¹⁵	open artefact site	368200	6368906	Surface Area
38-4-985	Abel 1 ¹⁵	open grinding groove site	367823	6364430	Underground Area
38-4-986	Abel 2 ¹⁵	open grinding groove site	367510	6364337	Underground Area
38-4-987	A22/A ¹⁵	open artefact site	368838	6367839	Surface Area
38-4-1008	A21/A ¹⁵	open artefact site	368620	6368650	Surface Area
38-4-1009	F2/A ¹⁵	open artefact site	368921	6367076	Underground Area
38-4-1010	A17/C ¹⁵	open artefact site	368034	6369312	Surface Area
38-4-1011	A15/A ¹⁵	open artefact site	367881	6369777	Surface Area
38-4-1012	A7/A ¹⁵	open artefact site	366839	6370687	Surface Area
38-4-1014	A17/B ¹⁵	open artefact site	368070	6369393	Surface Area
-	CA5 ¹⁶	open artefact site	368440	6366990	Underground Area

OEH Site # ¹	Site Name ²	Site Type / Features ³	MGA Eastings ⁴	MGA Northings ⁴	Locality Within Abel Mine
-	CA6 ¹⁷	open artefact site	368320	6366770	Underground Area
-	CA7 ¹⁸	open artefact site	367720	6366640	Underground Area
38-4-1136	HLA Risk Assessment Isolated Find	open artefact site	368668	6369241	Surface Area
38-4-1216	CTGM PAD1	PAD	371039	6368231	Underground Area
38-4-1287	CTGM1 AT1	open artefact site	371995	6368278	Underground Area
38-4-1288	CTGM2 BL	open artefact site	370364	6368087	Underground Area
38-4-1289	CTGM3 AT3	open artefact site	370646	6368123	Underground Area
38-4-1290	CTGM4 MC	open artefact site	370764	6368013	Underground Area
38-4-1336	Black Hill 1	open artefact site	372098	6368010	Underground Area
38-4-1354	Blue Gum Creek RTA 11 IF	open artefact site	367780	6361896	Underground Area
38-4-1355	Blue Gum Creek RTA 12	open artefact site	367278	6361967	Underground Area
38-4-1356	Blue Gum Creek RTA 13 IF	open artefact site	367608	6361900	Underground Area
38-4-1357	Blue Gum Creek RTA 14 IF	open artefact site	367675	6361884	Underground Area
pending	AMA2/A ¹⁹	open artefact site	368590	6366390	Underground Area
pending	AMA2/B ¹⁹	open artefact site	368703	6366603	Underground Area
pending	AMA2/C ¹⁹	open artefact site	368640	6366511	Underground Area
pending	AMB1/A ¹⁹	open grinding groove site	369242	6364779	Underground Area
pending	AMC2/A ¹⁹	open grinding groove site	367343	6364155	Underground Area
pending	AMC2/B ¹⁹	rock shelter with PAD	367340	6364645	Underground Area
pending	AMC2/C ¹⁹	open grinding groove site	367624	6364425	Underground Area
pending	AMC2/D ¹⁹	scarred tree	367346	6364645	Underground Area
pending	AMC5/A ¹⁹	open artefact site	367641	6364252	Underground Area
pending	AMC10/A ¹⁹	open grinding groove site	366935	6363192	Underground Area
pending	AMC12/A ¹⁹	scarred tree	367576	6363045	Underground Area
pending	AMC16/A ¹⁹	open grinding groove site	367903	6363467	Underground Area
-	Diocese 1 ²⁰	open artefact site	370717	6366454	Underground Area
-	Diocese 2 ²⁰	open artefact site	369524	6367536	Underground Area
-	Diocese 3 ²⁰	open artefact site	370200	6366299	Underground Area

1. OEH Site # - site number as listed on the OEH AHIMS;
2. Site name of visible, spatially separate locations of heritage evidence/Aboriginal objects;
3. Standard archaeological site type description. Note - there are numerous errors and inaccuracies in the OEH AHIMS data with respect to site descriptions, these have been corrected where possible. 'Isolated artefacts' often comprise the only visible evidence of a larger artefact scatter, hence all 'isolated artefacts' and 'artefact scatters' are referred to as 'open artefact occurrences';
4. MGA grid reference - The listed grid reference only refers to a single point within a site - often sites extend over broader areas of land. As noted above, there are numerous inaccuracies in the OEH AHIMS data and the accuracy of grid references not recorded by South East Archaeology has not necessarily been verified;
5. Site 'Ironbark 1' (OEH #38-4-338) was presumably relocated by Kuskie (2006) and recorded as A12/A;
6. Site DMS4 (OEH #38-4-640) was presumably relocated by Kuskie (2006) and recorded as A20/B;

