

# Appendix D

## Aboriginal and Historic Heritage Impact Assessment



**FINAL**

Mine Development Consent  
Modification  
For Hansen Bailey  
28 July 2010

**AECOM**

# Aboriginal and Historic Heritage Impact Assessment

Muswellbrook Coal Extension



## Aboriginal and Historic Heritage Impact Assessment

Muswellbrook Coal Extension

Prepared for  
Hansen Bailey

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28 July 2010

60156260

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## Quality Information

Document	Aboriginal and Historic Heritage Impact Assessment	
Ref	60156260 60156260_FnlRpt_28Jul1060156260_DftRpt_22Jun10	
Date	28 July 2010	
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## Distribution

Copies	Recipient	Copies	Recipient

## Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
1	25 May 2010	Draft for Review <i>for</i>	Neville Baker. Associate Director	<i>V. Orjane</i>



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## Executive Summary

AECOM Australia Pty Ltd (AECOM) was commissioned by Hansen Bailey Pty Ltd (on behalf of the Muswellbrook Coal Company (MCC)) to prepare an Aboriginal archaeology and historic heritage impact assessment for the Muswellbrook Coal Mine, Development Consent Modification (the Modification), near Muswellbrook, NSW. The assessment forms part of a Statement of Environment Effects (SEE) being prepared by Hansen Bailey to support an application for a modification to Development Consent DA 205/2002 under Section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to extend mining operations to within a 28.4 ha area of which 8.2 ha falls outside the No. 1 Open Cut Extension Area boundary (the study area). Approximately 17.4 ha of the study area is considered highly disturbed due to past mining activities. The assessment was conducted to investigate the nature of Aboriginal and historic heritage within the study area and to identify any potential heritage constraints on the Modification.

The assessment methodology included background research, field survey and consultation with registered Aboriginal stakeholders in accordance with *National Parks & Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants (ICCRs)* and the *Aboriginal cultural heritage consultation requirements for proponents 2010*.

As a result of the assessment, no Aboriginal or historic heritage values were identified within the study area. In addition the assessment found that there was low potential for Aboriginal heritage items to be located with the study area given the area's level of disturbance and its landform characteristics.

### **Conclusions**

#### **Conclusion 1**

No Aboriginal heritage values were identified within the study area. Therefore, no impacts to heritage items are anticipated due to the Modification.

#### **Conclusion 2**

No further Aboriginal site inspections or site monitoring is warranted.

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## 1.0 Introduction

### 1.1 Modification background

AECOM Australia Pty Ltd (AECOM) was commissioned by Hansen Bailey Pty Ltd (on behalf of the Muswellbrook Coal Company (MCC)) to prepare an Aboriginal archaeology and historic heritage impact assessment for the Muswellbrook Coal Mine, Development Consent Modification (the Modification), near Muswellbrook, NSW.

The assessment forms part of a Statement of Environment Effects (SEE) being prepared by Hansen Bailey to support an application for a modification to Development Consent DA 205/2002 under Section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to extend mining operations to within a 28.4 ha area of which 8.2 ha falls outside the No. 1 Open Cut Extension Area boundary (the study area). Approximately 17.4 ha of the study area is considered highly disturbed due to past mining activities. No changes to the approved mining method, production rate, mine life or its coal transport arrangement arrangements are proposed.

The assessment was conducted to investigate the nature of Aboriginal and historic heritage within the study area and to identify any potential heritage constraints on the Modification. This report describes the results of background research and field survey within the study area.

### 1.2 Assessment aim and objectives

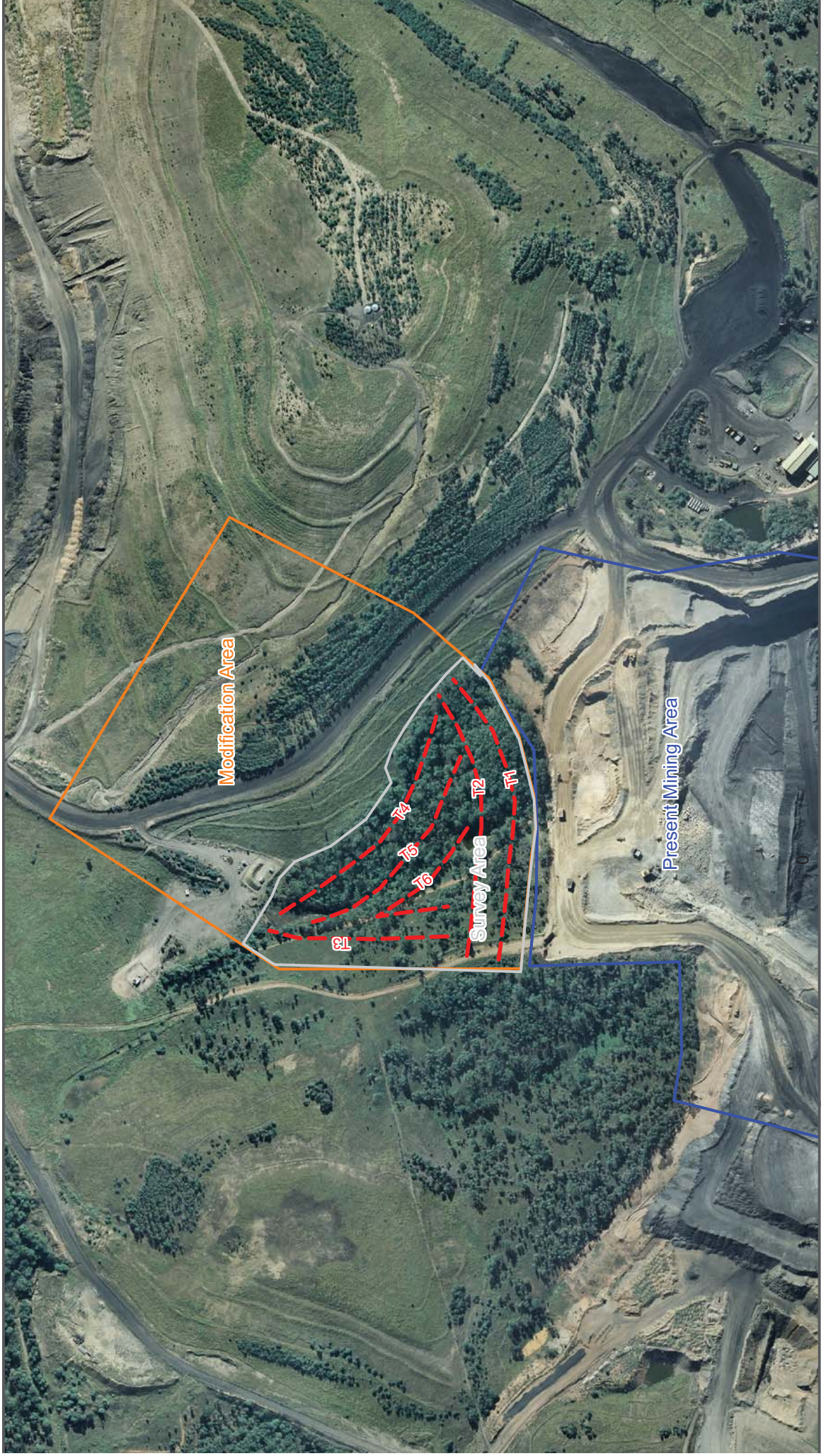
The overall aim of this assessment was to identify Aboriginal and historic heritage values of the study area, to identify potential development impacts on those values and to provide suitable management recommendations. In keeping with this aim, the following objectives were established:

- To review and summarise existing heritage literature for the study area and its environs;
- To identify previously documented Aboriginal and historic heritage sites/objects within the study area;
- Site survey to identify and record any Aboriginal and historic sites and objects within the study area;
- To assess the significance of any recorded sites and/or objects;
- To assess the potential impact(s) of the proposed mine extension on such sites/objects; and
- To prepare recommendations on the management of heritage values within the study area.

### 1.3 The study area

Muswellbrook Coal Mine is owned and operated by MCC. The mine is located approximately 2.5 km north-east of Muswellbrook in the Upper Hunter Valley of NSW. The study area for this assessment comprises a 28.4 ha area in which mining operations are proposed to be extended. Approximately 17.4 ha of the study area is considered highly disturbed due to past mining activities. To this end, the survey area delineated for the field survey was restricted to 11.2 ha of land not previously disturbed by mining activities (see Figure 1).

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--- Transects

□ Survey Area

□ Modification Area

Figure 1

**Modification & Survey Area**  
**Hansen Bailey**  
Muswellbrook Extension Aboriginal  
& Historic Heritage Assessment

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## 1.4 Project team

The Project Team for this assessment consisted of archaeologists and other specialists from AECOM. Neville Baker (Associate Director, Archaeology and Heritage) directed the assessment and provided technical and QA review of this report. Geordie Oakes (Archaeologist) and Andrew McLaren (Archaeologist) conducted background research and co-authored this report. Luke Kirkwood (Archaeologist) and Geordie Oakes (Archaeologist) undertook the assessment survey. Tim Osbourne and Lee-Anne Bishop provided drafting and administrative support respectively.

## 1.5 Report structure

This report is divided into nine sections, each of which is described in brief below:

- **Section 2:** summarises current legislation guiding Aboriginal and historic heritage management in NSW;
- **Section 3:** details the assessment methodology employed;
- **Section 4:** discusses the existing environment of the study area and environs and considers the implications of this environment for the presence and/or survival of archaeological materials in the study area;
- **Section 5:** summarises relevant Aboriginal heritage literature for the study area and environs and discusses the likelihood of Aboriginal heritage sites and objects existing within the study area;
- **Section 6:** summarises relevant historic heritage literature and the results of the register searches;
- **Section 7:** provides results of consultation with the Aboriginal community;
- **Section 8:** describes the results of the assessment; and
- **Section 9:** describes the potential impacts to Aboriginal and historic heritage values within the study area, and provides conclusions.

## 1.6 Limitations concerning Aboriginal heritage sites and objects

This assessment includes predictions concerning the likelihood of subsurface Aboriginal heritage materials existing within the study area. These predictions are made on the basis of a detailed assessment of the physical environment of the study area and its environs (e.g. geology, topography, flora, and fauna) alongside existing archaeological and ethno-historical literature for the study area. Nonetheless, it must be noted that it is possible that Aboriginal objects may occur in any landscape context.

AECOM has undertaken a search of the Aboriginal Heritage Information Management System (AHIMS) held by the Department of Environment, Climate Change and Water (DECCW). The search results are provided in **Section 5.3**. Register searches are constrained by the amount of data in the register and the quality of that data (for example grid references can be inaccurate). Large areas of NSW may not have been systematically searched and may contain Aboriginal objects and other heritage values not recorded on AHIMS. Additionally, the AHIMS reports database can only be searched by the title of the report, date or author which may not indicate the geographical location of the area covered. It is, therefore, possible that some known sites and some reports may have been omitted from this study. Sites and reports are regularly added to AHIMS and therefore the accuracy of information provided from AHIMS is only valid on the day the register is searched.

A summary of the statutory requirements regarding Aboriginal heritage in NSW is provided in **Section 2**. This is provided based on experience with the heritage system in NSW and does not purport to be legal advice. It should be noted that legislation, regulations and guidelines change over time, and users of the report should satisfy themselves that the statutory requirements have not changed since the report was written.

Further constraints for archaeologists investigating Aboriginal heritage impacts include the extent to which post-depositional processes have affected the archaeological record, the extent to which current and past land-use (e.g. cultivation or development) has altered the archaeological record, and poor ground surface visibility, linked to issues such as land-use (current and past), erosion, vegetation type and time of year.



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## 2.0 Applicable Policy and Legislation

The following legislation protects Aboriginal and historic cultural heritage in NSW and is of direct relevance to this heritage impact assessment.

### 2.1 Aboriginal Heritage

#### 2.1.1 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act) requires that consideration be given to environmental impacts as part of the land use planning process. In NSW, environmental impacts are interpreted as including cultural heritage. Three parts of the EP&A Act are most relevant to Heritage. Part 3 relates to planning instruments, including those at local and regional levels; Part 4 controls development assessment processes; and Part 5 refers to approvals by determining authorities.

The Modification is seeking approval from Muswellbrook Shire Council (MSC) under Section 96(2) of the EP&A Act to modify DA 205/2002. MSC will be the determining authority.

#### 2.1.2 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act), administered by DECCW, is the primary legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence if impacts are not authorised. An Aboriginal Heritage Impact Permit (AHIP) should be obtained if impacts on Aboriginal objects and places are anticipated. AHIPs are issued under Sections 87 and 90 of the Act.

Modifications approved under Section 96(2) of the EP&A Act, require a permit under Section 87 or a 'Consent to Destroy' under Section 90 of the NPW Act in the event that archaeological objects are to be disturbed due to the Modification. As such, an assessment of potential impacts to Aboriginal and historic heritage is required for the Modification. DECCWs '*Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005*' is currently the guiding document in this respect.

Consultation with relevant Aboriginal communities has been undertaken for the Modification in accordance with the relevant guidelines. The consultation process employed in this study is outlined in more detail in **Section 7.0**.

