

ENVIRONMENTAL ASSESSMENT

Duralie Extension Project

APPENDIX J ABORIGINAL CULTURAL HERITAGE ASSESSMENT



Appendix J
Duralie Extension Project
Aboriginal Cultural Heritage Assessment

November 2009

Prepared for
Duralie Coal Pty Ltd

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J1. INTRODUCTION

Kayandel Archaeological Services has been commissioned by Duralie Coal Pty Ltd (DCPL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) for the Duralie Extension Project (the Project). The Duralie Coal Mine (DCM) is owned and operated by DCPL, a wholly owned subsidiary of Gloucester Coal Ltd.

DCPL is seeking Project Approval from the New South Wales (NSW) Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

J1.1. Study Area

The DCM is located approximately 10 kilometres (km) north of the village of Stroud and approximately 20 km south of Stratford in the Gloucester Valley in NSW (Figure J-1). The study area comprises Mining Lease (ML) 1427 and Mining Lease Application (MLA) area 1 (Figure J-2).

A description of the environmental context of the study area is presented in Section J2.

J1.2. Proposed Works

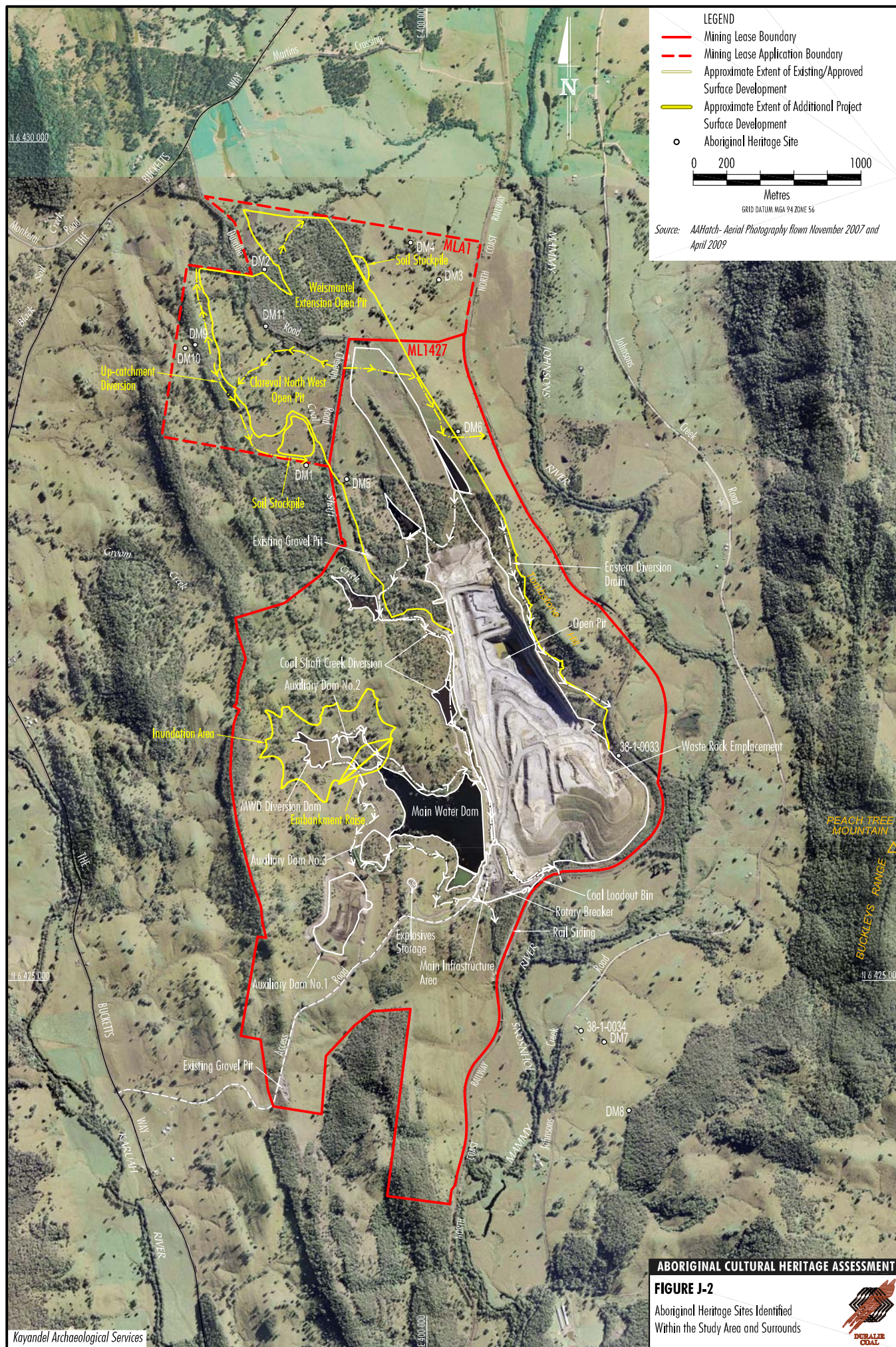
DCPL has commissioned this assessment as part of an Environmental Assessment (EA) of the Project under Part 3A of the EP&A Act.

