Austar Coal Mine Pty Ltd

# Aboriginal Cultural Heritage Management Plan:

# Austar Mining Complex

May 2013

Umwelt
Environmental Consultants

# Aboriginal Cultural Heritage Management Plan: Austar Mining Complex

**Prepared by**

**Umwelt (Australia) Pty Limited**

**on behalf of**

**Austar Coal Mine Pty Ltd**

| | | | |
|---|---|---|---|
| Project Director: | Peter Jamieson | | |
| Project Manager: | Catherine Pepper | | |
| Report No. | 2274/R59/V8 | Date: | May 2013 |


Umwelt
Environmental Consultants

75 York Street
Teralba NSW 2284

Ph: 02 4950 5322
Fax: 02 4950 5737
Email: mail@umwelt.com.au
Website: www.umwelt.com.au

# Acknowledgement

***Umwelt would like to acknowledge the Traditional Custodians of the Quorrobolong Valley – the Wonnarua Peoples – and pay respect to their cultural heritage, beliefs and continuing relationship with the land.***

***Umwelt would also like to acknowledge the post-contact experiences of Aboriginal people who have attachment to the Quorrobolong Valley.***

***We pay our respect to the Elders – past, present and future – for they hold the memories, traditions, culture and hopes of Aboriginal people in the area.***

# TABLE OF CONTENTS

## FIGURES



## APPENDICES

# 1.0 Introduction

Austar Coal Mine Pty Ltd (Austar) operates the Austar Mining Complex near Kitchener in the lower Hunter Valley of NSW (refer to **Figure 1.1**), and is currently mining within the Stage 2 area. Approval to modify Stage 3 of the Austar Coal Mine (Stage 3 Modification project) was granted on 13 March 2012. Austar is committed to ensuring Aboriginal cultural heritage management of Austar's existing underground mining operations and the Stage 3 Modification project area is included in the environmental management framework of the broader Austar Coal Mine.

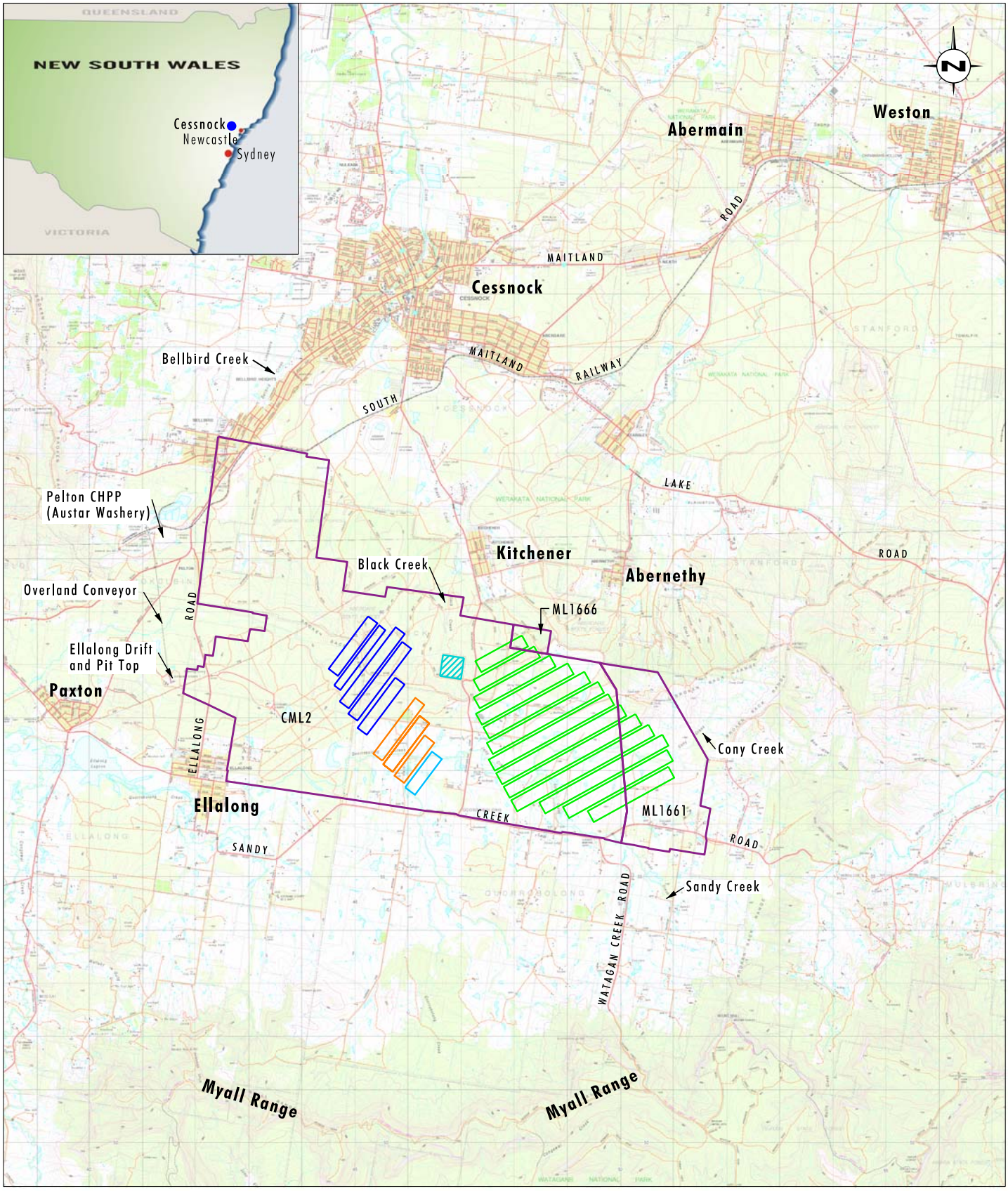
The preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP) is a condition of the Stage 3 project approval 08_0111 and development consent DA29/95 (refer to **Section 1.2**). The ACHMP is required to be approved by the Director-General of the Department of Planning and Infrastructure, and prepared in consultation with the Office of Environment and Heritage (OEH) and Registered Aboriginal Parties. The aim of this ACHMP is to define Aboriginal cultural heritage management and mitigation strategies for the Austar Mine Complex (as defined within **Section 1.2**) including: responsibilities of all parties; ongoing Registered Aboriginal Party consultation; compliance with current legislative requirements; and timeframes for required heritage works.

## 1.1 Overview of the Project

Austar Coal Mine is an aggregate of the former Ellalong, Pelton, Cessnock No.1 and Bellbird South Collieries, with mining activities within the Consolidated Mining Lease 2 (CML 2) dating to 1916. Development consent for Stage 1 of the Austar Coal Mine project was obtained in 2006 by modification to 1996 Minister's Consent (DA 29/95), with consent for Stage 2 of the project obtained in June 2008 and modified in 2009 and 2010.

Presently, coal is being extracted from the Stage 2 mining area (longwalls A3 to A5a, refer to **Figures 1.1** and **1.2**), which is subject to DA 29/95, with various mine processing activities also subject to Project Approval 08_0111 and council consents. Key activities of Austar Coal Mine include:

- mining of up to three million tonnes (Mt) of coal per annum using Longwall Top Coal Caving technology (LTCC);
- transfer of the coal by underground conveyor to the surface;
- washing and preparation of coal;
- stockpiling of raw and washed coal;
- reject emplacement; and
- transport of product coal by rail (98 per cent) to the Port of Newcastle and up to 60,000 tonnes annually by road to markets that are not currently practical to service using rail.




Source: Topo Maps: LPI NSW, Longwall Layout: Austar Coal Mine

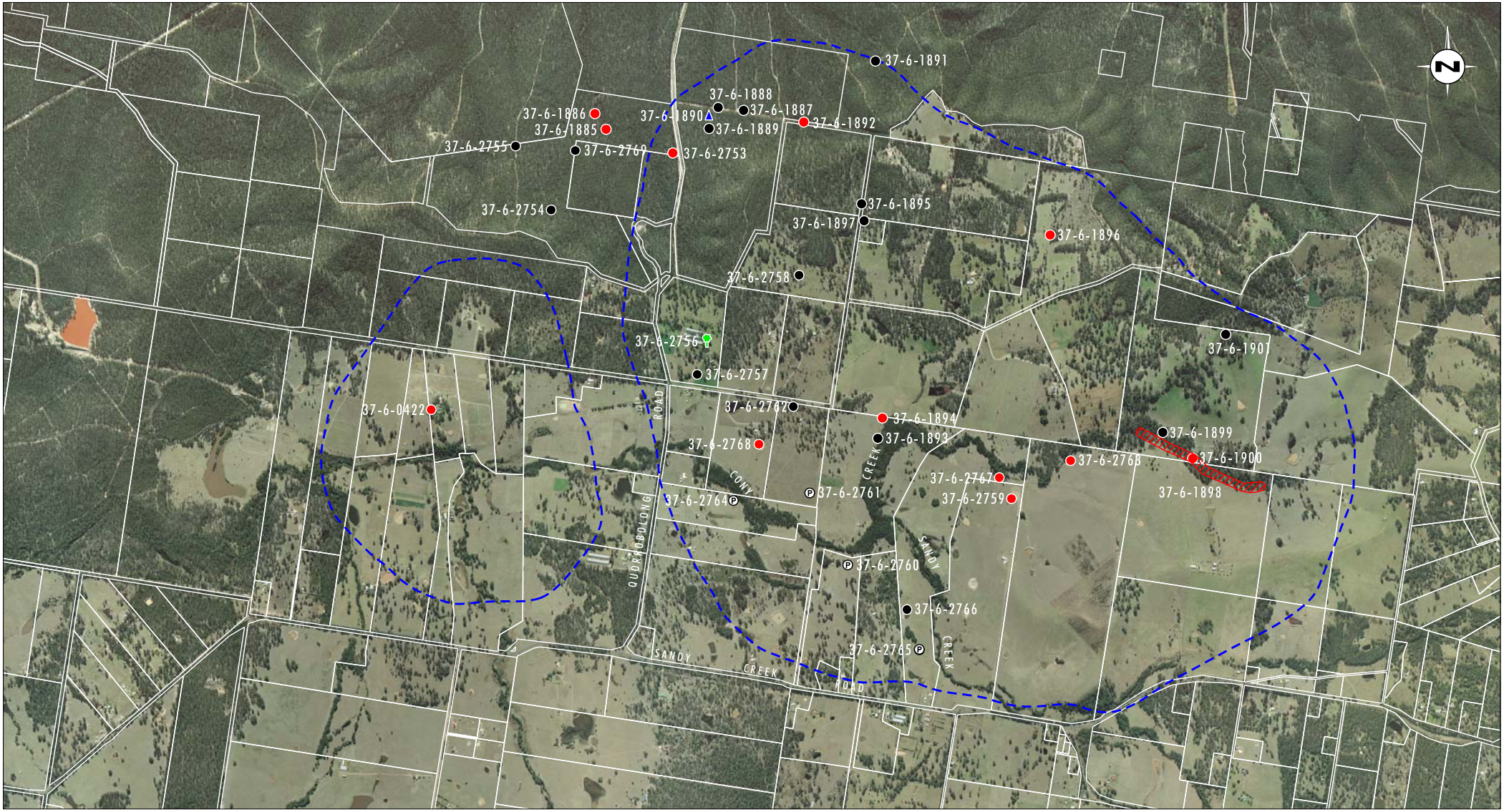
0 1.0 2.0 4km
1:100 000

## Legend

- Layout for Stage 1 Longwall Panels
- Layout for Stage 2 Longwall Panels
- Layout for Stage 2 Extension Longwall Panel
- Stage 3 Longwall Panels (as modified)
- Approved Surface Infrastructure Site
- Mining Leases

FIGURE 1.1

Locality Plan Austar Mine




Source: Cadastral: LPI NSW, Aerial Photo: AAM Hatch 2006

0 0.5 1 1.5km
1:32 000

## Legend

- 20mm Subsidence Contour for Stage 2 and Stage 3 (as modified)
- Continuous Distribution of Artefacts
- Artefact Scatter
- Isolated Find
- PAD
- Scarred Tree
- Axe Grinding Groove

FIGURE 1.2

**Archaeological Sites and PAD's within Stage 2 and Stage 3 of the Austar Mine complex**

Approval for Stage 3 extension of mining operations at Austar Coal Mine was granted under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in September 2009 (Project Approval 08_0111). The project as approved consisted of:

- extension of underground mining from current Stage 1 and Stage 2 operations in the Stage 3 mining area, with extraction of up to 3.6 million tonnes per annum from 12 additional longwall panels (A6 to A17) using Longwall Top Coal Caving technology (LTCC); and

- the construction and operation of a new Surface Infrastructure Site (SIS) in Kitchener, NSW to provide new pit top facilities including an access road, upcast and downcast ventilation shafts, main ventilation fans, bathhouse, workshop, electricity substation, distribution line, service boreholes, offices and store.

Coal extracted from the Stage 3 area will be handled and processed utilising Austar's existing infrastructure and facilities within the Austar Mine Complex, shown on **Figure 1.3**.

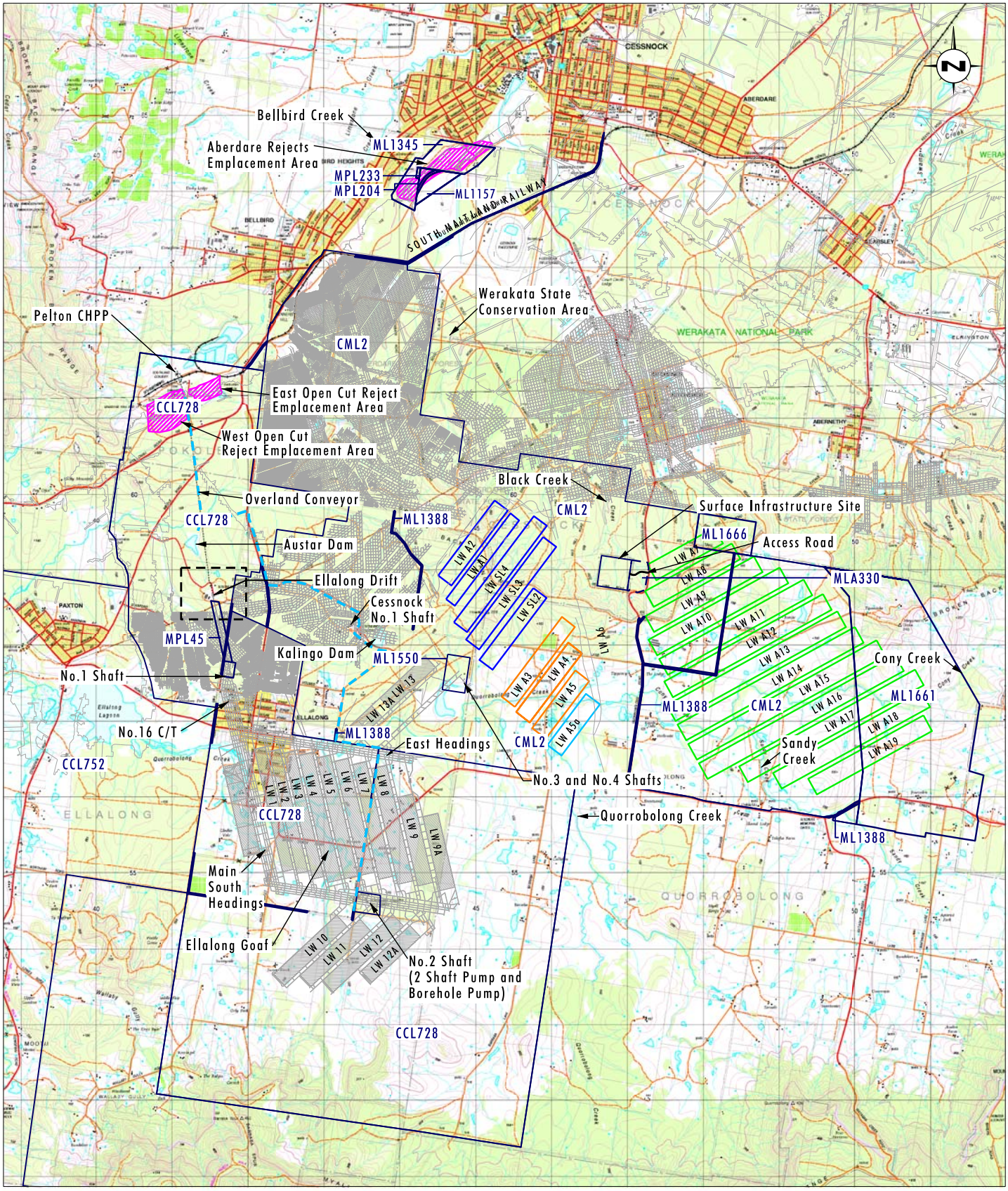
Approval to modify Project Approval 08_0111 to allow the longwalls to be reoriented under section 75W of the EP&A Act was granted on 13 March 2012. The Stage 3 Modification project area remains entirely within CML2, Mining Lease 1661 (formerly MLA322) and Mining Lease 1666 (formerly MLA 333), and involves a change to the Stage 3 mine plan only (refer to **Figure 1.1**). Austar will continue to use existing infrastructure and facilities to handle, process and transport coal from modified longwalls named A7 to A19.

The surface impact area defined by the predicted 20 millimetres subsidence contour of the Stage 2 Extension and the Stage 3 modification longwall area is shown in **Figure 1.2**.

## 1.2 Purpose and Scope

This ACHMP is designed to provide Austar Coal Mine with a consolidated framework and process for managing Aboriginal heritage responsibilities for its approved operations to achieve compliance with all Aboriginal heritage management requirements under legislation, guidelines and existing consents. This ACHMP aims to document protocols, procedures, time frames and responsibilities for the implementation of the ACHMP.

This ACHMP has been prepared by Umwelt (Australia) Pty Limited (Umwelt), in consultation with the OEH (formerly DECCW) and Registered Aboriginal Parties (refer to **Section 1.4**) to address Schedule 3 Condition 4 and Schedule 4, Condition 10 of the Austar Mine Project Approval 08_0111 and Section 1.5 of the Statement of Commitments included within the approval. It also incorporates the requirement for an ACHMP as part of the modification to DA 29/95 under Schedule 3, condition 24A.




Source: Topo Maps: LPI NSW, Longwall Layouts: Austar Coal Mine

0 1 2 3km

1:70 000

## Legend

- Layout for Stage 1 Longwall Panels
- Layout for Stage 2 Longwall Panels
- Layout for Stage 2 Extension Longwall Panel
- Stage 3 Longwall Panels (as modified)
- Reject Emplacement Areas
- Old Workings
- Mining Leases
- Pending Mining Lease Application Areas
- Water Pipeline

FIGURE 1.3

**Austar Mine Complex**

File Name (A4): R59_V1/2274_1071.dgn

### 1.2.1 Stage 3 Conditions of Approval

**Table 1.1 – Stage 3 Conditions of Approval (Project Approval 08_0111)**

| Condition No. | Condition | Section ACHMP |
|---|---|---|
| Schedule 3 Condition 4 | The proponent shall prepare and implement an Extraction Plan for all second workings in the mining area to the satisfaction of the Director-General. The plan must:<br>(e) include a:<br>• Heritage Management Plan, which has been prepared in consultation with DECCW and the relevant Aboriginal groups, to manage the potential environmental consequences of second workings on heritage sites or values | Whole document |
| Schedule 4 Condition 10 | The Proponent shall prepare and implement an Aboriginal Cultural Heritage Management plan for the project to the satisfaction of the Director-General. The plan must:<br>a) be prepared by a suitably qualified archaeologist in consultation with DECCW and the relevant Aboriginal groups, and be submitted to the Director General for approval prior to the commencement of second workings in Stage 3 and construction of the Surface Infrastructure Site (other than shaft construction referred to in condition 1 above); and | Whole document |
| | b) include, in addition to the standard requirements for management plans (see condition 2 of schedule 7), a program/procedures for:<br>• salvage and management of Aboriginal sites within the Surface Infrastructure Site disturbance area; | See **Section 2.2** |
| | • monitoring and management of Aboriginal sites within the mining area; | **Section 3.2** |
| | • managing the discovery of any new Aboriginal objects or skeletal remains discovered during the project; | **Section 3.8** |
| | • undertaking additional archaeological surveys on any areas subject to extensive remediation activities; | **Section 3.5** |
| | • undertaking additional archaeological surveys to the satisfaction of the Director-General, prior to commencing activities in the undisturbed reject emplacement areas (as shown on the figure in **Appendix 4**); and | **Section 3.3** |
| | • ongoing consultation with and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site. | Whole document |

It is noted with Condition 10 that 'The Proponent has committed to a $100,000 contribution to Aboriginal projects to offset the potential impact on an axe grinding groove (see **Appendix 3**)'.

### 1.2.2 Stage 2 Conditions of Consent

**Table 1.2 – Stage 2 Conditions of Consent (DA 29/95)**

| Condition No. | Condition | Section ACHMP |
|---|---|---|
| Schedule 3 Condition 24(A) | The Application shall prepare and implement an Aboriginal Cultural Heritage Management plan for the Stage 2 mining area to the satisfaction of the Director-General. The plan must:<br>(a) be prepared by a suitably qualified archaeologist in consultation with DECCW and the relevant Aboriginal groups, and be submitted to the Director General for approval prior to the commencement of extraction of longwall A5a; and | Whole document |
| | (b) include programs/procedures for:<br>• salvage and management of Aboriginal sites within the Stage 2 mining area; | **Section 3.4** |
| | • monitoring and management of Aboriginal sites within the Stage 2 mining area; | **Section 3.2** |
| | • managing the discovery of any new Aboriginal objects or skeletal remains discovered during the project; | **Section 3.6** |
| | • undertaking additional archaeological surveys on any areas subject to extensive remediation activities; and | **Section 3.4** |
| | • ongoing consultation with and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site. | Whole document |

It is noted with Condition 24(A) that, 'This plan may be incorporated into the Aboriginal Cultural Heritage Management Plan required under the Project Approval for the Stage 3 mining area (08_0111)'.

As discussed within *Austar Stage 2 Subsidence Management Plan – Environmental Attributes, Impacts and Controls* (Umwelt 2007) and *Proposed Stage 2 Extension Project Environmental Assessment* (Umwelt 2010) and also consistent with HLA (1995) recommendations which formed part of the existing development consent for underground mining; an Aboriginal heritage assessment will be undertaken in consultation with the Registered Aboriginal Parties prior to any surface disturbance if surface works are required. This recommendation has been taken into consideration within the current ACHMP.

The principle aims of this ACHMP are:

- to ensure implementation of Project Approval 08_0111 granted under Part 3A of the EP&A Act for Stage 3 of the Austar Coal Mine project and approval conditions for the modification under section 75W of the EP&A Act;
- to include the requirements of Condition 24(A) of DA 29/95 as noted within that condition;
- to conform with the Statement of Commitments and recommendations for the Stage 2 and Stage 3mining areas discussed in Umwelt (2007), Umwelt (2010), and Umwelt (2011b);
- to provide a comprehensive guide for Austar for the management of Aboriginal cultural heritage within the Austar Mine Complex (as shown on **Figure 1.3**); and

- to document protocols, procedures, time frames and responsibilities for the implementation of the ACHMP.

The overall development of this ACHMP was based on the requirements of DA 29/95, the approval conditions of Project Approval 08_0111 and the Statement of Commitments in Appendix 3 of Project Approval 08_0111. In this Statement of Commitments, Austar committed to a cultural heritage offset program, reduced the potential impact on Aboriginal cultural heritage values and committed to an ongoing relationship with the Registered Aboriginal Parties and landowners. The Statement of Commitments as listed in Project Approval 08_0111 is provided in **Table 1.3**.

**Table 1.3 – Austar Statement of Commitments September 2009**

| Commitment No. | Statement of Commitments (Project Approval 08_0111 Appendix 3) | ACHMP Section |
|---|---|---|
| 1.5.1 | An Aboriginal Cultural Heritage Management Plan (ACHMP) will be prepared for the Austar Mine Complex to outline all Aboriginal heritage management strategies for the project, responsibilities of all parties and the timeframe for required heritage works. | Whole document |
| 1.5.3 | No Aboriginal archaeological site is to be visited, or have works done there, without registered Aboriginal parties being in attendance. | **Section 3.0** |
| 1.5.4 | Known sites on accessible properties will be included in a monitoring program. This will involve recording each site before and after subsidence to identify any impacts. This will be done by an archaeologist and Aboriginal stakeholders. | **Section 3.2** |
| 1.5.5 | Aboriginal stakeholders (and an archaeologist if requested by Aboriginal stakeholders) will provide relevant Austar personnel with a cultural heritage awareness training session. | **Section 3.1** |
| 1.5.6 | If any additional sites are found within the Project area, these will be inspected by an archaeologist and Aboriginal stakeholders where access is granted to assess the site and decide on how it should be managed. | **Section 3.2.1** |
| 1.5.7 | If remediation works are required on any of the creeklines within the Stage 3 area, an archaeological survey with Aboriginal stakeholders will be undertaken prior to commencement of any works where access is granted. | **Section 3.2.3** |
| 1.5.2 | Austar will make a monetary contribution of $100,000 to an Aboriginal project or program (to be decided by Aboriginal Stakeholders) as an offset for any subsidence impacts that affect the grinding groove site. Austar will make this contribution when all necessary government approvals for the Project have been obtained. | **Section 3.12** |

## 1.3 Relevant Cultural Heritage Legislation

Two pieces of legislation provide the primary context for Aboriginal heritage management in NSW: the *National Parks and Wildlife Act 1974* (NPW Act) and the EP&A Act. While the NPW Act provides statutory protection for all Aboriginal Objects (archaeological sites) and Aboriginal Places, the EP&A Act sets out the framework for Aboriginal heritage values to be formally assessed in land use planning and development consent processes.