### 2.2 Historic Heritage

#### 2.2.1 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) is the primary legislation regulating natural, cultural and built heritage in NSW, and is administered by the Heritage Branch (formerly Heritage Office) within the Department of Planning. The Heritage Act allows for items or places to be listed on the State Heritage Register, and for interim and emergency heritage orders to be made to protect heritage items or places. Any development that may damage a heritage item or place must be approved by the NSW Heritage Council (established under the Heritage Act) or relevant local council before it can proceed.

Section 4A of the Heritage Act recognises two levels of heritage significance for a place, building, work, relic, moveable object or precinct in NSW: state and local. State significance is defined as "...significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item" (Section 4A). Local significance, on the other hand, is defined as "...significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item" (Section 4A).

Archaeological 'relics' are one of several types of environmental heritage protected under the Heritage Act. Section 4(1) of the Act (as amended 2009) defines a 'relic' as:

*Any deposit, artefact, object or material evidence that:*

- a) *Relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- b) *Is of state or local heritage significance.*

Section 139 of the Act defines the need for an excavation permit in certain cases where subsurface relics are known or likely to be present:

- (1) *A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.*

In addition,

- (2) *A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.*

Where relics are assessed as not of local or State significance, an exception to the need for a section 140 permit may be applied for under section 139(4) of the Act.

In cases where 'relics' are located in sites or places listed on the State Heritage Register, excavation permits are required under Sections 60 and 63 of the Heritage Act.

## 3.0 Methodology

### 3.1 Approach

This section describes the methodology AECOM used for the assessment. The assessment process has been divided into three broad sets of tasks:

- Desktop study;
- Archaeological field survey of the study area; and
- Consultation with Aboriginal stakeholder groups in order to define the cultural heritage values of the study area.

These are discussed below.

### 3.2 Desktop Study

The desktop survey methodology comprises:

- A search of the DECCW AHIMS Aboriginal sites database prior to the field survey;
- A desktop review of previous archaeological and heritage reports relevant to the regional and local area;
- Consultation with registered Aboriginal stakeholder groups through a request for information on the cultural heritage values of the study area;
- A review of landscape character and landuse history which influences patterning of sites; and
- The development of a site prediction model based on the findings of the desktop study.

### 3.3 Field Survey

An archaeological field survey of the survey area (described in **Section 8.1**) (see **Figure 1**) was undertaken on 19 May 2010 with five of the local Aboriginal community to identify Aboriginal archaeological sites.

The assessment included 100% survey coverage of the identified area with AECOM archaeologists and registered stakeholder representatives spaced between 5 and 10 m apart.

While all parts of the survey area were covered, particular attention was paid to areas of likely archaeological potential including creeklines, ridgetops, hill tops and flats.

Photography was used to document the environmental and archaeological features of the survey area. All sites identified were recorded spatially by hand held differential GPS.

The general environment has been recorded for the survey area including vegetation, soils and geology.

### 3.4 Social/Cultural Values Assessment

Aboriginal stakeholders are in the best position to provide information on the Aboriginal social heritage values of a given area. During the assessment process, Hansen Bailey and AECOM consulted with Aboriginal stakeholders regarding the Aboriginal cultural heritage values of the study area. This included:

- Preliminary requests for information on Aboriginal cultural heritage values were made with the draft assessment methodology;
- Providing the assessment methodology to all registered Stakeholders for comment prior to fieldwork;
- Participation in and discussion of cultural heritage values during field survey; and
- Providing the draft Aboriginal heritage assessment to all registered stakeholders prior to finalisation and submission.

The above steps were undertaken in accordance with the *National Parks & Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants (ICCRs)* and the *Aboriginal cultural heritage consultation requirements for proponents 2010*.

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## 4.0 Existing Environment

### 4.1 Introduction

Consideration of the existing environment of a study area forms an important component of any heritage impact assessment, and is of particular relevance to the identification and interpretation of Aboriginal sites. From a strictly archaeological perspective, this relevance stems from the long recognised fact that the nature and distribution of Aboriginal sites in any given locality is more often than not, intimately connected to the environment of that locality. In particular, factors such as climate, topography, geology, hydrology, flora and fauna will have played a critical - though by no means determinative - role in influencing how Aboriginal groups moved within, and utilised, a given parcel of land. Information on each of these factors, therefore, is provided below.

### 4.2 Climate

The prevailing climate for Muswellbrook area is warm temperate with a continental influence. Summers are warm to hot and humid, winters are cool to mild. The maximum mean temperatures occur during the summer months with January being the hottest month (31.7°C). Winter is the coolest time of year with a minimum mean temperature of 3.8°C occurring in July. The average maximum temperatures for this area range between 30.9°C and 31.7°C in summer and 17.4 to 22.8°C in winter, although daily temperatures can reach considerably higher or lower than this. The average rainfall for this area is 640 mm.

### 4.3 Topography

The study area is situated in the Central Lowlands topographic zone, which comprises undulating to rolling low hills on weakly developed sedimentary rocks (Kovac and Lawrie 1991: 7). Elevations within this zone range from 10 to 140 m. Within the study area itself, landform elements include ridge crests and open depressions. Local relief is up to 30 m.

### 4.4 Hydrology

The study area is located approximately 4 km east of the Hunter River. Other notable watercourses in the vicinity of the study area include Sandy and Muscle Creeks, located a few kilometres to the north-west and south-east respectively. An unnamed 2<sup>nd</sup> order tributary of Sandy Creek runs westwards along the northern boundary of MCC's approval boundary, with two 1<sup>st</sup> order tributaries draining from the study area.

### 4.5 Geology and soils

The underlying geology of the study area comprises sandstone, shale, mudstone, conglomerate and coal belonging to the Singleton Coal Measures Geological Unit (Kovac and Lawrie 1991: 350). All soils within the study area belong to the Roxburgh Soil Landscape (Kovac and Lawrie 1991: 349). This landscape comprises yellow Podzolic Soils on upper to midslopes; red Solodic Soils on more rounded hills, brown Podzolic Soils on slopes on conglomerate, Lithosols on crests, and, on occasion, yellow Soloths in gullies.

### 4.6 Flora and fauna

The native vegetation of the study area and environs has been heavily impacted by mining and past grazing activities, with extensive clearing having been undertaken. Nevertheless, according to Kovac and Lawrie's (1991: 350) analysis of soil landscapes in the region, this will have comprised "an open woodland of narrow-leaved red ironbark, white box and yellow box with some blakely's red gum, broad leaved red ironbark, grey gum and grey box". Prior to European settlement, these woodland and surrounding vegetation communities likely supported a diverse range of terrestrial and avian fauna. As a general indication, a search of the Atlas of NSW Wildlife lists 329 native fauna species in the area covered by the Muswellbrook 1:25000 topographic maps, including 19 species of amphibians, 42 species of reptiles, 55 species of mammal and 213 species of birds. Sources of reliable water in the local area, such as Sandy and Muscle Creeks and the Hunter River, will have provided habitat for a range of aquatic fauna, including various species of fish, frog, eel and crayfish.

## 4.7 Disturbance

As shown in **Figure 1**, the study area is located adjacent to an operating open cut coal mine. A section of the study area (8.6 ha) has also been significantly impacted by past mining activities. The remaining survey area, while not directly impacted by mining activities has been subject to past vegetation clearing and secondary environmental impacts from these activities such as erosion.

## 4.8 Implications

Consideration of the physical environment of the study area suggests that, prior to European disturbances, it may have been utilised by Aboriginal people. The form of this activity is difficult to determine though was likely predominantly transitory in nature. Concerning the level of disturbance in the survey area, should any Aboriginal sites remain in this area (scarred trees excluded due to near-complete clearing) these are highly unlikely to be *in situ*.

## 5.0 Aboriginal Heritage Context

### 5.1 Ethnographic context

Prior to European settlement, the Muswellbrook district was inhabited by people of the Wonnarua language group (many spelling variations include Wanaruwa, Wanarua, Wannarawa, Wannerawa, Wonarua, Wonnah Kuah, Wonnuaruah). This language group covered a relatively small area of some 5,200 km<sup>2</sup> which, according to Tindale (1974: map supplements), straddled the Upper Hunter Valley and extended from just west of Maitland and Kurri Kurri west to the Dividing Range (just west of Widden Brook). The Wonnarua's lands border the Darkinjung territory to the south near Wollombi, the Worimi and Awabakal of the Lower Hunter to the east near Maitland, and the Geawegal to the north near Muswellbrook.

The study area lies near the northern limits of the Wonnarua's territory and the area may also have been influenced by the neighbouring Geawegal group to the north. According to Brayshaw (1987: 38), both the Wonnarua and the Geawegal were closely affiliated with the Kamilaroi people of the Liverpool Plains. Indeed, Brayshaw (1984) concludes that the Kamilaroi were the dominant cultural influence throughout the Upper Hunter region. Their social systems covered both the Goulburn Valley and Hunter Valley as far south as Wollombi Brook. Brayshaw (1987: 51) considers that the Wonnarua, Geawegal and probably the Guringai (Worimi) were all part of the "Kamilaroi Nation."

The Wonnarua peoples' social structure was comprised of many self-governing units consisting of the smallest residential units known as 'hearth groups' of perhaps 10 people consisting of a man, his wife or wives and their dependent children. Several hearth-groups camped together temporarily forming slightly larger residential units called bands of perhaps 40-60 people (Lourandos 1977). The largest residential groupings consisted of either seasonal (summer) band aggregations or irregular ceremonial band aggregations forming local 'communities' of at least 150 people.

Spiritual authority was vested in a large number of supernatural beings. One of the most important was Baiami ('The Great Shaper,' 'Thunder-God' or 'Great One'). Baiami formed the world by shaping the cosmos from a pre-existing primeval void (O'Rourke 1997: 173). Society was divided into two matrilineal moieties and based their political organisation on a council of Elders (Djekic 1984: 2).

A variety of foods, particularly animals, were consumed. Unlike other areas of Australia, plant foods were not as readily consumed except for grass-seed, especially in the form of seed-cakes. Kangaroo grass, as well as other grass types, was gathered in large quantities and ground between flat stones and baked in hot ovens (Gardiner, cited in O'Rourke 1997:150-154) and this is demonstrated archaeologically by the presence of grinding stones at the Moore Creek complex near Tamworth (McBryde 1977). The people of the lower slopes and plains were known to erect complex huts of grass and tree branches, or grass and mud over a frame of boughs (Allen, cited in O'Rourke 1997: 148). These huts were often erected in large, semi-permanent summer camps, especially along river margins of the plains country. These communities usually dispersed into the smaller hearth-groups during winter.

The population density for the Wonnarua is difficult to estimate, and certainly pre-European numbers have not been estimated with any accuracy. Various historical accounts of early European interactions with the Wonnarua, cited by Brayshaw (1987: 46-48), suggest relatively low numbers for that language group. For example, five individuals were observed by John Howe near Jerry's Plains in 1819. In 1824, fifteen Aborigines visited Dangar's camp at Dart Brook and soon after a group of 150 attacked his party just beyond the Liverpool Range. These figures tend to correlate with the population numbers based on the social groupings discussed above. However, Brayshaw (1987: 47) suggests that actual numbers were higher than this with reports of groups of 200 and 300 able-bodied men observed in separate groups. Curr (1886: 352) stated that the Wonnarua numbered 500 individuals in 1841, but by the 1880s population numbers had seriously declined, citing various diseases as the principal cause.

### 5.2 Archaeological context

This section reviews existing published and unpublished literature relevant to Aboriginal archaeology within the study area. This review serves as a baseline from which to assess the likelihood of Aboriginal sites existing within it and, should such potential exist, to define their likely nature and distribution. A brief overview of archaeological



research in the Upper Hunter Valley provides context for a more detailed consideration of previous archaeological investigations within the study area.

### 5.2.1 The Upper Hunter Valley Archaeology

The Upper Hunter Valley has a long history of Aboriginal archaeological research, with a considerable body of published and unpublished literature on the Aboriginal archaeology of the region, including two regional syntheses (e.g. ERM 2004; Hughes 1984), now available (for recent overviews see ERM 2004; Holdaway 1993). Although a detailed review of this literature is beyond the scope of this assessment, a few comments are warranted.

Formal academic interest in the Aboriginal prehistory of the Upper Hunter Valley can be traced to the late 1930s, with McCarthy and Davidson's (1943) collection and subsequent analysis of a sizeable chipped stone assemblage from a surface scatter at Gowrie, some 5 km west of Singleton, on the northern bank of the Hunter River. However, it wasn't until the 1960s that the first sustained and geographically extensive program of archaeological fieldwork was undertaken in the valley. From 1965 to 1967, archaeologists from the Australian Museum, working under the direction of then Curator of Anthropology David Moore, conducted a series of archaeological surveys and excavations throughout the Hunter Valley (Moore 1970). Sites excavated during this period were all found to belong to the so-called Bondaian phase of McCarthy's (1976) Eastern Regional Sequence (ERS), dating to around 2000 Before Present (BP), and characterised by chipped stone assemblages with significant backed blade and microlith components (for more detailed discussions on the technology and chronology of Bondaian technology in the Hunter Valley see Hiscock 1986; Moore 2000).

