

## **Kerosene Vale Ash Repository – Stage 2**

# **Preliminary Archaeology and Heritage Assessment**

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**Report Prepared for**

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## EXECUTIVE SUMMARY

Cultural Heritage Connections Pty Ltd was commissioned in September 2006, by Parsons Brinckerhoff on behalf of Delta Electricity to undertake a preliminary archaeological assessment as part of a Project Application under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed development is the extension of the Kerosene Vale Ash Dam dry ash storage for the Wallerawang Power Station.

The major objective of the study is to provide an assessment of the nature and extent of the cultural heritage potential of the study area so as to provide advice about ongoing management requirements.

An inspection of the study area, to assess the nature and extent of Aboriginal and historic archaeology and heritage, was undertaken on the 5<sup>th</sup> of October 2006 by the archaeologist and Richard Peters of the Bathurst LALC.

No *relics*, *Aboriginal objects*, other heritage items or areas of archaeological potential were recorded within the study area boundaries.

The following recommendations have been formulated to ensure that there is no inadvertent impact to heritage values in the study area during the course of the proposed development. It is recommended that:

- disturbance to the westernmost portion (Survey Area A) of the study area be kept to a minimum;
- in consideration of the proposed drainage diversion options, Alignment option 1 is preferable as it passes through entirely disturbed ground;
- no further assessment or management of Aboriginal archaeology and heritage is required within the study area boundary;
- if during the course of development of the area, any *objects* (as defined in the *National Parks & Wildlife Act*) are discovered, that all work should cease and both the DEC regional archaeologist and the Bathurst LALC should be notified so that a course of action can be determined;
- there is no impediment to the proposed development on historic heritage grounds;
- no further assessment or management of historic heritage is required within the study area boundary;
- if during the course of development of the area, any *relics* (as defined in the *Heritage Act*) are discovered, that all work should cease and the NSW Heritage Council be notified; and
- Copies of the final version of this report should be forwarded to the:
  - NSW DEC AHIMS Registrar;
  - DEC regional office;
  - NSW Heritage Office Librarian;
  - Bathurst LALC.

## **1.0 INTRODUCTION**

### **1.1 OVERVIEW**

Cultural Heritage Connections Pty Ltd was commissioned by Parsons Brinckerhoff on behalf of Delta Electricity, in September 2006, to conduct a preliminary archaeological assessment of an area proposed to be developed for dry ash storage at the Wallerawang Power Station.

This report presents the findings of the archaeological assessment and the outcomes of the consultation undertaken with Aboriginal community representatives relating to Aboriginal cultural heritage.

### **1.2 STUDY AREA**

The Wallerawang Power Station is located approximately 10 kilometres northwest of Lithgow. The Kerosene Vale Ash Repository (KVAR) is approximately 2.5 kilometres northeast of the power station.

The study area for this assessment includes the area known as 'Stage 2' of the proposed KVAR development as well as two proposed routes for potential creek line diversion. The areas are shown in Figure 1.

The proposed Stage 2 KVAR is part of ongoing ash storage at the site.

### **1.3 SCOPE & OBJECTIVES OF THE ASSESSMENT**

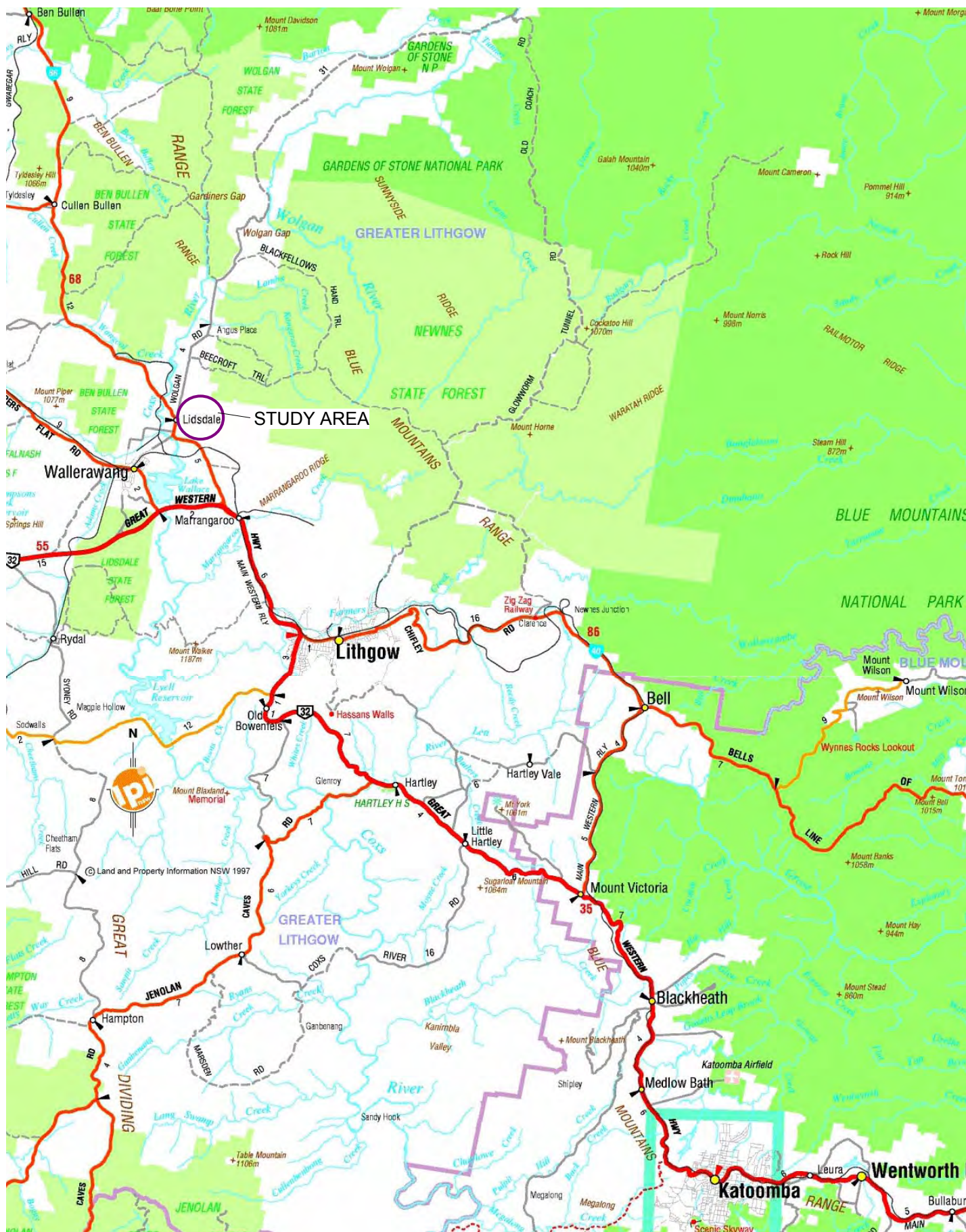
This study forms part of a preliminary environmental assessment to provide information to accompany a Project Application under Part 3A of the EP&A Act.

The major objective of the study is to provide an assessment of the nature and extent of the cultural heritage potential of the study area so as to provide advice about ongoing management requirements.

The aims of the assessment were to:

- undertake background reviews for the study area;
- identify and document any cultural heritage concerns of the Bathurst Local Aboriginal Land Council (LALC) about the proposed development;
- carry out a field survey in collaboration with Bathurst LALC representatives to determine the archaeological and cultural heritage sensitivity of the study area;
- report on results of the background analysis and field inspections to present an analysis of the potential for the proposed development to affect cultural heritage items, objects or areas of archaeological potential; and
- present recommendation for ongoing management of cultural heritage within the study area, as well as impact mitigation measures, if required.