The EP&A Act regulates development activity in New South Wales. Part 3A of the EP&A Act, although now repealed, continues to apply to projects approved under Part 3A. Relevantly, the Stage 3 Project Approval 08_0111 was granted under Part 3A, and the Stage 3 modification was approved under Section 75W of the EP&A Act. In accordance with Part 3A of the EP&A Act, the following provisions apply to the approved modification. Under Section 75U of the EP&A Act, it is not necessary to obtain a permit under Section 87 or a consent under Section 90 of the NPW Act (as discussed below) in relation to activities approved under Part 3A of the EP&A Act. Projects approved under Part 3A of the EP&A Act are subject to conditions of approval issued by the DP&I and (where relevant) Aboriginal cultural heritage is addressed by appropriate conditions. Furthermore, Section 75J (5) of the EP&A Act states that conditions of approval for the carrying out of a project may require the proponent to comply with obligations made in a statement of commitments submitted by the proponent as part of the development approval process.

The Office of Environment and Heritage (OEH[1]) is primarily responsible for regulating the management of Aboriginal cultural heritage in New South Wales under the NPW Act (as amended October 2010). The NPW Act is accompanied by the National Parks and Wildlife Regulation 2009 (the NPW Regulation), the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (OEH 2010a) and other industry-specific codes.

The objectives of the NPW Act include:

> The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to: (i) places, objects and features of significance to Aboriginal people.

The NPW Act defines an Aboriginal object as:

> any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales.

Under Section 84 of the NPW Act, an Aboriginal Place must be declared by the Minister as a place that, in the opinion of the Minister, is or was of special significance with respect to Aboriginal culture. There are no declared Aboriginal Places within the approved Stage 2 or Stage 3 mining areas.

In accordance with Section 86(1) of the NPW Act, it is an offence to harm or desecrate a known Aboriginal object, whilst it is also an offence to harm an Aboriginal object under Section 86(2). Similarly, Section 86(4) states that a person must not harm or desecrate an Aboriginal place. Harm to an object or place is defined as any act or omission that:

a) destroys, defaces or damages an object or place, or
b) in relation to an object – moves the object from the land on which it had been situated, or
c) is specified by the regulations, or
d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c),

but does not include any act or omission that:

e) desecrates the object or place, or
f) is trivial or negligible, or
g) is excluded from this definition by the regulations.

[1] OEH was previously the Department of Environment Climate Change and Water (DECCW), Department of Environment and Climate Change (DECC), Department of Environment and Conservation (DEC).

Section 87(1) of the NPW Act specifies that it is a defence to prosecution under Section 86(1) and Section 86(2) if the harm or desecration of an Aboriginal object was authorised by an Aboriginal heritage impact permit (AHIP) and the activities were carried out in accordance with that permit. As discussed above, the provisions of Part 3A of the EP&A Act can overrule the requirement for an AHIP under the NPW Act, with these provisions applying to activities approved under Part 3A only. However, the other provisions of the NPW Act are still applicable. It is noted that operations within the Stage 2 area are approved under Part 4 of the EP&A Act and therefore the provisions of Part 3A do not apply to these operations.

Consultation with the Aboriginal community is an integral part of identifying and assessing the significance of Aboriginal objects and/or places and determining and carrying out appropriate strategies to mitigate impacts upon Aboriginal heritage. Section 80C(1) of the NPW Regulation establishes that, prior to making an application for an AHIP, the applicant must undertake Aboriginal community consultation in accordance with Section 80C(2-11).

Consultation in relation to the Stage 3 project commenced in 2007 under the *Interim Community Consultation Requirements for Applicants* and the first survey of the Stage 3 area was conducted on 19 September 2007. Additional survey of the Stage 3 Modification area was undertaken as a part of the Stage 3 Modification Environmental Assessment, and commenced on 29 March 2010. In accordance with arrangements identified by OEH, consultation for this assessment was also undertaken under the *Interim Community Consultation Requirements for Applicants.* However, in recognition of the change in consultation expectations, all consultation undertaken after November 2010 was generally in accordance with Section 80C (2-11) of the NPW Regulation.

## 1.4 Aboriginal Community Consultation

Archaeological and Aboriginal cultural heritage assessments conducted for Stage 3 of the Austar Coal Mine have been compliant with the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC 2004b) and relevant policies and guidelines of the NPW Act as they have been developed (i.e. NSW NPWS 1997). In the period between the 2008 and 2011 surveys, new regulations under the NPW Act have been introduced and recent Assessments have also been compliant with the NPW Regulation. The NPW Act and regulations identify that consultation with the Aboriginal community is an integral part of identifying and assessing the significance of Aboriginal objects and/or places, and determining and carrying out appropriate strategies to mitigate impacts upon Aboriginal cultural heritage.

**Appendix 1** presents the results of the consultation program undertaken with the Registered Aboriginal Parties in preparation of Aboriginal Heritage and Archaeological Assessments undertaken in 2008 and 2011 (Umwelt 2008a and 2011a). Included in **Appendix 1** are the consultation logs and written responses from the Registered Aboriginal Parties in the development of these Assessments and for this ACHMP. **Table 1.4** lists the Registered Aboriginal Parties for the Austar Coal Mine Project.

**Table 1.4 – Registered Aboriginal Parties**

| Stakeholder |
|---|
| Aboriginal Native Title Consultants |
| Wonn1 consulting |
| Giwiirr Consultants |
| Hunter Valley Cultural Consultants |

**Table 1.4 – Registered Aboriginal Parties (cont.)**

| Stakeholder |
|---|
| Hunter Valley Cultural Surveying |
| Lower Hunter Wonnarua Council |
| Lower Wonnarua Tribal Consultancy Pty Ltd |
| Mindaribba Local Aboriginal Land Council |
| Mingga Consultants |
| Tracey Skene (Culturally Aware) |
| Wanaruah Custodians |
| Wattaka Wonnarua Cultural Consultants Services |
| Wonnarua Culture Heritage |
| Upper Hunter Heritage Consultants |
| Yarrawalk |
| Yinaar |
| Deslee Talbott Consultant |

In addition to the consultation undertaken by Austar for the Stage 3 project since 2007, the development consent for current mining activities in the Stage 2 area has now been updated to include the preparation of an ACHMP for the Stage 2 area in consultation with the OEH and the relevant Aboriginal groups. The development consent includes provision for the ACHMP for Stage 2 to be incorporated with the ACHMP required under Project Approval 08_0111 for the Stage 3 area. Ongoing consultation for the Stage 2 and Stage 3 areas will therefore be incorporated into a single process.

### 1.4.1 Consultation during Preparation of 2012 ACHMP

The ACHMP consultation schedule is included as **Table 1.5**. Please refer to **Appendix 1** for details of the consultation that was undertaken in preparation of this ACHMP including a consultation log.

**Table 1.5 – ACHMP Schedule**

| | |
|---|---|
| 30 March 2011 | Report of Aboriginal Archaeological Assessment (2011) survey results including proposed site cards for comment and survey map with AHIMS site locations sent to all groups for comment |
| 28 July 2012 | Draft Archaeological Assessment report sent to all Registered Aboriginal Parties |
| 09 February 2012 | Invitation sent to Registered Aboriginal Parties allowing 10 days for groups to plan attendance at ACHMP workshop |
| 10 February 2012 | Draft ACHMP sent to Registered Aboriginal Parties allowing 28 days for comment |
| 21 February 2012 | Meeting/workshop to discuss ACHMP requirements and management strategies |
| 22 February 2012 | Meeting minutes and PP presentation sent to all Registered Aboriginal Parties seeking comments |
| 14 March 2012 | Phone calls/faxes and/or emails with minutes of meetings made to all Registered Aboriginal Parties seeking comments |
| 30 March 2012 | ACHMP finalised incorporating Registered Aboriginal Party comments and minutes of ACHMP workshop held on 21/2/12 |
| April 2012 | Final ACHMP submitted for Government approval |

## 1.5 Government Agency Consultation

Government Agency (DP&I and OEH) consultation in relation to the preparation of the ACHMP will be undertaken during the comment period for the draft ACHMP. This will include a meeting with the DP&I and OEH. Further details of Government Agency consultation will be provided in this section of the final ACHMP.

# 2.0 Archaeological Sites and Potential Impacts

A total of 35 archaeological sites are located within the Stage 3 Austar mining area and near the Stage 2 mining area as shown in **Figure 2.1** and listed in **Table 2.1**. Archaeological sites in the region are depicted in **Figure 2.1**. MSEC (2009 and 2011) described the potential subsidence impacts for site types at various locations across all of the landscapes contexts reviewed for this report. In summary, the archaeological sites are located across the Stage 2 and Stage 3 mining areas and are expected to experience the full range of predicted systematic subsidence movements. **Table 2.1** discusses the potential impact to site types within the Stage 2 mining area and proposed Stage 3 mining area and management recommendations for these sites.

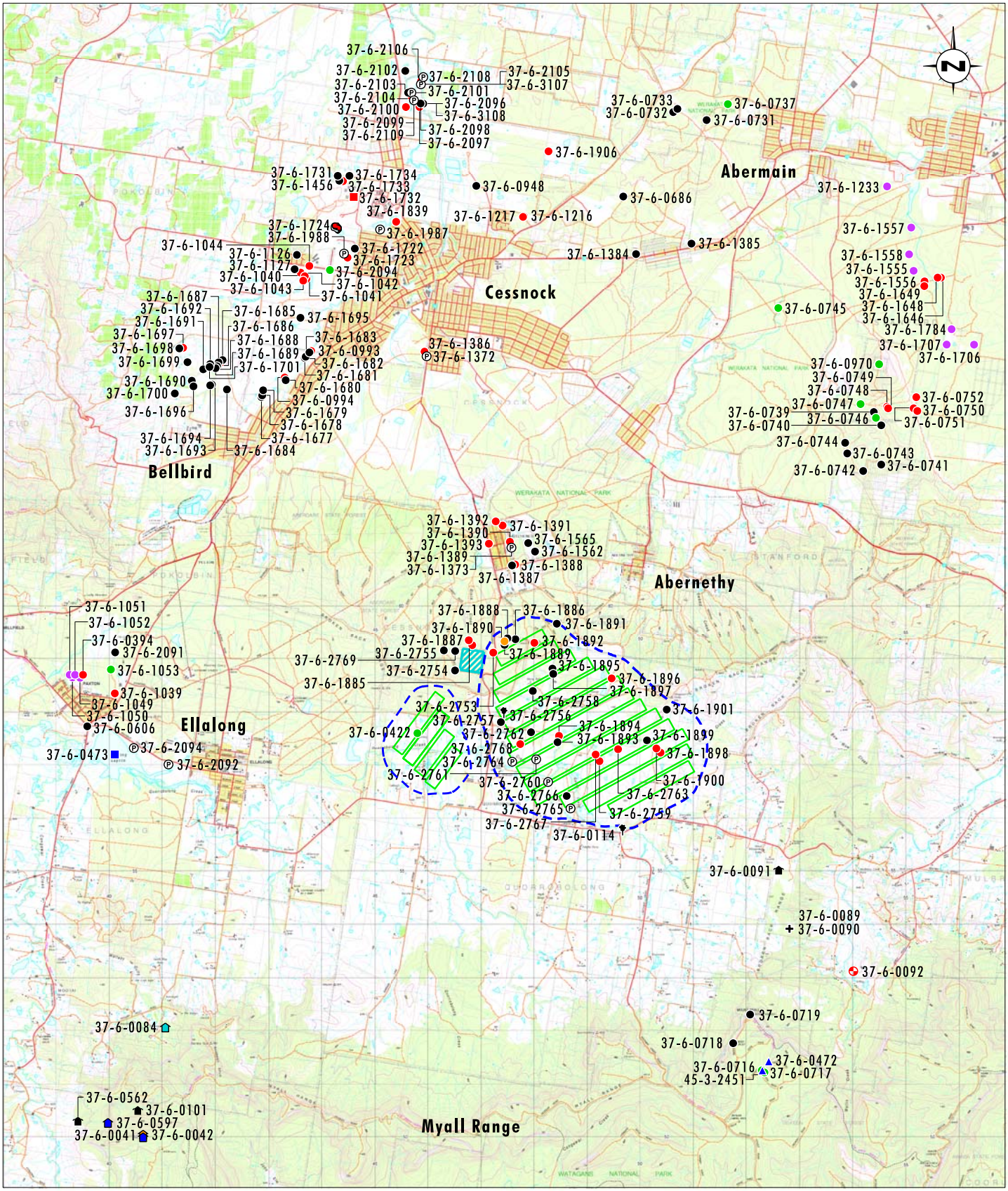
## 2.1 Mine Subsidence and Potential Impacts

As discussed in **Section 1.0**, this management plan relates to the Austar Mine Complex, shown on **Figure 1.3**. This section provides a summary of known archaeological sites on the Austar mining leases in the Stage 2 and Stage 3 Modification areas and the potential impacts to these sites including those that may be experienced from surface works, subsidence impacts and subsequent potential increases in flooding within the mine area. This section also describes potential impacts to any sites that have not yet been identified.

As detailed in **Section 1.0**, the Stage 3 Modification Mine Plan involves underground mining of 13 longwalls with coal to be extracted using LTCC technology. Mining within the Stage 2 was also undertaken using LTCC technology. The normal ground movements resulting from longwall mining are referred to as systematic subsidence movements. These movements are typically described by the parameters of subsidence, tilt and strain, which are defined in the reports by MSEC (2009 and 2011). The MSEC reports provide specialist advice regarding likely subsidence resulting from the Stage 2 and Stage 3 Modification mining and the potential impacts to Aboriginal heritage sites and areas within the Stage 2 mining area and Stage 3 mining area.

In general terms, subsidence is the principal surface impact that may result from Longwall mining, the extent of which is dependent on a number of factors including the depth of the coal seam worked, the design and location of the mine, the topography of the landscape, the nature of the overlying rock stratum, the width of the chain pillars and the ratio of the depth of overburden to the Longwall panel width (NSW Scientific Committee 2005). Subsidence relating to Longwall mining may result in secondary impacts, which typically impact greatest on riparian areas. Broadly, potential changes to riparian environments that may be expected to occur as a result of Longwall mining include:

- changes to runoff and flow volumes through subsidence induced changes to catchment boundaries;
- changes to bank stability and channel alignment;
- changes to in-channel and out of channel ponding through changes to the bed profile of the creeks which may result in drying or waterlogging of root systems; and
- loss of water to near-surface groundwater flows due to subsidence-induced cracks occurring beneath a stream or other surface water body (valley closure).




Source: Geology: Mineral Resources 2003, Longwall Layout: Austar Coal Mine

0 1.0 2.0 4km
1:100 000

## Legend

- Stage 2 and Stage 3 Modification Longwall Panels
- 20mm Subsidence Contour for Stage 2 and Stage 3 Modification
- Surface Infrastructure Site
- Axe Grinding Groove
- Carved Tree
- Isolated Find
- Isolated Find with PAD
- Isolated Find and Grinding Groove
- Natural Mythological (Ritual)
- Artefact Scatter and PAD
- Artefact Scatter
- Open Camp Site
- PAD
- Shelter with Art
- Shelter with Art and Deposit
- Shelter with Deposit
- Shelter with Axe Grinding Groove, Rock Engraving and Art
- Burial/s
- Bora/Ceremonial
- Unidentified Site Type

FIGURE 2.1

AHIMS Sites (Regional)

File Name (A4): R59_V1/2274_1062.dgn

Subsidence predictions provided by MSEC (2009 and 2011) for the Stage 2 and Stage 3 areas were used by Umwelt to model the flood response in the Stage 2 and Stage 3 mining areas (Umwelt 2010 and 2011). The subsidence predictions included both the most likely subsidence and the maximum subsidence that can be reasonably expected as a result of the proposed mining operations. The use of both the most likely and the predicted maximum subsidence allows for the incorporation of some of the uncertainty associated with subsidence modelling into the prediction of the flood impact of the Proposed Development. The modelling tool used by MSEC was calibrated using measured subsidence data from the Branxton Formation from previous mining at the Ellalong mine and Longwalls A1 to A3 from Stages 1 and 2 of the Austar Coal Mine.

Due to the geology of the area, the mine layout and the depth of cover to the coal seam (440 to 750 metres) within the Stage 2 and Stage 3 mining areas, the subsidence predicted to occur as a result of the approved longwall mining is not expected to significantly impact on runoff regimes, bank stability, channel alignment, in-channel and out of channel ponding or groundwater availability. Subsidence predictions indicate that subsidence will occur reasonably consistently over the breadth of the Stage 2 and Stage 3 mining areas. The approved changes to the mine plan for Stage 3 (08_0111 MOD2) are predicted to result in similar, but slightly lower maximum predicted subsidence, tilt and curvature than that approved in Project Approval 08_0111 (MSEC 2011). A reduction in the area of impact (within the 20 millimetre subsidence contour) is also predicted. As a result the subsidence, flood and drainage predictions are very similar to those documented for the original Stage 3 Mine development (Umwelt 2008d).

Consequently, subsidence impacts are not expected to have a significant impact on the archaeological values of the area. In addition, due to the depth of cover and relative predicted uniformity of subsidence over the Stage 2 and Stage 3 mining areas, it is predicted that surface mitigation works along drainage channels will not be required and hence disturbance of these areas is not likely to be necessary. This has been confirmed by observations in the Stage 2 area where no surface mitigation works have been required to date, despite the completion of mining of longwalls in the Stage 2 area. The following points summarise the key findings of the subsidence modelling (MSEC 2009 and 2011) and flood modelling (Umwelt 2010 and 2011), relevant to archaeological values:

- subsidence will occur relatively uniformly over the Stage 2 and Stage 3 mining areas;
- analysis indicates that the proposed development will not have a significant impact on the flow regime of the Sandy Creek and Cony Creek systems with only minor changes predicted in runoff regimes and peak discharges compared to that previously approved under Project Approval 08_0111;
- the potential for mining to result in stream capture is considered negligible due to the depth of mining below the ground surface and the geology of the area;
- analysis indicates that there will be no changes to channel alignment as a result of subsidence from the proposed development;
- drainage line analysis of the predicted subsided landform indicates that all creek systems will remain free draining without mitigation works;
- average in-channel grade of Cony Creek is predicted to remain at approximately 0.4 per cent and Sandy Creek 0.4 per cent to 0.5 per cent, indicating that no significant changes in overall stream power or erosive potential along these reaches is expected;
- there are no areas in which subsidence is predicted to result in a reduction in water flow rates or volumes; and

- the potential to increase erosion on the landform is also expected to be minimal due to the relatively small predicted changes in landform grades combined with the relatively low percentage of exposed soils that exist in the area.

## 2.2 Kitchener Surface Infrastructure Site

Survey identified no surface archaeological sites within the surface infrastructure site (**Figure 1.1**) and associated road alignment. Further, the landforms of the surface infrastructure site were assessed to be of low archaeological potential (Umwelt 2008b).

No sites or places of cultural significance within the surface infrastructure site were identified by Aboriginal stakeholders throughout the course of the assessment (Umwelt 2008b). Consequently, no impacts to Aboriginal heritage sites or areas are identified within the Stage 3 Surface Infrastructure Site.

## 2.3 Future Surface Works and Potential Impacts

It is noted that it will also be necessary for Austar Coal Mine to undertake further exploration drilling within the Stage 3 mining area and as described in Umwelt (2008b and 2011b) there may be a need for additional unspecified minor infrastructure and works within the project mining leases, to be identified throughout the life of the Stage 3 project. As a result, the impact of construction of other unspecified minor infrastructure (if required) within the Stage 3 mining area on Aboriginal archaeological and cultural values cannot be assessed at this time, as the locations of any such works are not yet known. Details of the proposed management strategy for future surface works, including the assessment of impacts, is set out in **Section 3.3**.

## Table 2.1 – Archaeological Sites on the Austar Stage 2 and 3 Areas: Potential Impacts and Management Recommendations

| AHIMS # | Site Name | Type | Easting | Northing | Archaeological Significance | Potential Impact | Management Recommendation |
|---|---|---|---|---|---|---|---|
| 37-6-0422 | Quorrobolong 1 | Artefact Scatter | 345805 | 6357589 | Low | Little or no impact from potential surface cracking. Potential for increased erosion of the landform is expected to be minimal. | • manage *in situ*;<br>• undertake monitoring where access is approved by landholder;<br>• subsidence monitoring inspection where access is approved by landholder;<br>• mitigate potential damage from maintenance or remediation works if required (refer **Flow Chart 1**). |
| 37-6-1885 | ACM1 (Quorrobolong) | Artefact Scatter | 346839 | 6359248 | Low | Little or no impact from potential surface cracking. Potential for increased erosion of the landform is expected to be minimal. | • manage *in situ*;<br>• undertake baseline monitoring where access is approved by landholder;<br>• subsidence monitoring inspection where access is approved by landholder;<br>• mitigate potential damage from maintenance or remediation works if required (refer **Flow Chart 1**). |
| 37-6-1886 | ACM2 (Quorrobolong) | Artefact Scatter | 346773 | 6359341 | Low | As above | As above |
| 37-6-1887 | ACM3 (Quorrobolong) | Isolated Find | 347652 | 6359360 | Low | As above | As above |
| 37-6-1888 | ACM4 (Quorrobolong) | Isolated Find | 347502 | 6359377 | Low | As above | As above |
| 37-6-1889 | ACM5 (Quorrobolong) | Isolated Find | 347448 | 6359253 | Low | As above | As above |
| 37-6-1890 | ACM6 (Quorrobolong) | Grinding Groove & Isolated Find | 347447<br>347444 | 6359320<br>6359333 | Low-moderate (high cultural) | Subsidence impacts possible (in the range of 10–30% likelihood of occurrence). Possible cracking of rock shelf. | • manage *in situ*;<br>• undertake baseline monitoring;<br>• subsidence monitoring inspections;<br>• mitigate potential damage from maintenance or remediation works (refer **Flow Chart 1**);<br>• complete offset program. |

**Table 2.1 – Archaeological Sites on the Austar Stage 2 and 3 Areas: Potential Impacts and Management Recommendations (cont.)**

| AHIMS # | Site Name | Type | Easting | Northing | Archaeological Significance | Potential Impact | Management Recommendation |
|---|---|---|---|---|---|---|---|
| 37-6-1891 | ACM7 (Quorrobolong) | Isolated Find | 348432 | 6359652 | Low | Little or no impact from potential surface cracking. Potential for increased erosion of the landform is expected to be minimal. | • manage *in situ*;<br>• undertake baseline monitoring where access is approved by landholder;<br>• subsidence monitoring inspection where access is approved by landholder;<br>• mitigate potential damage from maintenance or remediation works if required (refer **Flow Chart 1**). |
| 37-6-1892 | ACM8 (Quorrobolong) | Artefact Scatter | 348008 | 6359291 | Low | As above | As above |
| 37-6-1893 | ACM9 (Quorrobolong) | Isolated Find | 348446 | 6357420 | Low-moderate | As above | As above |
| 37-6-1894 | ACM10 (Quorrobolong) | Artefact Scatter | 348473 | 6357540 | Low-moderate | As above | As above |
| 37-6-1895 | ACM11 (Quorrobolong) | Isolated Find | 348350 | 6358807 | Low | As above | As above |
| 37-6-1896 | ACM12 (Quorrobolong) | Artefact Scatter | 349465 | 6358623 | Low | as above | as above |
| 37-6-1897 | ACM13 (Quorrobolong) | Isolated Find | 348365 | 6358707 | Low | As above | As above |
| 37-6-1898 | ACM14 (Quorrobolong) | Artefact Scatter | 350706 | 6357134 | Low-moderate | As above | As above |
| 37-6-1899 | ACM15 (Quorrobolong) | Isolated Find | 350131 | 6357455 | Low | As above | As above |
| 37-6-1900 | ACM16 (Quorrobolong) | Artefact Scatter | 350308 | 6357302 | Low | As above | As above |
| 37-6-1901 | ACM17 (Quorrobolong) | Isolated Find | 350503 | 6358035 | Low | As above | As above |
| 37-6-2753 | ACM18 (Quorrobolong) | Artefact Scatter | 347234 | 6359108 | Low | As above | As above |
| 37-6-2754 | ACM19 (Quorrobolong) | Isolated Find | 346514 | 6358771 | Low | As above | As above |

**Table 2.1 – Archaeological Sites on the Austar Stage 2 and 3 Areas: Potential Impacts and Management Recommendations (cont.)**

| AHIMS # | Site Name | Type | Easting | Northing | Archaeological Significance | Potential Impact | Management Recommendation |
|---|---|---|---|---|---|---|---|
| 37-6-2755 | ACM20 (Quorrobolong) | Isolated Find | 346304 | 6359149 | Low | As above | As above |
| 37-6-2756 | ACM21 (Quorrobolong) | Scarred tree | 347435 | 6357976 | Low (High cultural) | No impact on tree due to subsidence, however, some impact is possible if location (dam wall) requires remediation works. | • manage *in situ*;<br>• undertake baseline monitoring where access is approved by landholder;<br>• subsidence monitoring inspection where access is approved by landholder;<br>• mitigate potential damage from maintenance or remediation works if required (refer **Flow Chart 1**). |
| 37-6-2757 | ACM22 (Quorrobolong) | Isolated find | 347378 | 6357798 | Low | Little or no impact from potential surface cracking. Potential for increased erosion of the landform is expected to be minimal. | As above |
| 37-6-2758 | ACM23 (Quorrobolong) | Isolated find | 347980 | 6358385 | Low | As above | As above |
| 37-6-2759 | ACM24 (Quorrobolong) | Artefact scatter | 349236 | 6357063 | Low | As above | As above |
| 37-6-2760 | ACM25 (Quorrobolong) | PAD | 348268 | 6356671 | Not yet established. Can only be based on results of subsurface testing if mitigation required following subsidence. | As above | As above |

**Table 2.1 – Archaeological Sites on the Austar Stage 2 and 3 Areas: Potential Impacts and Management Recommendations (cont.)**

| AHIMS # | Site Name | Type | Easting | Northing | Archaeological Significance | Potential Impact | Management Recommendation |
|---|---|---|---|---|---|---|---|
| 37-6-2761 | ACM26 (Quorrobolong) | PAD | 348043 | 6357097 | Not yet established. Can only be based on results of subsurface testing if mitigation required following subsidence. | As above | As above |
| 37-6-2762 | ACM27 (Quorrobolong) | Isolated find | 347946 | 6357608 | Low | As above | As above |
| 37-6-2763 | ACM28 (Quorrobolong) | Artefact scatter | 349586 | 6357288 | Low | As above | As above |
| 37-6-2764 | ACM29 (Quorrobolong) | PAD | 347592 | 6357052 | Not yet established. Can only be based on results of subsurface testing if mitigation required following subsidence. | Little or no impact from potential surface cracking. Potential to increase erosion of the landform in the vicinity of confluence of Sandy Creek and Cony Creek is expected to be minimal. | • manage *in situ*;<br>• undertake baseline monitoring where access is approved by landholder;<br>• subsidence monitoring inspection where access is approved by landholder;<br>• mitigate potential damage from maintenance or remediation works if required (refer **Flow Chart 1**). |
| 37-6-2765 | ACM30 (Quorrobolong) | PAD | 348691 | 6356172 | Not yet established. Can only be based on results of subsurface testing if mitigation required following subsidence. | As above | As above |

**Table 2.1 – Archaeological Sites on the Austar Stage 2 and 3 Areas: Potential Impacts and Management Recommendations (cont.)**

| AHIMS # | Site Name | Type | Easting | Northing | Archaeological Significance | Potential Impact | Management Recommendation |
|---|---|---|---|---|---|---|---|
| 37-6-2766 | ACM31 (Quorrobolong) | Isolated find | 348618 | 6356407 | Low | Little or no impact from potential surface cracking. Potential for increased erosion of the landform is expected to be minimal. | As above |
| 37-6-2767 | ACM32 (Quorrobolong) | Artefact scatter | 349164 | 6357188 | Low | As above | As above |
| 37-6-2768 | ACM33 (Quorrobolong) | Artefact scatter | 347743 | 6357385 | Low | As above | As above |
| 37-6-2769 | ACM34 (Quorrobolong) | Isolated find | 346517 | 6359138 | Low | As above | As above |

# 3.0 Aboriginal Cultural Heritage Management Strategy

The primary strategy for the protection of Aboriginal cultural heritage within the Austar Mining Complex is the development of this Aboriginal Cultural Heritage Management Plan (ACHMP) which incorporates all heritage management requirements from previous consents and approvals to provide Austar Coal Mine with an integrated framework for managing Aboriginal cultural heritage responsibilities for all approved operations. **Table 2.1** lists and summarises the heritage management requirements for each site (refer to **Figure 1.2** for location details).