Coming out of the 1960s, the 1970s and 80s was a boom time for developer-funded or consultancy-based archaeology in the Upper Hunter, with a dramatic increase in the quantity of archaeological assessments being undertaken in the region, typically as part of Environmental Impact Assessments (EIAs) and Reviews of Environmental Factors (REFs) being prepared in advance of large-scale mining and power developments. Prominent amongst these was a National Parks and Wildlife Service (NPWS) commissioned study on the Aboriginal archaeology of the Hunter Valley (Hughes 1984), the overall aim of which was to provide the Service with strategies for the acquisition, preservation and protection of a representative sample of prehistoric Aboriginal sites in the Valley. This study, published in 1984, remains an excellent source of information on the character and distribution of Aboriginal sites across the region.

Recent decades have seen the boom trend of the 1970s and 80s continue, with hundreds of consultancy-based archaeological assessments having been undertaken in the region, again, principally in response to mining and other large-scale power-related developments. Together, these studies have resulted in the identification of thousands of Aboriginal sites across a variety of environmental contexts, with open stone artefact scatters and scarred trees being two of the most commonly recorded site-types.

### 5.2.2 Archaeology of the Local Area

#### **Brayshaw. H. 1981. *Archaeological Assessment of Muswellbrook Coal Mines and Archaeological Survey of Muswellbrook Coal Lease.***

The earliest archaeological surveys within the MCC's DA boundary date to 1981, with Brayshaw (1981a,b) conducting two small-scale surveys. As part of her 1981b assessment, Brayshaw examined much of the No. 1 Open Cut extension, with particular attention paid to creek lines and erosion exposures. A scarred tree was recorded approximately 40 m east of the original No. 1 Open Cut mine. The tree displayed two excision marks, both elliptical in shape and consistent with other known scarred trees in the area. A second survey (i.e. Brayshaw 1981a) also incorporated part of the extension area. However, no sites were recorded during this survey.

#### **Stuart. I. M. 1996. *An Archaeological Survey of Proposed Extensions, Muswellbrook No. 2 Colliery. Report to Muswellbrook No 2 Colliery Pty Ltd.***

In 1996, Stuart conducted an archaeological assessment of the planned MCC No. 2 Open Cut extension and the associated proposed rail loop to connect the mine to the main railway (Stuart 1996). The survey covered a total area of 1.4 hectares. Consideration of the visibility conditions at the time of survey indicated that the effectiveness of the survey coverage was approximately fifty percent. The survey located a total of sixteen sites—four artefact scatters and twelve isolated finds. The dominant stone material found at these sites was indurated mudstone, with silcrete the next most common. The only other material found was chert. These sites were predominantly determined to be of low archaeological significance, although four sites were determined to be of medium archaeological significance.

**Rheinberger. P. 1988. *Archaeological Assessment, Proposed Clay Borrow Areas Adjacent to Muswellbrook No. 2 Open Cut Coal Mine, Muswellbrook, NSW.* Report to CH2M Hill Australia Pty Ltd.**

In 1998, Rheinberger conducted a large-scale study of the Muswellbrook area that incorporated five survey areas to the east of Muswellbrook. Two of these areas – designated CBA 1 and 2 – incorporated portions of the current study area. Although Rheinberger's survey resulted in the identification of 21 sites and six isolated finds, only one site was recorded within CBAs 1 and 2 - ML 205 - an isolated find consisting of a single chert flake located on a ridge crest.

**HLA Envirosiences. 2002. *Indigenous and Non-Indigenous Heritage Study, Muswellbrook Coal Company No.1 Open Cut Extension.* Prepared for Muswellbrook Coal Company Limited.**

In 2001, HLA-Envirosiences was engaged to conduct an archaeological assessment of the Aboriginal and historic heritage of a proposed extension to the No. 1 Open Cut Mine. This was undertaken between November 2001 and March 2002. The principal aims of this assessment were to provide information on the nature of historic and Aboriginal archaeological resources within the proposed mining extension area and to formulate appropriate management recommendations. Surface visibility conditions were generally low throughout the extension area at the time of survey, with heavy grass cover across most areas. The survey recorded six Aboriginal sites within the extension area. Four Aboriginal sites were defined as occupation sites, being scatters or isolated finds of chipped stone artefacts; the remaining two sites were scarred trees. Sites were located across all landform units of the study area – being positioned within ridge crest, hillslope and lower order stream landform units. Within the occupation sites, artefact distribution was uniformly low, with a total of eight artefacts recorded and with no site containing more than three artefacts. Only two raw stone materials recorded (indurated mudstone and silcrete), and only three artefacts types were evident (flakes, flaked pieces and cores). All sites had experienced some level of disturbance, mainly as a result of human activity within the landscape.

The assessment of the archaeological (scientific) significance of the sites recorded was done in accordance with the criteria outlined by the relevant guidelines – the NSW National Parks and Wildlife Service's *Aboriginal Cultural Heritage Standards and Guidelines Kit* (1997) and the *Aboriginal Cultural Heritage and the Integrated Development Assessment Guidelines* (2000). All Aboriginal sites recorded by the survey were considered to be of low archaeological (scientific) significance due to their minimal research potential and high level of disturbance. However, one of these sites (M-1) was noted to have subsurface potential. The two scarred trees were defined to be of moderate archaeological significance due to the rarity of that site type within the local and regional contexts. Sites M-2, and M-3 (occupation sites) were assessed to be of low archaeological (scientific) significance and no objection was raised to the issuing of Consent to Destroy permits for these sites. The subsurface potential of site M-1 (occupation site) was considered to require additional archaeological research, and subsurface testing was recommended for this site. Due to the positioning of site M-6 (scarred tree) on the existing boundary of the study area, it is considered possible that the tree may be retained in its current position during the proposed development. It was strongly recommended that the tree be retained in situ. Site M-5 (scarred tree) was centrally positioned within Extension A and it was suggested that relocation may be required to retain its heritage significance. Recommendations were formulated outlining the required procedure if the relocation or removal of either tree was the only feasible option during the development.

**Hamm. G. 2005. *Salvage Report – Section 90 Permit.* A report to Muswellbrook Coal Company Pty Ltd.**

In 2005, archaeologists and registered Aboriginal stakeholders for the Muswellbrook area conducted a limited program of test excavation and surface collection within the No. 1 Open Cut extension. This fieldwork was undertaken in accordance with an archaeological research design developed under DECCW Section 90 requirements. Two previously recorded sites - MCC 2 and MCC4 - were re-located, and visible surface artefacts collected. These comprised a single tuff flake (broken) from MCC 2 and a tuff core fragment from MCC4. In addition to surface collection, three grader scrapes of varying dimensions (i.e. 152 x 10 m, 111 x 10 m and 120 x 10 m) were excavated in selected locations, with an additional 1x.5m test pit hand excavated within Scrape 2 to a depth of 30cm. Together, these excavations produced a total of 17 chipped stone artefacts, including four flake cores, three of which exhibited <20% cortex, perhaps indicating a generally conservative reduction process within the study area. In descending order of prevalence, raw materials included tuff (53%), quartz (35%), quartzite and silcrete (6% each). In offering an overall interpretation of their findings, the excavator's proposed 'low level' occupation activity associated with short-term discard events (ACAS 2005: 9). Aboriginal groups, they suggest, were unlikely to have spent much time in the MCC area given a lack of good flakeable stone and the proximity of resource-rich wetland areas associated Whites Creek and Saddlers Creek (ACAS 2005: 9).

**ENSR Australia. 2008. Development Consent Modification - Aboriginal Heritage Impact Assessment for Muswellbrook Coal Mine. Prepared for Muswellbrook Coal Company Pty Ltd.**

In 2008, ENSR Australia Pty Ltd was commissioned by Hansen Bailey Environmental Consultants to provide an Aboriginal heritage assessment of Lots 5 and 6 of DP 26760, located on the western side of the Mine Access Road, adjacent to the No. 1 Open Cut Mine. The study area covered an area of approximately 4.1 ha. The entire area was surveyed with 100% pedestrian coverage. All ground exposures and trees were inspected, with special attention paid to the area of topsoil stripping along the northern boundary of the study area. No Aboriginal sites were found in the course of the survey.

### 5.3 Sites Registered with DECCW's AHIMS Register

A search of DECCW's AHIMS database conducted 26<sup>th</sup> March 2010 found 13 registered Aboriginal sites within a 5 km radius surrounding the study area (**Appendix A**). While none of these sites are located within the current study area, they are indicative of the local site types and therefore inform the site prediction model.

Of the 13 sites listed on the AHIMS register in the local area, five were open sites; four isolated finds, two artefact scatters, and two were scarred trees. Below is a summarised table of the results of the AHIMS search.

Table 1: AHIMS sites

AHIMS #	Site Name	Site Type
37-2-0104	Muswellbrook; bimbadeen	Scarred Tree
37-2-0105	Bells Mountain	Scarred Tree
37-2-1841	MWOS3	Artefact Scatter
37-2-1845	MW-IF-1	Isolated Find
37-2-1982	M-1	Open Site
37-2-1983	M-2	Open Site
37-2-1984	M-3	Open Site
37-2-1985	M-4	Open Site
37-2-2030	CB-2	Artefact Scatter
37-2-2031	CB-1	Isolated Find
37-2-2585	Muswellbrook Common 21	Open Site
37-2-2592	Sandy Creek Road IS01	Isolated Find
37-2-2807	MFLD03	Isolated Find

### 5.4 Archaeological Site Prediction

Consideration of previous Aboriginal heritage assessments within the study area, and Upper Hunter Valley as a whole, in addition to AHIMS data, allows a series of predictions to be made concerning the nature and distribution of Aboriginal sites within the study area. Key predictions for this assessment include:

- Chipped stone artefacts will likely dominate the archaeological record of the study area, occurring as both isolated finds and small, low-density artefact scatters;
- Dominant raw materials for chipped stone tool production will be indurated mudstone and silcrete;
- Formal tool types will likely be conspicuous by their rarity, with cores and associated debitage dominating;
- Despite extensive clearing, scarred trees may also occur within the study area;
- Sites may occur across all landform elements, however there will likely be greater concentration adjacent to water features;
- Surface scatter sites may include a sub-surface component; and
- Most, if not all, sites will have been disturbed to some degree.

## 6.0 Historic Heritage Context

### 6.1 History of the Muswellbrook Area

Muswellbrook, originally spelt Musclebrook was first explored by Europeans in 1819, when Chief Constable John Howe visited the area while looking for a trafficable route between the Hawkesbury and Hunter rivers. Following Howe's exploration of the area, in 1833 the area was declared a township, with surveyor Robert Dixon defining the town plan in a rectangular grid with allotments generally of half an acre. The first blocks were sold in 1834, and the first houses built not long after.

The town grew steadily, so that by 1842, a new subdivision of the settlement was opened to the south of the river and called Forbestown. Within 10 months, this subdivision contained more than 40 houses. Forbestown was incorporated into the town of Muswellbrook in 1848. Population growth was constant so that the town grew from 215 people in 1840 to 1445 in 1870. The growth of the town was accelerated by the establishment of the railway in 1869.

Early in its history, the principal industries in Muswellbrook were agricultural, including the growing of wheat, grazing of cattle and wool production. By the 1900s a number of dairies were established in the region, particularly concentrated on the alluvial flats and terraces between Scone, Gundy and Muswellbrook as a result of the higher quality pasture lands. After the First World War, many of the larger rural properties were broken into smaller farms and dairying replaced wheat and wool as the main rural industries. This continued into the 1970s.

The greatest impact, both economically and geographically, however, resulted from the development of the power and mining industries in the area. Coal was discovered in the Muswellbrook district in the 1860s, with a small seam uncovered to the south during the construction of a rail line (McDonald 1990). Mining began in earnest in Muswellbrook with the formation of MCC and the discovery of the Greta Coal Measures in 1907. No. 1 Colliery began operations shortly after (Turner 1995). No 2 Muswellbrook Open Cut was established in 1923 when MCC merged with St Heliers Coal Company Ltd. The 1930s saw a contraction in the coal industry throughout NSW due to the effects of the depression. However, MCC went against this trend and opened a third colliery in 1944.

### 6.2 Research Themes

The NSW Heritage Branch defines a number of themes that reflect aspects of national, state and local historical development. Such themes represent areas of potential investigation. The following themes have been identified for Muswellbrook and its development based on the historical background provided above.

- *Towns, suburbs and villages* - Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages;
- *Agriculture* - Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture;
- *Pastoralism* - Activities associated with the breeding, raising, processing and distribution of livestock for human use;
- *Transport* - Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements;
- *Industry* - Activities associated with the manufacture, production and distribution of goods; and
- *Mining* - Activities associated with the identification, extraction, processing and distribution of mineral ores, precious stones and other such inorganic substances.

These themes provide a frame of reference for exploring the study area's history, and enable a greater ability in the identification and understanding of potential heritage values.