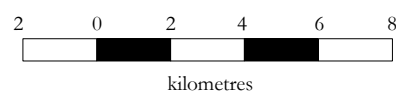


**Figure 1: Location of the study area, Kerosene Vale.**

Date: 24 October 2005

Project Number: 04062

Scale:



Acknowledgements: Land and Property Information (LPI) and Parsons Brinkerhoff.

## 1.4 LEGISLATIVE CONTEXT

The following sections outline the Federal and State legislation protecting heritage objects and places in NSW.

### 1.4.1 Commonwealth Heritage Legislation & Lists

The national heritage system, which came into effect on 1st January 2004, replaced the former Australian Heritage Commission with the Australian Heritage Council, through the passing of the *Australian Heritage Council Act 2003*. The changes also led to the introduction of two new heritage lists – the National Heritage List and the Commonwealth Heritage List.

Heritage values of places on these two lists are protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

#### 1.4.1.1 *Environmental Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) includes provisions to protect matters of national environmental significance.

Under recent amendments, items on the National Heritage List have been added to the list of items of national significance. Approval is required from the Federal Minister for the Environment prior to any impact on items of national significance.

##### 1.4.1.1.1 *National Heritage List*

The National Heritage List is a list of places that are determined to have outstanding heritage value to the nation. Places may have Indigenous, historic or natural heritage values or any combination of the three. Anyone can nominate a place for inclusion on the list and a list of criteria and guidelines have been developed. The Australian Heritage Council makes recommendations about proposed listings, with the final decision made by the Federal Minister for the Environment.

##### 1.4.1.1.2 *Commonwealth Heritage List*

The Commonwealth Heritage List can also include places with Indigenous, historic or natural heritage values, but is limited to places within Commonwealth lands and waters. The list was established via amendments to the EPBC Act. In effect it means that Commonwealth agencies are obliged to develop management plans for heritage items on their lands, and that prior to any impact on such items, advice must be sought from the Federal Minister for the Environment. As of June 2004, 336 places were listed on the Commonwealth Heritage List.

##### 1.4.1.1.3 *Register of the National Estate*

The Register of the National Estate was established under the now repealed *Australian Heritage Commission Act 1975*. It is a list of over 13,000 heritage places. The former Act only imposed statutory obligations relating to the register on Commonwealth government agencies. It continues to be a significant source of information on heritage items and has been retained under the *Australian Heritage Council Act 2003*.

#### **1.4.1.2 *Aboriginal and Torres Strait Islander Heritage Protection Act 1984***

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* can be called upon to provide protection for Indigenous cultural property in a broad sense. It is rarely relevant in the management of cultural heritage items, but does provide the ability to protect places, objects and folklore that ‘are of particular significance to Aboriginals in accordance with Aboriginal tradition’.

#### **1.4.2 NSW State Heritage Legislation**

The EP&A Act is the overarching legislation that provides a statutory framework for planning processes required in association with the proposed KVAR development. This Act sets out three specific statutory assessment processes:

- Part 3A: A single assessment and approval system for major development and infrastructure projects;
- Part 4: Development that requires consent under consideration of environmental planning instruments; and
- Part 5: An assessment process for activities undertaken by Public Authorities and for developments that do not require a development consent but an approval under another mechanism.

Section 75B(2) of the EP&A Act enables the Minister, through an Order made under Section 75B(1) of the EP&A Act, to declare a development to be a Major Project. Major Projects are identified in Section 75B(2) and include:

- (a) major infrastructure or other development that, in the opinion of the Minister, is of State or regional environmental planning significance,
- (b) major infrastructure or other development that is an activity for which the proponent is also the determining authority (within the meaning of Part 5) and that, in the opinion of the proponent, would (but for this Part) require an environmental impact statement to be obtained under that Part.

Part 3A of the Act essentially makes provision for a single assessment and approval process by incorporating relevant matters to be addressed within an assessment of the project, thereby removing the need to seek subsequent approvals, pursuant to the Minister for Planning’s determination.

If this development is gazetted as a Major Project there will no longer be a requirement to seek permits under the relevant heritage protection legislation.

Notwithstanding this, matters and issues relevant to cultural heritage are required to be addressed during development planning for a project subject to determination under Part 3A of the EP&A Act to ensure that unacceptable and/or adverse environmental impacts do not occur. In general terms, the standard of assessment required should be equivalent to that required if the project were not designated a Major Project under Part 3A.

In order to provide information about the acceptable levels of assessment required under State legislation, the following summaries have been provided, even though the individual permit requirements may not be relevant.



### 1.4.2.1 **National Parks and Wildlife Act 1974**

Under Section 90 of the NSW *National Parks and Wildlife Act 1974* (NP&W Act), it is an offence to destroy, damage or deface an Aboriginal object or Aboriginal place without prior approval from the Director General of the DEC. Section 91 of the Act also obliges any person who discovers an Aboriginal object to report it to the DEC.

An Aboriginal object is defined as:

“...any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.”

“Aboriginal Places” are defined by their presence on a list maintained by the DEC. Objects are legally protected irrespective of land tenure, the significance of the object and whether or not it has been recorded.

Prior to issuing a Section 90 consent permit the DEC will consider.

- the significance of the Aboriginal object(s) or Aboriginal place(s) to be affected;
- the effect of the potential impact and the mitigation measures proposed;
- the justification for the proposed impacts; and
- the outcomes of the Aboriginal community consultation regarding the potential impact and conservation outcomes.

In practice this means that an archaeological assessment must be carried out in partnership with the relevant Indigenous community representatives. In cases where the full extent of the site to be affected cannot be determined (such as when a site is likely to extend below the surface) archaeological testing must be carried out prior to a Section 90 Consent being approved. Archaeological testing also requires a permit.

Any activity likely to disturb or excavate land with the purpose of discovering an Aboriginal object, or likely to move or disturb an Aboriginal object, requires a permit under Section 87 of the Act. An application under Section 87 is also usually accompanied by an archaeological assessment and a research design to direct the excavation procedures.

Recently implemented procedures now regulate the consultation process that is required as part of permit applications.

### 1.4.2.2 **Heritage Act 1977**

The *Heritage Act 1977* provides statutory protection for historic buildings, historic places, historic objects and historical archaeological sites. The Act is administered by the Heritage Council of New South Wales, through the NSW Heritage Office.

The Heritage Act offers blanket protection for *relics*, defined as:

*any deposit, object or material evidence:*

*(a) which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*

*(b) which is 50 or more years old.*

This includes all historical archaeological sites, places and relics in NSW older than 50 years, regardless of their level of cultural heritage significance.

Section 139 of the Act states:

*(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.*

*(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.*

In short, it is an offence to disturb a relic without an appropriate permit. The Act also provides a series of exceptions for works of a minor nature or in cases where relics have no heritage significance.

The Heritage Office also maintains the State Heritage Register (SHR) and State Heritage Inventory (SHI). The SHR is a list of items of State heritage significance endorsed by the Heritage Council. The SHR, a sub-set of the SHI, is a database compiled from a variety of planning instruments such as LEPs, REPs and State Government Agency Section 170 Registers.