The following sections outline cultural heritage awareness training for relevant Austar Coal Mine personnel, the management strategies for Aboriginal archaeological sites including mitigation strategies for any future surface works and the grinding groove offset strategy.

Austar Coal Mine will manage the impacts of mining subsidence and any required surface works as required by the conditions of consent, and the statement of commitments.

***The following management protocols have been endorsed by the Registered Aboriginal Parties.***

The following management protocols and procedures (methodologies) combine to form the overall strategy for the management of Aboriginal cultural heritage sites within the Austar Coal Mine. The protocols and procedures have been prepared following consultation with the Registered Aboriginal Parties during the EA process and for this ACHMP to ensure that they are designed and implemented in the most culturally appropriate manner feasible.

## 3.1 Aboriginal Cultural Heritage Awareness Training

Austar has committed to undertake preparation of an Aboriginal Cultural Heritage Training Package (Training Package) to ensure that mining personnel and contractors understand the principles behind the ACHMP, how it is implemented, and how it relates to them and the tasks they will be undertaking within the Austar Mine Complex. The Training Package will also provide information in relation to the legislation pertinent to the management of Aboriginal cultural heritage sites and the penalties for breaching of the legislation and recognition of Aboriginal cultural heritage sites and their Aboriginal cultural value and archaeological significance.

Austar will be responsible for organising the preparation of the Aboriginal Cultural Heritage Awareness Training Package. The Training Package will be prepared in consultation with the Registered Aboriginal Parties and a suitably qualified archaeologist. The Training Package will be provided to all Registered Aboriginal Parties for broader review within the community. Austar will provide 28 days for this review period.

The Training Package will be provided to mine management, mine personnel and contractors who will be undertaking tasks that have that potential to impact Aboriginal cultural heritage sites. Austar will afford the opportunity for at least one member of the Registered Aboriginal Parties to take an active role in the presentation of the Training Package to relevant Austar personnel. Training to other Austar employees and contractors will be through site induction and training processes.

The Training Package will include (but not necessarily be limited to) the following:

- a discussion of the Aboriginal cultural significance of the Quorrobolong valley area and the rights and obligations of Aboriginal people to actively participate in the management of the landscape within the Austar Mining Lease Area including its known Aboriginal heritage sites;
- information related to the types of Aboriginal heritage sites, that are known within the Austar Mine Complex (the detail of the information provided will be guided by what is deemed culturally appropriate by the Registered Aboriginal Parties);
- information related to the Aboriginal cultural heritage value and archaeological significance of the known sites/artefacts/PADs of cultural value (the detail of the information provided will be guided by what is deemed culturally appropriate by the Registered Aboriginal Parties);
- the provision of maps of sites/potential archaeological deposits (PADs) and areas where ground disturbance for remediation is not allowed without further consultation with the Registered Aboriginal Parties (this should form part of the Ground Disturbance Permit process);
- procedures for contacting the Austar Environment and Community Manager who will then contact the Registered Aboriginal Parties should remediation work be required within proximity of a known site;
- procedures for contacting the Austar Environment and Community Manager who will then contact the Registered Aboriginal Parties in the event a previously unknown site is located during ground disturbing activities associated with remediation activities; and
- information related to the relevant legislation for the protection of Aboriginal sites (Section 86 of the NPW Act).

***As noted above, only information endorsed for sharing by the Registered Aboriginal Parties will be provided in the Training Package.***

Sections of the Training Package related to presentations by the Registered Aboriginal Parties on Aboriginal cultural values and rights and obligations to Care for Country will be videotaped by the Austar Mine and endorsement sought from the Registered Aboriginal Parties to enable Austar to undertake inductions in the event that there are no representatives of the Registered Aboriginal Parties available to attend a full induction. The video can also be used for short inductions where the attendance of a representative of the Registered Aboriginal Parties is not feasible.

Until such time as the Training Package is completed and in consultation with the Registered Aboriginal Parties, Austar will continue to use its current induction materials related to Aboriginal Cultural Heritage Management.

## 3.2 Archaeological Site Monitoring Program

Austar has committed to monitoring and reporting of subsidence impacts on known Aboriginal heritage sites and PADs recorded within the Stage 3 mining area, and will extend post subsidence monitoring program to the known site in the Stage 2 mining area. The ability of Austar to undertake the post subsidence monitoring will however depend in some instances on obtaining permission to access private land. Austar cannot guarantee that permission for access will be provided.

It should be noted that previously recorded artefacts may not be located due to changes in the site since recording (i.e. post-depositional artefact movement) or varying ground surface visibility. However, these processes may also expose additional artefacts not identified in the original recording.

It is proposed that prior to and following the cessation of subsidence related to each longwall, inspection will be undertaken of the known Aboriginal heritage sites and PADs on accessible properties in order to collect a detailed baseline database of the current condition of the sites (pre-subsidence monitoring) and the condition of the sites following subsidence (post subsidence monitoring) and to determine if there are any requirements for subsidence mitigation measures. The inspection and reporting will be undertaken by representatives of the Registered Aboriginal Parties and a suitably qualified archaeologist. The purpose of the monitoring is to observe:

- Pre-subsidence monitoring (baseline recording):
    - What is the current condition of the site/PAD and the nature of any pre-subsidence impact (especially in relation to pre-existing cracking of the ground surface for artefact scatters and isolated finds or sandstone in the case of the ACM6 grinding groove site)?
- Post-subsidence monitoring:
    - What have been the impacts from subsidence?
    - What are the requirements (if any) for subsidence remediation works (as indicated by Austar/landowner)?
    - What will be the nature of the remediation works?
    - Are there requirements for site/PAD salvage/investigation prior to subsidence remediation works?

A second aim is to ensure compliance with the various aspects of the management strategy that relate to monitoring either before or after subsidence. In consultation with Registered Aboriginal Parties it is proposed to assess:

- the suitability of the remediation works undertaken;
- the success of remediation works; and
- compliance with this ACHMP.

### 3.2.1 Baseline Monitoring

Mining in Stage 2 is complete, with mining in longwall A5a within Stage 2 began in May 2012. Subsidence impacts of the site within the Stage 2 area have already commenced, therefore pre-subsidence baseline monitoring cannot be undertaken at the single site within the Stage 2 area. However, an opportunity for representatives of Registered Aboriginal Parties to visit the site was afforded prior to the commencement of mining in longwall A5a. Mining in Stage 3 will begin in 2013, commencing with Longwall A7 and will progress in accordance with the numerical order to Longwall A17. At least four weeks prior to subsidence impacts for any Aboriginal heritage site/PAD within the longwall extraction subsidence impact area of each Stage 3 longwall, baseline recording of known archaeological sites on accessible properties will be conducted. All known Aboriginal archaeological sites located on accessible properties within the subsidence impact zone of the relevant longwall and being managed *in situ* will be subject to baseline monitoring.

Baseline monitoring of known archaeological sites and PADs within the Stage 3 mining area will use a standardised baseline monitoring system that can be used to compare and contrast with post-subsidence monitoring results.

The methodology for:

- baseline recording of site PAD/condition;
- baseline recording of isolated finds, artefact scatters and PADs; and
- the baseline recording of the AMC6 grinding groove site,

are included in **Appendix 3** (Reference Sheets 1 to 3).

Registered Aboriginal Parties requested at ACHMP workshop on 14 February 2012 that a database of sites be prepared by Austar to be added to over time. Registered Aboriginal parties also requested that a photographic record be made of significant artefacts and attached to the database.

### 3.2.2 Post-Subsidence Monitoring Inspections

To ensure that any impacts to known Aboriginal heritage sites/PADs from subsidence are identified and appropriately managed, Aboriginal heritage sites on accessible properties will be included in a post subsidence monitoring program. The baseline recording of sites prior to commencement of mining in Longwall A5a in the Stage 2 area and Stage 3 mining (as described in **Section 3.2.1**) will be compared with this second round of monitoring to determine subsidence impacts. The required post subsidence monitoring inclusions are detailed within Reference Sheet 4 in **Appendix 3**.

The timing of post subsidence monitoring of known site/PADs on accessible properties will be determined by the mining schedule, with monitoring of sites within the angle of draw of individual longwalls able to begin when subsidence has ceased (to be determined by subsidence monitoring surveyor's data).

Should any site changes be detected that require subsidence remediation works, the survey team (archaeologist and Registered Aboriginal Party representatives) will determine how these works will affect the integrity of the site/PAD. Based on the proposed impacts of the remediation works and the scientific and cultural value of the site, the need for archaeological/cultural salvage and the methodology for that salvage will be determined.

A brief letter report on the inspection and discussion results will be provided to all Registered Aboriginal Parties, with 14 days allowed for review and return of comments, providing the works are not classified as urgent (i.e. that would affect landholder/stock safety) in which case a shorter period for comment would be specified. Registered Aboriginal Parties will be afforded the opportunity to be involved in the monitoring and salvage program on a roster basis.

Sites/PADs that require remediation works will be subject to a third round of monitoring as discussed in **Section 3.2.3**. Remediation works required in the Stage 2 area are discussed separately in **Section 3.4**.

### 3.2.3 Monitoring of Subsidence Remediation within Aboriginal Heritage Sites/PADs

Where remediation of subsidence impacts have been carried out by Austar within accessible Aboriginal heritage sites/PADs, but where the site/PAD was not destroyed by the works, a further round of monitoring will be required by representatives of the Registered Aboriginal Parties and an archaeologist to assess the success and suitability of the remediation works and if further remediation is required to stabilise the site/PAD.

## 3.3 Mitigation of Potential Impacts from Future Surface Works

Mining operations may entail future surface disturbance works which have potential to impact Aboriginal heritage sites/PADs within the Austar Mining Complex. The following sections outline required actions for properties not previously surveyed, those surveyed where archaeological sites/PADs were not found, and those surveyed where archaeological sites/PADs were found.

### 3.3.1 Properties Not Previously Surveyed

On properties within the Austar Mining Complex that were not surveyed as part of previous Cultural Heritage Assessments including Umwelt (2011b) or Umwelt (2008a), an archaeologist and Registered Aboriginal Party representative(s) will be required to inspect the works location to identify any potential Aboriginal heritage impacts and proposed management strategies if surface works are proposed pending landholder approval. Previously inaccessible and surveyed properties are depicted in **Figure 3.1**.

### 3.3.2 Properties Previously Surveyed Where Sites Were Not Found

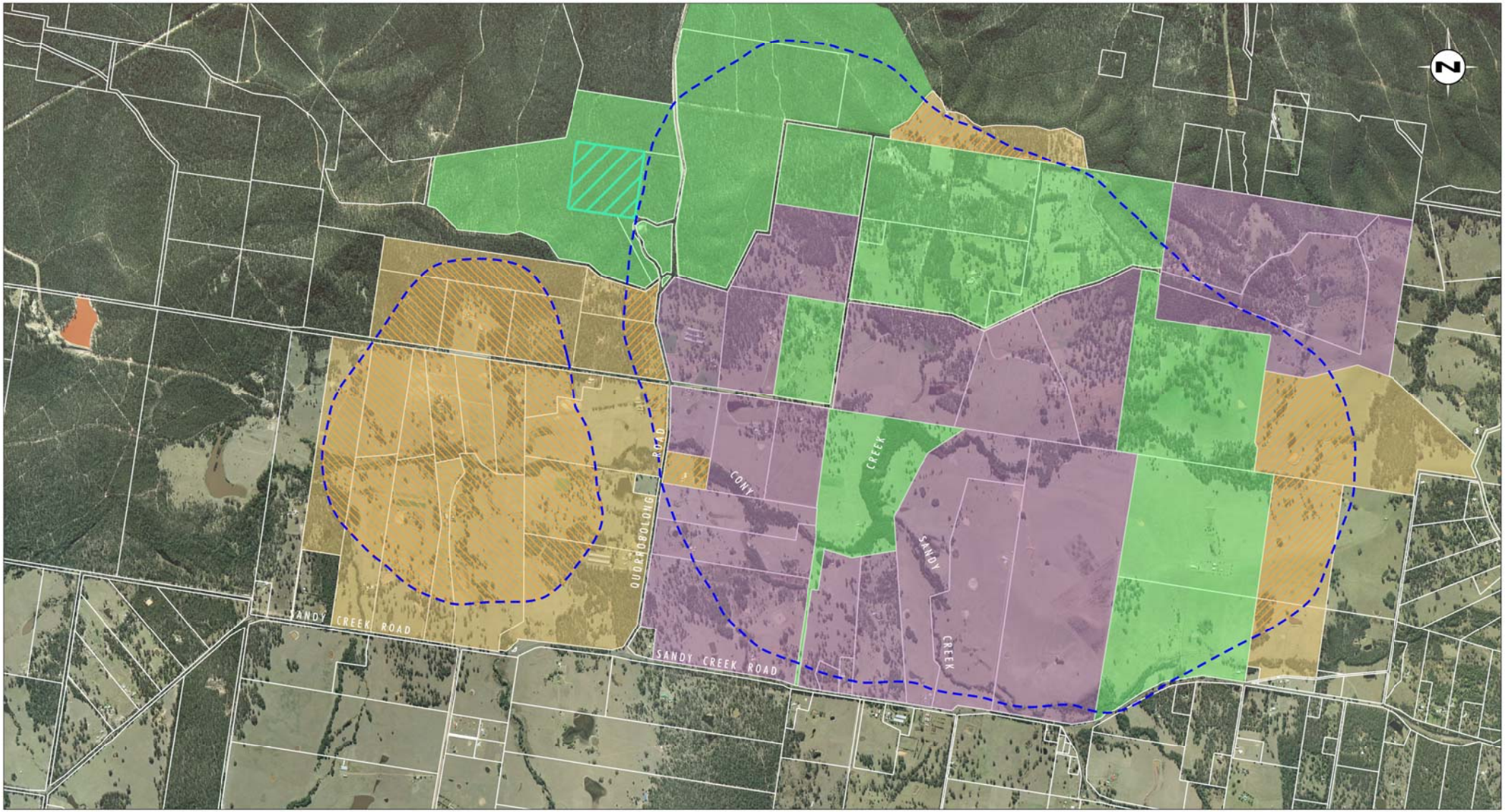
If future surface works are proposed on a property that was surveyed as part of the Stage 3 Modification Assessment (Umwelt 2011b) or the previous 2008 assessment (Umwelt 2008b), and no archaeological sites/PADs were identified in the proposed works location, no further Aboriginal heritage works will be required.

### 3.3.3 Properties Previously Surveyed Where Sites Were Found

If future surface works are proposed on a property that was surveyed as part of the Stage 3 Modification Assessment (Umwelt 2011b) or the previous 2008 assessment (Umwelt 2008b), and an archaeological site/PAD was identified in the proposed works location, an archaeologist and Registered Aboriginal Party representative(s) will be required to inspect the works location to identify any potential Aboriginal heritage impacts and proposed management strategies pending landholder approval.

## 3.4 Surface Collection for Known Sites/PADs Impacted by Remediation Works

Surface collection is only proposed for those artefact scatter and isolated find sites that may be impacted by remediation works. Following subsidence there will be an inspection of the Aboriginal heritage site area by a field team consisting of representatives of the Registered Aboriginal Parties and a suitably qualified archaeologist. To ensure thorough coverage, the area should be inspected in systematic transects with survey team members no more than five metres apart. If it is assessed that there is a requirement for remediation works and that




**Source:** Cadastre: LPI NSW, Aerial Photography: AAM Hatch 2006

0 0.5 1 1.5km
1:32 000

**Legend**

- 20mm Subsidence Contour for Stage 2 and Stage 3 (as modified)
- Approved Surface Infrastructure Site
- Properties Accessed in 2011 Survey
- Properties Accessed in 2008 Survey
- Inaccessible Properties
- Areas not surveyed within Stage 2 and Stage 3 Subsidence Contour

FIGURE 3.1

## Inaccessible Properties and Properties Surveyed in 2008 and 2011

**File Name (A4):** R59_V1/2274_1061.dgn

surface collection of the artefacts will be necessary, the methodology for the surface artefact collection is included within Reference Sheet 5 in **Appendix 3**.

## 3.5 Return of Artefacts to Country

Following the completion of subsidence and of remediation works and artefact analysis the return of artefacts to Country will be undertaken in accordance with the methodology detailed within Reference Sheet 6 in **Appendix 3**.

Prior to the return of the artefacts to Country they will be analysed using the methodology set out in Section 5.4 of **Appendix 2**. The artefacts will be stored on the Austar premises while they are analysed and then until it is safe for them to be returned to Country. It is noted that the Registered Aboriginal Parties have stipulated that the artefacts should remain within Wonnarua Country at all times. They only exception would be for any artefacts selected for residue and use-wear analysis (if any). It was recognised that this non-invasive form of analysis could add much to the knowledge of the ways in which Aboriginal people were using the Quorrobolong valley landscape and thus removal of artefacts from Country would be allowed for this purpose. Upon return from residue and use-wear analysis the artefacts would be returned to Country.

## 3.6 Protocol for Previously Unidentified Aboriginal Objects/Features Located During Ground Disturbing Works

In the event that previously unidentified Aboriginal objects are located during subsidence remediation works (requiring ground disturbance) or during activities related to surface infrastructure development (gas drainage) or geotechnical testing, the protocol in **Figure 3.2** and detailed within Reference Sheet 7 in **Appendix 3** will be followed. This protocol will include an option for avoidance of further impact to the previously unidentified object if it is deemed to be of high archaeological or cultural significance. It is noted, however, that this option may not always be feasible.

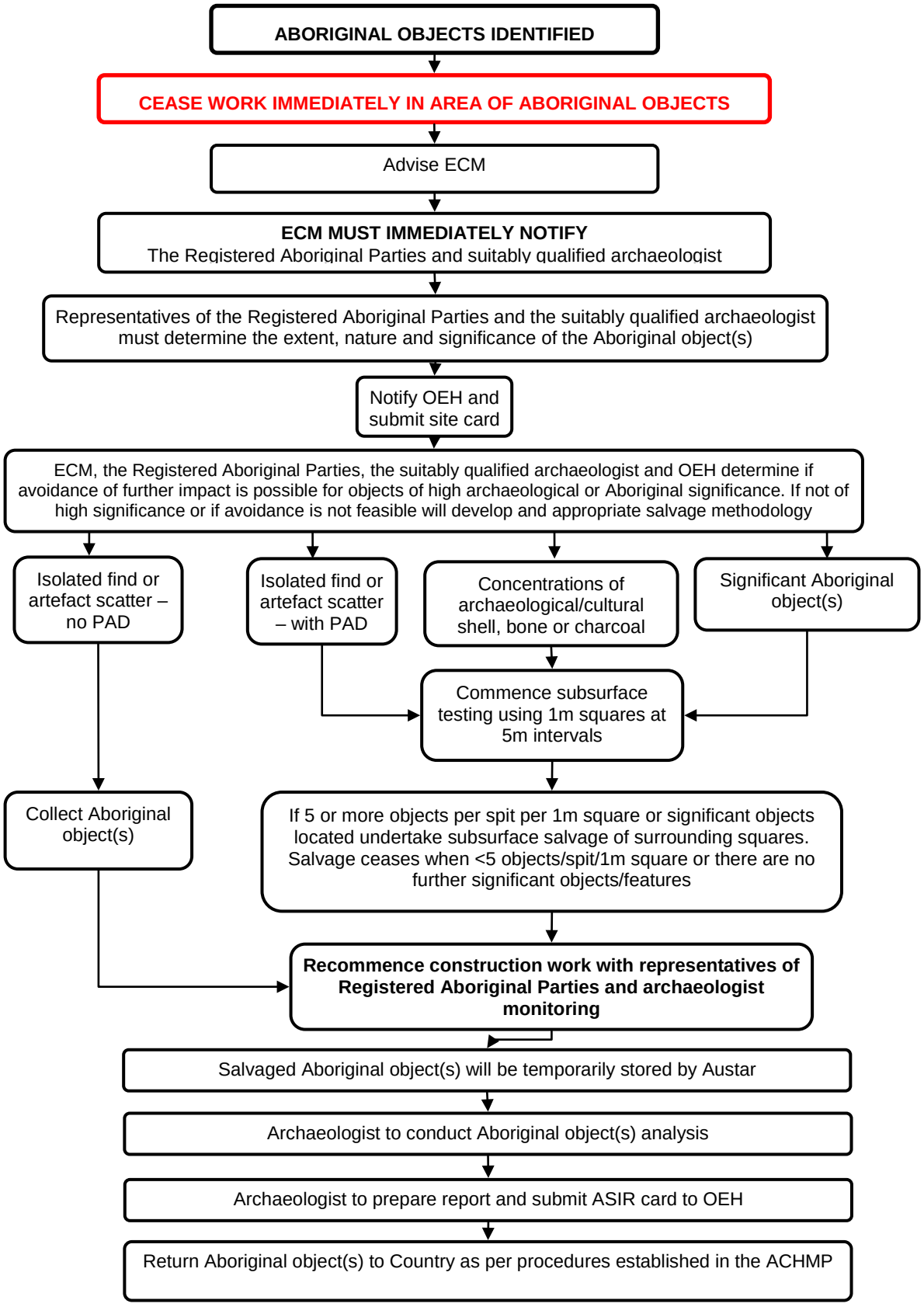



**Figure 3.2 – Protocol for Previously Unidentified Aboriginal Objects/Features Located During Ground Disturbing Works**

## 3.7 Aboriginal Site Impact Recording Forms

It is a requirement of OEH that an Aboriginal Site Impact Recording (ASIR) form is submitted after authorised impact to an Aboriginal site to ensure that information about the status of AHIMS sites is maintained and that OEH has a current and accurate picture of the condition of registered Aboriginal sites across NSW. ASIR forms are submitted to the AHIMS Registrar, following authorised impacts to an AHIMS site, if:

- proponents have carried out a test excavation in accordance with the requirements of the ACHMP; and
- Part 3A environmental assessment requirements and/or project approval conditions (issued by the Department of Planning under Part 3A of the EP&A Act, specify that the ASIR form must be completed and submitted.

In all other circumstances, completion and submission of the ASIR form is voluntary.

- Completed ASIR forms must be submitted to the AHIMS Registrar at OEH.
- This form is intended to complement the AHIMS site recording form.
- Where there is a need to provide detailed information about the nature of a site, use the AHIMS site recording form.
- The use of this form does not replace the need to submit reports to OEH.
- This form must be submitted in addition to any reports. Submitted ASIR forms will be made available on AHIMS as an addendum to the original AHIMS site recording form.

## 3.8 Protocol for Human/Possibly Human Skeletal Remains Located During Ground Disturbing Works

If suspected human remains are revealed during subsidence remediation works (requiring ground disturbance) or during activities related to surface infrastructure development or geotechnical testing the protocol depicted in **Figure 3.3** and detailed within Reference Sheet 8 in **Appendix 3** will be actioned.