### 6.3 History of the Study Area

Prior to the establishment of No. 1 Open Cut in 1944, the study area was likely used for agricultural purposes. Parish maps available for the parish of Rowan, county of Durham (years 1906, 1917, 1923, 1932, 1942 and 1968) show that from 1906 to 1942 land now forming No. 1 Open Cut was owned in six adjacent allotments by Francis Ford in the south, George Bowman in the north, Thomas Simpson Hall in the northwest and dedicated public common in the southwest (Department of Lands 2010).

The assertion that land in the study area was likely used for agricultural purposes is supported by information available on George Bowman and Thomas Simpson Hall who were the known land owners. George Pearce Bowman was born on 18 March 1821 at Archerfield, Richmond, where he managed his father's 1824 grant of 1130 acres (457 ha) adding extensively to it. He became a leading pastoralist in the Hunter Valley, breeding sheep and Shorthorn cattle. Thomas Simpson Hall was also a known breeder of station horses, Durham cattle and merino sheep (Adbonline 2010).

While the 1942 parish map shows private ownership of land within the study area, the 1968 parish map indicates that the area to the west of the study area was subdivided for the construction of the Muswellbrook Power Station. Property divisions for the remainder of the study area appear to remain the same, although landowners are no longer identified on the maps. However, this does not necessarily indicate a transfer in land ownership.

The Muswellbrook No. 1 Open Cut, the extension of which this report is interested, was mined from 1944 to 1970.

## 6.4 Historic Register Searches

The following table provides a summary of the results of historic register searches showing items within a 2 kilometre radius of the study area as defined in **Section 1.3**.

Table 2: Historic Heritage Register Search Results

Listing	Results
Register of the National Estate	There are no items within the search area listed on the Register of National Estate.
National Heritage List	There are no items within the search area listed on the National Heritage List.
Commonwealth Heritage List	There are no items within the search area listed on the Commonwealth Heritage List.
NSW State Heritage Register (SHR)	There is one item within the search area listed on the SHR – Muswellbrook Brickworks.
National Trust of Australia (NSW)	There are no items within the search area listed on the National Trust of Australia.
Muswellbrook Local Environment Plan (LEP) 2009	There is one item within the search area listed on the Muswellbrook LEP – Muswellbrook Brickworks.

\* Searches undertaken on the 31<sup>st</sup> March 2010

### **Muswellbrook Brickworks**

One heritage item was listed on the Muswellbrook LEP and the NSW State Heritage Register within the MCC DA boundary; however this item is outside the current study area and impact area. The Muswellbrook Brickworks is located approximately 1.5 km to the north-west and is thought to have been established in 1949 by Muswellbrook Industries in order to exploit clay deposits of its own MCC Pty Ltd open cut mine. The coal company also provided shale and coal necessary for brick production. The works are still operational and contain several brick hand-presses made in England in the 1860s. The machines are currently being restored to be used in the production of bricks for heritage buildings.

The Brickworks have been approved for demolition by Muswellbrook Council (**Appendix B**).

## 6.5 Summary

The preceding searches have found that no historic heritage items are located within the study area or impact area of the proposed mine plans.

## 7.0 Aboriginal Community Consultation

Aboriginal consultation was initially conducted in accordance with the *National Parks & Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants (ICCRs)*. These guidelines outline a process of inviting Aboriginal groups to register their interest in being party to consultation (including local newspaper advertising), seeking responses on proposed assessment methodology, and seeking comment on the draft assessment report and recommendations. The guidelines require proponents to allow ten working days for Aboriginal groups to respond to invitations to register, and then 21 days for registered Aboriginal parties to respond to a proposed assessment methodology.

On the 12<sup>th</sup> of April 2010, DECCW released new Aboriginal Cultural Heritage Consultation requirements for proponents. These requirements replace the interim Community Consultation requirements (ICCRs) and were effective from this date. As part of this release, Transitional Arrangements were also provided for those heritage assessments that were currently underway. The Transitional Arrangements state:

*In the case where a notification has been placed in the newspaper and list of registered Aboriginal people has been compiled in accordance with the Interim community consultation requirements for applicants 2005 but no meetings with Aboriginal people have been held, the notification is taken to comply with the requirements for notification under 4.13 and registration of interest under 4.1.6 of the Aboriginal cultural heritage consultation requirements for proponents 2010. The proponent may then proceed with consultation in accordance with the requirements for proponents 2010.*

As a notification of this Modification had been placed in the Muswellbrook Chronicle on 12 March 2010, registrations had been received within the 14 day registration period and the draft assessment methodology had been distributed to the registered stakeholder groups (9 April 2010), consultation for this assessment begun under the *ICCRs (2005)* and is deemed to have complied up to and including section 4.1.3 and 4.1.6 of the *Requirements for proponents 2010*. Ongoing consultation for the Modification was continued from section 4.1.7 of the *Requirements for proponents 2010*, as per the DECCW Transitional Agreements outlined above.

### 7.1.1 Registrations

A newspaper advertisement was placed in the Muswellbrook Chronicle on the 12 of March 2010 seeking registrations of interest. Initial registrations were open for 14 days. In addition, the Registrar of Aboriginal Owners, Local Council, Native Title Services and DECCW were contacted in order to identify Aboriginal communities that may have direct interest in being involved in the assessment process (**Appendix C**).

Due to unexpected circumstances a response from DECCW identifying relevant stakeholders was not received until the methodology phase of this consultation process, and therefore all stakeholders on the provided list were not directly contacted. DECCW (Nick Pulver) were contacted in relation to this issue and advice was received from them stating that the proper process has been followed as it begun under the ICCRs. Therefore, further registrations of interest were not required (**Appendix C**).

The following Aboriginal stakeholder groups registered their interest at this stage of the assessment:

- Yinnar (Y);
- Cacatua Culture Consultants (CCC);
- Wanaruah Local Aboriginal Land Council (WLALC);
- Yarrawalk Aboriginal Corporation (YAC); and
- Lower Hunter Wonnarua Council Incorporated (LHWCI).

### 7.1.2 Modification Information & Methodology

Groups registered at this stage of the Modification were sent a letter containing project information and a draft copy of the field methodology for comment by mail on the 9<sup>th</sup> of April 2010. Comments were received from Y, CCC, WLALC, YAC and LHWCI, who supported the methodology (**Appendix C**).

### 7.1.3 Fieldwork

Fieldwork was conducted on the 19<sup>th</sup> of May 2010. A list of Aboriginal Stakeholder groups and representatives who participated in fieldwork is provided below.

- Y (Norm Archibald);
- CCC (Donna Sampson);
- WLALC (Tony Mathews);
- YAC (Barry French); and
- LHWCI (Mal Moodie).

#### **7.1.4 Draft Report**

The draft report was sent by mail to registered Aboriginal stakeholders on 27 June 2010. Comments were received from all registered stakeholders who supported the findings of the assessment (**Appendix D**).

One comment received from WLALC queried the survey coverage stating that the methodology proposed 100% coverage while the actual survey coverage was only 14%. However, AECOM believes that the six transects undertaken with five stakeholder representatives, two archaeologists and a representative from Hansen Bailey achieved approximately 100% survey coverage.

In addition to the above, several stakeholders expressed concern that care should be taken whilst stripping topsoil from the site.

## 8.0 Results

### 8.1 Survey Results

Archaeological field survey was carried out on Wednesday 19 of May 2010 by Geordie Oakes (Archaeologist) and Luke Kirkwood (Archaeologist) together with Belinda Hale (Hansen Bailey) and representatives of the Aboriginal community as listed in **Section 7.0**.

The survey methodology included six transects with 100% survey coverage of the survey area (**Figure 1**). The survey found that the survey area was dominated by two eroded gullies with steeply sloped sides which form two major ridgelines across the southern extent of the area. Vegetation in the survey area consisted of young re-growth forest of Eucalypt species including ironbark (*eucalypt sp.*) and patches of pasture grasses and weeds.

Disturbance in the survey area consisted of significant earthworks associated within the construction of a dam at its centre and a dirt access road running along at its western edge. In addition, past vegetation clearance had removed much of the areas topsoil, particularly given the steep slopes and gullies.

#### 8.1.1 Aboriginal Heritage Findings

No Aboriginal heritage items were identified during the site survey.

#### 8.1.2 Historic Heritage Findings

No historic heritage items were identified during the site survey.

#### 8.1.3 Fieldwork Constraints

The majority of the study area consisted of secondary growth eucalypt woodland with some grass, weed and leaf cover ranging from 10 cm to 1 m tall (**Plate 1**). Ground surface visibility was moderate however a number of exposures of varying size were scattered throughout the site (**Plate 2**). Enough ground surface exposure was available to allow a satisfactory assessment of the survey area.

Two first order drainage lines ran along the survey area from north to south (**Plate 3, Plate 4**). These drainage lines are considered to be ephemeral in nature and likely only have running water during rain events. During rain events, it is probable that large quantities of topsoil from the survey area may have been washed away via these large gullies, including any artefactual material. The steep eroded gullies also presented difficulties for survey in some areas, however steep slopes are generally considered to have low archaeological potential.

#### 8.1.4 Effective Survey Coverage

Effective survey coverage is a function of the amount of ground surface visibility available for detecting surface artefacts. The amount of ground surface visibility is determined by the amount of ground cover (vegetative cover) over the entire transect, the number and total area of exposures in the transect, and the amount (area) of those exposures with bare soil visible. As can be seen from **Table 3** below, ground surface visibility and therefore the area of each transect available for detecting artefacts, was moderate, where less than 10% is low and above 20% is high. The overall effective coverage was considered average at 11%.

**Table 3: Effective survey coverage**

Transect No.	Landform Unit	Transect Area (ha)	Exposure (%)	Visibility (%)	Detection Area	Effective Coverage (%)
T1	Multiple	3.5	15	80	0.42	12
T2	Multiple	3.5	15	80	0.42	12
T3	Middle slope	1.75	20	70	0.25	14
T4	Lower slope	2.1	10	60	0.13	6
T5	Middle slope	2.8	20	70	0.39	14
T6	Lower slope	3.5	10	60	0.21	6
<b>Total</b>		<b>17.15</b>			<b>1.81</b>	<b>11</b>



### 8.1.5 Socio-Cultural Heritage Values

Aboriginal cultural heritage values consist of places and items that are of significance to Aboriginal people. As such, Aboriginal people are in the best position to provide information on the socio-cultural heritage values of an area. Part of the assessment process includes consultation with registered stakeholders to obtain this information.

During this assessment, preliminary requests for information on cultural heritage values were made as part of the assessment methodology provided to stakeholders. No information related to socio-cultural heritage was received as a result of these preliminary requests.

During the site inspection, requests were made to participating stakeholders for information on the socio-cultural heritage values of the study area. Stakeholders stated that there were no cultural heritage issues related to the proposed works within the study area. Stakeholders also stated that there was limited likelihood for Aboriginal heritage material to be located within the study area due to disturbance and the study area's landform i.e. steep, gullied slopes.

No socio-cultural heritage values were identified in responses to the draft heritage assessment.

## 8.2 Summary

No Aboriginal or historic heritage items were identified within the study area during background research, site survey or through consultation with Aboriginal community groups.

Results of this assessment also find that there is low potential for Aboriginal heritage items to be located within the study area. A number of factors contribute to this assessment of low potential including the level of disturbance the site has undergone combined with the area's steep and gullied landform. The lack of permanent water at the site also makes it an unlikely location for Aboriginal camp sites.

## 9.0 Impact Assessment and Conclusions

### **Conclusion 1**

No Aboriginal heritage values were identified within the study area, therefore no heritage impacts are expected due to the Modification.

### **Conclusion 2**

No further Aboriginal site inspections or site monitoring is warranted.

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# Plates

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Plate 1: Northern slope of central ridge (view north)



Plate 2: Northern gully (view west)





Plate 3: Northern gully (view west)



Plate 4: Looking east from dam

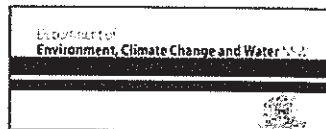
## Appendix A

# AHIMS Search Results

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Aboriginal Heritage Information Unit  
43 Bridge Street Hurstville NSW  
PO Box 1967, Hurstville NSW 2220  
Tel: (02) 95856345 Fax: (02) 95856094  
ABN 30 841 387 271  
[www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)



Your reference : Muswellbrook  
Our reference : AHIMS #29747

AECOM - Gordon/Pymble  
PO Box 726  
Pymble NSW 2073

Friday, 26 March 2010

Attention: Andrew McLaren

Dear Sir or Madam:

**Re: AHIMS Search for the following area at Muswellbrook;E:302919-307919;N:6427394-6432394**

I am writing in response to your recent inquiry in respect to Aboriginal objects and Aboriginal places registered with the NSW Department of Environment, Climate Change and Water (DECCW) at the above location.

A search of the DECCW Aboriginal Heritage Information Management System (AHIMS) has shown that 13 Aboriginal objects and Aboriginal places are recorded in or near the above location. Please refer to the attached report for details.

The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.