7. Description from the OEH #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;
8. Description from the OEH #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;
9. Umwelt (2002) map this site 3.5 kilometres east of the reported grid references. It is inferred that the OEH AHIMS grid references are incorrect with interchanging of the easting "6" and "8". New grid references have been created for this site on the basis of previous mapping and reported site descriptions;
10. The OEH site record has incorrect grid references (c. 1 kilometre in error, probably a single digit error). The description from the OEH 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 by Kuskie (2006). New grid references have been created for this site on the basis of previous mapping and reported site descriptions;
11. 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 evidence may have been impacted by improvements to John Renshaw Drive;
12. 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 evidence may have been impacted by improvements to John Renshaw Drive;
13. 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 evidence may have been impacted by improvements to John Renshaw Drive;
14. ERM Site 7 may be located within the John Renshaw Drive road reserve and marginally outside of the underground area and has therefore been excluded from this Table. 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 evidence may have been impacted by improvements to John Renshaw Drive;
15. Site identified and recorded by Kuskie (2006);
16. CA5 was recorded by Umwelt (2001) but is not registered on the OEH AHIMS. It may correspond with F1/C located by Kuskie (2006). Umwelt (2001) moved artefacts from sites CA5, CA6 and CA7 0.5 metres off the track on which they were situated. New grid references have been created for this site on the basis of previous mapping and reported site descriptions;
17. CA6 was recorded by Umwelt (2001) but is not registered on the OEH AHIMS. It may correspond with F1/B located by Kuskie (2006). Umwelt (2001) moved artefacts from sites CA5, CA6 and CA7 0.5 metres off the track on which they were situated. New grid references have been created for this site on the basis of previous mapping and reported site descriptions;
18. CA7 was recorded by Umwelt (2001) but is not registered on the OEH AHIMS. It is located close to site #38-4-0669. Umwelt (2001) moved artefacts from sites CA5, CA6 and CA7 0.5 metres off the track on which they were situated. New grid references have been created for this site on the basis of previous mapping and reported site descriptions;
19. Site identified and recorded by South East Archaeology (Kuskie 2012) during survey for Abel Modification;
20. 'Diocese 1, 2 and 3' were recorded by Besant (2003) but are not registered on the OEH AHIMS.

Additional Notes: While the OEH grid references place site #38-4-0552 within the underground area, descriptions from the site card place this site on the northern side of John Renshaw Drive outside of the underground area and it has therefore been omitted from this table. There are potentially other errors associated with the OEH AHIMS data for sites not recorded by South East Archaeology. Sites of cultural significance that do not contain Aboriginal objects are not listed within this Table.

REFERENCES:

ERM Mitchell McCotter Pty Ltd 1998

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

Kuskie, Peter 2006

Abel Underground Mine Part 3A Project Application: Aboriginal Heritage. Report to Donaldson Coal Pty Ltd.

Kuskie, Peter 2012

Abel Underground Mine: Supplementary Aboriginal Cultural Heritage Assessment for Abel Upgrade Modification. Report to Donaldson Coal Pty Ltd.

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)	Justification¹
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.