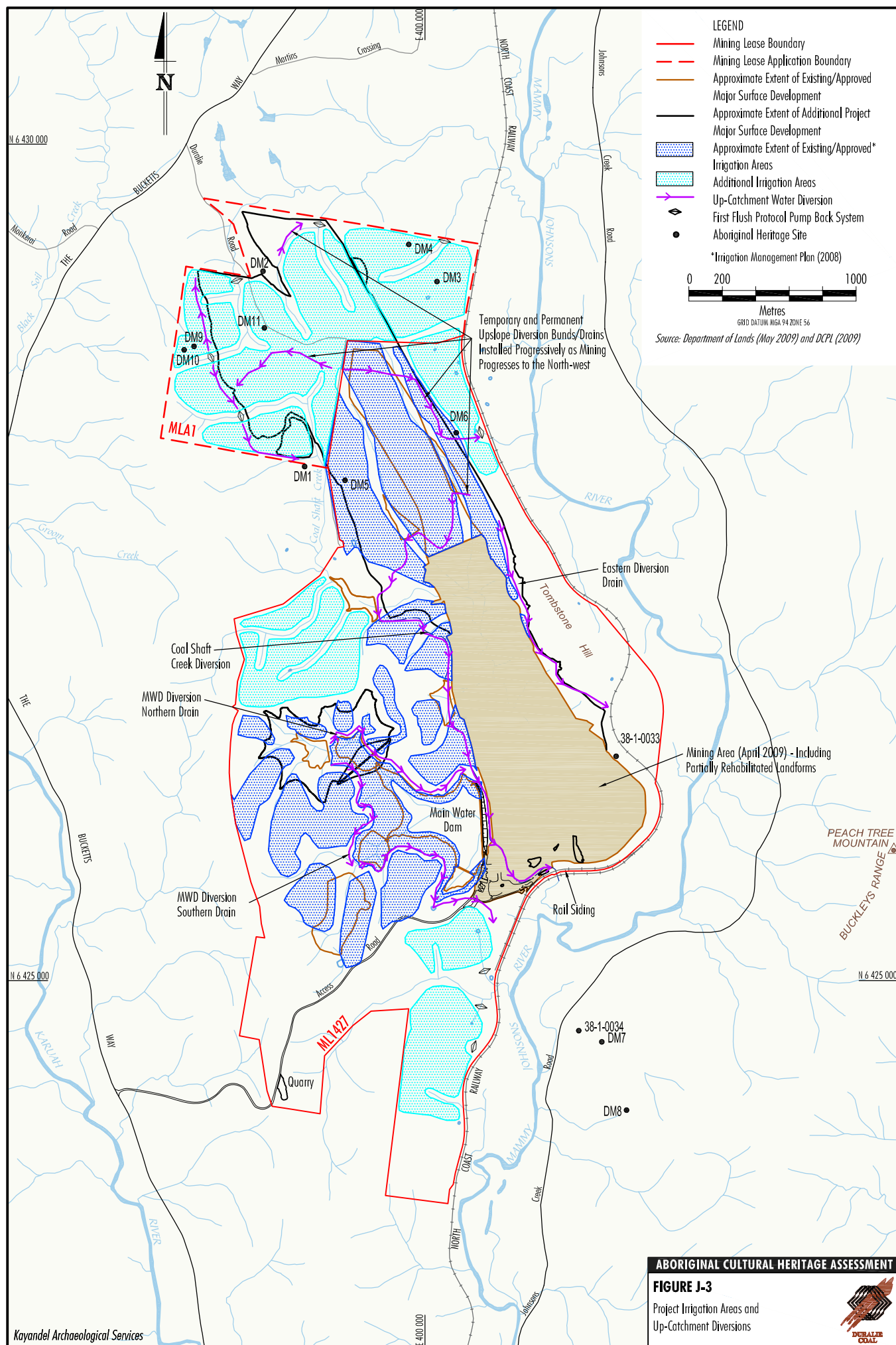
A detailed description of the Project is provided in Section 2 in the Main Report of the EA.