The following qualifications apply to an AHIMS search:

- AHIMS only includes information on Aboriginal objects and Aboriginal places that have been provided to DECCW;
- Large areas of New South Wales have not been the subject of systematic survey or recording of Aboriginal history. These areas may contain Aboriginal objects and other heritage values which are not recorded on AHIMS;
- Recordings are provided from a variety of sources and may be variable in their accuracy. When an AHIMS search identifies Aboriginal objects in or near the area it is recommended that the exact location of the Aboriginal object be determined by re-location on the ground; and
- The criteria used to search AHIMS are derived from the information provided by the client and DECCW assumes that this information is accurate.

All Aboriginal places and Aboriginal objects are protected under the *National Parks and Wildlife Act 1974* (NPW Act) and it is an offence to destroy, damage or deface them without the prior consent of the DECCW Director-General. An Aboriginal object is considered to be known if:

- It is registered on AHIMS;
- It is known to the Aboriginal community; or
- It is located during an investigation of the area conducted for a development application.

If you considering undertaking a development activity in the area subject to the AHIMS search, DECCW would recommend that an Aboriginal Heritage Assessment be undertaken. You should consult with the relevant consent authority to determine the necessary assessment to accompany your development application.

Yours Sincerely

Freeburn, Shannon  
Administrator  
Aboriginal Heritage Information Unit  
Information Systems and Assessment Section  
Aboriginal Heritage Operation Branch  
Culture and Heritage Division  
Department and Environment, Climate Change and Water (DECCW)  
Phone: 02 9585 6471  
Fax: 02 9585 6094



List of Sites ( List - Short )

Muswellbrook

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 302919, Northing From = 6427394, Northing to = 6432394, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording (Primary)	Reports (Catalogue Number)	State Arch. Box No (for office use only)
<u>37-2-0104</u>	<u>Muswellbrook:Bimbadeen;</u>	AGD	56	305182	6430193	Open Site	TRE :-	Scarred Tree	Brayshaw		NRS/17798/1/189
		Status	Valid								
		Primary	Contact								
<u>37-2-0105</u>	<u>Bells Mountain</u>	AGD	56	306063	6432039	Open Site	TRE :-	Scarred Tree	Permit(s) Ross	635	NRS/17798/1/189
		Status	Valid								
		Primary	Contact								
<u>37-2-1841</u>	<u>MWOS3</u>	AGD	56	306850	6431320	Open Site	AFT :-	Open Camp Site	Permit(s) Unknown Author		NRS/17798/1/208
		Status	Valid								
		Primary	Contact								
<u>37-2-1845</u>	<u>MW-JF-1</u>	AGD	56	306500	6428820	Open Site	AFT :-	Open Camp Site	Permit(s) Unknown Author		NRS/17798/1/208
		Status	Valid								
		Primary	Contact								
<u>37-2-1982</u>	<u>M-1</u>	AGD	56	304327	6429316	Open Site	AFT :-	None	Permit(s) Russell, Hardy		NRS/17798/1/210
		Status	Valid								
		Primary	Contact								
<u>37-2-1983</u>	<u>M-2</u>	AGD	56	304546	6429286	Open Site	AFT :-	None	Permit(s) 2132 Russell, Hardy		NRS/17798/1/210
		Status	Valid								
		Primary	Contact								
<u>37-2-1984</u>	<u>M-3</u>	AGD	56	305006	6429742	Open Site	AFT :-	None	Permit(s) 2132 Russell, Hardy		NRS/17798/1/210
		Status	Valid								
		Primary	Contact								
<u>37-2-1985</u>	<u>M-4</u>	AGD	56	305091	6429633	Open Site	ART :-	None	Permit(s) 2132 Russell, Hardy		NRS/17798/1/210
		Status	Valid								
		Primary	Contact								



List of Sites ( List - Short )

Muswellbrook

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 302919, Northing From = 6427394,  
 Northing to = 6432394, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types (recorded prior to June 2001)	Recording (Primary)	Reports (Catalogue Number)	State Arch. Box No (for office use only)
<u>37-2-2030</u>	<u>CB_2</u>	AGD	56	306760	6431477	Open Site	AFT : 3	None	Insite Heritage Pty Ltd	100152	
		Status	Valid								
		Primary Contact							Permit(s) 2277		
<u>37-2-2031</u>	<u>CB_1</u>	AGD	56	306767	6431360	Open Site	AFT : 1	None	Insite Heritage Pty Ltd	100152	
		Status	Valid								
		Primary Contact							Permit(s) 2277		
<u>37-2-2585</u>	<u>Muswellbrook Common 21</u>	GDA	56	303125	6427814	Open Site	AFT : -	None	Morris		
		Status	Valid								
		Primary Contact							Permit(s)		
<u>37-2-2592</u>	<u>SANDY CREEK ROAD ISO1</u>	AGD	56	304200	6431780	Open Site	AFT : 1	None	Appleton	100738	
		Status	Valid								
		Primary Contact							Permit(s)		
<u>37-2-2807</u>	<u>MFLD03</u>	GDA	56	303246	6429335	Open Site	AFT : 1	None	Roberts		
		Status	Valid								
		Primary Contact							Permit(s)		

## Appendix B

# Muswellbrook Brickworks



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18 DEC 2009



**muswellbrook  
shire council**

Enquiries

Please ask for Chris Gidney

Direct 02 6549 3770

Our reference 520.000

Your reference

16 December 2009

**Mr Steve Wylie  
Manager, Technical Services  
Muswellbrook Coal Company  
PO Box 123  
MUSWELLBROOK NSW 2333**

Dear Mr Wylie,

**Demolition of Former Muswellbrook Brick Works**

I refer to previous correspondence concerning the above matter and advise that your submission regarding the demolition of the former Brick Works and the recording of the structures by the Local Historical Society was noted by Council's Heritage Committee at its meeting held on 9 December, 2009. The Committee has recommended that the action taken by your Company in this matter be noted and that you be permitted to proceed with the proposed demolition work.

Would you please submit a copy of the historical record of the former Brick Works to Council once the Local Historical Society has completed its work in this matter.

Yours faithfully

**C.A. Gidney  
DIRECTOR, ENVIRONMENTAL SERVICES**

(cag:msh)



## Appendix C

# Aboriginal Stakeholder Consultation

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### Aboriginal Consultation Process

Project: 60166260 Muswellbrook Extension EA

Organisation	Contact	Date Sent	Comment
Local Newspaper Ad		12-Mar-10	
DECCW		15-Mar-10	
LALC		15-Mar-10	
Registrar Aboriginal Owners		15-Mar-10	
Native Title Services		15-Mar-10	
Local Council		15-Mar-10	
<b>Registrations of Interest</b>			
Organisation	Contact person	Date	Comments
Yinaar	Kathleen Steward	15-Mar-10	
Cacalia	Donna Sampson	16-Mar-10	
WLALC	Suzie Worth	23-Mar-10	
Yarrawalk	Scott Franks	24-Mar-10	
LHWC	Thomas Miller	26-Mar-10	
<b>Project Information and Draft Methodology Sent 09 April 2010</b>			
Organisation	Contact person	Date	Comments
Yinaar	Kathleen Steward	09-Mar-10	No comments received
WLALC	Donna Sampson	09-Mar-10	Comments received 15 April
Yarrawalk	Scott Franks	09-Mar-10	Comments received 28 April Supports methodology
LHWC	Thomas Miller	09-Mar-10	Comments received 10 April Supports methodology
		09-Mar-10	Comments received 05 May Supports methodology
<b>Fieldwork Undertaken Tuesday the 19th May</b>			
Organisation	Contact person	Date	Comments
Yinaar	Mal Moody	19-May-10	
Cacalia	Donna Sampson	19-May-10	
WLALC	Norm Archibald	19-May-10	
Yarrawalk	Barry French	19-May-10	
LHWC	Tony Mathews	19-May-10	
<b>Draft Reports for Review - Sent 26 July</b>			
Organisation	Contact person	Date Sent	Feedback Received & Date
Yinaar	Kathleen Steward	26-Jul-10	Supports report findings
Cacalia	Donna Sampson	26-Jul-10	Supports report findings
WLALC	Suzie Worth	26-Jul-10	Supports report findings
Yarrawalk	Scott Franks	26-Jul-10	Supports report findings
LHWC	Thomas Miller	26-Jul-10	Supports report findings





# MUSWELLBROOK COAL COMPANY

## Public Notice

### Aboriginal Stakeholder Consultation Muswellbrook Coal Mine

Muswellbrook Coal Company (MCC) is seeking to identify Aboriginal stakeholders who wish to be consulted in relation to a proposed cultural heritage assessment over a small area associated with the Muswellbrook Coal Mine located near Muswellbrook, NSW.

Interested stakeholders are requested to register their interest in writing to:

Mr Nathan Cooper  
Hansen Bailey  
Environmental Consultants  
PO Box 473  
SINGLETON NSW 2330  
Email: [ncooper@hansenbailey.com.au](mailto:ncooper@hansenbailey.com.au)  
Tel: 02 6575 2007  
Fax: 02 6575 2001

*Expressions of Interest should include current contact details. The closing date for registration is close of business on **Wednesday, 31 March 2010**. Once Expressions of Interest have been received, a planning meeting will be held to discuss the program further.*



# Hansen Bailey

15 March 2010

Wanaruah Local Aboriginal Lands Council  
PO Box 127  
MUSWELLBROOK NSW 2333

Attention: Ms Suzie Worth

Dear Ms Worth

## **Aboriginal & Cultural Heritage Assessment at the Muswellbrook Coal Mine Notification and Invitation to Register an Interest**

Muswellbrook Coal Mine is located approximately 2.5 km to the north-east of the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). Muswellbrook Coal Company (MCC) has a long history of both underground and open cut coal mining in the Muswellbrook area, dating back to the opening of the Muswellbrook No. 1 Underground Colliery in 1907.

MCC is seeking to identify Aboriginal stakeholders who wish to be consulted in relation to a minor Aboriginal and Cultural Heritage Assessment at the Muswellbrook Coal Mine. The purpose of this letter is to invite you as a stakeholder to register an interest or alternatively identify other stakeholders we should consult with in relation to the assessment.

Invitations to register an interest in the Aboriginal and Cultural Heritage Assessment was advertised in the *Muswellbrook Chronicle* on Friday, 12 March 2010 and will also be advertised in the *Hunter Valley News* on Wednesday, 17 March 2010.

We ask that interested stakeholders please register their interest to the Aboriginal and Cultural Heritage Assessment by **Wednesday, 31 March 2010**.

Should you have any queries in relation to this letter, please contact myself on 02 6575 2007.

Yours faithfully  
**HANSEN BAILEY**



Nathan Cooper  
*Senior Environmental Scientist*

# Hansen Bailey

15 March 2010

Native Title Services  
PO Box 2105  
STAWBERRY HILLS SYDNEY NSW 2010

Attention: Brian Camilleri

Dear Sir

## **Aboriginal & Cultural Heritage Assessment at the Muswellbrook Coal Mine Notification and Invitation to Register an Interest**

Muswellbrook Coal Mine is located approximately 2.5 km to the north-east of the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). Muswellbrook Coal Company (MCC) has a long history of both underground and open cut coal mining in the Muswellbrook area, dating back to the opening of the Muswellbrook No. 1 Underground Colliery in 1907.

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We ask that interested stakeholders please register their interest to the Aboriginal and Cultural Heritage Assessment by **Wednesday, 31 March 2010**.

Should you have any queries in relation to this letter, please contact myself on 02 6575 2007.

Yours faithfully  
**HANSEN BAILEY**



Nathan Cooper  
*Senior Environmental Scientist*

# Hansen Bailey

15 March 2010

Muswellbrook Shire Council  
PO Box 122  
MUSWELLBROOK NSW 2333

Attention: Mathew Pringle

Dear Mathew

## **Aboriginal & Cultural Heritage Assessment at the Muswellbrook Coal Mine Notification and Invitation to Register an Interest**

Muswellbrook Coal Mine is located approximately 2.5 km to the north-east of the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). Muswellbrook Coal Company (MCC) has a long history of both underground and open cut coal mining in the Muswellbrook area, dating back to the opening of the Muswellbrook No. 1 Underground Colliery in 1907.

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Should you have any queries in relation to this letter, please contact myself on 02 6575 2007.

Yours faithfully  
**HANSEN BAILEY**



Nathan Cooper  
*Senior Environmental Scientist*

# Hansen Bailey

15 March 2010

The Manager  
Planning & Aboriginal Heritage  
North East Environment Protection & Regulation Division  
Department of Environment, Climate Change and Water  
Locked Bag 914  
COFFS HARBOUR NSW 2450

Attention: Mr Brett Nudd

Dear Sir

## Aboriginal & Cultural Heritage Assessment at the Muswellbrook Coal Mine Notification and Invitation to Register an Interest

Muswellbrook Coal Mine is located approximately 2.5 km to the north-east of the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). Muswellbrook Coal Company (MCC) has a long history of both underground and open cut coal mining in the Muswellbrook area, dating back to the opening of the Muswellbrook No. 1 Underground Colliery in 1907.