### 1.4.3 Assessment Guidelines

A number of best practice guidelines for heritage assessment are also available for the assessment and reporting for Aboriginal sites. This assessment has been undertaken with reference to the following:

- *Draft Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC 2004);
- *NSW Heritage Manual* (NSW Heritage Office 1996b) and *Archaeological Assessment* guidelines (NSW Heritage Office 1996a);
- *Ask First: A Guide to Respecting Indigenous Heritage Places and Values* (Australian Heritage Commission 2002);
- *Aboriginal Cultural Heritage Standards and Guidelines Kit* (NSW NPWS 1997);
- *Draft Guidelines for Aboriginal Heritage Impact Assessment* (NSW NPWS n.d.); and
- Australia ICOMOS 'Burra' Charter for the conservation of culturally significant places (Australia ICOMOS 1999).

## 1.5 REPORT OUTLINE

The remainder of this report describes the methodology used to undertake the study (Section 2.0). The details of the Aboriginal consultation undertaken for the project are provided in Section 3.0. A summary and analysis of the environmental, historical and archaeological background to the project is presented in Sections 4.0 and 5.0. The results of the site surveys are presented in Section 6.0. A description of the proposed development and analysis of the potential impacts on cultural heritage values are presented in Section 7.0. Conclusions and recommendations for ongoing management requirements for archaeology and heritage within the study area are presented in Section 8.0.

## **1.6 ACKNOWLEDGEMENTS**

The author would like to thank the following individuals and organisations:

- Nino Di Falco and Peter Reed (Delta Electricity);
- Nigel Buchanan, Selga Harrington and Chris O'Dell (Parsons Brinckerhoff);
- Richard Peters and Warwick Peckham (Bathurst LALC); and
- David Gordon and Sharlene Freeburn (DEC).

## **2.0 METHODOLOGY**

The following presents the methodology adopted for the archaeological assessment.

### **2.1 QUALIFICATIONS AND PERSONNEL**

The assessment study and report were prepared by Vanessa Hardy (BA Hons), archaeologist and Director of Cultural Heritage Connections Pty Ltd.

Richard Peters of the Bathurst Local Aboriginal Land Council (BLALC) collaborated in the field assessment component, and provided valuable information and input about the study area region and the nature of its cultural heritage resource.

The report was reviewed by Melissa Johnson of Cultural Heritage Connections Pty Ltd who also provided the mapping.

### **2.2 ABORIGINAL CONSULTATION**

Cultural Heritage Connections Pty Ltd supports full and comprehensive consultation with appropriate Indigenous representatives in all archaeological assessments. We aim to recognise their input in the form of cultural heritage assessments for Indigenous sites and seek to facilitate, wherever possible, the ongoing involvement of community representatives in the care and management of Indigenous cultural heritage.

The Bathurst LALC was contacted at the outset of the project and invited to define their involvement in the assessment. Further information is provided in Section 3.0.

### **2.3 DATA REVIEW**

A review of background data was undertaken to identify previously recorded Indigenous archaeological sites in the vicinity of the subject land and to provide a context for the study. Data examined included:

- the DEC Aboriginal Heritage Information Management System (AHIMS);
- Commonwealth and State heritage registers including;
  - the National Heritage List
  - the Commonwealth Heritage List
  - Register of the National Estate
  - the NSW State Heritage Register
  - the NSW State Heritage Inventory
- relevant site cards and archaeological reports on Indigenous sites; and
- environmental background material for the study area.

A search of the DEC AHIMS was undertaken for an area of 10x10 kilometres surrounding the study area. The library of archaeological reports held at the DEC's Hurstville office was visited and relevant reports and site cards consulted. A background review of environmental and physiographic features of the study area relevant to locating archaeological sites was also undertaken.

## **2.4 FIELD INSPECTIONS**

A field inspection of the study area included driving the limits of the site to identify areas of disturbance as well as foot survey of areas considered to have any archaeological potential.

The results of the inspections are presented in Section 6.0.

## **2.5 REPORTING**

The background analysis and field methods were carried out to ensure this report includes:

- analysis of the likelihood of impacts to Aboriginal objects or areas of archaeological potential;
- discussion of outcomes of the consultation process and views of the Aboriginal community organisations;
- presentation of the results of the assessment of the archaeological potential and field inspections;
- an outline of the legislative and policy framework protecting archaeological sites in NSW, a discussion of the implications for site management and an outline of the processes required to comply with legislative requirements;
- recommended mitigation measures; and
- an indication of the preferred involvement of the Aboriginal community in further works.

### **3.0 ABORIGINAL CONSULTATION**

At the commencement of the project the archaeologist contacted the Bathurst LALC to establish the preferred nature of involvement in the project. Details of the development and maps of the study area were provided to Warwick Peckham, Coordinator Bathurst LALC, at their office, prior to arranging the inspection and also to Richard Peters on site prior to the inspection.

During the site inspection, discussions were held with Richard Peters about other sites in the area and the general nature of the cultural heritage of the region.

The Bathurst LALC has provided comment on the proposed development in a letter attached as Appendix A. The LALC has no objections to the proposed extension of the KVAR within the bounds of the area proposed.



## 4.0 ENVIRONMENTAL CONTEXT

An understanding of the environmental background to a study site is essential for a thorough archaeological assessment. The physical environment influences the ways in which areas were used in the past and what types of sites may be located there. For example, campsites are most often located on level ground with good access to resources. In addition, environmental processes influence the preservation of sites. Heavy erosion or acidic soils are more likely to destroy or damage sites.

Proper consideration of the former environmental context and the environmental processes up to the present day are, therefore, important for an understanding of the likely site distribution in a region and the archaeological potential of an area. The environmental characteristics of a given area can also contribute to its value and play a role in the cultural significance of a place for many communities.

The study area is within the Lithgow Valley physiographic region (King 1993b).

### 4.1 LANDSCAPE CONTEXT, GEOLOGY AND SOILS

The Lithgow Valley is at the western margin of the Newnes Plateau, adjacent to the Blue Mountains Plateau. The region is on the central western edge of the Sydney Basin. Lithgow along with the Wolgan and Capertee Valleys are predominantly areas of gently undulating to rolling hills bordered by large sandstone cliffs.

The climate in the region is subject to considerable variation. Temperatures can range between -8°C to 38°C. There is some debate about whether colder conditions in the Pleistocene and periods of the Holocene would have prevented human occupation of elevated areas such as the Blue Mountains. There is some evidence that wetter conditions associated with colder conditions may have increased available resources and therefore not been an insurmountable barrier to occupation (McIntyre 1990).

Kerosene Vale is within the catchment of Sawyers Swamp Creek. The creek originates in the elevated land to the east of the study area, where the ridge reaches heights of around 1160 metres AHD (Northey 2002). The creek continues on a now modified course through the study area and flows into the Cocks River.

The surrounding sandstone escarpments are predominantly of the Narrabeen group layered horizontally with Grose Sandstone (McIntyre 1990). The underlying geology of the area includes the Illawarra Coal Measures and the Berry Formation (King 1993b). The erosion of these softer Permian layers has contributed to the gorges, cliff lines and bottleneck valleys in the region (McIntyre 1990). While abundant sandstone rock shelters suitable for occupation have been observed, the Narrabeen and Grose Sandstones are generally thought to be coarser and less suitable for art sites than the Hawkesbury sandstones to the east.

Most of the study area is in extensively modified landscape, so altered that it is described in soil landscape mapping as 'disturbed terrain'. A section of the Cullen Bullen Soil Landscape, which would have covered the whole of the study area, is still present (King 1993a). Within the area upper slopes often have surface gravel and cobbles. Some outcropping of bedrock is also present.

The Cullen Bullen landscape is an erosional landscape. Soils are shallow to moderately deep on crests, deepening towards the base of slopes and in drainage lines. Gully erosion and sheet erosion are present particularly in cleared areas (King 1993b: 74).