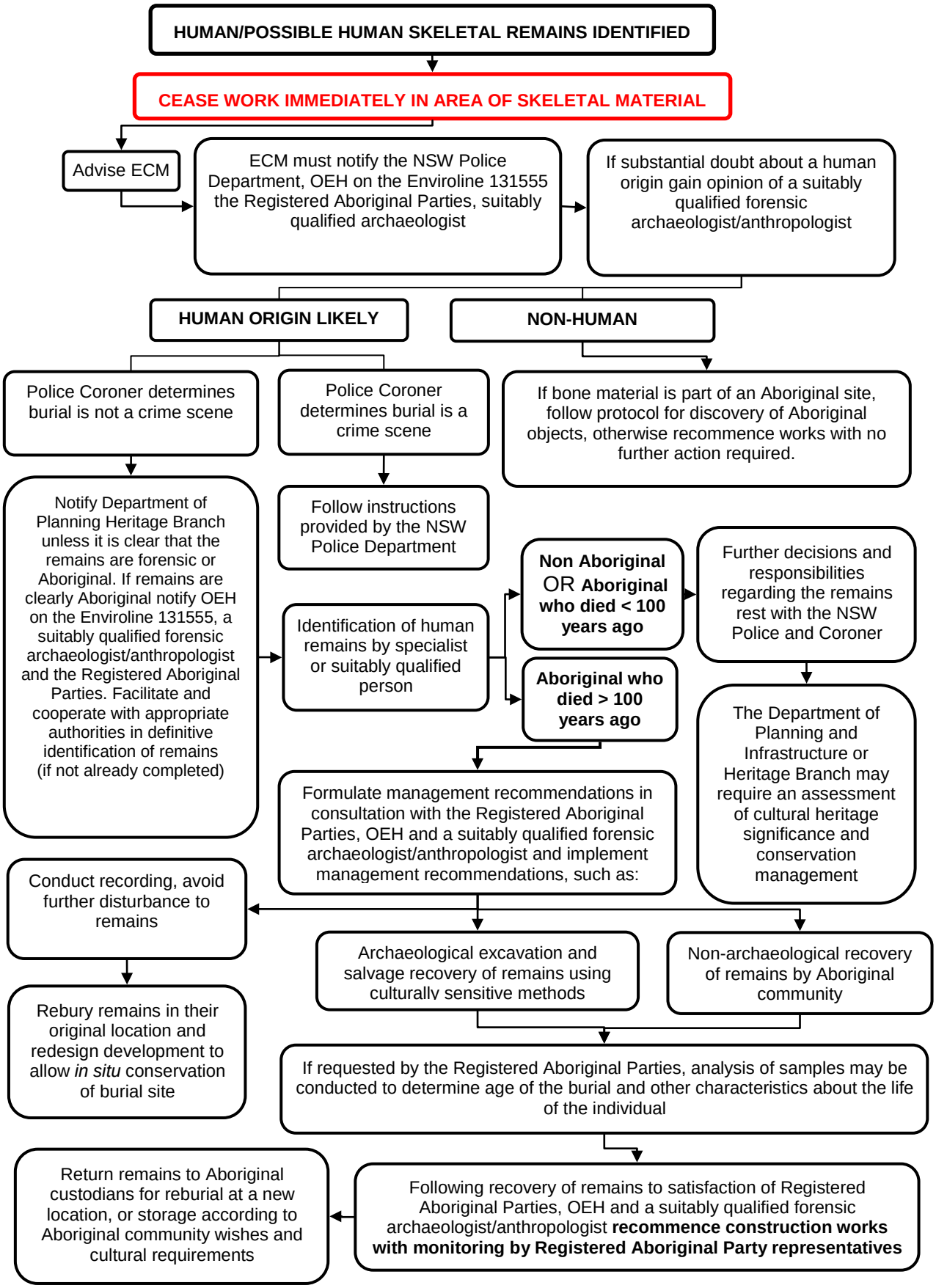



**Figure 3.3 – Protocol for Human/Possibly Human Skeletal Remains Located During Ground Disturbing Works**

## 3.9 Care and Control of Artefactual Material

If test excavations are required under this ACHMP (in the event that an Aboriginal site will unavoidably be disturbed by such activities as remediation works, surface infrastructure development or geotechnical testing) it is possible that Aboriginal objects in the form of stone artefacts will be retrieved from the impact area. As stone artefacts are protected by the NPW Act, are significant from an Aboriginal cultural perspective and may have significance from an archaeological perspective it is important they are protected and consideration be given by Austar and Registered Aboriginal Parties to their long term management.

The NPW Act facilitates a number of options for the long term care and management of Aboriginal objects that always remain the property of the State. A number of possible arrangements can be considered in the event artefacts are salvaged in the above processes:

- temporary storage for long term repositioning (after life of mine and surface rehabilitation);
- burial; or
- long term storage.

If Aboriginal objects are potentially subject to an impact, it is important to discuss the management of the objects with the Registered Aboriginal Parties for that application.

For Aboriginal objects kept or returned to the location they originated from it is a requirement under this ACHMP that the methodology detailed within Reference Sheet 9 in **Appendix 3** be followed.

Registered Aboriginal parties requested at ACHMP workshop on 14 February 2012 that consideration be given to using a selection of artefacts for display and cultural heritage awareness training purposes. They also requested that these be displayed at the mine offices and they be returned to country at the end of the mine.

## 3.10 Erosion Control

Austar will review any requirements for erosion control works within 20 metres of the boundary of any known site/PAD in the area to be managed for the *in situ* conservation of heritage sites/PADs.

Mechanical erosion control works should not be undertaken within known sites or their near environs if they can be avoided (within 20 metres of the area assessed as the site or PAD) without consideration of this ACHMP (refer to **Section 3.2.3**). Any proposed erosion control works in the Stage 2 area will be subject to an Aboriginal Heritage assessment prior to surface disturbance as per **Section 3.3**. Erosion control works within sites/PADs within the Stage 2 mining area or Stage 3 mining area should be restricted to practices that do not impact the ground surface wherever possible (e.g. dumping of topsoil over site and seeding with native species; sediment control measures such as hay bales placed on the ground surface etc.). If the nature of the erosion control works required means that ground disturbance will be necessary this may be undertaken following consultation with the OEH, Registered Aboriginal Parties and a qualified archaeologist to determine whether site/PAD testing/salvage will be required. If testing/salvage is required it will be undertaken using the relevant methodology as set out in sections detailed in **Appendix 2**).

If erosion control works that require ground disturbance are required to prevent further degradation of a known site/PAD, these may be undertaken following consultation with the OEH, Registered Aboriginal parties and a qualified archaeologist to determine whether site/PAD testing/salvage will be required. If testing/salvage is required it will be undertaken using the relevant methodology (as detailed in **Appendix 2**).

All erosion control works that involve ground disturbance near known Aboriginal sites or PADs must refer to this ACHMP for guidance, be endorsed by the Registered Aboriginal Parties and OEH and be monitored by representatives of the Registered Aboriginal Parties and a qualified archaeologist.

## 3.11 Annual Environmental Management Report

Results of the pre and post subsidence monitoring program, any site/PAD salvage required ahead of subsidence remediation, erosion control works or works related to surface infrastructure during the year will be included in the Annual Environment Management Report (AEMR). The relevant section of the AEMR will provided to the Registered Aboriginal Parties.

## 3.12 ACHMP Review

This ACHMP will be reviewed and updated if necessary at least every three years, and following any modification to the mine's project approval 08_0111 or development consent DA29/95. The review of the ACHMP will reflect changes in proposed development activities, cultural heritage requirements and legislation. The review process will be conducted in consultation with Registered Aboriginal Parties and government agencies.

Additionally, this ACHMP will be reviewed by the Environment and Community Manager following an audit, incident or annual review as per the requirements of Schedule 7 Condition 4 of Project Approval 08_0111, and if there are any items of relevance to cultural heritage requiring modification of the ACHMP then consultation will be undertaken with Registered Aboriginal Parties and government agencies.

## 3.13 Grinding Groove Offset Strategy

As Stage 3 underground mining of the Austar Coal Mine may impact ACM6, a grinding groove site of high cultural significance, Austar and Registered Aboriginal Parties developed an appropriate grinding groove offset strategy. Analysis of the axe grinding groove site and the rock strata on which it is located indicated there is potential for the site to be damaged as a result of subsidence (SCT Operations P/L 2008).

Austar has agreed to make a monetary contribution of $100,000 to an Aboriginal project or program (to be decided by Aboriginal stakeholders) as an offset for any subsidence impacts that affect the grinding groove site. Austar will make this contribution upon approval of the Extraction Plan by the Director-General (or upon approval of the first stage of Extraction Plans if a staged approach is to be taken). Registered Aboriginal Parties have requested that no engineering works be conducted at the grinding groove site.

# 4.0 Timeframes and Responsibilities

This section presents a timeframe for the necessary tasks in regards to Aboriginal heritage management procedures outlined in **Section 3.0** (refer to **Table 4.1**) and indicates the roles and responsibilities of Austar management and employees to ensure the appropriate management of Aboriginal heritage within the Austar project area.

## Table 4.1 – Timeframes and Responsibilities

| Management Strategy | Timing | Responsibility | Relevant Parties |
|---|---|---|---|
| Prepare Cultural heritage awareness training package. | Within six months of approval of the ACHMP. | Austar Environment and Community Manager in consultation with Registered Aboriginal Parties and a qualified archaeologist. | Registered Aboriginal Parties and a qualified archaeologist. |
| Provide Cultural heritage awareness training. | To relevant mine personnel within 12 months of approval of the ACHMP. | Austar Environment and Community Manager. | Registered Aboriginal Party representative and an archaeologist if required (for relevant Austar personnel) or by the Austar Environment and Community Manager/Training provider for all other inductions. |
| Baseline recording of sites/PADs. | At least four weeks prior to impact by subsidence. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist. |
| Site/PAD subsidence monitoring program. | To be undertaken at the cessation of subsidence in the relevant site/PAD areas.<br>Cessation of subsidence to be determined by surveyor subsidence surveys. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist. |
| Inspection of locations of proposed surface works and recommendation of Aboriginal heritage works. | Prior to undertaking surface disturbance works on properties that have not been previously inspected, including the Stage 2 area, and on properties where sites/PADs have been located in the proposed works location. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist. |
| Subsidence remediation monitoring. | Only required for sites/PADs where subsidence remediation is required and where the site/PAD was not destroyed.<br>Six months after subsidence works completed. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist. |
| Surface artefact collection. | Ahead of site impact (artefact scatters/isolated finds) by ground disturbance works related to subsidence remediation, erosion control works, construction of surface infrastructure. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist. |

## Table 4.1 – Timeframes and Responsibilities (cont.)

| Management Strategy | Timing | Responsibility | Relevant Parties |
|---|---|---|---|
| Subsurface testing. | Ahead of site impact where a site with PAD or PAD will be impacted by ground disturbance works related to subsidence remediation, erosion control works or construction of surface infrastructure. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist(s). |
| Salvage excavations. | Ahead of site impact where a site will be impacted by ground disturbance works related to subsidence remediation, erosion control works, construction of surface infrastructure and the criteria for further salvage is met. | Austar Environment and Community Manager. Access approval from landowners required. | Registered Aboriginal Party representatives and a qualified archaeologist(s). |
| Recording and analysis of salvaged artefacts. | As required after salvage. | Austar Environment and Community Manager. | Registered Aboriginal Party representatives and a qualified archaeologist. |
| Procedure for new finds/skeletal material. | After discovery of a previously unknown Aboriginal object (not within a registered site) or skeletal material. | Austar Environment and Community Manager. | NSW Police, OEH, DP&I, Registered Aboriginal Party representatives, forensic anthropologist and a qualified archaeologist. |
| Evaluation and reporting. | Annually – AEMR.<br>ACHMP revision – every three years following approval. | Austar Environment and Community Manager. | Austar Environment and Community Manager with assistance of qualified archaeologist if required.<br>Registered Aboriginal Party representatives and a qualified archaeologist. |

# 5.0 References

Austar Coal Mine Pty Ltd (Austar) 2007. Section 96 Modification, Stage 2 Longwall Panels A3-A5 – Statement of Environmental Effects.

Department of Environment and Conservation 2004a. *Interim Community Consultation Requirements for Applicants.*

Department of Environment and Conservation 2004b. *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation.*

HLA-Envirosciences Pty Limited 1995a. *Environmental Impact Statement. Ellalong Colliery. Extension into Bellbird South.* Report to Newcastle Wallsend Coal Company Pty Limited.

HLA-Envirosciences Pty Limited 1995b. An Archaeological Survey of the Proposed Ellalong Colliery Extension near Cessnock, NSW. Unpublished report for Newcastle Wallsend Coal Company.

Mine Subsidence Engineering Consultants Pty Ltd (MSEC), 2009. The Prediction of Subsidence Parameters and the Assessment of Mine Subsidence Impacts on the Natural Features and Surface Infrastructure Resulting from the Extraction of the Proposed Longwall A5a in Stage 2 at the Austar Coal Mine. Report to Austar Coal Mine Pty Ltd.

Mine Subsidence Engineering Consultants (MSEC) 2011. The Prediction of Subsidence Parameters and the Assessment of Mine Subsidence Impacts on Natural Features and Surface Infrastructure resulting from the Extraction of the Proposed Longwalls A7 to A19 in Stage 3 of the Austar Coal Mine. Report prepared for Austar Coal Mine Pty Limited.

National Parks and Wildlife Amendment 2009 (Aboriginal Objects and Aboriginal Places) Regulation 2009 (the NPW Regulation).

NSW Heritage Office 1998. *Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977*.

NSW Minerals Council Ltd (2010). NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal objects.

NSW National Parks and Wildlife Service 1997. *Aboriginal Cultural Heritage Standards and Guidelines*.

NSW Scientific Committee 2005. Determination on Longwall Mining as a Key Threatening Process: Alteration of habitat following subsidence due to longwall mining-key threatening process listing NSW Scientific Committee- final determination.

OEH 2010a. Due Diligence Code of Practice for Protection of Aboriginal Objects in NSW.

OEH 2010b. Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW. Part 6 NPW Act 1974.

SCT Operations P/L (2008). Site Inspection Report for Aboriginal grinding Groove Site D6.

Umwelt (Australia) Pty Limited 2007. Austar Stage 2 Subsidence Management Plan – Environmental Attributes, Impacts and Controls.

Umwelt (Australia) Pty Limited 2008a. Aboriginal Heritage Assessment Austar Coal Mine Project, Stage 3.

Umwelt (Australia) Pty Limited 2008b. Austar Coal Mine Project, Stage 3 Environmental Assessment.

Umwelt (Australia) Pty Limited 2008c. Austar Ecological Assessment, Stage 3 Mine Area (Longwalls 6 to 17) and Surface Infrastructure Site.

Umwelt (Australia) Pty Limited 2008d. Austar Coal Mine Flooding Assessment: Stage 3. Unpublished report to Austar Coal Mine Pty Ltd.

Umwelt (Australia) Pty Limited 2010. Proposed Stage 2 Extension Project – Environmental Assessment.

Umwelt (Australia) Pty Limited 2011. Austar Coal Mine Flooding and Drainage Assessment: Stage 3 Modification.

Umwelt (Australia) Pty Limited 2011a. Archaeological Due Diligence Assessment of Proposed Seismic Lines and Borehole Locations, near Kitchener, NSW.

Umwelt (Australia) Pty Limited 2011b. Austar Coal Mine Project – Stage 3 Modification Environmental Assessment.

# 6.0 Abbreviations

| | |
|---|---|
| ACHMP | Aboriginal Cultural Heritage Management Plan |
| AEMR | Annual Environmental Monitoring Report |
| AHIP | Aboriginal Heritage Impact Permit |
| ASIR | Aboriginal Site Impact Recording |
| Austar | Austar Coal Mine Pty Ltd |
| CML2 | Consolidated Mining Lease 2 |
| DA | Development Approval |
| DECCW | Department of Environment, Climate Change and Water |
| DP&I | Department of Planning and Infrastructure |
| EA | Environmental Assessment |
| ECM | Environment and Community Manager |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| LTCC | Longwall Top Coal Caving |
| Mt | Million tonnes |
| NSW | New South Wales |
| NPW Act | *National Parks and Wildlife Act 1974* |
| NPW Regulation | National Parks and Wildlife Regulation 2002 |
| OEH | Office of Environment and Heritage |
| PAD | Potential Archaeological Deposit |
| SIS | Surface Infrastructure Site |
| Umwelt | Umwelt (Australia) Pty Limited |

# APPENDIX 1

# Aboriginal Consultation Log

# Appendix 1 – Aboriginal Community Consultation

Consultation with Aboriginal people is required as part of the heritage assessment process as identified by the NPW Act 1974 and the EP&A Act 1979. Proponents are required to demonstrate that Aboriginal people have been involved in the identification, assessment and management of their heritage. This section summarises the registered Aboriginal parties involvement in the Austar Coal Mine Project. The Stage 2 mining area was subject to an archaeological investigation as part of the EIS for Ellalong Colliery – Extension into Bellbird South (HLA 1995a and HLA 1995b). The recording of consultation with Aboriginal stakeholders was not required as part of the original Stage 2 mining area assessment process. The original assessment formed the basis for the approved Stage 2 Extension Project (Umwelt 2010). The involvement of Registered Aboriginal Parties in the Stage 3 Aboriginal Heritage Assessment (Umwelt 2008) and Archaeological Assessment of the Stage 3 Modification (Umwelt 2011) and this ACHMP is detailed below.

**Consultation History: Stage 3 Aboriginal Heritage Assessment (Umwelt 2008)**

Aboriginal stakeholders are the primary determinants of the significance of their heritage (DECCW 2004a:3), and therefore the consultation process should reflect the importance of Aboriginal stakeholder involvement in the identification, assessment and management of Aboriginal heritage objects/places. Specifically, the process should ensure that Aboriginal stakeholders have the opportunity to improve the assessment outcome by:

- involvement in the design of the cultural heritage assessment;
- participation in the identification of Aboriginal archaeological sites through involvement in fieldwork;
- assessing the cultural significance of archaeological sites identified, and providing input on the cultural values of the area in general;
- identifying the potential impacts of development on objects/places of cultural heritage significance;
- contributing to the development of cultural heritage management recommendations; and
- providing comment on draft assessment reports prior to their submission.

The following sections identify all Aboriginal stakeholders who registered an interest in Stage 3 of the Austar Coal Mine project, and outlines consultation with and involvement of Aboriginal stakeholders throughout all stages of the assessment process.

**Stakeholder Identification**

In conformance with then DECCW policy – *Interim Community Consultation Requirements for Applicants* (2004a), Umwelt contacted the following organisations in November 2006 to identify interested Aboriginal stakeholders:

- Mindaribba Local Aboriginal Land Council;
- Native Title Services;
- Registrar of Aboriginal Owners;
- Department of Environment and Conservation (now DECC); and
- Cessnock City Council.

Local media advertising was also conducted to identify any additional Aboriginal stakeholders, with advertisements appearing in *The Advertiser* and *The Koori Mail* on 22 November 2006. As a result of the above process, and from previous registrations of interest for the Lower Hunter Valley area with Umwelt, the following organisations and individuals registered an interest with Austar and/or Umwelt for the Austar Coal Mine project prior to 6 December 2006:

- Mindaribba Local Aboriginal Land Council; and
- Arthur Fletcher.

In addition to the above, Umwelt directly contacted a number of stakeholders prior to the commencement of Aboriginal heritage works for consultation and involvement in the Stage 3 project, based on previous registrations of interest in the Lower Hunter Valley/Cessnock area. These stakeholders include:

- Aboriginal Native Title Consultants;
- Giwiirr Consultants;
- Hunter Valley Cultural Consultants;
- Hunter Valley Cultural Surveying;
- Lower Hunter Wonnarua Council;
- Lower Wonnarua Tribal Consultancy Pty Ltd;
- Upper Hunter Heritage Consultants;
- Wattaka Wonnarua Cultural Consultants Service;
- Wonnarua Culture Heritage; and
- Yarrawalk.

In September 2007, following commencement of the Aboriginal heritage assessment, two additional stakeholders registered an interest in the project with Umwelt: Mingga Consultants; and Tracey Skene (Culturally Aware). Wanaruah Custodians also registered an interest in the project in April 2008.

**Table 1 – Registered Aboriginal Parties**

| Stakeholder |
|---|
| Aboriginal Native Title Consultants |
| Wonn1 consulting |
| Giwiirr Consultants |
| Hunter Valley Cultural Consultants |
| Hunter Valley Cultural Surveying |
| Lower Hunter Wonnarua Council |
| Lower Wonnarua Tribal Consultancy Pty Ltd |
| Mindaribba Local Aboriginal Land Council |
| Mingga Consultants |
| Tracey Skene (Culturally Aware) |
| Wanaruah Custodians |
| Wattaka Wonnarua Cultural Consultants Services |
| Wonnarua Culture Heritage |
| Upper Hunter Heritage Consultants |
| Yarrawalk |
| Yinaar (registered 2011) |
| Deslee Talbott Consultant (registered 2012) |

Aboriginal stakeholders were involved in all stages of the assessment process, with Aboriginal stakeholder meetings held at Austar Coal Mine between September 2007 and July 2008 to discuss the aims, methods, results and recommendations of the assessment. Issues discussed at the meetings included: the Stage 3 proposal (longwall mining and surface works); the archaeological survey strategy; the significance of sites recorded; the potential impact of Stage 3 to sites; and how sites should be managed. Aboriginal stakeholder views on management formed the basis of recommendations in this report. Aboriginal stakeholders who registered an interest at the start of the assessment were also involved in the archaeological survey.

All Registered Aboriginal Parties listed above were consulted from the time of their registration throughout the course of the project, with meetings being held at the Austar Mine Complex in September 2007, December 2007, January 2008 and July 2008. Issues discussed at the meetings included:

- the Project (longwall mining and surface works);
- the archaeological survey strategy;
- the significance of sites recorded;
- the potential impact of the Project to sites; and
- how sites should be managed.

At these meetings registered Aboriginal parties were provided with information on the Stage 3 project and commented on the draft survey strategy. Registered Aboriginal parties who registered at the start of the project were involved in the archaeological assessment conducted in September and October 2007 (Umwelt 2008c). The aim of the assessment was to develop an understanding of the archaeological and cultural Aboriginal heritage values of the project area, through consultation with Registered Aboriginal Parties,

background research and archaeological survey. The survey covered those properties where landholders permitted access. The areas covered included Austar land, the Werakata State Conservation Area and five private properties. All creek lines, flats and ridges were surveyed, and a sample of hill slopes were surveyed.

Subsequent meetings discussed the results of the archaeological survey and scientific assessment, as well as the likely impacts resulting from the Stage 3 project. Registered Aboriginal Parties also provided their views on cultural significance and appropriate management outcomes to be developed. They also provided comment on the draft Aboriginal Heritage Report with further input on the cultural significance of sites/areas within the Stage 3 project area. An additional Registered Aboriginal Parties meeting was held on 8 July 2008 to discuss Registered Aboriginal Parties comments on the Stage 3 project and draft report prior to report finalisation. Registered Aboriginal Parties views on the management of cultural heritage have formed the basis of this cultural heritage management plan.

**Consultation History: Archaeological Assessment of the Stage 3 Modification (Umwelt 2011)**

Registered Aboriginal parties identified in the 2008 Assessment of Stage 3 of the Austar Coal Mine project were invited to be involved in the Archaeological Assessment of the Stage 3 Modification in 2011. In 2008, during the initiation of the consultation process for the Archaeological Assessment of the Stage 3 Modification, the following groups and individuals were identified during this process as per DECC Interim Community Consultation Requirements for Applicants. Margaret Matthews for Aboriginal Native Title Consultants (ANTC), Darryl Matthews and Victor Perry for Upper Hunter Wonnarua Council (UHHC), Lee-Anne Ball and Tommy Miller for Lower Hunter Wonnarua Council (LHWC), Barry Anderson for Lower Wonnarua Tribal Consultancy (LWTC), Gordon Griffiths for Wonnarua Culture Heritage (WCH), Barry French, Scott Franks and Barry MacTaggart for Yarrawalk (Y), Michele Stair and Rodney Matthews for Giwiirr Consultants (GC), Des Hickey for Wattaka Wonnarua Cultural Consultants Services (WWCCS), Luke Hickey, John Matthews, Christine Archbold and Colleen Stair for Hunter Valley Cultural Consultants (HVCC), Tracey Skene and Justin Govar for Culturally Aware (CA), Tom Miller and Steve Talbot for Mindaribba Local Aboriginal Land Council (MLALC), Arthur Fletcher for Wonn1 Contracting (W1C), Clifford Matthews for Mingga Consultants (MC), Luke Hickey, Mark Hickey and Pansy Hickey for Hunter Valley Cultural Surveying (HVCS) and Barbara Foot for Wonnarua Custodians (WC).

Umwelt was commissioned to undertake the new survey to supplement and cover areas not covered during the 2008 survey. Invitations to a project inception meeting were sent by mail to all groups listed above and also to Kathleen Steward-Kinchella from Yinarr Culture Services (YCS) who was not officially registered until March 2011. The meeting was held on the 7 December 2010 and included representatives from all registered Aboriginal groups. Also present were Peter Jamieson, Catherine Pepper and Andy Roberts from Umwelt and Adrian Moodie and Garry Mulhearn from Austar Coal Mine. The agenda included such items as the current status of the project, proposed changes in relation to Stage 3 of the project and reasons for them and the EA process. The outcomes of this meeting included a proposal to hold a series of workshops to work on the methodology for survey of the Stage 3 modification area. A second meeting was held on the 7 February 2011 but little was achieved through lack of attendance and it was decided to postpone until the 15 February 2011.