MCC is seeking to identify Aboriginal stakeholders who wish to be consulted in relation to a minor Aboriginal and Cultural Heritage Assessment at the Muswellbrook Coal Mine. The purpose of this letter is to invite you as a stakeholder to register an interest or alternatively identify other stakeholders we should consult with in relation to the assessment.

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Should you have any queries in relation to this letter, please contact myself on 02 6575 2007.

Yours faithfully  
**HANSEN BAILEY**



Nathan Cooper  
*Senior Environmental Scientist*

# Hansen Bailey

15 March 2010

NSW Department of Aboriginal Affairs  
Office of the Registrar  
PO Box 112  
GLEBE NSW 2037

Attention: Stephen Wright

Dear Sir

## Aboriginal & Cultural Heritage Assessment at the Muswellbrook Coal Mine Notification and Invitation to Register an Interest

Muswellbrook Coal Mine is located approximately 2.5 km to the north-east of the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). Muswellbrook Coal Company (MCC) has a long history of both underground and open cut coal mining in the Muswellbrook area, dating back to the opening of the Muswellbrook No. 1 Underground Colliery in 1907.

MCC is seeking to identify Aboriginal stakeholders who wish to be consulted in relation to a minor Aboriginal and Cultural Heritage Assessment at the Muswellbrook Coal Mine. The purpose of this letter is to invite you as a stakeholder to register an interest or alternatively identify other stakeholders we should consult with in relation to the assessment.

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We ask that interested stakeholders please register their interest to the Aboriginal and Cultural Heritage Assessment by **Wednesday, 31 March 2010**.

Should you have any queries in relation to this letter, please contact myself on 02 6575 2007.

Yours faithfully  
**HANSEN BAILEY**



Nathan Cooper  
*Senior Environmental Scientist*

Your reference :  
Our reference : DOC10/12073; Fil10/482  
Contact : Nick Pulver, (02) 6659 8225  
Date : 30 April 2010

Mr Nathan Cooper  
Senior Environmental Scientist  
Hansen Bailey Environmental Consultants  
PO Box 473  
SINGLETON NSW 2330

Dear Mr Cooper,

**RE: ACH REGISTERED STAKEHOLDER LIST FOR PROPOSED ABORIGINAL  
CULTURAL HERITAGE ASSESSMENT – MUSWELLBROOK COAL MINE, NSW**

I refer to your correspondence dated 15 March 2010, to the Department of Environment, Climate Change and Water (DECCW), regarding the above project located in the Muswellbrook LGA in NSW. I apologise for any delay in our response.

Please find attached a list of known Aboriginal parties that DECCW considers is likely to have an interest in your development. I note this is not necessarily an exhaustive list of all interested Aboriginal parties. Receipt of this list does not remove the requirement of a proponent/consultant to advertise the proposal in the local print media and contact other bodies and community groups seeking interested Aboriginal parties, in accordance with DECCW's '*Aboriginal cultural heritage consultation requirements for proponents 2010*'.

If you encounter any changes to the contact details of interested Aboriginal parties, or become aware of additional parties, we encourage you to forward this information to the Department so we can update our records.

If you have any further question regarding this matter, please contact Nick Pulver, A/Conservation Planning Officer on (02) 6659 8225.

Yours sincerely



**MONICA COLLINS**  
**Manager Planning & Aboriginal Heritage Section**  
**Environment Protection & Regulation Group**

Encl: Attachment 1



**ATTACHMENT 1**

**ABORIGINAL STAKEHOLDER GROUPS (OTHER THAN LOCAL ABORIGINAL LAND COUNCILS) IN THE MUSWELLBROOK AREA THAT DECCW HAS IN REGARD TO THE 'INTERIM COMMUNITY CONSULTATION REQUIREMENTS FOR APPLICANTS'.**

Aboriginal Native Title Elders Consultants 69 Tobruk Avenue MUSWELLBROOK NSW 2333	St Clair Singleton Aboriginal Corporation PO Box 710 SINGLETON NSW 2330
Gidawaa Walang 76 Lang Street KURRI KURRI NSW 2327	Ungooroo Aboriginal Corporation PO Box 3095 SINGLETON NSW 2330
Black Creek Aboriginal Corporation PO Box 168 KURRI KURRI NSW 2328	Wonnaruah Elders Council PO Box 184 SINGLETON NSW 2330
Yarrawalk 913 Wollombi Road BROKE NSW 2330	Valley Culture 140 Sydney Street MUSWELLBROOK NSW 2333
Giwiirr Consultants 8 Fitzgerald Avenue MUSWELLBROOK NSW 2333	Wanaruah Custodians 35 Acacia Circuit SINGLETON NSW 2330
Hunter Valley Aboriginal Corporation PO Box 579 MUSWELLBROOK NSW 2333	Wattaka Wonnarua C.C. Service 4 Kennedy Street SINGLETON NSW 2330
Hunter Valley Cultural Consultants 40 Humphries Street MUSWELLBROOK NSW 2333	Wonnarua Culture Heritage 19 O'Donnell Crescent METFORD NSW 2323
Hunter Valley Cultural Surveying 297 Pioneer Road SINGLETON NSW 2330	Wonnarua Nations Aboriginal Corporation PO Box 3066 SINGLETON NSW 2330

Lower Hunter Wonnarua Council Inc. Shop 2 145 Lang St Kurri Kurri NSW 2327	Upper Hunter Wonnarua Council Inc 124 George Street SINGLETON NSW 2330
Lower Wonnaruah Tribal Consultancy Pty Ltd 156 The Inlet Road BULGA NSW 2330	Yamuloong Group Initiatives Ltd PO Box 487 CARDIFF NSW 2285
Mimagen Wajaar Pty Ltd 7 Wybalena Close KILABEN BAY NSW 2283	Kathleen Stewart/Kinchella 7 Cypress Place MUSWELLBROOK NSW 2333
Mur-Roo-Ma Inc. 7 Vardon Road, FERN BAY NSW 2295	Wonn1 Contracting 619 Main Road GLENDALE NSW 2285
Awabakal Traditional Owners Aboriginal Corporation PO Box 253 JESMOND NSW 2299 Contacts: Kerrie Brauer and Dene Hawkin	Awabakal Descendants Traditional Owners Aboriginal Corporation PO Box 38 WALLABADAH NSW 2343 Contact: Shane Frost
Muswellbrook Cultural Consultants 10 Scott street MUSWELLBROOK NSW 2333	Nur-Run-Gee Pty Ltd 22 Popplewell Road FERN BAY NSW 2295
David French 10 Mill Street MUSWELLBROOK NSW 2333	Mingga Consultants 11 Coolibah Close MUSWELLBROOK NSW 2333
Ungooroo Cultural & Community Services 8 Blaxland Ave SINGLETON NSW 2330	Cacatua Culture Consultants 22 Ibis Pde WOODBERRY NSW 2322





7 April 2010

Wanaruah Local Aboriginal Land Council  
PO Box 127  
MUSWELLBROOK NSW 2333

Attention: Suzie Worth

Dear Suzie

**MUSWELLBROOK COAL MINE  
ABORIGINAL ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT**

**1 INTRODUCTION**

On 12 and 17 of March 2010 Muswellbrook Coal Company (MCC) placed an advertisement in the Muswellbrook Chronicle and Hunter Valley News respectively seeking to identify Aboriginal Stakeholders who wish to participate in a minor Aboriginal Archaeological and Cultural Heritage Assessment at the Muswellbrook Coal Mine.

We are aware that you may have an interest in the area of the Project and we now provide this letter as confirmation that we have registered your group's interest. As a result of the receipt of your expression of interest, we now provide for your comment the proposed survey methodology.

**2 THE PROJECT**

MCC operates the Muswellbrook Coal Mine, located approximately 2.5 km north east of Muswellbrook in NSW. MCC is currently preparing an application to the NSW Department of Planning (DoP) for a Modification to its Development Consent under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable the extension of mining operations into an area known as Area C (the Project).

The Project aims to maximise the efficient extraction of viable coal reserves within MCC's mining leases. The Project will continue to rely on the existing infrastructure and mining methods as currently approved under the existing Development Consent and will be undertaken within the existing mine life and will not require increased production levels.

Area C comprises approximately 30 ha of which approximately 20 ha is located outside the existing Development Application Boundary and has not been previously surveyed. As such, an Aboriginal Archaeological and Cultural Heritage Assessment is to be conducted for the Environmental Assessment.

### 3 METHODOLOGY

#### 3.1 FIELDWORK

It is proposed that the Aboriginal Archaeological and Cultural Heritage Assessment for the Project will be undertaken over the survey area as shown on **Figure 1** consistent with the proposed survey methodology. The purpose of the assessment is to identify the Aboriginal heritage values within MCC's mining area not addressed by any previous Aboriginal heritage survey (see **Figure 1**). The total area to be covered by the assessment is approximately 20 hectares.

A survey methodology has been prepared by Archaeologist, Neville Baker of AECOM and is attached for your review and comment. As provided in this methodology the targeted archaeological survey will involve a 100% coverage of this area (as shown on **Figure 1**).

Due to the relatively minor scale of the Survey Area it is anticipated that the survey will take one day to complete with the assistance of five representatives from the Aboriginal Community required for the fieldwork.

The rate of pay for this project will be **\$550 (ex GST) per person** per day plus a maximum of \$50 travel expenses. Invoices should be provided to myself at Hansen Bailey at the completion of the fieldwork.

#### 3.2 PARTICIPANTS IN THE FIELD WORK

For your personal safety all representatives must adhere to MCC's Occupational Health & Safety requirements for working on the site. As such, a short site specific induction will be held at the Muswellbrook Coal Mine administration office for all participants prior to the commencement of work. All participants are also required to have their own Personal Protective Equipment which must include the following;

- Long longs (Long sleeve shirt and long pants);
- Hard hat;
- Steel capped boots (lace up);
- Safety Glasses;
- Reflective vest / stripes; and
- Gloves

Aboriginal Community Groups must be able to display that they have all relevant insurances including public liability and workers compensation. Unfortunately groups without relevant insurances will not be able to participate in the fieldwork.

#### 3.3 RESPONSES

I will be in contact in the near future to discuss the proposed Survey Methodology and to confirm your support for the methodology. All responses will be considered and where appropriate recommendations from the Aboriginal community will be incorporated into the Survey Methodology for this work.

Once all responses are received (on or before Wednesday 28 April 2010) the field work will be able to be arranged. It is hopeful that this may start the week commencing the 3 May 2010. However if responses to the methodology are received prior to this date, a final methodology will be developed and it is anticipated that the fieldwork may be conducted earlier if possible.

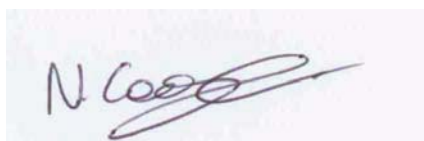
#### 4 CONCLUSION

Thank you again for expressing an interest in this Project. We look forward to working with you again in the near future to discuss the proposed Survey Methodology and to conduct the required field assessment.

Should you have any queries in relation to this letter, please do not hesitate to contact myself on 02 6575 2007.

Yours faithfully

**HANSEN BAILEY**

A handwritten signature in black ink on a light blue background. The signature appears to be 'N Cooper' with a stylized flourish at the end.

Nathan Cooper

*Senior Environmental Scientist*

1 April 2010

# Muswellbrook Coal Extension “Area C”: Aboriginal Heritage Assessment Draft Methodology

## 1.0 Project Outline

AECOM had been commissioned by Hansen Bailey to undertake an Aboriginal Heritage Assessment in relation to the Muswellbrook Coal Company Extension Project Environmental Assessment (EA). The Muswellbrook Coal Company (MCC) is proposing to extend open-cut mining activities into a small area known as Area C located immediately adjacent to currently approved operations (see attached figure). Area C comprises an area of approximately 28.6 ha of which approximately 20 ha will require survey for this assessment. The remaining 8.6 ha has been subject to disturbance from historical mining activities.

The objective of the Aboriginal heritage assessment is to identify Aboriginal heritage values within Area C. The assessment will involve background research, Aboriginal consultation and field survey to work out the best way to manage Aboriginal heritage sites according to their cultural significance.

This draft methodology provides some background information about the study area and describes the proposed way in which the assessment will be undertaken.

**Aboriginal stakeholders are invited to comment on this draft. Comments from Aboriginal stakeholders will be addressed in the final methodology.**

## 2.0 Background

### 2.1 AHIMS Site Search

AHIMS results obtained on the 26th of March 2010 for an area of 5 km x 5 km centred on the study area show that there are no currently registered sites within Area C.

### 2.2 Environmental Background

#### 2.2.1 Topography

The study area is located in the Central Lowlands topographic zone, which comprises undulating to rolling low hills on weakly developed sedimentary rocks (Kovac and Lawrie 1991: 7). Elevations within this zone range from 10 to 140 m. Within the study area itself, key landform elements include ridge crests with associated slopes and open depressions.

#### 2.2.2 Hydrology

The study area is located approximately 4km east of the Hunter River. Other notable watercourses in the vicinity of the study area include Sandy and Muscle Creeks, located a few kilometres to the northwest and southeast respectively. An unnamed 4<sup>th</sup> order tributary of Sandy Creek runs eastwards along the northern boundary of MCC's DA boundary, with additional 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> order tributaries draining into the study area via south-easterly trending depressions.