The most commonly available stone type in the region, suitable for flaked artefact manufacture, is quartz. Quartz is found as pebbles within and eroding out of the Narrabeen Group Sandstones. Other sources of stone in the region that may have been used include dolerite plugs found at Mount Budgary and Galah Mountain, tertiary basalt flows at Mount Cameron and chert and quartzite inclusions found in the Wolgan Valley (McIntyre 1990).

## 4.2 FLORA & FAUNA

Animal and plant resources in the area would have varied between the surrounding plateaux and the valleys, providing a varied choice of species available for use as food and for manufacturing objects.

The plateaux generally contain low heath in exposed areas with low open forest and low woodland swamps in the moist valley slopes. Heath swamps occur in the head water valley floors and tall open forests of eucalypts in the gullies moister gullies, particularly on the south side of the plateau tend to have closed forest (Stockton and Holland 1974).

Many plants were exploited as a minor resource, for example berries or plant nectars. Fewer plants were likely to form a major food source. It has been suggested that sedgegrasses (*Ghania sp.*) would have been available in the study area region and could have formed a reliable year round food source (McIntyre 1990).

Aboriginal firing of the landscape would have resulted in opening up of grasslands in the valleys and ridge tops, which, in turn, increased the habitat for large macropods.

Animal resources were important to the Aboriginal people of the region, not only as a food source but because they could also be used for manufacturing. The use of animal skin clothing and animal bone tools has been well documented.

Most Australian land mammals are available all year around as they are not migratory; however, some may be easier to catch at certain times, for example possums are less active in the winter months. Possums are frequently referred to as part of the diet of Aboriginal people in inland areas.

Overall, the resources available to inhabitants of the study area region could have provided a varied and generally reliable resource to sustain relatively large groups.

## 5.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A combination of historical records, ethnographic studies and archaeological research can help to reconstruct past Indigenous behavioural patterns. This, in turn, enables predictive models for the occupation of an area to be proposed.

A great deal of research relevant to the present study has been carried out across the region. Relevant research is summarised below, with the aim of providing a background analysis of the study area. Settlement patterns would have varied through different regions according to resource availability, social structure and environment. Aspects of behaviour as well as climate and resources are also likely to have changed substantially through time.

While it is possible to make some predictions about the likely locations and frequencies of sites within a given area, investigations of any area need to take into account the potential for unexpected sites or site types to be present.

### 5.1 ETHNOHISTORY

Much of our knowledge of the pre-contact social organisation and behavioural patterns of Indigenous people comes from early non-Indigenous historical records and is, therefore, subject to the historical and cultural biases of the recorders. It is also important to remember that at the time many of the observations were made, the lifestyles of Indigenous communities may have already been dramatically altered by the presence of non-Indigenous settlement. The combination of historical records and ethnographic studies of more recent Indigenous communities can help us to reconstruct past Indigenous behavioural patterns. In combination with archaeological evidence, this enables predictive models for the occupation of an area to be proposed. This background can be used to provide a picture of behaviour in the past and indicate how evidence of that past behaviour might be preserved in the archaeological record.

Tindale (1974) records the study area as being at the eastern limits of the land of the Wiradjuri people near their border with the Darug, whose boundary is listed as Mount Victoria. It is likely these boundaries would have changed through time.

During generations of occupation, climate and resources would have changed. It is inevitable that different alliances and groupings would have changed too – the complexity of social interaction is in some ways indicated by the variety of languages that were known to be in use across the continent.

It is estimated that around 250 distinct languages were in use at the time of contact. The exact number cannot be known for certain, but 250 is a conservative estimate. The 250 languages fell within two language families; the *Pama-Nyungan* and *Non Pama-Nyungan* languages. Knowledge of the different language groups in a given area is variable. Early European recordings noted the names of particular Aboriginal individuals and groups, but were not always clear about which named groups represented a language rather than some other social grouping.

Linguistic groupings were probably not the main social or political entities in day-to-day life for Aboriginal people. Land and resource ownership was centred on smaller units. These various groupings and affiliations in social organisations have been described in differing terms. For the following broad outline, the terms defined by Attenbrow (2002) have been used.

In general, resource and land ownership was focused on extended family groups known as *clans*. These groups are sometimes called local clans, territorial clans or local decent groups. As it was unlikely to be acceptable to find sexual partners within the family grouping, and for other reasons such as resource sharing, a number of clans would often travel together in a larger group. These groups are referred to as communities or *bands*. Whether the clan or the band was the most important group politically to an individual is likely to have varied from place to place. Group borders were generally physical characteristics of the landscape inhabited, such as waterways or the limits of a particular resource. Groups also shared spiritual affiliations, often a common dreaming ancestor, history, knowledge and dialect.

An article by Hasler, from the Lithgow and District Family history Association (cited in Mills 2000) records a distinct “Wallerawang” group and notes that there was a large Aboriginal settlement at Piper’s Flat and a burial ground at Lidsdale. The local group in the area is known as the *Wjwandy*. At least one grave, that of an individual known to Europeans as ‘King Miles’, was marked by carved trees.

Conflict between the local inhabitants and incoming non-Indigenous settlers began with the first land grants in 1824. The history of massacres at Capertee and Marrangaroo were well known in the district according to Hasler, as well as Aboriginal deaths by poisoning and disease.

The Piper’s Flat community had contacts across the mountains with people from Richmond and groups of people would regularly travel this route to ‘engage in battle and bring back captive women’. It was routes such as this that Europeans eventually followed to create new access routes. This particular track became the Bell’s Line of Road.

While some patterns of occupation have been proposed for the Blue Mountains area, the relationship between the creek valleys and flats with the resource areas of the Plateaux and mountains is still yet to be fully understood.

## 5.2 REGIONAL INDIGENOUS ARCHAEOLOGY

Aboriginal people have occupied Australia for many thousands of years. Timing of the earliest occupation in particular regions is generally poorly documented and is dependent on the amount of research carried out in an area. It is generally accepted that the earliest habitation dates back at least 60,000 years, but this date may change as further research is carried out.

Early dates for the study area region include a date of 12,000 BP (Before Present) recorded at a shelter in the Capertee Valley (Aiken 1985). Dates of 12,000 BP have also been recorded at Walls Cave, Lyre Bird Dell and Kings Table (McDonald 1995). Early sites are also known from the Blue Mountains at Shaws Creek K2 and Cranebrook Terrace. A date of around 14,000 BP was recorded at Shaws Creek west of the Nepean River. Much earlier dates at Cranebrook are currently under review (Aiken 1985; Attenbrow 2002). In general many of the sites recorded appear to date to the last 10,000 years (Aiken 1985).

A number of archaeological assessments have been undertaken in the general vicinity of the study area. These have, largely, been commissioned as part of environmental assessments for development in the region. Development assessments have included linear surveys for projects such as roads and power lines as well as broader area surveys for coal mining, and construction.

Where previous studies have tried to compare regional predictive models they have included models proposed for adjacent regions such as the Macquarie River Catchment (Pearson 1981) and the Newnes Plateau (Gollan 1983; Gorecki 1982, 1983). No specific models for the Cox's River Valley have been tested.

Salvage excavation of sites at Lyell Dam, in the Cox's River valley to the south of the current study, found artefacts across the entire study area. Much of the material retrieved was low density scatters, but some areas of high density activity were also recorded (McDonald and Barton 1995).