On the 8 February 2011 all groups were invited by mail, fax machine and telephone to a second meeting. This meeting was attended by all but two of the registered groups, these being Culturally Aware, who asked for an apology to be conveyed on their behalf and Wonn1 Contracting despite receiving an invitation. HVCS were not invited due to an error but despite this a representative attended on their behalf Catherine Pepper and Andy Roberts attended on behalf of Umwelt. The meeting agenda for the 15 February 2011 included further updates of the project, the Aboriginal Cultural Heritage Assessment of the project and a survey strategy workshop. The main resolutions arrived at as a result of this workshop were that 100 per cent coverage of properties to be surveyed was to be attempted. That all registered groups were to be present at all times and that this was to be cleared with landowners prior to commencement of the survey. That the project is to begin on the 28 February 2011 and that a minimum of six days be allowed for completion of the survey with a possibility of extension for the purpose of maximising survey coverage of the target properties.

Invitations to participate in the survey work for the Stage 3 modification were posted on the 18 February 2011. Subsequent to this approaches to people by phone were made by Andy Roberts from Umwelt and Garry Mulhearn from Austar to confirm interest in participation in the survey. Most groups responded that they would participate, two groups were unavailable for comment and were sent an invitation by email or were left a message. Barbara Foot from Wanaruah Custodians and Barry Anderson from Lower Wonnarua responded by phone that they would be unable to attend the survey. Kathleen Steward-Kinchela, who had mistakenly been included in the consultation process was extended an apology and offered an opportunity to register. It was initially thought that a registration already existed although Umwelt had no record of this. No further invitation to participate in the survey was offered. On the 21 and 22 February 2011 a draft survey methodology was posted to the 15 registered Aboriginal groups by Andy Roberts from Umwelt Kathleen Steward-Kinchela was sent a copy of the 2008 report from the initial Stage 3 survey and a cover letter re: registration.

The survey began on 28 February 2011. The survey of the eight properties over the first three days of the survey was attended by Andy Roberts and Kirwan Williams of Umwelt and representatives from 13 of the 15 registered Aboriginal groups. Only eight groups were represented on the 3 March and on this occasion four properties were covered. On the 4 February a further three properties were surveyed with representation from thirteen groups once again. A full complement of representatives from 13 registered groups attended the survey on the 7 and 8 March with the remaining six properties surveyed on these days. At an earlier point it was suggested that 100 per cent coverage could be taken to include road reserve areas as well and some effort was made to include these areas in the survey. The 9 March was set aside to complete the survey of the road but due to a site visit using erroneous coordinates caused some dissention in the groups and the morning spent trying to sort out the implications of this the survey never recommenced. Also to be covered on this day was a meeting to discuss and receive cultural comments regarding sites located during the survey. This meeting was attended by Adrian Moodie and Gary Mulhearn of Austar, Andy Roberts and Kirwan Williams of Umwelt and representatives from the 13 groups who took part in the survey. This meeting was marked by concern over confusion on all levels regarding coordinate systems and the implication that at one end of the scale this problem could result in the destruction of registered archaeological sites. After some discussion of this the meeting was ended at 12.30 pm.

On the 11 March 2011, Andy Roberts drafted a letter to all groups first apologising for the mistake made during the attempted site visit on the 8 March and attempting to explain the reasons why it happened to follow this up Andy Roberts phoned groups on the 15 March to assure that a letter of explanation was in the mail. Several groups took the opportunity to suggest that it is entirely reasonable for groups to revisit sites located during 2007 and 2008. The draft report of survey results including site cards for sites located during the 2011 survey and a map with correct locations of all AHIMS registered sites was completed on 30 March 2011. This was sent to all registered groups.

On 1 April 2011 registration papers were received from Yinaar Enterprises (YE) by Garry Mulhearn of Austar indicating an interest in the project area. YCS were subsequently included and received a copy of the newly completed draft Archaeological Assessment along with all other Aboriginal stakeholder groups in May 2011.

**Consultation History: ACHMP (Umwelt 2012)**

Refer to the consultation log following for a complete history of Aboriginal Community Consultation.

# Austar ACHMP Aboriginal Stakeholder Meeting

21 February 2012 10.00am

**Attendees**

| | |
|---|---|
| Tom Miller | TM |
| Daniel Scott | DS |
| John Matthews | JM |
| Margaret Matthews | MM |
| Arthur Fletcher | AF |
| Allan Scott | AS |
| Tracey Skene | TS |
| Gay Horton | GH |
| Gary Mulhearn (Austar) | GM |
| Andy Roberts (Umwelt) | AR |
| Catherine Pepper (Umwelt) | CP |

**Meeting Opened 10.15am**

**Welcome to Country**

TM

**$100,000 Offset**

$100,000 brief overview provided by GM – account has been created and money will be transferred in the coming days. CPI adjusted from the date of the Stage 3 approval (2009) to $106,000. Application forms for programs or projects will be sent out to the RAPs in the coming months. GM will re-send the Michael Williams report to all groups.

**Meeting Protocols**

GM

**Overview of the Austar Project**

GM

**ACHMP Context**

CP

**ACHMP**

AR ran through the previous consultation undertaken for the Stage 3 modification and the sites and PADs found in the 2008 and 2011 surveys. The two major creeklines, Cony Creek and Sandy Creek, are where most sites are located, and there are also sites in the headwaters of Black Creek.

AF What is the status of inaccessible properties?

GM There is no extra access to Stage 3 properties but some Stage 2 properties are now owned by Austar.

AF Will the RAPs get to have a look at those properties?

GM That will be discussed as a part of the ACHMP protocols.

AR Discussed old reports for the area and the archaeological significance of the Quorrobolong Valley.

TS There are unrecorded sites of significance within a 5 to 10 kilometre radius of here.

GM Are they on AHIMS?

TS No they are cultural sites. I mention it because it tells the story of the area.

AF The wetlands around here are of high significance as well.

AR Quorrobolong Valley itself is not as highly significant as other areas (referenced Bora rings etc. found in other locations) noted that dating of artefacts is difficult in this area because of the lack of stratigraphy in soils and area is likely to have been a transit area.

AR Discussed site types and the presence of a scarred tree.

JM Were there any other scarred trees in the area?

TS There are two.

AR Pointed out existing/known scarred tree and discussed the old site near Sandy Creek Road which is no longer in existence.

JM Did we look there last survey?

AR No we didn't.

CP But you did in the 2008 survey.

TS There are also two other trees along the creekline outside the project area.

AR AUSTAR has advised the landowner that the tree is a scarred tree.

GM The landholder is happy to leave the tree as it is. All landowners were informed of sites found during most recent survey.

TS How is the landholder about it?

GM The landholder is very good and happy to leave it as is.

AR Some limbs may have been removed for firewood.

AF Lets be proactive with the scarred tree – either we manage it/salvage it or we let it go back to mother.

JM The tree is old and will probably fall apart. It's on the dam wall and water logged.

TS If salvage is decided it would be good to display the tree at the mine for people to see rather than leaving in the paddock.

GM Our preference is to leave it as is if possible as the impacts are minimal, it's subsidence only.

**Cultural Heritage Awareness Training**

AR presented an overview of suggested cultural heritage awareness training. He said that these were ideas out for comment and nothing was set in stone and asked people to make comment.

TS Will this include involvement of interested parties? I have a cultural heritage awareness package that I can contribute with help of other stakeholders.

GM Yes it will involve the registered groups.

AR Do you have any comments on the process?

TS Not at this point.

AF We need to keep an eye on people going off tracks. The less impact on the land, the better. Can't do much about private land but can educate.

GM Austar has started educating landholders with sites on their properties and that has been a good process.

TS Is there a database of site condition/erosion?

AR Currently no database but will come to baseline monitoring of sites. Intention is to identify sites and manage them.

TS Yeah and pick the ones that need work for erosion.

AR Yes.

AR In terms of training, will there be a separate meeting with the RAPs regarding preparing the training package.

GM Yes that is the best approach we're not prepared for that today.

AF Can we have a copy of the PowerPoint presentation?

GM Yes we'll have this for you when you leave.

GM We will invite you to another meeting to develop training material.

TS I have training materials we can use but its only 20 people for one day. I include things to keep it interesting like quizzes and stuff.

AR We can provide resources to help if needed like photos from the survey work.

GM Austar's intention is to have a high level training with mine personnel and will target contractors through an induction process.

**Morning Tea 11.10-11.25**

**Site Management – Artefact Scatters & Isolated Finds**

AR discussed management approach – do nothing (manage in situ), baseline monitoring so we know if there are changes that follow we can identify and measure them. We do need landowner permission to access land.

GM we are coming to agreements with landholders to ensure access, have this with some landholders already and continuing to do this.

AF We discussed a while back forming relationships and how important it is to have a good relationship. Potentially down the track what about meeting with us down the track ... just to touch base and see and people don't think of us as a part of the community.

TS What, like a group meeting?

AF Yeah.

JM We did meet with people on the properties and that was pretty good in the survey.

GM Making sure people are informed is very important and you guys are a part of that.

TS Some landowners have that myth that if there's sites on their property they think we will come and take their land away but we can dispel those myths.

JM That property where we thought there was a bora there the man's wife was Aboriginal so that was good

**Site Management – Scarred Tree**

AR described the process – essentially to manage in situ.

**Site Management – Grinding Groove**

Baseline monitoring and manage *in situ* (AR)

JM has the grinding groove site been fenced?

GM No. The groups decided previously that they did not want the site fenced to avoid drawing attention to the site.

JM That's right.

**PADs**

Manage with monitoring and leave *in situ*.

AR All of this is reliant on permission to access the properties.

GM Have a look before subsidence and then after subsidence we'll go back and have another look.

**Site Monitoring Program**

AF Is there any machine that can look at sandstone and rock formations before? We can have a look visually but is there any way to look at the rock before mining? It's important on this issue to have a good understanding of the grinding groove.

AR Don't think there's anything other than ground penetrating radar or boreholes.

TS/AF We don't want to do that.

AF We had another one where it looked fine but then 6 months down the track it all cracked up.

GM You guys said that you didn't want engineering works, slots in the rock etc.

TS/AF No no no we don't want that.

TS But if there's anything around there to show what it's like underneath.

GM There are boreholes nearby but nothing on the site.

AF What is the potential for the grinding groove to crack?

GM Low, can't say off top of my head, but it did reduce with the change to the mine plan.

CP/GM Showed the map and discussed the reduction

**Baseline Monitoring Methodology – Site/PAD**

AR Ran through Reference Sheet 1.

AR Invited comments – any suggestions.

TS In regards to Ellalong lagoon. It's been sold apparently so you haven't got wind of who's bought that lagoon.

GM No I didn't know it was sold.

TS (to groups) So that's something we might need to look at.

GM Perhaps you can contact the real estate agent.

**Post-Subsidence Monitoring**

AR Ran through Reference Sheet 4.

TS May identify natural changes in the monitoring.

GM Yes that's an important point you make it may not just be from subsidence.

AF At another underground mine they went out to survey and they were doing some infilling of cracks and I looked in this chasm and there was a shiny piece of stone, it turned out to be out of their poisoned ground.

GM Are you talking about coarse reject?

AF Yes they used to use it for roads and filling. So I am wondering where you get your material from.

GM That's historical practice.

AF But you don't do it today.

GM No that's not current practice. We have reject emplacement areas for coarse reject. It has to be clean fill for us.

AR Landholders can bring in fill and it may bring in artefacts.

TS It's important to educate landholders about that.

**Management of Future Surface Works**

AR You just need to be aware that if we haven't been out there before we will need to go there before surface disturbance works happen.

**Flowchart – Previously Unidentified Objects**

AR Described the flow chart process.

AR People on the ground should have been educated in the training process so should know what potential there is and where sites are located.

TS Yep that's right.

AR Suggested that salvage should cease if less than 20 artefacts per square metre.

JM Suggest five per square metre instead.

TM Should stop if there's less than five artefacts per square metre and if there's more we should keep opening up until the artefacts cease.

JM Yeah.

TS Yeah that's right.

AR At Ravensworth there's just been so many artefacts. A lot of the artefacts are debitage from artefact manufacture and relatively meaningless from an archaeological point of view

AF They have cultural significance however.

JM I've been told the flakes make the picture not just the core so we shouldn't just record the core.

AR Yeah but I'm talking about the debitage.

JM Yeah but we still call them flakes.

TS Yeah I agree it should be five.

AR Ok I've been told.

AF

TM I did some work up at MT Pleasant and the amount of stuff that was on there you just couldn't record it cause of the stuff that was there. She said we had to record it all and I said we'll be here for years. And the amount of stuff and debitage that was there you just couldn't record it and I thought it shouldn't be impacted because it was so significant

AR So if we say salvage ceases when there is less than five artefacts per spit per metre square

All participants Yeah

AR Shall we keep in that last bit about significance?

AF Yeah leave it in.

GM What's a spit?

JM Explained what a spit is.

AR Ran through methodology at Ravensworth recently where it was decided to follow densities and then significant artefacts.

TS/TM Just change 20 to 5.

JM Did you agree what the boundary is like they're doing at Ravensworth now? Up there they give us a boundary like to the fence or the road plus 20 metres.

GM Ours would be the whole disturbance area.

GM What we need is to identify artefacts where we need to do surface works.

JM Yeah, at Ravensworth it might be 10 metres either side of a haul road or some limit like that.

GM The limit for us would be the area needed to be disturbed.

AF And it would need to include vehicle disturbance cause that is impact too.

GM So the EPA guidelines say less than 20 per spit is that how you manage on other sites?

TM No we use five because at some sites it doesn't matter even if you find five there can be 270 next door it just helps find other artefacts.

AF What about monitoring?

TM Yeah so then you would monitor when work starts again.

TS Yes that's what we usually do.

AR Continued to describe flowchart – analysis.

TS And the analysis will include any residue?

AR Yes it will.

GM The appendix to the management plan includes detail on analysis.

AR Yes, that's right.

AF Just on that one the stakeholders could put together a show and tell of the artefacts couldn't we Tracey?

TS Yes that's usually what happens.

GM Well I think we've actually talked about return of artefacts to country.

AF Oh yeah that's ok.

**Flowchart – Skeletal Remains**

AR Described the overall flow chart for skeletal remains.

TS You can tell if it's Aboriginal by the eye sockets.

AR Often it's from the teeth you can tell if it's of cultural origin plus the skull, sometimes in mourning women hit their skull, also context (associated artefacts etc.).

TS Yep and the position of the bones.

AF Well we found one at Mt Arthur didn't we Trace, Margaret.

MM No I wasn't there at Mt Arthur.

TS Yes we identified the skeleton from the eye sockets but then we dug down and found the rest.

JM Yes and the dilly bag.

AF Yeah so burials may exist and they don't always get crushed and disappear.

JM And they're in hollow trees sometimes too they stood them up in there.

AF And it's important to know that even though it's not likely that some will be found they still might turn up.

AR continued to discuss the flowchart pathway for burials.

TS There's two types of ceremonies that will need to take place, one when it's unearthed and another when it's reburied.

AR The procedure is that nothing will be undertaken without the Registered Aboriginal Parties involvement.

**Surface collection for known sites/PADs that may potentially be impacted upon by surface works**

GM We are proposing at least two RAP representatives for surface collection and it would increase depending on the amount of work and size of the site.

AF Out at Ravensworth North is a good example of where we go out and find three to six artefacts and because of circumstance it changes to 60 or 160 and it goes out from there. So it can change and that's the way it is.

AR Ran through the methodology for reference sheet 5.

TS Yes ok I've got that.

TM Yeah ok.

**Subsurface Testing**

AR Will be undertaken ahead of any impacts like erosion control, impact remediation.

PADs Ran through Reference Sheet 7. If this is a large exercise it will involve more people and if it's a small exercise it will involve less. It's good to get things finished reasonably quickly and efficiently.

**Return of Artefacts to Country**

AR Am I going through this too quickly or do we need more detail.

Group No, no

TM Last time we were out there was an issue with the GPS did you find those sites?

AR Yes that was my issue I had the wrong coordinates but we then found the sites using the site cards.

AF But on memory mate the sites were found but were the artefacts found

AR No.

AF Yeah we're aware that happens sometimes but do you know what percentage was found?

AR There was an isolated find on the track.

AF Yeah ok.

AR But it was my issue but I think we solved it.

JM We all do that mate.

AR Thank you John.

AF Could we have a select grouping of artefacts that we could use for show and tell.

GM But they're going to be returned to country.

AF Yeah but we're talking about select artefacts that are the ridgy didge ones that we can use hands on or not, might include a display case.

TM That's something we could use for cultural awareness having them on site.

AF And at finish of mine life we could include in the management plan what is to be done with the artefacts at the end of mine.

AR At United mine there's a display case with photos and artefacts, very effective for reminding staff.

GM That's something we could consider, but there may be many artefacts depending on what works we do and what we find. As minimum, we would keep the artefacts either at the Kitchener site of this Pit Top depending on the status of Kitchener site.

AF As long as it's secure.

GM It would be secure.

**Recommendation for Management Plan:**

Artefacts should be kept safe on site in storage until they can be returned to Country. Artefacts should not be removed from the mine lease.

Consideration be given to using a selection of significant artefacts should be kept that can be used for display purposes, and teaching purposes, and may be put in display cases at the mine. At the end of mine life artefacts will be returned to country.

AF Ok on this is there a way of having a living artefact register that actually grows over time so that we can have a record.

TS Yes so there's a database.

AF So there's an overview of this area and we can show future generations.

TS There might be a way we can do a cultural landscape map done by community not scientific.

AF It would be good to have a bigger map we can see because this one is too small.

GM There is a table in the management plan that supports the map.

AF Ok but even with glasses on this is too small to see.

**Erosion Control**

GM We can do works on our own properties but not on others if it's not subsidence related.

AF We could make people aware and if they do something it would be in their interests to care.

GM We will do a walk over of properties in the Stage 2 area if there's any surface works required there.

TS/JM/AF Yep.

**ACHMP Review**

AF Potentially with any changes to state legislation where ever it is at the moment that will be adopted in this as necessary.

GM If there's legislation that we need to incorporate we'll do that when it happens so we won't be waiting three years to update in that case.

**Reference Sheet 9**

TM Are you going to have a full catalogue of photos on display with the artefacts?

AF The artefacts won't be cleaned will they?

AR There may be a need for artefact analysis.

AF Can we have a CD of everything rather than just hard copy reports? It's handy to have both a CD and report.

AR If you could please take some time to make written comments on the feedback form and hand them in before you go that would be great.

TS I'm going to fax you mine.

AR Ok that would be great.

AF Could we have a meeting at 9.00am instead of 10.00am next time.

GM We started at 10 for the people who need to travel so it's up to you.

JM/MM Yeah that would be ok.

AF What is the date for final comments?

CP 14 March.

AF And can you give us a reminder a few days beforehand.

**Outcomes/Recommendations:**

- That a database of sites be prepared and added to over time.
- That larger maps be provided showing the location of sites in the database.
- That another workshop be held to prepare the cultural heritage awareness training package.
- That the RAPs be involved in relationship building with the community.
- That the salvage methodology be changed to say that salvage will cease if less than five artefacts per spit per metre square are found.
- Artefacts should be kept safe on site in storage until they can be returned to Country. Artefacts should not be removed from the mine lease.
- Consideration be given to using a selection of significant artefacts for display purposes, and teaching purposes, and may be put in display cases at the mine. At the end of mine life artefacts would be returned to country.
- A photographic record should be made of significant artefacts and attached to the catalogue.