The main activities associated with the development of the Project would include:

- ✦ continued development of open pit mining operations at the DCM to facilitate a run-of-mine (ROM) coal production rate of up to approximately 3 million tonnes per annum, including:
 - extension of the existing approved open pit in the Weismantel Seam to the north-west (i.e. Weismantel Extension open pit) within ML 1427 and MLA 1; and
 - open pit mining operations in the Clareval Seam (i.e. Clareval North West open pit) within ML 1427 and MLA 1;
- ✦ ongoing exploration activities within existing exploration tenements;
- ✦ progressive backfilling of the open pits with waste rock as mining develops, and continued and expanded placement of waste rock in out-of-pit waste rock emplacements;
- ✦ increased ROM coal rail transport movements on the North Coast Railway between the DCM and Stratford Coal Mine (SCM) in line with increased ROM coal production;
- ✦ continued disposal of excess water through irrigation (including development of new irrigation areas within ML 1427 and MLA 1) (Figure J-3);
- ✦ raising of the existing approved Auxiliary Dam No. 2 from relative level (RL) 81 metres (m) to approximately RL 100 m to provide significant additional on-site storage capacity to manage excess water on-site;







- ✧ progressive development of dewatering bores, pumps, dams, irrigation infrastructure and other water management equipment and structures;
- ✧ development of new haul roads and internal roads;
- ✧ upgrade of existing facilities and supporting infrastructure as required in line with increased ROM coal production;
- ✧ continued development of soil stockpiles, laydown areas and gravel/borrow pits;
- ✧ establishment of a permanent Coal Shaft Creek alignment adjacent to the existing DCM mining area;
- ✧ ongoing monitoring and rehabilitation; and
- ✧ other associated minor infrastructure, plant, equipment and activities.

J1.3. Assessment Personnel

Production of the ACHA (including the survey) was managed by Lance Syme.

The field survey personnel for Kayandel Archaeological Services were Lance Syme and Amy Donaldson.

The registered stakeholders who participated in the ACHA included:

Registered Stakeholders	Representative
Barrington-Gloucester-Stroud Preservation Alliance Inc.	Jane Stevenson Dave Hare-Scott
Garigal Aboriginal Community Inc. ¹	Glen Jonas
Gidawaa Walang Cultural Heritage Consultancy	Ann Hickey
Johnsons Creek Conservation Committee	Carol Ridgeway-Bisset
Karuah Local Aboriginal Land Council	Colleen Perry
	Ron Tisdell
Minimbah and District Aboriginal Elders Group Inc.	Mick Leon Barry Bungie
Maaiangal Group ^{1, 2}	Nurpula Stephenson ³

¹ Due to insurance arrangements, these registered stakeholders attended the August 2009 fieldwork as representatives of the Johnsons Creek Conservation Committee.

² In correspondence dated 22 October 2009, Nurpula Stephenson indicated that she is affiliated with the Maaiangal Group of the Worimi Nation (herein referred to as the Maaiangal Group) and speaks on behalf of this group.

³ As requested, Diana Stephenson is referred to within this ACHA by her tribal name 'Nurpula' Stephenson.

J1.4. Study Aims and Objectives

The objective of this study is to provide DCPL with an ACHA of the Project suitable for inclusion in an EA in support of a Project Application under Part 3A of the EP&A Act. Part of this heritage assessment involves the identification of previous Aboriginal settlement patterns of the study area, identifying past Aboriginal landuse and potential impacts to Aboriginal heritage as a result of the Project.