A survey just over 2 kilometres south of Wallerawang township for a proposed highway deviation located four artefact scatter sites with a total of between 2 and 44 artefacts visible on the surface. The most common material was quartz. Quartzite, chert and fine grained igneous material were also recorded (Silcox 1988). The sites were located on lower slopes or slightly elevated ground within close proximity to a water source. Other similar areas were noted as areas of archaeological potential although no surface finds were recorded. Testing of two sites revealed predominantly low-density quartz and mudstone assemblages (Silcox 1989).

Excavations were carried out at Marrangaroo Creek, also at the base of the escarpment in low lying areas (Rich 1988a, 1988b). These sites were also low-density surface artefact scatters with few diagnostic artefacts. One of the main aims of the excavation was to try to retrieve information relating to stone raw material extraction. The results of the excavations suggested that a higher proportion of non-quartz silicious artefacts was present than was suggested by surface observation (Rich 1988a).

Different types of sites could be expected to occur in the elevated sandstone escarpment areas of the adjacent plateau such as the well known art site at Blackfellows Hand Rock (Hunt 1997).

One survey that included an area for a proposed coal conveyer just to the south of the current study area includes a discussion contrasting the different site types likely to occur in elevated plateau areas and those of low-lying flats and creek landforms (Rich and Gorman 1992). Shelter sites are noted as being the most common in both landform types, but the authors note that this may be a skewed statistic as one previous 'low-lying' survey actually focused on the areas at the base of the escarpment. It is certainly the case that open sites are more common in flat areas than in the escarpment or plateaux. Scarred trees are absent in the low-lying areas and rare elsewhere, due to extensive clearing. Axe grinding grooves have also been recorded in the valley/flat landforms (Rich and Gorman 1992).

A linear study for a large area from Mount Piper to Marulan (Brayshaw and Dallas 1993) identifies some areas of high sensitivity for archaeological sites. These include creek and river flats and adjacent high ridge tops.

McIntyre's study on land adjacent to the current study for the proposed Kariwara Coal Mine includes a tentative model for site patterning (McIntyre 1990). She suggests that most site complexes will be located at the head of open gullies where relatively easy access from ridge tops to creek and river resources is afforded. Plateau locations where vantage points are combined with localised resources are also expected to contain site complexes.

She notes that Gollan's (1983) theory that large sites would be located next to major swamps in order to exploit the *Ghanina* resources, is not supported by the evidence. She also notes that large sites occur along the western flank of the plateau at locations where

major creek gullies join the Cox's River Valley. Ridge lines would have been the main thoroughfares and could be expected to contain smaller sporadic use sites at the ends of spurs (McIntyre 1990). Smaller one off sites can be located almost anywhere.

### 5.2.1 DEC AHIMS Search Results

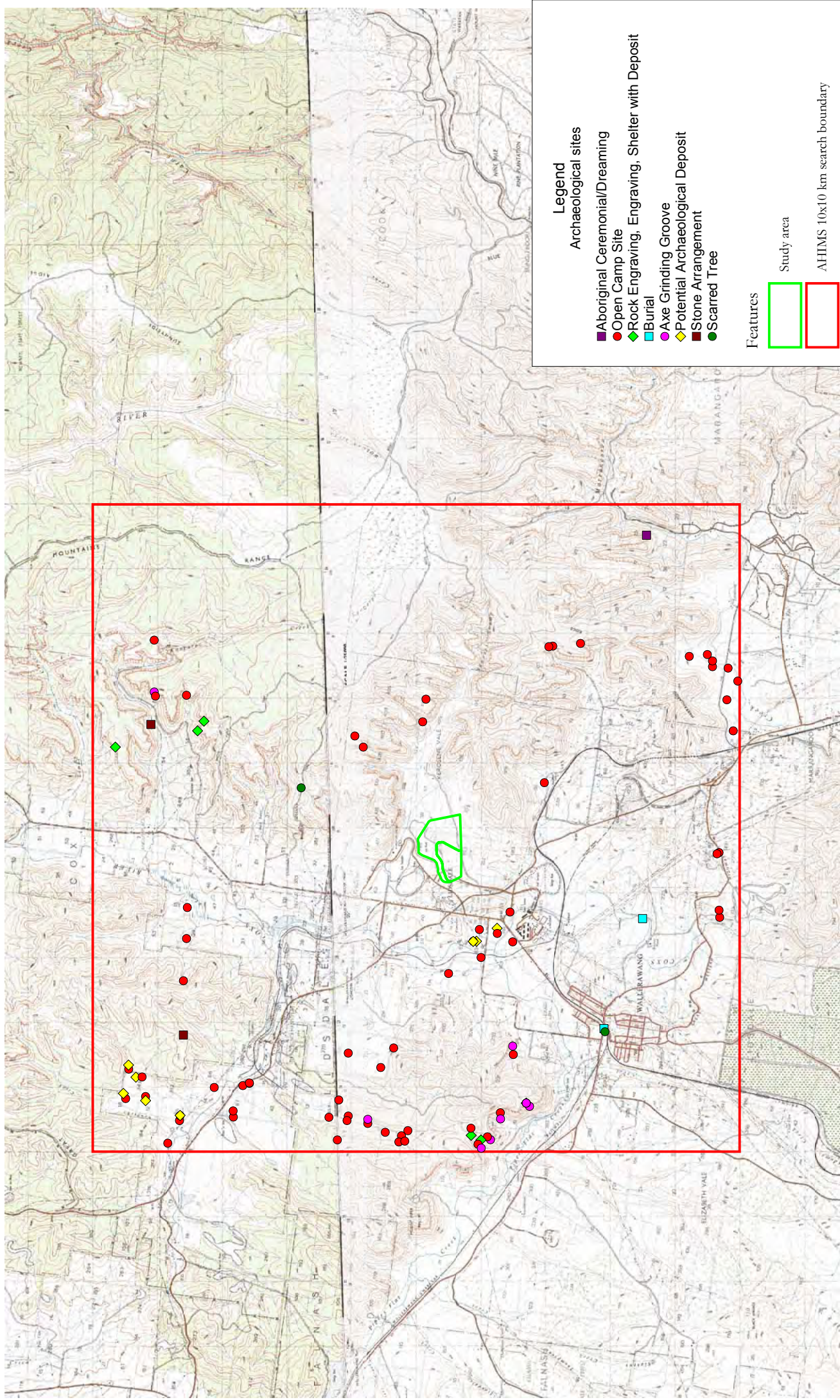
The DEC AHIMS is a database of recorded Aboriginal sites within NSW. The data is limited to known sites. The majority of sites have been recorded as part of archaeological surveys or investigations, but many are also known as a result of amateur interest groups or local knowledge. New sites are recorded regularly. If an area has not been the subject of archaeological assessment, or is remote, there may be sites present that have not yet been recorded. While the register can give an indication of the types and variety of sites in a region, its value is limited by the amount of investigation carried out in an area.

The recorded location information for sites is also subject to variation in recording methods. Coordinates provided are often indicative rather than exact. The accuracy of locations cannot be relied on. Some sites were only ever recorded approximately without detailed map referencing. Other sites recorded prior to the 1980s were recorded using imperial grid references and converted, adding to the inaccuracy of information.

A search of AHIMS sites database was undertaken for an area covering 10 x 10 kilometres centred on the study area. The approximate locations of the sites are shown in Figure 2.

A total of 79 sites were previously recorded within this area, demonstrating a considerable variety of occupation evidence in the region.





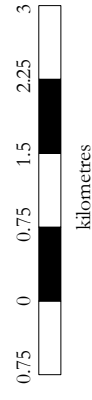
**Figure 2: Archaeological sites previously recorded on AHIMS database near the Kerosene Vale study area.**

Date: 17 October 2006

Project Number: 04062

Acknowledgements: Department of Environment and Conservation (DEC), and Parsons Brinkerhoff.