# Consultation Log

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 2008 | ANTC | Margaret & John Matthews | **2008 Aboriginal Heritage Assessment**<br>Please refer to Umwelt (July 2008) Aboriginal Heritage Assessment: Austar Coal Mine Project Stage 3. EA for initiation of consultation process. The adjoining groups and individuals were identified during this process as per DECC Interim Community Consultation Requirements for Applicants. | |
| | UHHC | Darryl Matthews, Victor Perry | | |
| | LHWC | Lee-Anne Ball, Tom Miller | | |
| | LWTC | Barry Anderson | | |
| | WCH | Gordon Griffiths | | |
| | Y | Barry French, Scott Franks, Barry MacTaggart | | |
| | GC | Michele Stair, Rodney Mathews | | |
| | WWCCS | Des Hickey | | |
| | HVCC | Christine Archbold, Colleen Stair, | | |
| | CA | Tracey Skene, Justin Govar | | |
| | MLALC | Steve Talbot | | |
| | W1C | Arthur Fletcher | | |
| | MC | Clifford Matthews | | |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | | |
| | WC | Barbara Foot | | |
| 19/11/10 | All RAPs | | **Invitation to project inception meeting for Aboriginal Archaeological Assessment (Umwelt 2012)** | |
| | WC | Barbara Foot | indicated she did not receive letter but would see who was coming | Catherine Pepper |
| | ANTC | John & Margaret Matthews | Accepted invitation | |
| | CA | Tracey Skeen | Accepted invitation | |
| | MLALC | Steve Talbot | Accepted invitation, | |
| | W1C | Arthur Fletcher | Accepted invitation | |
| | WCH | Gordon Griffiths | Accepted invitation | |
| | Yarrawalk | Barry McTaggart | Accepted invitation | |
| | Yinarr | Kathleen Steward-Kinchela | Accepted invitation. Not officially registered until March 2011 | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| | MC | Clifford Matthews | Accepted invitation. Called by phone, not connected. New mobile number provided. | |
| | LHWC | Tom Miller | Message left. | |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | Mistakenly not invited. | |
| | GC | Rodney Matthews | No answer. | |
| | LWTC | Barry Anderson | No answer. | |
| | UHHC | Darryl Matthews | Message left. | |
| | WWCCS | Des Hickey | Message left. | |
| 7/12/10 | ANTC | Margaret Mathews | **Aboriginal Stakeholder Project Inception Meeting held at Austar Coal Mine office in Paxton**<br>**Welcome to Country:** (Gordon Griffiths)<br>Austar reintroduces **project**, where they are at and proposed changes:<br>• Approvals process;<br>• Current operations;<br>• Overview;<br>• Mining progress;<br>• Subsidence;<br>• Kitchener infrastructure;<br>• Key approvals aspects;<br>• Approvals and community: prepare and implement ACHMP and cultural awareness training;<br>• Community commitments: $100 000 Aboriginal community project<br>**Description of Stage 3 modification**<br>• Proposed modification outcomes;<br>• Reasons behind modification;<br>• Modification approval pathway<br>• Environmental assessment elements;<br>• Subsidence assessment summary. | Andy Roberts<br>Catherine Pepper<br>Peter Jamieson |
| | UHHC | Darryl Matthews | | |
| | WCH | Gordon Griffiths | | |
| | GC | Michele Stair Rodney Mathews | | |
| | HVCC | John Mathews | | |
| | CA | Justin Govar | | |
| | MLALC | Steve Talbot | | |
| | W1C | Arthur Fletcher | | |
| | MC | Clifford Matthews | | |
| | YCS | Kathleen Steward–Kinchela | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| | | | **EA process** (Catherine Pepper)<br>Existing process and archaeological sites.<br>Adrian<br>**Subsidence**: assessment outcomes to date.<br>**Aboriginal Cultural Heritage and Archaeology**<br>Catherine – Austar have had a preliminary chat with DoP and they have said Austar to continue to use the ICCRs.<br>Andy Roberts – Shows mapping and what has happened in the past and the process to follow. We will send out the new methodology (have 28 days and a few weeks for Christmas) i.e. end of January to have another meeting. If everyone is satisfied with the methodology then fieldwork suggested timeframe would be around mid-late February.<br>Would be 6 representatives/groups/day. May have access to properties haven't been to yet. 5-6 days. Commenting on assessment would be mid-late April with something to submit leading onto the management plan linked to cultural heritage training.<br>Adrian – There is a meeting this weekend with landowners for **access**. We are trying to get better access, the process will continue.<br>**Field Visit** on bus and Adrian shows longwall direction from just off Quorrobolong Road.<br>Gary shows south of track has additional impacts and areas where they want to gain access.<br>**Survey Method Workshop**<br>Gordon Griffiths requested that they have workshops to create methodology (i.e. have input into its drafting).<br>Gordon – I would like to see the groups come up with the methodology rather than writing it up and giving it to the community, and the training programme with the community rather than just giving it to the community. Need to implement workshop, groups don't respond when you just ring around.<br>The general group agrees that the workshop should be done at the Austar office toward the end of January (workshop sometime in January). | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 7/2/11 | MLALC | Steve Talbot | **Survey Strategy Meeting 1**<br>**Time Meeting Open: 10:20 am**<br>• In previous minutes it was noted that decisions would be made at this meeting.<br>• Difficulty with lack of stakeholders present and different representation of the same groups (sorry business).<br>• Note in invite to next meeting that final decisions will be made at that meeting to progress project.<br>• Full minutes not included as meeting postponed until 15 February. Austar to contact groups and request involvement.<br>Meeting closed 11.15 am. | Andy Roberts, Catherine Pepper |
| | WCH | Gordon Griffiths | | |
| | W1C | Arthur Fletcher | | |
| | LWTC | Barry Anderson | | |
| 8/2/11 | | | **Contact on 8/02/11 re-rescheduled meeting for 15/02/11** | Gary Mulhearn (Austar)<br>Andy Roberts, Catherine Pepper |
| | ANTC | John Matthews | Fax. Letter. Phone: John Matthews contacted on mobile. His fax does not receive incoming transmissions. Will attend the 15/2 meeting. Clifford Matthews was with him at the time and will also attend. John will also inform the Muswellbrook groups. | |
| | UHHC | Darryl Matthews | Fax – unsuccessful. Letter. Phone: msg. | |
| | LHWC | Tom Miller | Fax – unsuccessful. Letter. Phone: no answer. | |
| | WC | Barbara Foot | Fax – unsuccessful. Letter. Phone: May come if can arrange a lift with other groups. | |
| | LWTC | Barry Anderson | Fax – unsuccessful. Letter. Phone: Works at Mount Arthur Coal 60 hrs per week on a contract water cart on drill patterns, cannot attend meetings unless it is wet at MAC. Will remain as a registered Group. GM informed Barry of the proposed modification. Barry provided an apology for the upcoming meeting, but appreciated receiving information and being informed. | |
| | WCH | Gordon Griffiths | Fax – unsuccessful. Letter. Phone: Will attend. | |
| | Y | Barry Mc Taggart | Fax. Letter. Phone: Disappointed Barry French did not attend the 7/2 meeting. Will send a representative. Provided an email address, GM sent invitation by email also. | |
| | GC | Rodney Mathews, Michele Stair | Phone: no answer. Mobile disconnected. Email invitation sent requesting confirmation. | |
| | WWCCS | Des Hickey | Fax. Letter. Phone: msg. Accepted by fax. | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| | HVCC | Christine Archbold | Fax. Letter. Phone: msg.<br>Mobile: Fax does not work, provided her email address. Christine will send a representative – John Matthews likely. GM sent invite to email address. | |
| | CA | Tracey Skene | Fax. Letter. Phone: msg.<br>Phone: Cannot rearrange work commitments. Provided an apology. | |
| | MLALC | Steve Talbot | Fax – unsuccessful. Letter. Phone: no answer. Phone: Mindaribba office gave mobile no. Mobile: message left. Steve returned call – didn't receive letters, hasn't been to the office. He or someone else will attend. | |
| | W1C | Arthur Fletcher | Fax. Letter. Phone: Cannot attend the 15/2 meeting, but will send a representative. Provided an email address, GM sent invitation by email also. | |
| | MC | Clifford Mathews | Fax – unsuccessful. Letter. Phone: Will attend. | |
| | HVCS | Mark Hickey | Were not invited – Umwelt had provided incorrect registered groups list on 18/11/2010. Mark Hickey. Was not invited but showed up. | |
| 15/2/11 | WC | Margaret Matthews | **Survey Strategy Meeting 2**<br>Please refer to meeting minutes 15/02/11.<br>Summary.<br>1. Austar project (update)<br>2. Aboriginal Cultural Heritage Assessment of Project<br>• (update of 2008 ACHA)<br>• Aboriginal Cultural Values Assessment<br>• Archaeological Assessment<br>3. Survey Strategy Workshop<br>4. Where to from here?<br>Main resolutions arrived at during Survey Strategy Workshop<br>• Attempt 100% survey of accessible properties.<br>• Seek approval from landowners to have entire group undertaking survey at same time.<br>• Project to begin on 28 February.<br>• Project duration is 6 days and open ended. | Andy Roberts, Catherine Pepper |
| | UHHC | Darryl Matthews | | |
| | LHWC | Tom Miller | | |
| | WCH | Gordon Griffiths | | |
| | Y | Barry French | | |
| | WWCCS | Des Hickey | | |
| | HVCC | John Mathews | | |
| | MLALC | Steve Talbot | | |
| | MC | Clifford Matthews | | |
| | HVCS | Mark Hickey | | |
| | YCS | Kathleen Steward-Kinchela (not yet registered) | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 18/12 | | | **Letter: Invitation for survey works for Stage 3 Mod.** | Gary Mulhearn (Austar)<br>Andy Roberts |
| | ANTC | Margaret and John Matthews | Mobile: spoke to John. They are OK for Monday survey. | |
| | UHHC | Darryl Matthews, Victor Perry | Mobile: message left. | |
| | LHWC | Lee-Anne Ball, Tom Miller | Mobile: has received letter and will send back completed form by fax. | |
| | LWTC | Barry Anderson | Mobile: will not be attending survey. | |
| | WCH | Gordon Griffiths | Mobile: Has received letter and will send back completed form. | |
| | Y | Barry French, Scott Franks, Barry MacTaggart | Fax received: Danny Franks will attend survey. | |
| | GC | Michele Stair, Rodney Mathews | Phone: no answer, Mobile: disconnected. Email: invitation sent. | |
| | WWCCS | Des Hickey | Mobile: has received letter. Will send back form. | |
| | HVCC | Christine Archbold, Colleen Stair | Mobile: hasn't received letter yet. Will look at info when received and get back to us. Email: invitation sent. | |
| | CA | Tracey Skene, Justin Govar | Tracey requested email invitation for field survey. Email: invitation sent. | |
| | MLALC | Steve Talbot | Mobile: Phone: Mindaribba Tamara to phone back re insurance docs. Mobile: Steve Talbot will be in office tomorrow to see forms. | |
| | W1C | Arthur Fletcher | Mobile: short notice for survey works. Will send back form. | |
| | MC | Clifford Matthews | Mobile: spoke to Cheryl Matthews (wife). Clifford has received our invitation for survey letter, and will respond tomorrow. They are waiting for insurance document to arrive by fax from insurers. | |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | Mobile: asked for invitation and new supplier form to be emailed. Email: Invitation and New supplier form sent. | |
| | WC | Barbara Foot | Mobile: Would love to but can't make it to survey. | |
| | YCS | Kathleen Steward-Kinchela | Not a registered group. Has been included in consultation program by error in Umwelt registered Group list. Apologies extended, offered opportunity to register. Kathie thought she had already registered, but could not provide details of when. No record held by Umwelt. Not invited for survey works. | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 21/2/11 | UHHC | Darryl Matthews, Victor Perry | **Post out survey draft to 15 RAPs** | Andy Roberts |
| | LHWC | Lee-Anne Ball, Tom Miller | | |
| | LWTC | Barry Anderson | | |
| | WCH | Gordon Griffiths | | |
| | Y | Barry French, Scott Franks, Barry MacTaggart | | |
| | GC | Michele Stair, Rodney Mathews | | |
| | WWCCS | Des Hickey | | |
| | HVCC | Christine Archbold, Colleen Stair | | |
| | CA | Tracey Skene, Justin Govar | | |
| | MLALC | Steve Talbot | | |
| | W1C | Arthur Fletcher | | |
| | MC | Clifford Matthews | | |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | | |
| | WC | Barbara Foot | | |
| | YCS | Kathleen Steward-Kinchela | | |
| | WC | Barbara Foot | | |
| 22/2/11 | YCS | Kathleen Steward-Kinchela | Post out 2008 report and cover letter re registration. | Andy Roberts |
| | All groups | | Post out survey draft to RAPs. | Andy Roberts/Kirwan Williams |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 28/3/11 | ANTC | Margaret Matthews | Attended survey of properties 1 and 2. | Andy Roberts/Kirwan Williams |
| | GC | Colleen Stair | | |
| | HVCC | John Mathews | | |
| | LHWC | Dean Miller | | |
| | MC | Gay Horton | | |
| | MLALC | Adam Clark | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Shannon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |
| 1/3/11 | ANTC | Margaret Matthews | Attended survey of properties 16, 11, 12. | Andy Roberts/Kirwan Williams |
| | GC | Colleen Stair | | |
| | HVCC | John Mathews | | |
| | LHWC | Dean Miller | | |
| | MC | Clifford Matthews | | |
| | MLALC | Tamika Matthews | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Shannon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 2/3/11 | ANTC | Margaret Matthews | Attended survey of properties 5, 7, 10. | Andy Roberts/Kirwan Williams |
| | GC | Colleen Stair | | |
| | HVCC | John Mathews | | |
| | LHWC | Dean Miller | | |
| | MC | Clifford Matthews | | |
| | MLALC | Christine Dever | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Shannon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |
| 3/3/11 | LHWC | Dean Miller | Attended survey of properties 14, 15, 19, 8. | Andy Roberts/Kirwan Williams |
| | MLALC | Christine Dever | | |
| | Y | Danny Franks | | |
| | WCH | Shannon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |
| 4/3/11 | ANTC | Margaret Matthews | Attended survey of properties 17, 18, 13. | Andy Roberts/Kirwan Williams |
| | GC | Colleen Stair | | |
| | HVCC | John Mathews | | |
| | LHWC | Dean Miller | | |
| | MC | Gay Horton | | |
| | MLALC | Carl McDonald | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Shannon Griffiths | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |
| 7/3/11 | ANTC | Margaret Matthews | Attended survey of properties 9, 10, 6. | Andy Roberts/Kirwan Williams |
| | GC | Colleen Stair | | |
| | HVCC | John Mathews | | |
| | LHWC | Dean Miller | | |
| | MC | Gay Horton | | |
| | MLALC | Adam Clark | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Shannon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |
| 8/3/11 | ANTC | Margaret Matthews | Attended survey of properties 3, 4 and 20. | Andy Roberts |
| | GC | Colleen Stair | | |
| | HVCC | John Mathews | | |
| | LHWC | Dean Miller | | |
| | MC | Clifford Matthews | | |
| | MLALC | Adam Clark | | |
| | UHHC | Adam Roberts | | |
| | WCH | Shannon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 9/3/11 | ANTC | Margaret Matthews | Attended meeting at Austar. No survey took place. Portion remaining Coney Creek Lane road easement. Meeting concluded 12.30 pm.<br><br>See meeting notes 9/03/11. | Andy Roberts |
| | GC | Colleen Stair | | |
| | HVCC | Christine Archbold, Colleen Stair | | |
| | LHWC | Dean Miller | | |
| | MC | Clifford Matthews | | |
| | MLALC | Steve Talbot | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Gordon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | W1C | Arthur Fletcher | | |
| 11/3/11 | (all groups) | | Letter drafted to groups apologising for field error at ACM1 on 8/11. | Andy Roberts |
| 15/3/11 | ANTC | Margaret Matthews | Rang to explain letter was in the mail explaining error made on Tuesday 8 February 2011.<br>Specific comments made by Steven Talbot that it would be reasonable for groups to revisit sites located in 200/7/8.<br>Gordon Griffiths advised it would be suitable to relocate site ACM1 at the earliest opportunity in company with stakeholder representatives.<br>Arthur Fletcher expressed a similar statement to Gordon Griffiths.<br>All other groups contacted expressed thanks for clarification.<br>Barbara Foot (not contacted due to illness). | Andy Roberts |
| | GC | Colleen Stair | | |
| | HVCC | Christine Archbold | | |
| | LHWC | Tom Miller | | |
| | MC | Clifford Matthews | | |
| | MLALC | Steve Talbot | | |
| | Y | Danny Franks | | |
| | UHHC | Adam Roberts | | |
| | WCH | Gordon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Luke Hickey | | |
| | CA | Katrina Cavanagh | | |
| | LWTC | Barry Anderson | | |
| | WC | Barbara Foot | | |
| | W1C | Arthur Fletcher | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 30/3/2011 | ANTC | Margaret Matthews | Report of survey results including Site cards for comment and survey map with AHIMS site locations sent to all groups for comment. | Andy Roberts |
| | GC | Colleen Stair | | |
| | HVCC | Christine Archbold, | | |
| | LHWC | Tom Miller | | |
| | MC | Clifford Matthews | | |
| | MLALC | Steve Talbot | | |
| | Y | Danny Franks / Barry MacTaggart / Scott Franks | | |
| | UHHC | Darryl Mathews and Adam Roberts | | |
| | WCH | Gordon Griffiths | | |
| | WWCCS | Mark Hickey | | |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | | |
| | CA | Katrina Cavanagh and Tracey Skene | | |
| | LWTC | Barry Anderson | | |
| | WC | Barbara Foot | | |
| | YCS | Kathleen Stewart-Kinchela | | |
| 1/4/11 | YCS | Kathleen Stewart-Kinchela | Registration papers sent to Gary Mulhearn. | Catherine Pepper, Andy Roberts |
| 28/7/11 | All groups | As per contact list | Draft report sent to all RAPs. | Andy Roberts |
| 3/8/11 | ANTC | Margaret and John Matthews. | Message left to contact Umwelt if report not received. | Andy Roberts |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 24/8/2011 | UHHC | Darryl Matthews, Victor Perry | Message left if report not received please make contact with Umwelt. | Andy Roberts |
| | LHWC | Lee-Anne Ball, Tom Miller | Phone contact made, has not seen it but will ring if it does not surface. | Andy Roberts |
| | LWTC | Barry Anderson | Yes, report received. | Andy Roberts |
| | WCH | Gordon Griffiths | Yes, report received. | Andy Roberts |
| | Y | Barry French, Scott Franks, Barry MacTaggart | Yes, report received (Barry Mac). | Andy Roberts |
| | GC | Michele Stair, Rodney Mathews | Message left to contact Umwelt if report not received. | Andy Roberts |
| | WWCCS | Des Hickey | Yes, thinks received but will call if he can't find it. | Andy Roberts |
| | HVCC | John Mathews, Christine Archbold, Colleen Stair | Phone contact made, yes report received. | Andy Roberts |
| | CA | Tracey Skene, Justin Govar | Unsuccessful (dialled out). | Andy Roberts |
| | MLALC | Steve Talbot | Phone contact made with ST, yes report received. | Andy Roberts |
| | W1C | Arthur Fletcher | Message left to contact Umwelt if report not received. | Andy Roberts |
| | MC | Clifford Matthews | All numbers disconnected. | Andy Roberts |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | Unsuccessful (dialled out). | Andy Roberts |
| | WC | Barbara Foot | Not contacted at this time due to reports of illness. | Andy Roberts |
| | ANTC | Margaret and John Matthews | No further comments. Concerned that grinding grove site be protected sufficient to protect without fencing but with signage. | Andy Roberts |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 25/8/11 | UHHC | Darryl Matthews, Victor Perry | Message left 24/8. | Andy Roberts |
| | LHWC | Lee-Anne Ball, Tom Miller | Lee-Anne contacted who requested an extension until 25/8/11, which was agreed to. | Andy Roberts |
| | LWTC | Barry Anderson | Barry not contactable by phone (dialled out) email sent 24/8. | Andy Roberts |
| | WCH | Gordon Griffiths | GG 24/8 any borehole and seismic works that are to be done will require participation from RAPs. Any areas identified of archaeological potential or where sites are potentially going to be destroyed will need an AHIP. | Andy Roberts |
| | Y | Barry French, Scott Franks, Barry MacTaggart | Contacted Barry MacTaggart who indicated Scott was best to talk to. Was given his mobile no, and message left 24/8. Scott made contact and indicated he would be sending an email through to us in regards to extension of time for consultation. Email not received as of 25/8 midday. | Andy Roberts |
| | GC | Michele Stair, Rodney Mathews | Message left and email sent 24/8/11. | Andy Roberts |
| | WWCCS | Des Hickey | Des contacted will send something tonight 24/8. | Andy Roberts |
| | HVCC | John Mathews, Christine Archbold, Colleen Stair | 24/8 Christine commented that community was busy with fieldwork and had no comments to make at this time. | Andy Roberts |
| | CA | Tracey Skene, Justin Govar | Unsuccessful (dialled out) on 24/8/11, email sent requesting input. Email same afternoon saying she would send comments in on 25/8/11. | Andy Roberts |
| | MLALC | Steve Talbot | Steven not answering, automatic text message sent 24/8. | Andy Roberts |
| | W1C | Arthur Fletcher | Arthur will discuss with family and get back to us tomorrow. | Andy Roberts |
| | MC | Clifford Matthews | Clifford Matthews contacted (his phone has been lost) working with Nic Roche a present. Has no further comments to make. | Andy Roberts |
| | HVCS | Joseph Griffiths, Mark Hickey, Luke Hickey | Phone turned off email sent 24/8. | Andy Roberts |
| | WC | Barbara Foot | Contact made. She has had trouble reading report due to cataracts. | Andy Roberts |
| | YCS | Kathleen Steward-Kinchela | Message left 24/8 seeking comment. | Andy Roberts |
| | HVCS | Luke Hickey | Phone contact, sent Executive Summary via email as requested. Luke indicated he would send something through tomorrow (25/8). | Andy Roberts |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 26/8/11 | WWCCS | Des Hickey | Phone contact, Des gave verbal approval over the phone and stated that Wattaka agree to all of the recommendations in the recent Assessment. | Andy Roberts |
| | MLC | Steve Talbott | Message left on mobile, MLALC landline rang out. Tried three times on mobile (not available). | Andy Roberts |
| | CA | Tracey Skene, Justin Govar | Phone contact; Tracey will send comments by end of day. | Andy Roberts |
| | Y | Scott Franks | Phone contact; Will send email by end of day. | Andy Roberts |
| | HVCS | Luke Hickey | Phone contact; Luke will send info by end of day. | Andy Roberts |
| | W1C | Arthur Fletcher | Phone contact; Arthur is happy with results of assessment and has nothing further to add. | Andy Roberts |
| | GC | Michele Stair, Rodney Mathews | Phone contact made. Rodney has not seen report and would like a copy sent. Emailed PDF version 4.19 pm Friday with request for comments by COB Monday. | Andy Roberts |
| | LHWC | Lee-Anne Ball, Tom Miller | Contacted by Phone. Tom is attempting to get input by Monday 29/8. | Andy Roberts |
| | LWTC | Barry Anderson | Not possible to reach Barry by phone (dialled out). | Andy Roberts |
| | UHHC | Darryl Matthews, Victor Perry | Unavailable message left. | Andy Roberts |
| | WC | Barbara Foot | Contacted on landline and briefly explained the findings of the Assessment and that we would like to talk with her at some future stage about the management of sites on the Austar Coal Mine. She was happy to continue to be involved. | Andy Roberts |
| | YCS | Kathleen Steward-Kinchela | Phone call not answered, message left. | Andy Roberts |
| 29/08/11 | GC | Michele Stair, Rodney Mathews | Unavailable, message left. | Catherine Pepper |
| | HVCS | Luke Hickey | Phone contact; no further comments to make. | Andy Roberts |
| 14/02/2012 | Deslee Talbott Consultant | Deslee Mathews | Registered in Feb 2012, given notice by GM that she would be given paperwork reports etc but not invited to attend fieldwork or meetings. | Andy Roberts |
| 21/02/2012 | | **Attendees** | Austar ACHMP Meeting – 10.00am | Catherine Pepper, Andy Roberts |
| | LHWC | Tom Miller | **Outcomes/Recommendations:** | |
| | LHWC | Daniel Scott | **$100,000 Offset** | |
| | ANTC | John Matthews | • $100,000 brief overview provided by GM – account has been created and money will be transferred in the coming days. CPI adjusted from the date of the Stage 3 approval (2009) to $106,000. Application forms for programs or projects will be sent out to the RAPs in the coming months. GM will re-send the Michael Williams report to all groups. | |
| | ANTC | Margaret Matthews | | |
| | W1C | Arthur Fletcher | | |
| | W1C | Allan Scott | | |
| | CA | Tracey Skene | | |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| | ANTC | Gay Horton<br>Gary Mulhearn (Austar)<br>Andy Roberts (Umwelt)<br>Catherine Pepper (Umwelt) | • That a database of sites be prepared and added to over time.<br>• That larger maps be provided showing the location of sites in the database.<br>• That another workshop be held to prepare the cultural heritage awareness training package.<br>• That the RAPs be involved in relationship building with the community.<br>• That the salvage methodology be changed to say that salvage will cease if less than five artefacts per spit per metre square are found.<br>• Artefacts should be kept safe on site in storage until they can be returned to Country. Artefacts should not be removed from the mine lease.<br>• Consideration be given to using a selection of significant artefacts for display purposes, and teaching purposes, and may be put in display cases at the mine. At the end of mine life artefacts would be returned to country.<br>• A photographic record should be made of significant artefacts and attached to the catalogue. | |
| 22/2/12 | Steven Talbot | MLALC | Email sent to Steven Talbot.<br>Sorry we missed you yesterday at Austar. We are sending out meeting minutes and a copy of the PowerPoint presentation. Will be interested to have feedback by mid March if possible on ACHMP.<br>Andy Roberts | Andy Roberts |
| 22/2/12 | All RAPs | As per contact list | Post-out of meeting minutes 20/3/12 and copy of PowerPoint presentation delivered at meeting requesting comments by 14 March | Catherine Pepper |
| 14/3/12 | All RAPs | | Email sent requesting comments on Austar ACHMP as follows<br>'anigunya@hotmail.com'; 'bigrodshouse@hotmail.com'; 'nightstar7@bigpond.com'; 'lea-anne.ball@bigpond.com'; 'barry156@bigpond.com'; 'rgriffiths12@bigpond.com'; 'deshickey@bigpond.com'; 'wonn1sites@bordernet.com.au'; 'yinarrculturalservices@bigpond.com'; 'abco@bordernet.com.au',<br>Dear All<br>Austar ACHMP comments are due today. As we have not received any as yet, could you all make an effort to get them in this week please. You have already been sent a copy of the ACHMP but I have attached meeting minutes from recent meeting held a few weeks ago. Also attached are some Appendices including reference sheets we will be including for various management approaches. | Andy Roberts |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| | | | Let us know as soon as you are able (this week please) if you have any comments to make.<br>Thanks and regards<br><br>**Andy Roberts**<br>Senior Archaeologist<br><br>**Umwelt (Australia) Pty Ltd**<br>PO Box 838<br>2/20 The Boulevarde<br>Toronto NSW 2283<br><br>P (02) 4950 5322<br>F (02) 4950 5737<br>M 0437 763 911<br>www.umwelt.com.au | |
| 14/3/12 | MLALC | Ken Riddiford | Contacted Ken's office by phone and left message that asked if he had comments ready for ACHMP. Was advised he will do so or will call back | Andy Roberts |
| 14/3/12 | ANTC | John Mathews | John contacted by phone and has said he will get something to us in a day or two. | Andy Roberts |
| 14/3/12 | CA | Tracey Skeene | Tracey not available left message. Tracey called back and expressed she will be providing formal comments shortly | Andy Roberts |
| 14/3/12 | Giwirr | Rod Mathews Michelle Stair | Mobile disconnected home phone no answer text message sent to John Mathews to relay message to Rod and Michelle | Andy Roberts |
| 14/03/12 | HVCC | Christine Archbold<br>Luke Hickey | No answer on mobile …882 and message bank was full. Rang LH mobile and left message. He returned call and asked for email with minutes to be sent to him. Email could not deliver. Text message for correct email address. | Andy Roberts |
| 14/03/12 | LHWC | Tom Miller<br>Lee-anne Ball | Leanne contacted by phone, will pass message to Tom for comments ASAP. | Andy Roberts |
| 14/03/12 | LWTC | Barry Anderson | Contacted by phone. Has read and is happy with report. | Andy Roberts |
| 14/03/12 | HCVA | Joseph Griffith, Mark Hickey | Contact number switched off. Tried 10am and 3.30 pm. | Andy Roberts |

| Date | Stakeholder | Contact | Summary of Consultation | Umwelt Contact |
|---|---|---|---|---|
| 14/03/12 | Mingga | Clifford Mathews | Text message sent to JM to relay request to Cliff as phones are switched off or disconnected. Contacted Jan Wilson currently working with Cliff. She passed on new number, this worked and he was contacted by phone.<br>Clifford responded he is happy with CHMP and comfortable for Plan to progress. | Andy Roberts |
| 14/03/12 | UHHC | Darrel Mathews | As above, both disconnected. Contacted Jan Wilson who was working with him, and she passed on message requesting comments ASAP. | Andy Roberts |
| 14/03/12 | WWCCS | Des Hickey | Contacted but poor reception. Des would prefer email (sent see above) | Andy Roberts |
| 14/03/12 | W1C | Arthur Fletcher | No answer, email, Arthur returned call and was happy for ACHMP to proceed in current format. Does not have time for formal comment. | Andy Roberts |
| 14/03/12 | WCH | Gordon Griffiths | Contacted by phone, Gordon asked could we please send fax with Minutes of last meeting. Faxed 12 pm. | Andy Roberts |
| 14/03/12 | Y | Scott Franks | Left phone message for him to contact Umwelt if would like to comment. | Andy Roberts |
| 14/03/12 | WC | | Registrant has deceased in early March 2012. | Andy Roberts |
| 14/03/12 | YCS | Kathleen Stewart-Kinchela | Email undeliverable. No answer – not available. Left message. KS-K Returned call, given correct email. Email (see above) sent. | Andy Roberts |
| 15/03/12 | MLC | Ken Riddiford | Ken called and indicated he had not had time to respond to the request for comments on the ACHMP but would do so as soon as he was able. | Andy Roberts |
| 29/03/12 | CA | Tracey Skeene | Email to Tracey seeking comments by COB tomorrow and reminding her of up-coming meeting re Cultural Heritage Awareness Training that she wished to contribute to. | Andy Roberts |

# APPENDIX 2

# Archaeological Salvage Research Design and Methodology

# Appendix 2 – Archaeological Salvage Research Design and Methodology

## 1.0 Introduction

The *Archaeological Assessment Stage 3 Modification Austar Coal Mine Project* (Umwelt 2011b) report recommends a series of impact mitigation activities for Aboriginal archaeological sites within the Austar Coal Mine Stage 3 Area including:

- surface artefact collection following subsidence (where necessary) ahead of remediation works.

This document outlines a research design and methodology for the range of management/mitigation works proposed for the Aboriginal archaeological sites within the Stage 2 mining area and Stage 3 mining area (the project area). It should be noted that the salvage/mitigation works will be undertaken as a staged process as mining progresses.

The Research Design and Methodology will be implemented in compliance with the procedures and protocols outlined in the main text of this Aboriginal Cultural Heritage Management Plan (ACHMP). The ACHMP has been prepared in consultation with the Registered Aboriginal Parties, a suitably qualified archaeologist and Austar Coal Mine.

The management/mitigation measures for the 34 archaeological sites and PAD's identified as having archaeological or Aboriginal cultural significance are provided in Sections 6.1 of the *Archaeological Assessment – Stage 3 Modification, Austar Coal Mine Project* (Umwelt 2011b). They are not included in this Research Design and Methodology as they do not require archaeological salvage or further analysis as part of the overall management strategy.