This assessment has been undertaken in accordance with the Project Environmental Assessment Requirements issued by the Director-General of the NSW Department of Planning on 5 November 2009 and various guidelines including: *Aboriginal Cultural Heritage Standards and Guidelines Kit* (NSW Department of Environment and Conservation [DEC], 1997); *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC, 2005); *The Australian ICOMOS Charter for Places of Cultural Significance* (Burra Charter, 1999); and *National Parks and Wildlife Act 1974: Part 6 Approvals Interim Community Consultation Requirements for Applicants* (DEC, 2004).

The following tasks were undertaken to achieve these objectives:

- ✧ Identification of statutory requirements relevant to the project.
- ✧ Advertisement of the Project and identification of stakeholders wishing to be consulted in regard to the assessment.
- ✧ A search of the relevant local, State and Federal heritage registers and listings.
- ✧ A review and analysis of existing reports relating to the study area and its immediate environs.
- ✧ Consultation with the Aboriginal community and other stakeholders in the area throughout the assessment process.
- ✧ Specific consultation with the Aboriginal community in regard to a draft assessment methodology.
- ✧ Considering the comments of registered stakeholders on the draft assessment methodology and, where relevant, addressing or incorporating comments in the final methodology.
- ✧ Undertaking an archaeological and cultural survey and site inspection in consultation with the Aboriginal community.
- ✧ Assessment of archaeological and cultural heritage values.
- ✧ Evaluation of potential impacts.
- ✧ Development of proposed mitigation and management strategies.
- ✧ Drafting of this ACHA and provision of the draft ACHA to registered stakeholders for comment.
- ✧ Considering the comments of registered stakeholders on the draft ACHA and, where relevant, addressing or incorporating comments in the final ACHA.

J1.5. Limitations

The vegetation and groundcover in a study area can reduce surface visibility. It is therefore possible that although due care and skill were used, some sites (e.g. stone artefacts) may be present that have not have been identified during previous or recent surveys.

J2. ENVIRONMENTAL CONTEXT

The environmental context of the study area is important in order to give a context to the archaeological record. With respect to Aboriginal archaeology, land formation processes may impact upon the type and frequency of archaeological remains. Past climate may also impact upon the location and types of resources available, which in turn would impact upon settlement and mobility patterns of past Aboriginal groups in the area (NSW National Parks and Wildlife Service [NPWS], 1997: 16; Mulvaney and Kamminga, 1999: 297-319).

Resource distribution and availability (such as the presence of drinking water, plant and animal foods, raw materials of stone, wood and vegetable fibre used for tool production and maintenance) is strongly influenced by the nature of soils, the composition of vegetation cover and the climatic characteristics of a given region.

The location of different site-types (such as middens, open artefact scatters, axe grinding grooves, petroglyphs [engravings], etc.) are strongly influenced by factors such as these along with a range of other associated features, which are specific to different land systems and bedrock geology (Mulvaney and Kamminga, 1999: 297-319).

Detailing the environmental context is an integral procedure that assists with the modelling of potential past Aboriginal landuse practices and/or predicting site distribution patterns within any given landscape (Guilfoyle, 2006). The information that is outlined below is considered to be pertinent to the assessment of site potential and site visibility within the specific contexts of the current study.

J2.1. Climate

On-site weather data is collected at the meteorological station near the centre of ML 1427. On-site temperature records for the 2008 Annual Environmental Management Report (AEMR) reporting period indicate that in the summer months at the DCM, maximum temperatures ranged from 31.7 to 34.1 degrees Celsius (°C) while during winter months temperatures fell as low as -0.2°C. The highest temperatures generally occurred in January and the lowest occurred during July.

Historical average rainfall for the nearby district of Stroud (recorded at the Stroud Post Office) over the period 1889 to 2009 was 1,146.6 millimetres (mm) (Commonwealth Bureau of Meteorology [BoM], 2009). Historical records show that rainfall tends to be highest in March and lowest in September (DCPL, 2008a). On-site annual rainfall was reported at 899.2 mm in 2006 and 1,092 mm in 2007 (DCPL, 2007a, 2008a). Average daily evaporation rates calculated monthly for the 2007 AEMR reporting period¹ ranged from 2.1 millimetres per day (mm/day) (June 2007) to 6.8 mm/day (January 2007) (DCPL, 2007a).

¹ Evaporation data provided from the 2007 AEMR reporting period as the evaporation data for some months is missing in the 2008 AEMR due to technical problems with the monitoring equipment (i.e. corrosion in the sensor cable junction).