Scale:





Each place can have more than one ‘feature’ or type of evidence. Of the sites, 66 had stone artefacts present. One stone arrangement and one scarred tree were recorded as well as burial sites, several axe grinding groove sites and shelters with and without art present.

### **5.3 SITE PREDICTIONS FOR THE STUDY AREA**

These site predictions for the study area were based on analysis of the results of the background environmental, ethnographic and archaeological review, the previous work and modelling done across the region and the results of the AHIMS search.

It has been demonstrated that Aboriginal people occupied the region over a long period of time and that this would have resulted in the deposition of a variety of evidence of past behaviour. In general terms, the region was suitable for Aboriginal occupation and no areas posed any significant impediment to hunter-gatherer habitation. Almost all undisturbed landscape types can be expected to contain some evidence of occupation. In the elevated Newnes Plateau areas, occupation evidence is most often found in the form of rock shelter sites often containing evidence such as stone artefacts, food remains or art. In flats and valleys, sites are more commonly open artefacts scatters. Grinding grooves and shelter sites have also been recorded. The following information summarises the site types that have been recorded across the study area region. The likelihood of these site types occurring within the study area is also assessed.

#### **5.3.1 Sandstone Shelter Sites**

Although they have been frequently recorded in the region, as the study area is unlikely to contain sandstone outcrops, it is not expected shelter occupation or art sites would be located within the study area.

#### **5.3.2 Art Sites**

Art sites are usually categorised as either petroglyphs (these can be engraved, pecked, carved or abraded) or pigment sites (using charcoal or ochre). Art sites have been recorded within the study area region. If areas of undisturbed sandstone or rock shelters were to exist in the study area, it would be likely these sites might occur. However, it is not expected that sandstone shelters or large areas of undisturbed rock surface will occur and therefore the likelihood of locating such sites is low.

#### **5.3.3 Grinding Grooves**

These sites are evidence of where ground stone tools have been manufactured and/or sharpened using a soft stone bed and water. It is possible that grinding grooves are located in the study area if outcrops of sandstone are present in creek lines.

#### **5.3.4 Open Artefact Scatters**

Sometimes called open campsites, this site type has been frequently recorded in the study area region. These sites are susceptible to ground surface disturbance. If the subject land contains areas of relatively undisturbed deposit it is possible that artefact scatters will occur.

### 5.3.5 Scarred Trees

Scarred trees are evidence of Aboriginal use of bark for a variety of uses such as canoes, carrying vessels and so on. There is low potential for scarred trees to be located in the study area due to the extensive previous clearing that has taken place.

### 5.3.6 Burials

Aboriginal communities had differing burial customs. Burial sites are not common; however, they have been found in areas of soft ground such as sand deposits. If such areas were to be located within the study area there may be some potential for burial sites to occur.

### 5.3.7 Ceremonial Sites/Stone Arrangements

Sites relating to social gatherings and religious practices in the past often leave no physical traces in the landscape. These sites are often only known through the oral history of local communities or early ethnographic recordings of observations. Other sites such as stone arrangements may also have been associated with ceremonial customs. It is also likely that art sites may have formed part of ceremonial activity. The evidence in the region suggests that these sites would have been present within the landscape. The meaning these sites may have had in the past is not always evident in the present. Given the previous assessments in the region, it is unlikely that such sites will be present and undocumented.

## 5.4 POST-CONTACT HISTORY AND SITE DEVELOPMENT

This section provides a brief summary of non-Indigenous settlement in the study area region and a consideration of the sequence of development on the study area site. It is not intended to be a comprehensive background history, rather to provide a context within which to assess the heritage values of the subject land.

The first crossing of the Blue Mountains by non-Indigenous explorers in 1813 was rapidly followed by the first road west, built by convicts, in 1814.

Non-Indigenous settlement at Lithgow began in 1824 when shale oil was discovered in Hartley (ERM 2002). The Lithgow region continued to grow throughout the Nineteenth Century due to coal mining, the steel industry, rail construction and pastoral activity.

A decline in the area following the Second World War was, in part, arrested by the construction of Wallerawang Power Station. Construction commenced in 1953. Station A began operating in 1957 with Station B following in 1961. These two stations have since been largely demolished and replaced by Station C. Unique remains of the earlier structures have been preserved as a heritage item.

The area of the proposed KVAR extension has been associated with ash storage for the power station since the 1950s. Initial ash storage took place in the abandoned Kerosene Vale 'C' open cut mine. The KVAR itself was constructed in 3 stages. The first stage was the construction of a 5 metre high embankment in the 1960s. A 3 metre high earthfill embankment followed upstream in 1972 along with a drainage blanket and toe drain. In 1979 a zoned embankment, chimney drain and drainage blanket were built on top of compacted ash upstream from the earthfill embankment. This dam was capped in 1990. The Sawyers Swamp Creek Ash Dam was built in 1978, resulting in further disturbance to the study area (Northey 2002).

The majority of the study area is heavily modified terrain. Within the areas of previous open cut mining all soil has been removed to a considerable depth. Elsewhere the original land surface has been obliterated by the construction of dam walls and the deposition of ash. The southeastern portion of the site contains a pine plantation area that has been extensively ripped. Access roads have been graded and boreholes have further disturbed the plantation area landscape.

#### 5.4.1 NSW State Heritage Inventory & Register

There are 3 sites listed on the State Heritage Register in Wallerawang. These are the St John the Evangelist Church, the Cox's River Rail Bridge and the Wallerawang Rail Station and Yard.

Lisdale House Gardens are listed on the State Heritage Inventory (from the Lithgow LEP). In Wallerawang a further 17 sites are listed (via the Lithgow LEP), including the remaining preserved chimney stack at Wallerawang Power Station.

None of the sites on the State Heritage Register or Inventory is within the current study area.

#### 5.4.2 Commonwealth Heritage Registers

A search was undertaken of the online Commonwealth Heritage Registers. Two sites appear on the Register of the National Estate at Wallerawang; the Willowvale Farm at Portland Road Wallerawang and the Cox's River Rail Bridge at Wallerawang. Neither of these sites is within the current study area.

### 5.5 SUMMARY OF LIKELY HERITAGE ITEMS IN THE STUDY AREA

No previously recorded Aboriginal sites are known to exist within the study area boundaries. While evidence of previous archaeological studies would suggest that open artefact sites might be highly likely to occur, recent disturbances to surface areas are likely to have greatly reduced the archaeological potential of the area. The development history of the site suggests that it is unlikely that Aboriginal *objects* or historic *relics* would survive across most of the area. Two areas of lesser disturbance could be observed on the aerial photographs of the site. The first of these areas is the extreme western portion of the study area, to the west of the existing ash dam. The second area is the area of pine tree plantation in the southeast of the study site. It may be possible that Aboriginal occupation evidence survives in these areas. It is considered unlikely that any historic sites would have remained unrecorded in these areas, but if there were to be such sites they would likely be associated with the construction and operation of the Wallerawang Power Station.

## **6.0 SITE INSPECTIONS**

An inspection of the study area was undertaken on the 5<sup>th</sup> of October 2006 by the archaeologist and Richard Peters of the Bathurst LALC. Also present were Nino Di Falco of Delta Electricity and Selga Harrington, Ecologist with Parsons Brinckerhoff.

The following presents the survey methods and the results of the inspections.

### **6.1 SURVEY METHODS & LIMITATIONS**

The survey team were driven around the extent of the study area. Areas of previous disturbance were noted (such as the existing ash dam). Mr Di Falco also provided information about the development history of the site (such as areas previously open-cut mined) in order to assist in targeting areas for the survey.