## 2.0 Background Information

The main text of the ACHMP and the *Archaeological Assessment – Stage 3 Modification, Austar Coal Mine Project* report provides the required context for this Research Design and Methodology, specifically Section 3.2.2 (previous archaeological research), Section 6.0 (archaeological significance assessment), Section 7.0 (heritage impact assessment) and Section 8.0 (management context) – refer specifically to Table 9.1) of the main text.

## 3.0 Registered Aboriginal Party Consultation and Involvement

Registered Aboriginal Party consultation for the survey and assessment was undertaken in compliance with the *DECCW Interim Community Consultation Requirements for Applicants* (2004a). Aboriginal stakeholders that participated in the assessment process and the preparation of this Research Design and Methodology included:

| |
|---|
| Aboriginal Native Title Consultants |
| Wonn1 consulting |
| Giwiirr Consultants |
| Hunter Valley Cultural Consultants |
| Hunter Valley Cultural Surveying |
| Lower Hunter Wonnarua Council |
| Lower Wonnarua Tribal Consultancy Pty Ltd |
| Mindaribba Local Aboriginal Land Council |
| Mingga Consultants |
| Tracey Skene (Culturally Aware) |
| Wanaruah Custodians |
| Wattaka Wonnarua Cultural Consultants Services |
| Wonnarua Culture Heritage |
| Upper Hunter Heritage Consultants |
| Yarrawalk |
| Yinaar |
| Delee Talbott consultant |

The *Archaeological Assessment – Stage 3 Modification, Austar Coal Mine Project* report provides full details of the consultation process (refer to Section 1.0 of the main text) including feedback on survey methodology.

Section 1.4 of the main text of the ACHMP provides full details of the second round of consultation with the Registered Aboriginal Parties in relation to the development of the ACHMP including this Research Design and Methodology.

# 4.0 Research Design

This section details the research design proposed as part of the management strategy for the Austar Mine. The research design has been prepared to analyse and interpret any additional information gathered through the salvage of artefact scatters and/or isolated find sites and/or PAD within the project area should remediation works for subsidence require such active management.

## 4.1 Research Questions

The research design adopts a landscape based approach. The landscape based research design aims to gain a greater understanding of the use of the Quorrobolong valley landscape by Wonnarua people and the distribution of natural (for example – stone, water, food, medicine, shelter, travelways) resources and to compare these results with those of other studies/reports pertaining to the valley and inland areas and pathways to the upper and Lower Hunter Valley.

A number of questions are proposed that form the framework for the research design. These suggested questions have been prepared pending further consultation with the Registered Aboriginal Parties and relate to questions asked during the consultation process for the assessment.

1. How do site types differ between those located within the Quorrobolong valley area and those within adjacent areas?

2. How do the contents of the artefact scatter sites located within the Quorrobolong valley differ to those from adjacent areas?

3. If differences are noted in relation to Questions 1, and 2; can these differences be related to:

    a) resource availability?

    b) differences in group size?

    c) differences in group mix (e.g. gender/age/tribal affiliation)?

    d) differences in tasks being undertaken at the sites (as indicated by site type/artefact type/use-wear/residue analysis*)?

    e) a mix of the above?

# 5.0 Salvage Methodology

The following sections outline the salvage methodology proposed for the project area should known sites be adversely impacted by subsidence remediation works including: surface artefact collection from artefact scatters and isolated find sites and subsurface salvage of sites/PADs and subsequent recording, analysis and management of recovered artefacts.

## 5.1 Surface Artefact Collection

The purpose of the surface artefact collection will be to recover Aboriginal archaeological material of Aboriginal cultural significance from sites that may be adversely impacted by subsidence remediation works (refer to Section 2.0 of the main text). It is proposed that following subsidence remediation and detailed attribute analysis, the artefacts will be returned to the sites; however, they will be replaced in areas where they will not be further impacted or lost due to erosion. Where possible for the artefacts to be returned to the site area immediately the analysis will be undertaken in the field.

Collections are proposed (if required) for artefact scatter and isolated find sites. All collections will be undertaken using the same methodology.

### 5.1.1 Artefact Collection

The methodology proposed for the surface artefact collection is included as Reference Sheet 5 in Appendix 3 of the main report.

### 5.1.2 Artefact Replacement

Following the completion of remediation works and artefact analysis artefact replacement will be undertaken as described within Reference Sheet 6 in Appendix 3 of the main report.

### 5.1.3 Subsurface Testing Methodology

If the site to be impacted by subsidence remediation works is deemed to have PAD (i.e. an area assessed as likely to have sufficiently large enough numbers of subsurface artefacts likely to retain at least spatial integrity) subsurface testing will be required to ascertain if subsurface salvage will be required ahead of impact.

The methodology for the subsurface testing of PADs that will be impacted by subsidence remediation is described within Reference Sheet 7 of Appendix 3 of the main report, with specific reference to Task 8.

### 5.1.4 Manual Excavation Methodology (Prior to Subsidence Remediation Works)

The methodology for the manual excavation of areas of PAD that will be adversely impacted by subsidence remediation works where subsurface testing has identified that subsurface salvage is described within Reference Sheet 7 of Appendix 3 of the main report, with specific reference to Task 9.

### 5.1.5 Excavation of Hearth Features

Should a possible hearth feature be identified during the manual excavation of a PAD the appropriate methodology is described within Reference Sheet 7 of Appendix 3 of the main report, with specific reference to Task 10.

## 5.2 Scarred Tree Recording

One scarred tree may be subject to subsidence. As the tree has died and fallen, direct further damage to the tree is unlikely though there is a possibility that cracking of the dam wall that it is associated with the tree may require remediation.

It is proposed that prior to subsidence that the tree will be photographed from all angles and scale drawings made of the scar so that detailed information about the tree will be available for the future. The photographic record and scale drawing will be provided to the DP&I and the EPA to be attached to the site card.

Any remediation works to repair soil cracking within 10 metres of the scarred tree will be undertaken manually to avoid further harm to the tree. The scarred tree will be incorporated into the site monitoring program that will follow the removal of the relevant longwall(s).

## 5.3 Artefact Analysis

All artefacts will be analysed using at least x10 magnification. Edges and artefacts suspected of having use-wear or residues will be inspected using at least x30 magnification. At least 30 artefacts will be subject to residue and use-wear analysis.

The artefact analysis will contain intra and inter-assemblage analysis for those assemblages salvaged during the surface collections and/or manual excavation and for those assemblages recorded during further survey of the Austar Mine. Full details of the artefact data for all of the assemblages will be presented within a report, so that the data will be available for other analysts.

### 5.3.1 Discussion of Attributes to be Recorded for Analysis

The attributes to be recorded for the artefacts are outlined below. A discussion follows each attribute, detailing the proposed method of recording, potential problems with the method proposed, and the possible behavioural implications of each attribute.

Not all attributes can be measured on all artefacts (e.g. termination type cannot be measured on proximal flake pieces). Therefore, after a discussion of the most basic common attributes, subsequent attributes are divided into sections, with subsections for categories.

Umwelt systematically record the same attributes for all assemblages with the ultimate objective of setting up a database comparable across the Hunter Valley region.

### 5.3.2 Common Attributes

#### Artefact Type

Description: Artefact class is a technological category reflecting the mechanical processes which resulted in the physical form of the artefact at the time of recovery. Classes used will include flakes, broken flakes, retouched flakes, flaked pieces, cores, flake-cores, hammerstones, grindstones, ground-edge axes, heat-shattered fragments, and non-diagnostic fragments.

Problems: Classing artefacts does not usually entail significant problems, other than occasional ambiguities between flaked pieces and broken flakes, and between (retouched) flakes and flake-cores (see **Retouch** for a further explanation).

Uses: This category will be used to assess differences in provisioning strategies (e.g. core provisioning vs flake provisioning), differences in site function/use (e.g. presence/absence of grindstones), and the taphonomic effects of fire on site integrity (e.g. differences in the ratio of heat-shattered fragments: other artefact classes).

#### Raw Material

Description: A largely self-explanatory attribute, raw materials expected to be present include Nobby's tuff, silcrete, indurated mudstone/tuff, quartz, quartzite and basic volcanics.

Problems: This category is usually without problems, though it is acknowledged that some disagreement exists as to the appropriate nomenclature for the material most frequently referred to as 'indurated mudstone'. Strong arguments have been made for replacing the term with indurated rhyolitic tuff; however, as the category is nominal and not technical or geological the only criteria guiding the choice of term here are that the meaning of the term be understandable to others and that it be applied consistently. For these reasons, the term indurated mudstone will be used to make the class more easily compared with other studies and to differentiate this raw material from other tuffs that will have different sources, such as Nobbys tuff.

Uses: Raw material is an important attribute, which may broadly indicate the place of origin of an artefact. The dominance of one raw material or another may also be used to group or differentiate sites. Raw material is also frequently used in concert with attributes in the creation of analytic units for more in-depth inter and intra site comparisons.

**Artefact Weight**

Description: Artefact weight will be measured for all artefacts to one tenth of a gram.

Problems: This attribute does not entail any difficulties.

Uses: One of the most useful artefact attributes, weight is the most effective approximation of volume for a given raw material. As such it most accurately reflects the amount of stone being brought to a site. Average weight within a given artefact class is also a good indication of the amount of 'stress' that has been placed on the provisioned material. Large pieces of stone still retaining usable potential are unlikely to be discarded when people are conserving their technological resources (for example, as they move increasingly away from places where replacement material is available). Alternatively, when people are close to the raw material source, or when they are provisioning larger amounts of material to a site, the pressure on the 'exhaustion threshold' is relieved and there should be a resultant rise in the average weight of discarded artefacts.

**Dimensions**

**Percussive Dimensions**

Description: Percussive dimensions measure the length of the flake in the direction of force application from the point that force was applied. In this regard it relates to the length of core face that was removed during the manufacture of the artefact. Width is oriented across the face of the flake from the mid-point of length, and thickness from the mid-point of length and width of the ventral to the corresponding point on the ventral.

Problems: While not as arbitrary as maximum dimensions, there is some uncertainty as to what these attributes are actually measuring in terms of the flake manufacturing process.

Use: Variations in average flake dimensions, and in the distribution of flake sizes in histograms, are expected to correlate with differences in the provisioning and reduction strategies at different places. For example, the reduction of cores at a site will produce a large number of moderate to small flakes and some larger flakes. As a result the histogram of flake length will show a relatively consistent increase in number of flakes from large to small. Contrastingly, when most flakes are the result of retouching or maintenance tasks on other flakes, the majority of the flakes remaining should be very small, with comparably few large to moderate flakes. However, it may be the case that a few moderate to large flakes will be discarded at the site as they are exhausted through excessive/heavy retouch or simply thrown away prior to a reprovisioning event. In such a case, a histogram of artefact size should show a bimodality in regard to length (a small peak in the moderate range and a large peak in the small range), and an even more pronounced bimodality in regard to thickness (most retouching flakes being very thin).

**Maximum Dimensions**

Description: Maximum length, width and thickness will be measured on all artefacts. 'Length' will arbitrarily be measured along the longest plain, with width the longest of the plains at 90° to length, and thickness measured at 90° to both.

Problems: There are no problems associated with taking this measurement, although it needs to be noted that the definitions of length, width and thickness are entirely arbitrary and do not reflect any aspect of artefact manufacture.

Uses: This measure is most useful as a broad measure of size, and may have a role in assessing fragmentation rates (particularly in the case of heat-shattered fragments) and calculating Minimum Numbers of Artefacts (MNA).

**Cortex – Amount and Type**

Description: Cortex refers to the 'skin' of a rock – the surface that has been weathered to a different texture and colour by exposure to the elements over a long period. The amount of cortex as a percentage of surface area will be measured on all artefacts (in relation to flakes, cortex can, by definition only occur on the dorsal and platform surfaces). The nature of cortex – its shape and texture – will vary depending on where the raw material was sourced. Cortex will be recorded in all instances where cortex is present.

Problems: This is a relatively unambiguous descriptive category.

Use: When a natural cobble is first selected it will usually be covered in cortex. Therefore the first artefacts produced from it will have a complete coverage of cortex on the dorsal side (primary reduction). As the cobble is increasingly reduced the amount of cortex on each artefact will rapidly decrease (secondary reduction) until it ceases to be present on artefacts (tertiary reduction). As a result of this trend, it should be possible to determine how early in the reduction sequence the artefact was produced. If large numbers of artefacts or a high proportion of the artefacts of a raw material retain cortex it may indicate that the site is located in close proximity to the source. Differences between the proportions of artefacts retaining cortex between different raw material sites indicates relative differences in distance to source. This does not necessarily mean distance in terms of measurable distance across the landscape; it may also reflect length of time since leaving the source. For example, the last campsite when a group is returning to the source of the raw material may be very close to the source in terms of distance, but distant in terms of time elapsed since the group left the source. If artefacts with cortex are occurring in sites a long distance from the place of origin of the natural cobble, them it is likely that cobbles were being transferred to the site when still only slightly reduced. This would imply an attempt to maximise the amount of stone being provisioned with the weight of transported material being a relatively minor concern.

Cortex type may help to clarify the source of the raw material (e.g. from river gravels [rounded, cortex many microscopic conchoidal fractures], surface scree [cortex weathered, porous, often oxidised, can be angular or rounded] or from outcrops [dependent on raw material type, more likely to have flat angular surfaces or recorticated flake scars]).

### 5.3.3 Attributes to be Recorded on Flakes

In most circumstances flakes, whether broken or whole, will account for the majority of artefacts in an assemblage. Flakes are frequently produced in large numbers during reduction events, though most are never subject to use. Flakes are generally inferred to be the most utilitarian of the basic artefact categories, usually possessing a sharp edge along the entire circumference when whole and amenable to reworking patterns which may yield formal 'implements' or 'tools', such as backed artefacts and scrapers.

**Knapping Type**

Description: Three main knapping methods are used in the production of flakes, resulting in flakes with distinctive characteristics. The first is freehand percussion, where the objective piece is held in the hand and struck with a hard hammer (e.g. a hammerstone), resulting in 'classic' flakes with a single bulb, and a ringcrack/PFA. The second is bipolar, where the objective piece is rested against an anvil and struck. This results in flakes that have straight sheer faces and crushing at both ends. The third is pressure flaking, where an indenter is placed against the edge from which the flake is to be removed and force is applied. The resulting flakes have a characteristically diffuse bulb, with no errailure scar and no PFA.

Problems: Ambiguities do exist in this classification, and the identification of pressure flakes in particular may be difficult, however difficulties are expected to be relatively infrequent.

Use: Freehand percussion, bipolar and pressure flaking are all different approaches to reduction, with different advantages and disadvantages. Pressure flaking is the most controlled method, in terms of how much force is applied and to where. However pressure flaking does not produce large flakes and is usually associated with fine retouching work. Bipolar reduction is usually viewed as a system employed to increase core use-life. As cores become small their inertia thresholds drop making it difficult to reduce flakes via the freehand method. Resting the core and applying bipolar technique allows flakes to be reduced from a core too small to hold or from small round pebbles with no platform angle to initiate reduction. Pressure flaking when undertaken using an anvil often results in a form of bipolar reduction. Patterns in the distribution of flakes resulting from backing may be used to locate areas of backed artefact manufacture. Patterns in the distribution of flakes produced by bipolar knapping maybe used to indicate where there was pressure to maximize core potential.

**Artefact Type**

Description: Artefact type is a formal (e.g. less strictly technological), nominal category, similar to artefact class. Artefact types expected to be located include bondi points, microliths, scrapers, and adzes.

Problems: Ambiguity is an inherent feature of artefact typology, with the lines between different types frequently imprecise. Working definitions for each class used will be specified in the text of the analysis.

Use: Despite the problem discussed above, typology proceeds on the basis that at different places and at different times people manufactured artefacts with specific shapes and characteristics. As a result, the general period during which an artefact was made can be inferred if it is of a specific form. It is also not uncommon to infer that a given artefact form implies a given artefact function, and that from the shape of the artefact the activities taking place at the site can be specified, though these suggestions so far lack archaeological support. The problems with both of these uses are well documented, and any such inferences drawn here will be sparing. There is, however, some potential benefit in approaches based on subsistence patterns and the organization of technology. On this basis, it may be possible to make some assertions from artefact typology as to the way subsistence may have been organized at different places through the landscape.

**Artefact Breakage**

Description: At a basic level, flakes break in six different ways. Three are transverse (at 90° to the direction of percussion) – proximal, medial, distal; two are longitudinal (along the plane of percussion) – left, right (oriented from the ventral view); and one ambiguous – marginal (where dorsal and ventral can be clearly distinguished, but the margin from which the piece has detached is uncertain). All such breaks will be recorded.

Problems: It is occasionally difficult to be certain of the breakage on an artefact. In most cases, however, the kind of breakage can be ascertained.

Use: It is important to differentiate broken from complete flakes for the purposes of analysis, as the two are not comparable in regard to a number of measures. The amount of artefact breakage in an assemblage also indicates the degree of fragmentation to which the assemblage has been subject. In highly fragmented assemblages, the actual number of artefacts represented may be significantly exaggerated. Quantifying breakage allows a more accurate approximation of artefact numbers to be made.

**Heat Affect**

Description: Heat will affect artefacts in different ways, depending on the way it has occurred. Most heat affected flakes on fine-grained material will reveal a greasy surface lustre on newly flaked surfaces and some discoloration (e.g. porcellanite turns from white to blue), however as heat becomes excessive signs such as potlidding (the 'popping' of small plate-like pieces off the flake) or crazing (multiple fracture lines in multiple directions across the face of the flake) will occur. The presence of any of these features will be recorded.

Problems: This is a relatively unambiguous descriptive attribute for fine-grained materials – its application to coarse-grained materials is perhaps less certain.

Use: Trends in the spatial distribution of heat-affected artefacts may be used to indicate either heat-treatment (the controlled application of heat to improve flaking qualities) or post-depositional burning (uncontrolled heating through bush-fires or stump burning) depending on the signs of heating and associated archaeological features (e.g. hearths).

**Platform Size – Width and Thickness**

Description: The platform is the surface into which force is applied in the formation of a flake. Platform width is measured across the platform in the same direction as flake width, while platform thickness follows flake thickness

Problems: Some ambiguity exists on 'where to stop measuring' platform width and thickness, particularly on primary cortical flakes on rounded cobbles (the first flakes removed from a natural cobble), and platform surfaces comprised of multiple flake scars. Despite this the measure appears to work quite well for the majority of flakes.

Use: Platform size is expected to decrease under two circumstances. The first is when flakes are produced from small cores. The second is somewhat more speculative and based on the premise of a correlation between very small (focalized) platforms and the production of parallel-sided flakes (blades) associated with backed artefact manufacture.

Differences in platform size averages within and between sites will be examined to test these correlations and to infer what these mean in terms of human behaviour patterns e.g. curation of stone, expedient use of stone.

**Platform Surface**

Description: Platform surface will be recorded as one of the following: cortical, single flake scar, multiple flake scars, or facetted.

Problems: This is a largely unambiguous descriptive attribute.

Use: The surface of a platform provides information about the history of the core prior to the detachment of the flake, and also about methods employed to control the flaking process. Faceting in particular has been linked to the systematic production of 'blades'. Patterns in the spatial distribution of these attributes may be used to infer differences in reduction strategies.

**Overhang Removal**

Description: Frequently prior to the detachment of a flake from a core, the thin overhanging 'lip' of the core was removed in order to stop 'crushing' or force dissipation at the point of force application. This process is known as overhang removal.

Problems: This is a largely unambiguous descriptive attribute.

Use: Overhang removal is often seen as a form of raw material conservation. If a knapper desires to remove thin flakes from the face of the core by striking close to its edge, overhang removal may avoid the platform crushing and the resultant flake ending in a step termination which must be removed from the face of the core before flake production can continue. Thus, raw materials within assemblages, that have high relative proportions of overhang removal, or total assemblages that have high relative proportions of overhang removal, will be used to indicate raw material conservation, which can then be interpreted in relation to human resource use patterns/preferences.

**Dorsal Scar Count**

Description: The dorsal face of a flake provides a partial record of previous flaking episodes to have occurred down the core face at or near the same point. The number of flake scars on the dorsal surface of a flake which can be oriented relative to their direction of percussion and which are clearly discernable will be recorded.

Problems: There is some ambiguity in this measure, hence the use of the term 'clearly discernable' above. Furthermore, by the nature of the flaking process, each subsequent scar will remove traces of the previous scars, resulting in an incomplete record. For these reasons, this measure needs to be treated with some caution.

Use: Dorsal scar count is a rough indication of how much flaking has occurred prior to the detachment of the flake in question. It also provides a maximum against which to form ratios of 'aberrant to non-aberrantly terminating scars', 'parallel to non-parallel scars' and 'number of scars per rotation' (see next three attributes), all of which may assist in clarifying the reduction process and assist in understanding differences in the Aboriginal use of raw materials and sites.

**Number of Aberrantly Terminating Dorsal Scars**

Description: Aberrant terminations are further discussed below under **Termination**. For the purposes of this description it is sufficient to say that flake scars terminating as steps and hinges will be recorded as aberrant in this assessment.

Problems: The problem(s) with this count are the same as those for the previous.

Use: As cores become smaller and more heavily reduced, the inertia threshold will fall and platform angle will increase, resulting in an increase in the number of aberrant terminations as a percentage of the number of flakes removed. Flakes which have a high number of aberrantly terminating flake scars as a percentage of the total are expected to have been produced towards the exhaustion threshold of the core. This measure will be used to indicate pressure on raw material availability and provisioning strategies.

**Number of Parallel Flake Scars**

Description: A basic count of the number of parallel flake scars.

Problems: As previous.

Use: Examining the ratio of parallel to non-parallel scars on the dorsal surface of flakes may help to clarify the prevalence of 'blade' production in the reduction systems at different places. It may also be possible from examining this ratio in relation to flake size to test whether blade production occurred at a specific stage in the reduction sequence, or whether it was present throughout the complete reduction sequence.

**Presence of Parallel Arrises**

Description: Arrises or dorsal ridges are a way of controlling artefact morphology. Flakes struck down an existing ridge will tend to follow the direction that the ridge takes. This attribute will involve noting the presence or absence of dorsal ridges that run parallel to the length of the flake.

Problems: Unlike the previous measures, this attribute is largely unambiguous.

Use: Like faceting, the presence of parallel arrises is associated with more controlled flaking methods such as blade production. The relationship between flake size and the presence of parallel arrises may provide similar information to the previous attribute (while at a lower resolution, being presence/absence based, this attribute is less ambiguous than number of parallel scars), as well as helping clarify the spatial distribution of different reduction strategies.

**Dorsal Scar Rotation Count**

Description: As a core is reduced it may be turned or rotated to provide new platforms or overcome problems with increasing platform angles. As a result, flakes may be detached which cut across old flake scars. The result should be apparent as dorsal scars in different direction to the direction of percussion of the flake being recorded.

Problems: The problem with this measure is the same as that for dorsal scar counts in general.

Use: Core rotation is increasingly likely towards the exhaustion threshold of cores, when platform angles increasingly approach or exceed 90° (it becomes very difficult to remove flakes from platforms with angles exceeding 90°). If it is possible to show a correlation between flake size and number of dorsal scar rotations then it will become possible infer from differences in the spatial distribution of this data that core exhaustion was more frequently approached in some areas than in others. If it is not possible to show this correlation, then it may be taken to suggest that core rotation was part of the reduction strategy throughout the reduction continuum.

**Termination**

Description: Termination refers to the way in which force leaves a core during the detachment of a flake. Every complete flake has a termination. There are patterns in the form which terminations will take, with the four major categories (those to be used here) being: feather, hinge, step, and outrepasse (or plunging).

Problems: This is a largely unambiguous descriptive attribute. The only point at which uncertainty does enter is in differentiating some transversely snapped flakes from step terminated flakes. In the majority of cases, however, this problem does not arise.

Use: Different terminations have different implications both for flake and core morphology. A flake with a feather termination (in which force exits the core at a low or gradual angle) will have a continuous sharp edge around the periphery beneath the platform. This has advantages in terms of the amount of the flake edge which can be used for cutting, and also makes the flake far more amenable to subsequent retouching or resharpening activities. Detaching flakes with feather terminations also has minimal impact on the effective platform angle of the core, and so platform angle thresholds are reached relatively slowly while feather terminating flakes continue to be produced.

Hinge and step terminating flakes have none of these advantages. They result in edges which are amenable neither to cutting nor to retouching. Furthermore, hinge and step terminations lead to rapidly increasing effective platform angles, leading to a requirement for core rejuvenation and core exhaustion. For these reasons, such terminations are considered undesirable or *aberrant*. The number of aberrant flake terminations is expected to increase towards the end of a core's uselife, as reduction in core size and increase in core platform angle make it increasingly difficult to detach feather terminating flakes. In areas where aberrantly terminating flakes are relatively common it may be inferred that core potential was more thoroughly exploited. From this it may in turn be inferred that the pressure to realize core potential (e.g. a strategy of heavy raw material conservation) was greater. Increased mobility/emphasis on portability is one possible explanation of such a pattern.

Outrepasse flakes have the opposite effect on core morphology to step and hinge flakes, in that they remove the entire core face and part of the core bottom. As a result, such flakes may be used to rejuvenate cores in which core angles have become high but which still retain useable potential (e.g. are still quite large). The presence of outrepasse flakes may be taken to indicate core rejuvenation and the requirement to increase core use-life.

**Retouch**

Description: Retouch is the term given to alterations made to a flake by the striking of subsequent flakes from its surface. Retouching may be done either to alter artefact form or to rejuvenate (resharpen) dulled edges, and possibly both. Degree/amount of will be recorded as presence/absence.

Problems: This is a largely unambiguous descriptive attribute. The only area in which difficulty may arise is in instances where edge damage cannot be differentiated from retouch. This occurs infrequently, as edge damage is usually a modern alteration to artefact form which can be noted through differences in surface colour between the flake scar and the rest of the artefact surface.