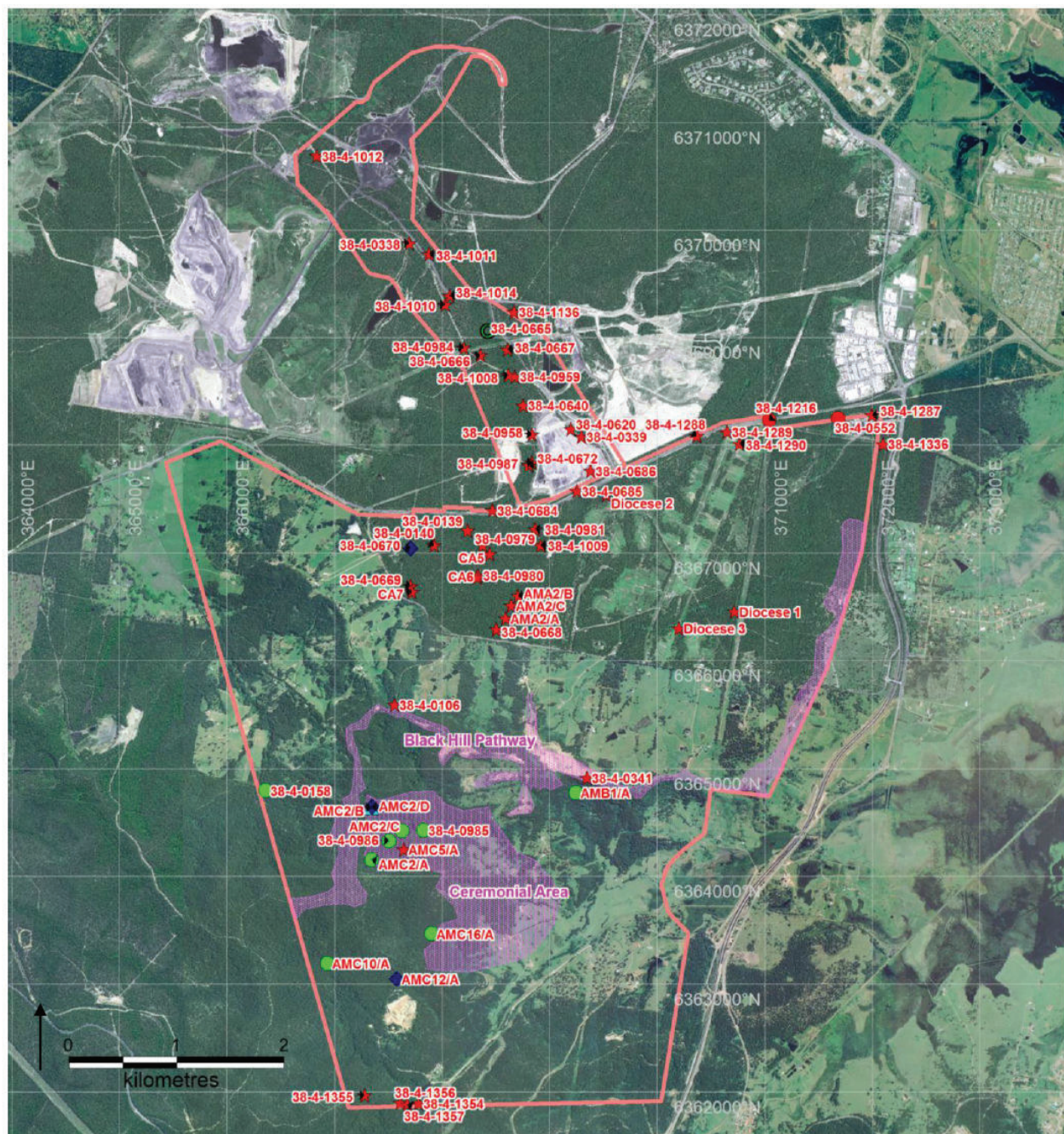
Table 3 Sample Of Aboriginal Sites For Monitoring Within The Abel Underground Area For Which Subsidence-Related Impacts Are Not Expected To Occur

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 and Tasman Underground Areas 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.
15	AMB1/A	369242E 6364779N	Grinding groove site. Assess impacts of subsidence on grooves and their context.
16	AMC2/A	367343E 6364155N	Grinding groove site. Assess impacts of subsidence on grooves and their context.
17	AMC2/B	367340E 6364645N	Rock shelter with PAD. Assess impacts of subsidence on shelter.
18	AMC2/C	367624E 6364425N	Grinding groove site. Assess impacts of subsidence on grooves and their context.
19	AMC10/A	366935E 6363192N	Grinding groove site. Assess impacts of subsidence on grooves and their context.
20	AMC16/A	3679036363467	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



- Key:**
- ★ open artefact site
 - open grinding groove and artefact site
 - open grinding groove site
 - Potential Archaeological Deposit (PAD)
 - ◆ rock shelter with PAD
 - ◆ scarred tree
 - area of cultural sensitivity
 - ▭ Abel Underground Mine
 - ▭ (Project Area to which AHMP applies)