Two main areas of lesser disturbance were determined; the westernmost portion of the site and the area of the pine plantation.

These areas were surveyed on foot at a slow walking pace to locate areas of exposure and identify any archaeological potential.

No map of the proposed creek line diversion was available at the time of survey, but some areas of the existing creek line were examined.

### **6.2 DESCRIPTION OF STUDY AREA**

#### **6.2.1 Disturbed Areas**

It was evident from the inspections that most of the study area had been highly disturbed. Previous open cut mining has been carried out on portions of the study area. In addition, several phases of construction of ash storage and associated infrastructure have also taken place on the site. This development has had the effect of completely removing or modifying any strata that may have been expected to contain archaeological evidence (for example see Figure 3).



**Figure 3: Example of Disturbed Terrain**

### 6.2.2 Surveyed Areas









Two main areas of the study site were targeted for foot inspection. These areas were labelled Survey Area A and Survey Area B and are shown on Figure 4.

Survey Area A is the area in the westernmost portion of the study site. It is a raised ridgeline, which has been subject to some disturbance in the form of vegetation clearing and the installation of services, access tracks and fence lines. The area contains regrowth vegetation and has some gravel and sandstone surface exposures. Some erosion would have taken place across the ridgeline, but there is some potential for intact soil profiles and therefore some potential for artefact sites to be present. No old growth trees suitable for scarring were present within the area. No sandstone outcrops with the potential to contain shelter sites were present within the area. A typical view of the area is shown in Figure 5.





**LEGEND**

-  Survey area
-  Area of disturbance
- SITE DRAINAGE**
-  Alignment option 1
-  Alignment option 2
-  Current alignment
- SITE FEATURES**
-  Previously mined areas
-  Current operations
-  Stage 2 operations

**Figure 4: Location of surveyed areas and areas of disturbance not surveyed.**

Date: 26 October 2006

Project Number: 04062

Acknowledgements: Parsons Brinckerhoff

Scale: 0 0.15 0.3 0.45 0.6







**Figure 5: Survey Area A**

Survey Area B is a pine plantation. This area had low (less than 5%) visibility, due to the presence of pine needles and other vegetation. It was possible, however to make an assessment of the extent of disturbance to the area. The area had been totally cleared of vegetation and extensively deep ripped prior to planting of pine trees. In addition, several access roads had been graded through the area and borehole testing had taken place. The cumulative effect of these activities is to have greatly reduced the likelihood of locating any intact archaeological deposit. The soil profile noticeable in the borehole/testing pits showed considerable disturbance and may have included introduced fill. No old growth trees suitable for scarring were present within the area. No sandstone outcrops with the potential to contain shelter sites were present within the area.



**Figure 6: Survey Area B**

## 6.3 RESULTS

### 6.3.1 Historic Archaeology & Heritage

No historic relics or areas of archaeological potential were located within the study area. None of the existing built items on the site are older than 50 years and are therefore not considered *relics* under the *Heritage Act*. No items or areas of potential cultural significance were noted within the study area.

### 6.3.2 Aboriginal Archaeology & Heritage

No Aboriginal objects were located as part of the site survey. No areas of potential archaeological deposit were located within the area of proposed disturbance.

It was noted that within Survey Area A the ground surface had been subject to less disturbance than elsewhere. This area has low-moderate potential to contain Aboriginal objects although no areas of particular sensitivity were noted.

Survey Area B has been greatly disturbed by development associated with the pine plantation. This area is considered to have low Aboriginal archaeological potential due to the previous disturbance.

It was not possible to survey the entire routes of both proposed drainage diversion options. Through the use of aerial photographic analysis, it was assessed that the route of Alignment Option 1 is entirely within disturbed terrain and does not pass through any areas of known Aboriginal objects or areas of archaeological potential. The majority of Alignment Option 2 appears to pass through disturbed ground, except for a possible intact area at its eastern end. It was not possible to assess the potential of the eastern extremity of this option.

## 7.0 POTENTIAL DEVELOPMENT IMPACTS

This section summarises the information about the impacts likely to result from the proposed extension of the dry ash storage area.

Expansion of the current ash storage capacity involves a number of modifications to the study area. The existing bund wall would be buttressed and strengthened to contain the ash storage. This buttressing would require the lower section of Sawyers Swamp Creek to be re-aligned. The placement of ash would progress in an easterly direction over the pine plantation area and then in a northerly direction towards the retention area.

In the area of the pine plantation all topsoil will be stripped and excavation may potentially progress to some metres in depth. No works are proposed in the westernmost area (Survey Area A).

The following assessment of the likely impacts of the proposed works on the heritage values of the study area is based on the above description of the proposed works and the field survey inspections of the study area. Recommendations for further action to ensure there is no impact on the known or potential heritage values of the study area are presented in Section 8.0.

### 7.1 ASSESSMENT OF HISTORIC HERITAGE IMPACT

None of the 20 sites listed on the State Heritage Register and State Heritage Inventory is within the current study area. It is assessed that none of the sites is within close enough proximity to be affected by the proposed development.

Neither of the sites listed on the Register of the National Estate will be subject to impact by the proposed development.

No items considered as relics under the *Heritage Act* were identified within the study area boundaries. It is, therefore, assessed that the proposed ash dam extension will not have any adverse impacts on historic relics or historic values of the study area.

### 7.2 ASSESSMENT OF ABORIGINAL HERITAGE IMPACT

At the western boundary of the study area a small area (Survey Area A) with some potential to contain Aboriginal objects was surveyed. This area will not be subject to impact by the proposed development.

The impacts to the pine plantation area (Survey Area B) will involve extensive removal of soil deposit. If any Aboriginal objects were to remain in this area they would be removed by the proposed development. Survey Area B has been subject to considerable prior disturbance. It was assessed that this area had very low Aboriginal archaeological potential. Therefore, there is unlikely to be any significant heritage impact within this area.

In considering the proposed diversion of the drainage line it is assessed that Alignment Option 1 will have no impact on Aboriginal objects or areas of potential as it passes through entirely disturbed ground. The majority of Alignment Option 2 appears to pass through disturbed ground, except for a possible intact area at its eastern end.

## 8.0 MANAGEMENT RECOMMENDATIONS

The recommendations in this section are based on the following:

- the relevant legislative requirements;
- the author's understanding of the views of the Bathurst LALC (as outlined in their letter dated 7<sup>th</sup> October 2006 and attached as Appendix A);
- the results of the archaeological investigations documented in this report; and
- the potential development impacts described.

### 8.1 HISTORIC ARCHAEOLOGY & HERITAGE MANAGEMENT

It is recommended that:

- there is no impediment to the proposed development on historic heritage grounds;
- no further assessment or management of historic heritage is required within the study area boundary; and
- if during the course of development of the area, any *relics* (as defined in the *Heritage Act*) are discovered, that all work should cease and the NSW Heritage Council be notified.

### 8.2 ABORIGINAL ARCHAEOLOGY & HERITAGE MANAGEMENT

These proposed works generally pose no threat to the Aboriginal archaeological and heritage values of the study area. Where impacts are limited to areas of previous disturbance, it has been assessed that the proposed activity will not result in any further impact to Aboriginal archaeological potential than that which has already taken place.

The following recommendations have been formulated to ensure that there is no inadvertent impact to Aboriginal heritage values in the area.