Use: The two main uses of retouch need to be separated for the purposes of this discussion. Retouch to achieve form (for example, artefact backing) is distinct from retouch for the purposes of edge rejuvenation. 'Formally retouched' artefacts are anticipated to occur at places of manufacture and places of discard. Importantly, such artefacts will be manufactured prior to use as part of a gearing up or preparation for activities such as hunting. The presence of concentrations of such artefacts, including incomplete specimens may indicate the base-camp locations from which mobile subsistence activities were conducted. Such artefacts are also expected to be present among very small assemblages at distances from occupational foci, as the result of discard, loss, or breakage.

Edge rejuvenation retouch is expected to increase as the availability of replacement materials decreases. Such artefacts are expected to represent 'personal gear', an implement carried with a person and maintained for repeated use. Unlike formally retouched pieces, artefacts with edge rejuvenation will not be produced *in preparation for* activities. The sharpest and most useful edge is a fresh edge. Rather, rejuvenation will occur as need arises. The presence of such artefacts at occupational foci is likely to represent discard following use and prior to reprovisioning/retooling. The percentage of artefacts exhibiting retouch is expected to increase in systems where large amounts of replacement raw material are not available.

It needs to be noted that a third type of retouch also occurs, aimed at neither formalisation of shape or edge rejuvenation. This is when a flake (usually a large to very large flake) has been used for the subsequent production of utilitarian flakes (e.g. when it has been used as a core). This strategy is quite prevalent in the Hunter Valley. Differentiating such artefacts from other retouched artefacts is empirically difficult, however, is intuitively quite easy. Any such intuitive judgements can, however, be tested during the analysis phase, as such flakes are expected to be quite distinct from other retouched artefacts in size and weight.

**Retouch Type**

Description: Retouch type is a technological attribute relating the way in which retouch was carried out. Categories to be used are steep, acute, unifacial, bifacial, tranchet and/or used as core.

Problems: This is a largely unambiguous descriptive attribute.

Use: Whether retouch results in a steep or acute edge is important in relation to the possible functions of those edges. Acute retouch results in sharp edges suitable for cutting whilst steep retouch can be used to totally remove a sharp edge (to blunt as in backed artefacts) or to produce thick strong edges suitable for adzing or scraping. Thus, artefact function can be suggested by recording this attribute (residue and use-wear analysis is also planned to substantiate these interpretations). The recording of the technique used for retouch addresses questions related to techniques of implement manufacture and thus another form of human behaviour that can be analysed within and between assemblages.

**Retouch Location**

Description: Each flake will be divided into eight segments: proximal end, proximal left, proximal right, marginal left, marginal right, distal left, distal right, and distal end; with the presence or absence of retouch in each to be recorded

Problems: Apportioning sections relies on a visual division of the flake, which may be slightly inaccurate. This is not expected to be a significant effect.

Use: An examination of retouch location may reveal trends in distance decay (e.g. increasing number of margins retouched over distance, or may simply reveal non-random patterns in the way retouching was carried out. If the former, then the trend may be used to suggest trajectories along which flakes were being carried as personal gear. In the case of the latter, the information would provide an insight into the manufacturing/reduction systems being employed.

### 5.3.4 Attributes to be Recorded on Cores

The following attributes are to be recorded on cores. Most information taken from cores concerns the way in which they were reduced – what pressures, controls and systems were applied.

**Percentage of Surface Flaked**

Description: This attribute involves an estimate of the percentage of the outer surface of the core which has had flake scars removed from it.

Problems: This is a visual estimate and liable to prove reasonably inaccurate and coarse. Nevertheless, it remains useful.

Use: This measure can be useful in assessing degree of core reduction. In particular, it can be useful in locating areas of heavy core reduction, particularly when used in concert with the following two measures.

**Number of Flake Scars**

Description: This measure mirrors **dorsal scar count** from the previous section. All scars over the length of 10 millimetres will be measured (there are usually large numbers of flake scars between 10-3 millimetres, which relate more to platform preparation than flake production.

Problems: Most of the problems with this measure arise from fact that subsequent scars remove traces of former scars, leaving an incomplete record of the past. As a result, this measure will always underestimate the number of flakes removed from the core.

Use: Dorsal scar count provides an estimate of the amount of reduction to which a core has been subject. Used in concert with measures such as **number of rotations** and **percentage of surface flaked**, it may be help to locate differences in the degree of core reduction at different locations.

**Number of Rotations**

Description: This measure mirrors **dorsal scar rotation count** as discussed above.

Problems: This measure has the same problems as **number of flake scars**.

Use: Different reduction systems use core rotation in different ways. In some systems, cores are rotated only once, after the striking of the initial flake to form a platform. All subsequent scars are removed in one direction from that platform. Other systems will involve repeated rotations between two platforms, or may involve continuous core rotation and numerous platforms. It may be the case that through the use-life of a core a number of different strategies will be used.

Assessing core rotation may help to clarify reduction systems, and the stage in the reduction system at which the individual core was discarded. This can be used to indicate differences in use of raw materials both within assemblages and between assemblages.

**Number of Aberrantly Terminating Scars**

Description: Flake scars terminating as steps and hinges will be recorded as aberrant in this assessment.

Problems: There should be no problems with this simple count.

Use: As cores become smaller and more heavily reduced, the inertia threshold will fall and platform angle will increase, resulting in an increase in the number of aberrant terminations as a percentage of the number of flakes removed. Flakes which have a high number of aberrantly terminating flake scars as a percentage of the total are expected to have been produced towards the exhaustion threshold of the core. This measure will be used to indicate pressure on raw material availability and provisioning strategies.

**Number of Parallel Flake Scars**

Description: A basic count of the number of parallel flake scars.

Problems: There should be no problems with this simple count.

Use: Examining the ratio of parallel to non-parallel scars on cores may help to clarify the prevalence of 'blade' production in the reduction systems at different places. It may also be possible from examining this ratio in relation to flake size to test whether blade production occurred at a specific stage in the reduction sequence, or whether it was present throughout the complete reduction sequence.

### 5.3.5 Comments

Description: a column will be supplied in the data base for recording comments. This may include comments on attributes such as artefact colour, granularity, presence and nature of inclusions, or other comments that do not fit snugly inside one of the attribute classes.

Problems: There should be no problems.

Use: Descriptions of artefacts can sometimes be useful for assisting in locating conjoins.

# 6.0 Recovered Artefact Management

Artefacts recovered from the continued underground mining area as a result of the above impact mitigation activities are to be managed in accordance with Sections 3.4 and 3.5 of the main report.

# 7.0 Procedure for Previously Unidentified Objects/Skeletal Material

Section 3.8 of this ACHMP details the procedure for previously unidentified objects located during ground disturbance works. Section 3.8 details the procedure for human skeletal material/possibly human skeletal material.

# 8.0 Reporting

As noted in Section 3.6 of this ACHMP a salvage program for the project will be undertaken as required if sites may be adversely impacted by subsidence remediation works. Therefore, a single report that covers all of the works detailed within this Research Design and Methodology will not be possible until all works are completed. Therefore it is proposed that small summary reports will be provided to the registered Aboriginal stakeholders, EPA and DP&I following each site salvage and subsequent to each monitoring program undertaken following longwall removal. Where applicable, revised AHIMS site cards will also be provided to EPA.

It is also proposed that a report, prepared in consultation with the Registered Aboriginal Parties, will be provided to the Registered Aboriginal Parties, EPA and DP&I annually as a component of the Annual Environmental Report. The report will attempt to address the questions posed in this Research Design and Methodology (refer to **Section 4.0**).

# 9.0 References

Umwelt (Australia) Pty Limited. 2008. Aboriginal Heritage Assessment: Austar Coal Mine Project, Stage 3. Unpublished report to Austar Coal Mine.

Umwelt (Australia) Pty Limited 2011b. Austar Coal Mine Project – Stage 3 Modification Environmental Assessment.

# APPENDIX 3

# Methodology Reference Sheets

# Appendix 3 – Methodology Reference Sheets

The Reference Sheets included within this Appendix detail methodologies, protocols and actions to be taken in circumstances discussed within Section 3.0 of the Aboriginal Cultural Heritage Management Plan: Austar Coal Mine (ACHMP). The main text of the ACHMP provides the context and scenarios for the included methodologies, as well as further circumstances not referenced within this Appendix. The Reference Sheets included within this Appendix are:

Reference Sheet 1: Baseline Recording of Site/PAD Condition

Reference Sheet 2: Baseline Recording of Artefacts/Extent of Artefacts in Isolated Finds and Artefact Scatter Sites

Reference Sheet 3: The Baseline Recording of the AMC6 Grinding Groove Site

Reference Sheet 4: Post Subsidence Monitoring Requirements

Reference Sheet 5: Methodology for Surface Collection for Known Sites/PADs Impacted by Remediation Works

Reference Sheet 6: Methodology for the Return of Artefacts to Country

Reference Sheet 7: Protocol for Previously Unidentified Aboriginal Objects/Features Located During Ground Disturbing Works

Reference Sheet 8: Protocol for Human/Possibly Human Skeletal Remains Located During Ground Disturbing Works

Reference Sheet 9: Care and Control of Artefactual Material

## Reference Sheet 1: Baseline Recording of Site/PAD Condition

The following actions must be read with reference to Section 3.2.1 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | Recording of the site/PAD will be undertaken by a field team consisting of an archaeologist and at least two Registered Aboriginal Party representatives on a rotation basis. |
| 2 | Recording the area of site/PAD or location of object with GPS using MGA 56 coordinate system. |
| 3 | Recording all site features in detailed photographs using photo-point monitoring methods that would require recording of: photographer; date and MGA 56 coordinates; wide view environmental context; ground surface contexts and from centre of site from all compass directions. |
| 4 | Photograph and describe prior impacts from agricultural land use. |
| 5 | Where relevant describe creekline morphology. |
| 6 | Describe and photograph dominant vegetation including native or noxious weed/pest weed species and ground cover. |
| 7 | Describe, measure and photograph any visible signs of erosion (including the width and estimated depth of cracks in soil surface or gullying etc.). |
| 8 | Describe and photograph any visible signs of bioturbation (ants, wombats, stock etc.). |
| 9 | Describe impediments to ground surface visibility. |
| 10 | Provide a sketch map and notes about site access to assist with ease of future monitoring. |

**Reference Sheet 2: Baseline Recording of Artefacts/Extent of Artefacts in Isolated Finds and Artefact Scatter Sites**

The following actions must be read with reference to Section 3.2.1 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | Inspection of the site area by a field team consisting of an archaeologist and at least two Registered Aboriginal Party representatives on a rotation basis. To ensure thorough coverage, the area should be inspected by systematic transects with survey team members no more than five metres apart. |
| 2 | Flagging of all surface artefacts with high visibility survey markers (where relevant). |
| 3 | Recording of surface artefact locations using a handheld GPS, with a record of each exposed artefact (this will be restricted to artefact type and raw material type). Photographs and observations of artefacts/the site area in relation to erosion scours, creek banks, areas of disturbance. |
| 4 | Production of a sketch map identifying the location of all surface artefacts and where relevant estimated extent of associated PAD. |
| 5 | Photographic records of the site/PAD location, with artefact locations/area of the PAD identified by high visibility survey markers. |

## Reference Sheet 3: The Baseline Recording of the AMC6 Grinding Groove Site

The following actions must be read with reference to Section 3.2.1 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | Recording of the site will be undertaken by a field team consisting of an archaeologist and at least two Registered Aboriginal Party representatives on a rotation basis. |
| 2 | Recording the area of site with GPS using MGA 56 coordinate system. |
| 3 | Prepare a scale drawing of the grinding groove and an area 1 metre either side of the groove. |
| 4 | Record detailed measurements and scale plan of the groove (length, width, depth). |
| 5 | Recording and inclusion in the scale plan of any existing cracking/exfoliation of the sandstone bench surface within this area. |
| 6 | Recording of the level of sedimentation present across the sandstone bench. |
| 7 | Recording all site features in detailed photographs using photo-point monitoring methods that would require recording of: photographer; date and MGA 56 coordinates; wide view environmental context; sandstone bench condition and from centre of site from all compass directions. |

## Reference Sheet 4: Post Subsidence Monitoring Requirements

The following requirements must be read with reference to Section 3.2.2 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | Monitoring will be undertaken by a field team consisting of an archaeologist and at least two Registered Aboriginal Party representatives on a rotation basis. |
| 2 | Recording any visible subsidence/cracking of the ground surface (or in the case of AMC6 the sandstone bench within 1 metre of the grinding groove). |
| 3 | Recording any changes to the level of erosion attributable to subsidence. |
| 4 | Recording any changes in vegetation attributable to subsidence. |
| 5 | For sites/PADs near creeks record changes in drainage patterns, ponding or loss of water from drainage channels. |
| 6 | Where subsidence remediation works are required, record if any subsurface testing/salvage is required. |

**Reference Sheet 5: Methodology for Surface Collection for Known Sites/PADs Impacted by Remediation Works**

The following requirements must be read with reference to Section 3.4 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | The surface collection will be undertaken by at least two representatives of the Registered Aboriginal Parties and a suitably qualified archaeologist. |
| 2 | All identified surface artefacts will be marked by high visibility flags. |
| 3 | A photographic record will be undertaken of the Aboriginal heritage site, with artefact locations identified by high visibility flags. |
| 4 | A photographic record will be undertaken of the impacts to the site from subsidence (if any), with any artefacts exposed identified by the high visibility flags. |
| 5 | Recording of surface artefact locations using a handheld GPS. |
| 6 | Preparation of a sketch plan of the site. Detailed site plans are not thought warranted for the majority of the sites due to their location within disturbed and/or eroded contexts, however, a GPS recording will be made of the location and distribution of the artefacts so that this information will be available for spatial analysis. |
| 7 | Further details of the local environment will be recorded as part of the collection process to provide a more detailed context for the assemblages. |
| 8 | The artefacts will be collected. |
| 9 | All artefacts will be placed in individual bags and labelled with the date of collection, the mine name, the site name, artefact number and MGA grid coordinate and incorporated into a larger clip seal bag marked with the mine name, site name, date of collection and participants in the collection. |
| 10 | Detailed attribute recording and analysis will be undertaken of all collected artefacts (refer to Appendix 2 of the ACHMP for details of the methodology for the artefact analysis and the research design). |

## Reference Sheet 6: Methodology for the Return of Artefacts to Country

The following requirements must be read with reference to Section 3.5 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | A field team consisting of at least two representatives of the Registered Aboriginal Parties (rotational basis) and a suitably qualified archaeologist will return the artefacts to the site area. |
| 2 | A safe location will be chosen for the artefacts that is endorsed by all participants. |
| 3 | The artefacts will be reburied in the site area (or spread on the surface if that is the preference of the Registered Aboriginal Party representatives). |
| 4 | A photographic record will be taken of the new artefact location within the site area. |
| 5 | The Registered Aboriginal Party representatives will undertake any cultural protocols/ceremony thought appropriate (if appropriate). |
| 6 | A photographic record will be taken of the remediated site area and notes will be made in relation to the outcomes of the remediation works (refer to **Section 3.2.3**). |
| 7 | A new site card will be completed for OEH for each site. The site card will include a discussion and photographs of the surface collection, the impacts of subsidence and subsidence remediation on the site, the site sketch and the results of the artefact analysis. |
| 8 | The site card will be provided to OEH. |
| 9 | The return of the artefacts will be reported to the Registered Aboriginal Parties and overall within the report for the salvage. |

**Reference Sheet 7: Protocol for Previously Unidentified Aboriginal Objects/Features Located During Ground Disturbing Works**

The following protocols must be read with reference to Section 3.6 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | The discoverer of the object(s) will notify machinery operators in the immediate vicinity of the Aboriginal object so that work can be suspended. |
| 2 | The Austar Environment and Community Manager (ECM) will be informed of the presence of the Aboriginal object(s). |
| 3 | The ECM will immediately notify the following people of the presence of Aboriginal object(s) (if not already informed): |
| | (a) The Registered Aboriginal Parties; and |
| | (b) a suitably qualified archaeologist. |
| 4 | The approximate areal extent of the Aboriginal object(s) and nature of the Aboriginal object(s) will be determined by at least two Registered Aboriginal Party representatives and a suitably qualified archaeologist. That is: |
| | (a) Is it an isolated find or artefact scatter with no potential for subsurface artefactual deposit? or |
| | (b) Is it an isolated find or artefact scatter with potential for subsurface artefactual deposit?; and |
| | (c) Are there additional types of find, such as concentrations of archaeological/cultural shell, bone or charcoal? |
| 5 | The site will be recorded including GPS coordinates for any observed objects and for the assessed extent of the site area. |
| 6 | Notify the OEH of the discovery of the object(s) and submit and AHIMS site card. |
| 7 | The ECM, the Registered Aboriginal Parties, OEH and the suitably qualified archaeologist will discuss the salvage requirements for the objects. Salvage options include: |
| | (a) Where possible, avoidance of any further impact to the site area and culturally appropriate remediation as required; or |
| | (b) Surface collection and monitoring of the remainder of the ground disturbing works in that area; or |
| | (c) Surface collection and subsurface testing to more accurately determine the extent and nature of the Aboriginal objects (only where a potential for further subsurface objects is identified): and |
| | (d) Subsurface salvage if testing locates 20 or more objects in any spit of the 1 metre square and/or if a culturally significant object or feature is located (culturally significant objects are defined as axes, hatchets, chisels, grindstones, backed artefacts, hammerstones, scrapers - culturally significant features are defined as bones, shell, ochre, charcoal associated with ground ovens, camp fire (hearth), heat treatment pit); |
| | (e) Subsurface salvage will continue until less than 20 objects are located in all spits of the 1 metre square or culturally significant objects or features are no longer present; and |
| | (f) Following cessation of subsurface testing/salvage, the monitoring of the remainder of the ground disturbing works in that area; |
| | (g) The initially exposed Aboriginal object(s) will be recorded and collected using the surface collection methodology set out in the ACHMP and analysed using the methodology provided in the ACHMP. |

| Task Number | Task Description |
|---|---|
| 8 | Subsurface testing will be carried out using the following methodology: |
| | (a) A series of 1 metre squares will be excavated manually (spade and trowel) across the area proposed for impact that is assessed as having the potential for subsurface objects; |
| | (b) The 1 metre squares will be placed at 5 m intervals; |
| | (c) The 1 metre squares will be excavated as 50 centimetre quadrats and in 5 centimetre spits (or following the stratigraphy where present and were units are less than 5 centimetre); |
| | (d) The excavation will cease when the clay, bedrock or decomposed bedrock is reached; |
| | (e) XYZ coordinates will be recorded for any objects located in-situ during the testing; |
| | (f) All deposits removed will be sieved using nested 5 millimetre and 2 millimetre sieves (where feasible – it is noted that the soil in this area can be quite coarse and may not go through the 2 millimetre sieve); |
| | (g) One soil sample will be collected from each spit and samples subject to Munsell and pH testing and geomorphic analysis (as required); |
| | (h) Squares that are found to contain objects/features will have their stratigraphic profiles drawn (one wall/square unless there are significant features noted in more than one wall); |
| | (i) All objects recovered will be individually bagged and labelled and all objects will be subject to artefact analysis using the methodology provided in the ACHMP. |
| 9 | Manual subsurface salvage will be carried out using the following methodology: |
| | (a) Any square found to contain 5 or more objects within a spit or culturally significant objects/features will be expanded so that all adjacent 1m squares are excavated; |
| | (b) The methodology for the excavation will be as described in dot points 8.a. to 8.i. (above); and |
| | (c) Manual excavation will cease if excavated squares have less than 5 objects in all spits or no longer contain significant objects/features. |
| 10 | Where features (hearth, heat treatment pit, ground oven, knapping floor) are found during subsurface testing or salvage the following methodology will be implemented: |
| | (a) the surface of the feature will be cleaned back (using trowels and brushes as required) to allow the edges of the feature to be identified; |
| | (b) the top of the feature will be photographed and a plan drawn; |
| | (c) the feature will then be excavated in cross-section (half-sectioned) to investigate the dimensions and orientation of the feature; |
| | (d) the deposits from the feature will be excavated separately to the surrounding deposit to avoid contamination; |
| | (e) the feature will be photographed in cross-section and a stratigraphic profile of the cross-section will be recorded; |
| | (f) all excavated materials from the feature will be retained for analysis and samples of relevant materials will be sent for additional analysis, including radiocarbon dating and/or thermoluminescence where applicable; and |
| | (g) following the removal of the entire feature the excavation can resume using the methodology outlined in dot point 9. |
| 11 | All Aboriginal object(s) recovered will be managed according to the care and control procedures set out in the ACHMP. |
| 12 | The Registered Aboriginal Parties and the suitably qualified archaeologist will monitor topsoil removal from the works area once works have recommenced, to allow for further cultural salvage. |
| 13 | Following completion of salvage/works OEH will be provided with an Aboriginal Site Impact Recording (ASIR) form. |

**Reference Sheet 8: Protocol for Human/Possibly Human Skeletal Remains Located During Ground Disturbing Works**

The following protocols must be read with reference to Section 3.8 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | If the human/possibly human skeletal remains are detected within the context of ground disturbance activities, then all ground surface disturbance in the area of the skeletal remains should cease immediately. |
| 2 | The Austar Mine Environment and Community Manager (ECM) will be informed of the presence of the human/possibly human skeletal remains. |
| 3 | If there is no doubt that the bones are human the ECM will immediately notify the following people/agencies of the presence of human/possible human remains: |
| | (a) The NSW Police Department; |
| | (b) The OEH; |
| | (c) Registered Aboriginal Parties; and |
| | (d) A suitably qualified archaeologist. |
| 4 | If there is substantial doubt regarding a human origin for the skeletal remains the ECM will gain an opinion from a suitably qualified forensic archaeologist/anthropologist (this can circumvent proceeding further along the protocol for remains which turn out to be non-human). If conducted, this opinion must be gained without further disturbance to any remaining skeletal material and its context where possible (be aware that the site may be considered a crime scene containing forensic evidence if the remains are found to be human and not of an Aboriginal person who died more than 100 years ago). |
| 5 | Facilitate, in co-operation with the appropriate authorities, the Registered Aboriginal Parties and the suitably qualified forensic archaeologist/anthropologist, with the definitive identification of the skeletal material (if not already completed). This must be done with as little further disturbance to any remaining skeletal material and its context as possible. |
| | (a) If the remains are identified as human, but not of an Aboriginal person who died more than 100 years ago, and they cannot be avoided, then further decisions and responsibilities regarding the remains rest with the NSW Police and Coroner. |
| | (i) The Heritage Branch of the NSW Department of Planning may require an assessment to be completed to determine if the remains have cultural heritage significance, and if conservation management is required (NSW Heritage Office 1998). |
| | (ii) Removal and/or collection of the skeletal material cannot occur until any statutory requirements are satisfied and necessary approvals are gained. |
| 6 | If the skeletal remains are reliably identified as that of an Aboriginal person who died more than 100 years ago, (and this identification has been made by the suitably qualified forensic archaeologist/anthropologist), then: |
| | (a) Consult with Registered Aboriginal Parties, the OEH, and the suitably qualified forensic archaeologist/anthropologist to formulate appropriate management recommendations. |
| | (b) Implement appropriate management recommendations. |
| | (c) Possible management strategies could include one or more of the following, subject to first gaining all necessary approvals: |
| | (i) Avoiding further disturbance to the find and conserving the skeletal material in situ, (this option may require relocating the proposed ground disturbing works and this may not be possible in some contexts); |
| | (ii) Conducting (or continuing) archaeological recovery of the skeletal material; |
| | (iii) Scientific description and possibly also analysis of the remains prior to reburial; |
| | (iv) Recovering samples for dating and other analyses; and |
| | (v) Subsequent reburial at another place and in an appropriate manner determined by the Registered Aboriginal Parties. |

| Task Number | Task Description |
|---|---|
| 7 | Where removal of the skeletal material is endorsed, (following the removal of the skeletal remains to the satisfaction of the Registered Aboriginal Parties, the OEH, and the suitably qualified forensic archaeologist/anthropologist), recommence the previously suspended construction activities. |
| 8 | Monitoring of the remainder of the ground disturbing works in that area by representatives of the RAP's and a suitably qualified archaeologist. |

**Reference Sheet 9: Care and Control of Artefactual Material for Aboriginal Objects Kept or Returned to the Location they Originated from**

The following methodology must be read with reference to Section 3.9 of the ACHMP.

| Task Number | Task Description |
|---|---|
| 1 | A full catalogue, of stone artefacts, must be prepared. |
| 2 | The catalogue will be in printed form, but may also include an electronic database n the form of a table containing all records. |
| 3 | All stone artefacts will be either individually bagged or bagged in appropriate and identifiable units (e.g. excavation or collection units) that can be referenced back to the catalogue. |
| 4 | That stone artefacts will be stored in good quality, double-bagged plastic zip-lock bags. |
| 5 | The bags will be externally labelled using permanent marker, and an 'independent' label on robust material (e.g. tyvek) is included and written with permanent marker that must be placed inside each bag. |
| 6 | The collection will be placed in a suitable impervious and permanent container, which must be labelled as above, or engraved. |
| 7 | Where artefacts are reburied, a full record of the final location of the collection will be made, including: |
| | (a) grid coordinates; |
| | (b) a site plan or mud map referring to permanent features; |
| | (c) depth of burial, if buried; and |
| | (d) full photographic record of the disposition. |
| 8 | The record must be submitted to AHIMS with an ASIR card for the site (see OEH 2010, *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*). |

**Umwelt (Australia) Pty Limited**
**2/20 The Boulevarde**
**PO Box 838**
**Toronto NSW 2283**

**Ph. 02 4950 5322**
**Fax 02 4950 5737**