#### 2.2.3 Geology and soils

The underlying geology of the study area comprises sandstone, shale, mudstone, conglomerate and coal belonging to the Singleton Coal Measures Geological Unit (Kovac and Lawrie 1991: 350). All soils within the study area belong to the Roxburgh Soil Landscape (Kovac and Lawrie 1991: 349). This landscape comprises yellow Podzolic Soils on upper to midslopes, red Solodic Soils on more rounded hills, brown Podzolic Soils on conglomerate-based slopes, Lithosols on crests, and, occasionally, yellow Soloths in gullies.

#### 2.2.4 Flora and fauna

The native vegetation of the study area and environs has been heavily impacted by mining and other activities (e.g. grazing), with extensive clearing having been undertaken. Nevertheless, according to Kovac and Lawrie's (1991: 350) analysis of soil landscapes in the region, this will have comprised “an open woodland of narrow-leaved red ironbark, white box and yellow box with some blakelys red gum, broad leaved red ironbark, grey gum

and grey box". Prior to European settlement, this woodland and surrounding vegetation communities would have supported a diverse range of terrestrial and avian fauna. As a general indication, a search of the Atlas of NSW Wildlife lists 329 native fauna species in the area covered by the Muswellbrook 1:25000 topographic map, including 19 species of amphibians, 42 species of reptiles, 55 species of mammal and 213 species of birds. Sources of reliable water in the local area, such as Sandy and Muscle Creeks and the Hunter River, will have provided habitat for a range of aquatic fauna, including various species of fish, frog, eel and crayfish.

### 3.0 Methodology

#### 3.1 Approach

This section provides information on the approach AECOM intends to use for undertaking the Aboriginal heritage assessment. The assessment process has been divided into three broad sets of tasks:

- desktop study;
- archaeological field survey of the Study area; and
- consultation with Aboriginal stakeholder groups in order to define the cultural heritage values of the Study area.

#### 3.2 Desktop Study

The desktop survey methodology comprises:

- a search of the DECCW AHIMS Aboriginal sites database prior to field survey;
- desktop review of previous archaeological and heritage reports relevant to the regional and local area;
- consultation with registered Aboriginal stakeholder groups through a request for information on the cultural heritage values of the Study area;
- review of landscape character and landuse history which influences patterning of sites; and
- development of a site prediction model based on the findings of the desktop study.

#### 3.3 Field Survey

An archaeological field survey will be conducted to identify Aboriginal archaeological sites. As stated in the Project Outline, an area of 12 ha has been identified as requiring survey. It is anticipated that 100% survey coverage will be achieved of this area, and will be completed within one day. The area will be walked by AECOM archaeologists and registered stakeholder representatives spaced between 5 and 10 m apart to ensure appropriate coverage.

It is estimated a total of seven field officers, including two AECOM archaeologists and five Aboriginal stakeholder representatives, will be required to achieve the above survey coverage. Approximately six transects of varying lengths will be walked. One of the AECOM archaeologists may be diverted during the survey to record historic heritage.

While all parts of the undisturbed study area will be covered by the survey, attention will be paid to areas of likely archaeological potential including creeklines, ridgetops, hill tops and flats. Based on a review of results from the AHIMS search and previous assessment, the site types likely to occur within the Study area are open artefact scatters and scarred trees.

Photography will be used to document the environmental and archaeological features of the survey area. All sites identified will be recorded spatially by hand held differential GPS.

The general environment will be recorded for the survey area including:

- vegetation;
- soils; and
- geology.

#### 3.4 Recording of Transects

For each transect walked, the following information will be recorded:

- landform element;
- environmental setting within landform unit;
- visibility levels measured as percentage of soil surface visible per transect;
- type of ground exposure i.e. erosion or disturbance from mining activities;
- frequency and size of exposures i.e. number in each transect;
- presence or absence of soil erosion, and where applicable, depth;
- presence or absence of Aboriginal heritage material; and
- site boundary i.e. the extent of visible artefactual material.

### 3.5 Recording Methods for Stone Artefact Sites

Stone artefact sites identified during this survey will have the basic attributes recorded as set out in **Table 2**. This does not preclude the recording of additional attributes if warranted.

**Table 2: Artefact attribute recording**

Variable	Definition
Type	Category of artefact or non-artefact
Location	Recorded with a differential GPS
Length (max.)	Distance from fracture initiation to termination for flakes or maximum dimensions for other types in mm

### 3.6 Recording of Scarred Tree Sites

Scarred trees will be recorded in accordance with DECCW guidelines. The following attributes will be recorded for all Aboriginal scarred tree sites identified during field survey.

- species of tree;
- scar length and width;
- scar height from ground;
- girth of the tree;
- tree and scar condition; and
- direction the scar is facing.

### 3.7 Other Site Types

If other unanticipated site types are identified during survey then site recording will be undertaken in accordance with the *Aboriginal Cultural Heritage, Standards and Guidelines Kit (1997)*.

### 3.8 Social/Cultural Values Assessment

Aboriginal stakeholders are in the best position to provide information on the Aboriginal social/cultural heritage values of a given area. During the assessment process, Hansen Bailey will consult with Aboriginal stakeholders regarding the Aboriginal cultural heritage values. This will include as a minimum:

- preliminary requests for information on Aboriginal cultural heritage values made with assessment methodology;
- assessment methodology provided to all registered Stakeholders for comment prior to fieldwork;
- participation in and discussion of cultural heritage values during field survey; and

- draft Aboriginal heritage assessment provided to all registered stakeholders prior to finalisation and submission.

The above steps will be undertaken in accordance with the *National Parks & Wildlife Act 1974*: Part 6 Approvals – Interim Community Consultation Requirements for Applicants (ICCRs).



**MUSWELLBROOK COAL COMPANY**

**Layout Plan**

Cad File: 05605D.dwg      Date: 07.04.10      Drawn: CP

Figure **1**

---

**Hansen Bailey**

**MUSWELLBROOK COAL COMPANY**  
ESTABLISHED 1977  
Sources: MCC (2008)

**Indicative Mining Sequence**

- Year 1 - 3 (Complete)
- Year 4 - 6
- Year 7 - 8
- Year 9 - 10

---

- DA Boundary
- No.1 Extension Coal Extraction Boundary
- Existing Infrastructure
- Mine Infrastructure Survey Area (Option 1)
- Previous Identified Infrastructure Location (Option 2)
- Existing Roads
- Area C
- Survey Area

**MCC Waste Facility**

**Provincial Coal Road**

**Mine Access Road**

**Queen Street**

**Sandy Creek Road**

**New England Highway**



**Return Fax: (02) 6575 2001**

**Attention:** Nathan Cooper

**RE: MUSWELLBROOK COAL MINE ABORIGINAL ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT**

**Aboriginal Stakeholder Group:** \_\_\_\_\_

I have read and have understood the Muswellbrook Coal Project – Methodology for an Aboriginal Archaeological and Cultural Heritage Assessment which has been prepared by AECOM. I agree that this Survey Methodology is adequate and consistent with the views and wishes of the local Aboriginal Community. With regard to the Survey Methodology, I would like to confirm that our group:

- Agrees with the content                       Disagrees with the content

We would like to make the following comments on the Survey Methodology:

.....  
.....  
.....  
.....

Further, in regard to the field work to be undertaken **in May 2010**, a representative from our Group:

- Would like to attend                       Does not wish to attend

Our nominated representative attending the field work for the Muswellbrook Coal Mine Aboriginal Archaeological and Cultural Heritage Assessment will be:

.....  
.....

Signed in support: .....

On behalf of (Group): .....

Date: .....

# Cacatua Culture Consultants

Entity of Cacatua General Services

ABN 93 774 580 518

15<sup>th</sup> April 2010

ATT: Nathan Cooper  
ATT: Jason Martin  
Hansen Bailey Pty Ltd  
PO Box 473  
Singleton NSW 2330

RE: **Muswellbrook Coal Mine Aboriginal Archaeological and Cultural Heritage Assessment**

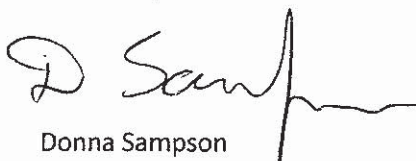
**Nathan and Jason,**

We have read and discussed the contents of the information that was sent and emailed to us dated 7<sup>th</sup> April 2010. We understand that if this project continues that all the areas high lighted in your figure will be impacted on. We also have to consider that this area may not have a high Archaeological significance and that it may become a Culture Significant area only. With this in mind we feel that the methodology has covered most areas with regards to giving the area a true reading of what may be located there.

We agree with the methodology however we would like to see the distance between each person doing the walk over be at a maximum of two metres apart not five or ten. The other point we would like to have placed in the process is that there is an allowance made for Aboriginal persons once on site to have an option to look at areas that they feel warrant a look.

With regards to the field work to be undertaken in May 2010 a representative from our business would like to attend. The representative at this point will be the manager George Sampson, however all our staff have the experience to undertake this field work and are all fully covered with our insurances. Please find attached a copy of our insurances for your records.

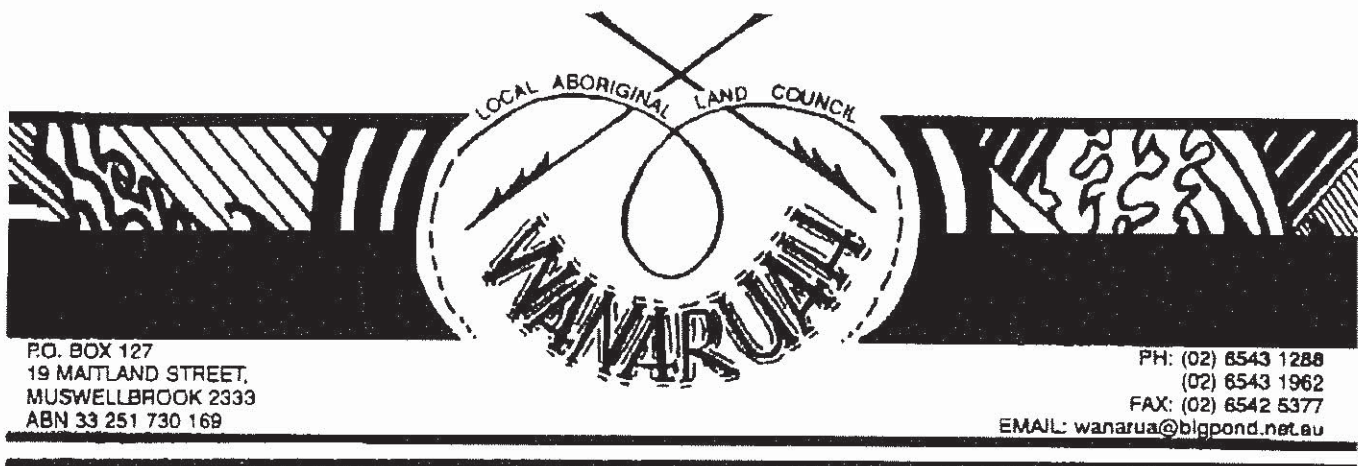
Yours truly



Donna Sampson  
Administration

22 Ibis Parade, Woodberry NSW 2322

Ph: 02 4964 4685 • Fax: 02 4964 4635



28 April 2010

Mr N Bailey  
Hansen Bailey  
Senior Environmental Scientist  
PO Box 473  
SINGLETON NSW 2330  
(Sent by fax: 6575 2001)

Dear Nathan

**RE: MUSWELLBROOK COAL MINE ABORIGINAL  
ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT**

Thank you for your letter dated 7 April 2010 detailing the Area C Project and asking if the Wanaruah LALC is still interested in being consulted and participating in the above project. We wish to advise that we would appreciate having the opportunity to supplying a traditional owner Cultural Heritage Fieldworker for the survey in May 2010. The name of this worker will be forwarded to you should the LALC be selected to participate in the survey.

With regards to the AECOM survey methodology – this is considered to be appropriate.

Thank you once again and look forward to hearing from you soon.