It is recommended that:

- disturbance to the westernmost portion (Survey Area A) of the study area be kept to a minimum;
- in consideration of the proposed drainage diversion options, Alignment Option 1 is preferable as it passes through entirely disturbed ground;
- no further assessment or management of Aboriginal archaeology and heritage is required within the study area boundary; and
- if during the course of development of the area, any *objects* (as defined in the *NPEW Act*) are discovered, that all work should cease and both the DEC regional archaeologist and the Bathurst LALC should be notified so that a course of action can be determined.

### 8.3 ADDITIONAL REQUIREMENTS

- Copies of the final version of this report should be forwarded to the:
  - NSW DEC AHIMS Registrar;
  - DEC Regional Office;

- NSW Heritage Office Librarian;
- Bathurst LALC.

## GLOSSARY

**ABORIGINAL OBJECT** A term now used (formerly ‘relic’) within the NSW *National Parks and Wildlife Act, 1974* to refer to “...any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.”

**ABORIGINAL PLACE** Under Section 84 of the NSW *National Parks and Wildlife Act, 1974* an Aboriginal place is a place which the Minister administering the Act determines is or was of special significance with respect to Aboriginal culture and has been declared an Aboriginal Place by order published in the Government Gazette.

**ABORIGINAL** Used in this report, interchangeably with **INDIGENOUS** referring to people who were present in Australia prior to European colonisation of the continent and their descendents.

**ARCHAEOLOGY** The study of past human behaviour from the physical remains of a culture.

**ARTEFACT** Any object manufactured by humans, usually referring to a portable object.

**BACKED ARTEFACT** A stone artefact (also known as a backed blades or geometric microliths) usually less than 30mm long made from a **FLAKE** and retouched along the rear surface.

**BP** Before present. Commonly used in radiocarbon dating where ‘present’ refers to 1950, as this is the date to which radiocarbon dates are calibrated.

**BURRA CHARTER** A charter developed and adopted by Australia ICOMOS which establishes nationally accepted principles for the conservation of places of cultural significance.

**CORE** A piece of stone which has had flakes removed from it showing evidence in the form of flake scars.

**COLLUVIUM** Deposit of rock debris or unconsolidated earth materials deposited on slope or cliff bases through gravitational action.

**DEBITAGE** Waste by-products from the flaking process.

**ETHNOGRAPHY** First hand observations and descriptions of a people’s way of life (Attenbrow 2002).

**ETHNOHISTORICAL, ETHNOHISTORY** Historical sources containing ethnographic information.

|   |   |
|---|---|
| <b>FIRE-STICK FARMING</b>                     | A method of modifying the vegetation of an area by burning to encourage more useful resources or easier hunting.  |
| <b>FLAKE</b>                                  | A piece of stone struck from a <b>CORE</b> . For accurate identification flakes must contain at least one of the following diagnostic criteria: bulb of percussion; striking platform; impact point; ripple marks and negative flake scars.                     |
| <b>FLAKING/KNAPPING</b>                       | The process of creating stone artefacts.  |
| <b>FLAKED PIECE</b>                           | A stone artefact which has scarring and signs of having been worked, but has none of the defining characteristics of a <b>FLAKE</b> .   |
| <b>GEOMORPHOLOGY</b>                          | The study of landforms.   |
| <b>GRINDING GROOVES</b>                       | Areas on a stone surface where other items such as stone tools, wood or bones have been sharpened.  |
| <b>GROUND-STONE/GROUND-EDGE ARTEFACTS</b>     | Stone artefacts where an edge is made by a process of abrading the surface. This is usually done by sharpening the edge on a softer rock using water.   |
| <b>HOLOCENE</b>                               | The most recent geological epoch. It commenced around the time of the last polar ice-cap retreat at the end of the Pleistocene era, thought to be around 10,400 BP (around 11,00 – 11,500 calendar years) ago (Mulvaney and Kamminga 1999).                     |
| <b>ICOMOS</b>                                 | International Council on Monuments and Sites.   |
| <b>MANUPORT</b>                               | An object carried from one place to another by humans. It usually refers to a piece of stone showing no signs of modification but that does not occur naturally in a given area and must, therefore, have been introduced through human agency.                 |
| <b>MUDSTONE/INDURATED MUDSTONE/TUFF</b>       | A type of stone commonly found in the Cumberland Lowlands, the Hunter Valley and elsewhere. There is some debate as to the precise formation process of the material. It appears that an exact definition of such material can only be made under a microscope. |
| <b>PEBBLE</b>                                 | Natural stone (ie unmodified) fragments are categorised by size. Pebbles are 2–60 mm in size and cobbles are 60–200 mm in size. They can be any shape (McDonald, et al. 1984: 78).  |
| <b>POTENTIAL ARCHAEOLOGICAL DEPOSIT (PAD)</b> | An area where no surface archaeological remains are visible but where it has been assessed that there is some potential for sub-surface archaeological remains.   |
| <b>PRE-CONTACT</b>                            | Generally taken to mean Aboriginal society before sustained contact with non-Aboriginal settlers ie before 1788, although contact with individuals from other countries occurred well before this.  |



**POST-CONTACT** After the colonisation of Australia by Europeans.

**PREHISTORIC** From the time before written records of a culture. The dates for prehistory vary from place to place depending on the adoption of written records.

**RADIOCARBON DATING** A method of dating material containing carbon. Also known as carbon 14 dating, it measures the rate of decay of the radioactive isotopes in carbon ( $^{14}\text{C}$ ).

**SCARRED TREE** A tree from which bark has been deliberately removed. **ABORIGINAL** people used the bark from trees for a number of purposes including: canoes, carrying vessels, shields, houses, tree climbing and carving designs. Non-Aboriginal causes of bark removal include marks carved by surveyors.

**SIGNIFICANCE ASSESSMENT** The process of studying and understanding the meanings and values of places, buildings, sites, objects and collections (Heritage Collections Council 2001).

**SILCRETE** A type of silicious stone, suitable for flaked stone tool manufacture.

**SOIL LANDSCAPE** An area of land where the topography and soils have distinct characteristics, are recognisable, describable by concise statements and capable of being represented on a map (Bannerman and Hazelton 1990).

**VISIBILITY** The extent to which the ground surface of an area is exposed to permit the detection of artefacts or cultural material.

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## **Appendix A: Correspondence with the Bathurst Local Aboriginal Land Council**



# BATHURST LOCAL ABORIGINAL LAND COUNCIL

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## KEROSENE VALE ASH DUMP

### STAGE TWO

A survey was conducted on behalf of Delta Electricity on the 5<sup>th</sup> October 2006 for the proposed Ash Dump extension at Kerosene Vale situated near Lidsdale NSW on the Wallerawang Power Station lease.

The Ash Dump had pervious been surveyed by Wally Peckham Coordinator Bathurst Aboriginal Land Council three years prior to this survey.

The western side of the Ash Dump is covered by natural bush growth and will not be impacted upon by the purposed extensions, however the eastern side has been severely disturbed by previous plowing including earth works, the installations of bush tracks/roads and contains 85% new land fill.

The survey areae presented no evidence of Aboriginal activity, artefacts, shelters or scared trees.

The Bathurst Local Aboriginal Land Council has no objections to Delta Electricity commencing the proposed Ash Dump extension within the surveyed area.

Present at this survey were:

|                  |                       |  |
|------------------|-----------------------|--|
| Selga Harrington | Ecologist             |  |
| Nino Di Falco    | Environmental Manager | Delta Electricity                      |
| Vanessa Hardy    | Archaeologist         | Cultural Heritage Connections          |
| Richard Peters   | Sites Officer         | Bathurst Aboriginal Local Land Council |

**RICHARD J PETERS**  
**SITES OFFICER**  
**7 October 2006**