Kind regards

Suzie Worth  
Cultural Heritage Officer/Indigenous Archaeologist  
Wanaruah Local Aboriginal Land Council  
Mobile: 0457 707 565  
Email: [CulturalHeritage.wanaruah@bigpond.com](mailto:CulturalHeritage.wanaruah@bigpond.com)



Return Fax: (02) 6575 2001

Attention: Nathan Cooper

RE: MUSWELLBROOK COAL MINE ABORIGINAL ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT

Aboriginal Stakeholder Group

YARRAWALK

I have read and have understood the Muswellbrook Coal Project - Methodology for an Aboriginal Archaeological and Cultural Heritage Assessment which has been prepared by AECOM. I agree that this Survey Methodology is adequate and consistent with the views and wishes of the local Aboriginal Community. With regard to the Survey Methodology I would like to confirm that our group

Agrees with the content

Disagrees with the content

We would like to make the following comments on the Survey Methodology

Further, in regard to the field work to be undertaken in **May 2010** a representative from our Group

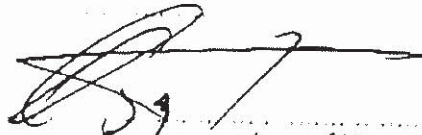
Would like to attend

Does not wish to attend

Our nominated representative attending the field work for the Muswellbrook Coal Mine Aboriginal Archaeological and Cultural Heritage Assessment will be

Barry French

Signed in support



On behalf of (Group)

YARRAWALK

Date

10/4/10

YARRAWALK  
CONVENER MATTY

~~Aboriginal Stakeholder Group~~  
Owendale Park  
913 Wollombi Road  
Broke 2330  
Ph/Fax 02 65 791185 Mobile 0419 220 297  
E-mail [abco@borednet.com.au](mailto:abco@borednet.com.au)  
ABN 48 375 396 846  
**Barry McTaggart**

**Return Fax: (02) 6575 2001**

**Attention: Nathan Cooper**

**RE: MUSWELLBROOK COAL MINE ABORIGINAL ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT**

Aboriginal Stakeholder Group: Lower Hunter Wonnarua Council

I have read and have understood the Muswellbrook Coal Project - Methodology for an Aboriginal Archaeological and Cultural Heritage Assessment which has been prepared by AECOM. I agree that this Survey Methodology is adequate and consistent with the views and wishes of the local Aboriginal Community. With regard to the Survey Methodology, I would like to confirm that our group.

Agrees with the content       Disagrees with the content

We would like to make the following comments on the Survey Methodology:

.....  
.....  
.....  
.....

Further, in regard to the field work to be undertaken in May 2010, a representative from our Group:

Would like to attend       Does not wish to attend

Our nominated representative attending the field work for the Muswellbrook Coal Mine Aboriginal Archaeological and Cultural Heritage Assessment will be:

Will depend on the dates of the survey and  
what other groups will be involved.

Signed in support: L. Ball

On behalf of (Group) Lower Hunter Wonnarua Council

Date: 5.5.10



**Yinarr Cultural Services**  
*Discover Protect*

15<sup>th</sup> March 2010

Mr N Cooper  
Hansen Bailey  
Environmental Consultants  
SINGLETON NSW 2330  
(Sent by Fax: 6575 2001)

Dear Nathan,

**RE: Aboriginal Stakeholder Consultation Muswellbrook Coal Mine**

Yinarr Cultural Services accepts your invitation to express its interest in being consulted and placed on the Aboriginal Stakeholder Register with Muswellbrook Coal Mine for future works that may arise.

Ms Kathie Kinchela is a very knowledgeable woman who has been involved with numerous fieldwork jobs carried out by Yinarr Cultural Services and numerous other Aboriginal cultural groups that she has worked for. Some of the fieldwork that Kathie has been involved with include Anvil Hill Project, Bulga Project, Xstrata Mangoola, Mt Arthur and Ravensworth Operations Muswellbrook Coal just to mention a few. Kathie has worked with Umwelt, Hansen Bailey, GSS Environmental, ENSR/ECOM, Insite Heritage, and Coal and Allied.

Kathie has completed a training course which was conducted and held by Mr. Glen Morris from National Parks and Wildlife. This involved such things as recognising artefacts, identifying artefacts, recording of artefacts and completing written reports on fieldwork completed including artefacts found and identified, what she believes to be the best outcome for the site surveyed. If there was something Kathie wasn't sure about she is very grateful and willing to contact people such as Mr. Glen Morris to discuss things and have their input and assistance.

Kathie is reliable, punctual, is always actively involved with all work conducted, is always keen to learn more and be involved more when ever possible. Kathie will openly admit if she is not sure about something or believes that it is not of her expertise or knowledge.

On all these grounds I believe that Kathie would be a very adequate person to participate in any works/jobs offered. Kathie is very friendly, outgoing, easy person to work with this alone is a great asset to any position filled.

As a registered and confirmed Aboriginal Stakeholder of Wonnarua, Kamilaroi and Gundagurra, Kathie has been living in the community all her life and is acknowledged by the Aboriginal community; Kathie also has experience working on various sites.

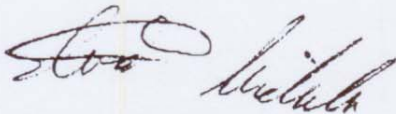

Yinarr Cultural Services aim is to preserve and protect items that are of significance to the Culture and Heritage of the Aboriginal people and as Aboriginal objects which may be affected, and Yinarr Cultural Services primary vision and aim is to discover, preserve and protect the aboriginal people and to protect the cultural heritage of our ancestors.

Please find enclosed Yinarr Cultural Services current and up to date insurance certificates. Our Company is fully insured and registered with DECC.

Yinarr Cultural Services site workers have all required PPE when working on site. We would also recommend that if possible we would like to be part of the artefact analysis within this project and when work is completed.

Thank you once again for the opportunity and we look forward to working with you. Should you wish to discuss any of the above issues, please do not hesitate to contact me on 6547 6077 or 0432720623. I look forward in hearing from you.

Yours sincerely,



Kathleen Steward-Kinchela  
Stakeholder  
Yinarr Cultural Services

## Appendix D

# Aboriginal Stakeholder Responses to the Draft Report



*“This page has been left blank intentionally”*

# Cacatua Culture Consultants

Entity of Cacatua General Services

ABN 83 774 580 518

22 July 2010

Your Ref:

Melissa Walker  
Senior Environmental Scientist  
Hansen Bailey  
6/127 John Street  
SINGLETON NSW 2330

RE: MUSWELLBROOK COAL MINE DRAFT ABORIGINAL AND HISTORIC HERITAGE  
IMPACT ASSESSMENT REPORT

Melissa,

Thank you for your letter and draft report June 2010. We have read and discussed the above draft report and feel that every effort has been made to ensure no artefact will be impacted within this scope of works.

With regards to 9.0 Impact Assessment and Conclusions - we understand that no areas were identified within the study area. However we do feel that Muswellbrook Coal and staff will still need to be mindful that the upper hunter was and still is a very Aboriginal significant area. With this in mind all precautions should be taken when removing the top section of soil from the areas. We know that the area was inspected however that does not give any knowledge of what may be located within the soil.

We with regards to the contents we are in full support of the Aboriginal and Historic Heritage Impact Assessment report.

Yours truly



George Sampson  
Manager

22 Ibis Parade, Woodberry NSW 2322  
Ph: 02 4964 4685 • Fax: 02 4964 4635

Name:	Kathleen Steward-Kimble	Date/Time:	1/7/2010
Company:	Yinnar Cultural Services	Job No:	1003
Phone No:	0432720623	Recorded by:	B.H
Subject:	MCC Aboriginal Arch. Report		

## Details:

Kathe has received report.

Is happy that nothing was

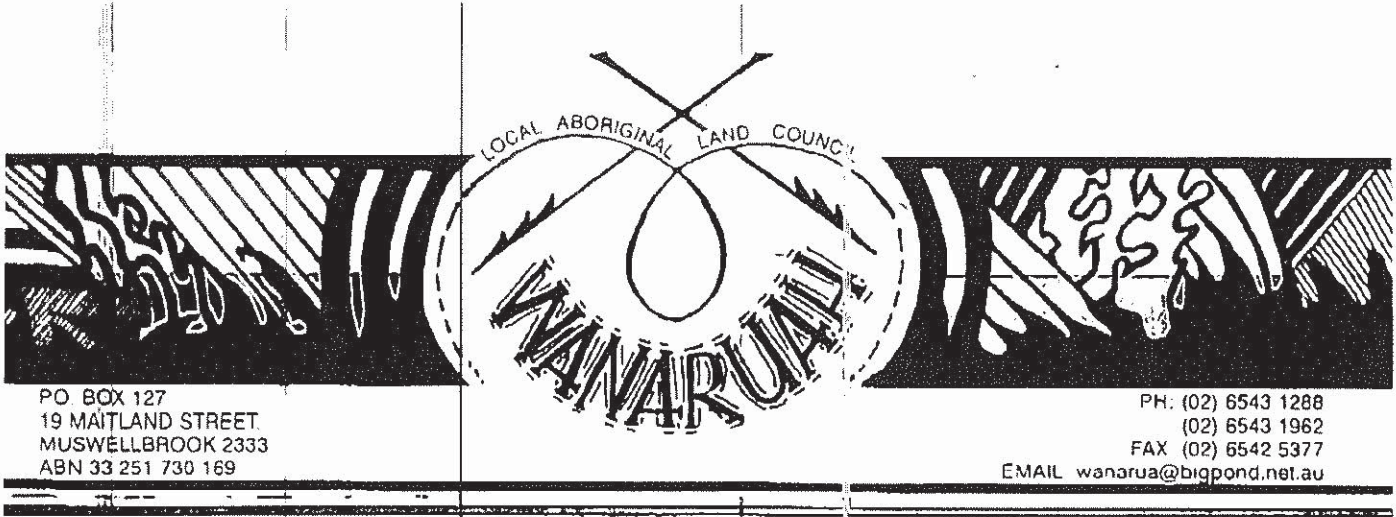
found and says extension can

go ahead. Says:

"Yinnar Cultural Services recommends that Muswellbrook local go ahead with work and agree with Hansen Bailey's report"

Will also send written response via email or fax.

## Action:



22 July 2010

Ms M Walker  
Hansen/Bailey Environmental Consultants  
PO Box 473  
SINGLETON NSW 2330  
(Sent by fax: 6575 2001)

Dear Melissa

**RE: COMMENTS ON DRAFT ABORIGINAL AND HISTORIC HERITAGE  
IMPACT ASSESSMENT REPORT - MUSWELLBROOK COAL MINE**

Thank you for this opportunity to comment on the above draft report.

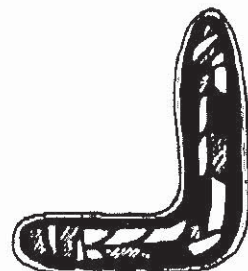
Cultural heritage field worker, Tony Matthews participated in the survey on 19 May 2010 for the Wanarua LALC.

Having reviewed the report, the LALC does not have any issues with its content and recommendations provided the other members of the survey team are in agreement. I would however, like to point out that the survey methodology was to include six transects with 100% survey coverage. Section 8.1.4 suggests that no more than 14% coverage was undertaken over the individual six transects. Since I am not familiar with the Muswellbrook Coal Mine site, I can only accept what I am told in as far as the high disturbance of the area and the other Aboriginal stakeholder's acceptance of this level of survey coverage.

Thank you for the opportunity to review this draft report. We look forward to continuing the consultation process and should you wish to discuss any matter in this letter further, please do not hesitate to contact us on 6543 1288

Yours sincerely

Suzie Worth  
Cultural Heritage Officer/Indigenous Archaeologist  
Wanarua Local Aboriginal Land Council



# Lower Hunter Wonnarua Council Incorporated

51 Bowden Street, Heddon Greta NSW 2321

Ph:0402636521 Fax: 0249372694

ABN: 14 937 663 303

Hansen Bailey  
6/127-129 John St  
Singleton NSW 2330

## **Re: Aboriginal and Historic Heritage Impact Assessment Muswellbrook Coal**

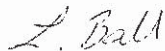
Dear Belinda,

Firstly Lower Hunter Wonnarua Council would like acknowledge our involvement in the above mentioned assessment and acknowledge that we have received a copy of the report.

LHWC agrees that due to the level of disturbance and the steep landscape of the study area that the possibilities of locating Aboriginal sites is minimal. However if sites are earthed in the project area then further investigations will need to be carried out.

For further clarification please contact me on 0447266590 or Thomas Miller can be contacted on 0402636521.

Yours Truly



Lea-Anne Ball

Name:	Barry McTaggart	Date/Time:	1/7/10
Company:	Yarrowalk	Job No:	1003
Phone No:	(02) 65791185	Recorded by:	BH
Subject:	MCC Aboriginal Arch. Report		

## Details:

Has received report. Is happy with report due to lack of findings.

Would like to give verbal approval & won't be providing written response.

"Yarrowalk gives its approval of the report"

## Action:



## Worldwide Locations

Australia	+61-2-8484-8999
Azerbaijan	+994 12 4975881
Belgium	+32-3-540-95-86
Bolivia	+591-3-354-8564
Brazil	+55-21-3526-8160
China	+86-20-8130-3737
England	+44 1928-726006
France	+33(0)1 48 42 59 53
Germany	+49-631-341-13-62
Ireland	+353 1631 9356
Italy	+39-02-3180 77 1
Japan	+813-3541 5926
Malaysia	+603-7725-0380
Netherlands	+31 10 2120 744
Philippines	+632 910 6226
Scotland	+44 (0) 1224-624624
Singapore	+65 6295 5752
Thailand	+662 642 6161
Turkey	+90-312-428-3667
United States	+1 978-589-3200
Venezuela	+58-212-762-63 39

### Australian Locations

Adelaide  
Brisbane  
Canberra  
Darwin  
Melbourne  
Newcastle  
Perth  
Sydney  
Singleton

[www.aecom.com](http://www.aecom.com)