The microclimate of an area is influenced by factors such as rain shadows, aspect and topography, prevailing wind direction and frost hollows. These influences would seem particularly relevant to the terrain of the study area, resulting in frosts and localised temperatures and conditions often dependant on elevation and aspect.

In the past 10,000 years, changes in climatic conditions affecting south-east Australia, largely a result of receding/melting ice sheets in the Northern Hemisphere and Antarctica caused sea levels to rise and led to increased rainfall and temperatures (Harrison and Dodson, 1993; Flood, 1995; Mulvaney and Kamminga, 1999: 223-226). This increase in rainfall and temperature, commenced approximately 18,000 years before present (BP), and peaked at around 6,000 years BP (*ibid.*). Temperatures then decreased slightly until 1,500 BP. For the past 1,000 years however, temperatures and rainfall have increased slightly to reach present conditions (*ibid.*).

J2.2. Topography and Geomorphology

The Project is located in an area characterised by substantial local topographic relief. The DCM is situated in a valley which is bounded by ridgelines to the east (Buckleys Range) and west (Linger and Die Ridge).

Elevations within the DCM area generally range from approximately RL 50 m along the river flats of the Mammy Johnsons River to RL 180 m on the ridge tops to the west and south of the existing ML 1427. Within MLA 1 elevations range from RL 70 to 170 m and the topography is generally steeper in the west along a north-west to south-east oriented ridgeline, and more gently sloping in the north-east of MLA 1.

A prominent hill rising to an elevation of approximately RL 130 m, referred to as Tombstone Hill, is located to the east of the DCM open pit.

The DCM is situated mostly within the Coal Shaft Creek valley, where elevations originally ranged from approximately RL 50 to 100 m. The development of the DCM has altered the pre-mining topography within the mining area, with the open pit and waste rock emplacement (up to RL 110 m) and water management structures being the primary alterations (Figure J-2).

Geology

The geology of the Stroud-Gloucester area is dominated by the Permian Gloucester Basin, a north-south elongated syncline containing some 4,000 m of Permian strata along the central synclinal axis (DCPL, 1996). The Project area is situated in the southern part of the Gloucester Basin. The Permian sequence present in this area consists of the Stroud Volcanics and the Dewrang Group and these strata are contained within the southern closure of the main synclinal structure of the Basin (DCPL, 1996).

Soils

Soils derived from the sandstones in the Dewrang Group, apart from thin zones along the creek lines, cover most of the coal deposit (DCPL, 1996). These tend to be fairly poor and have generally thin (100 mm) A1 horizons and poorly structured A2 horizons (DCPL, 1996).

Soil surveys were undertaken by ERM Mitchell McCotter Pty Ltd and AGC Woodward-Clyde Pty Limited (1996) in 1995 and 1996 to delineate soil types within ML 1427. The following soil types have been identified within ML 1427 (ERM Mitchell McCotter Pty Ltd and AGC Woodward-Clyde Pty Limited, 1996; DCPL, 1996):

- ✧ Yellow Podzolics (the most widespread soil type in the DCM area, the occurrence of Yellow Podzolics is related to the underlying lithology, due to the presence of sandstone);
- ✧ Red Podzolics (a duplex soil which occurs in lower slope and crest positions);
- ✧ regular Podzolics (occurs in mid-slope and crest positions);
- ✧ Chocolate Soil (occurs in open depressions);
- ✧ Non-calcic Brown Soil (occurs in mid-slope positions);
- ✧ Prairie Soil (occurs in mid and lower slope positions);
- ✧ Black Earth (occurs on lower slopes on volcanic rocks);
- ✧ Red Earth (occurs in mid-slope positions);
- ✧ Brown Clay (occurs in both open depressions and upper slope positions);
- ✧ Structured Plastic Clay (occurs in open depressions);
- ✧ Euchrozem (occurs in a number of topographic positions and topsoil consists of a deep, dark brown silty or light clay);
- ✧ Alluvial Soil (soils of the drainage lines and adjacent land);
- ✧ Xanthozem (related to the volcanic parent geology of the western half of the ML 1427 area); and
- ✧ Lithosols (shallow soils which occur on upper slopes [$>15\%$] and crests).

Soil surveys were undertaken by Veness and Associates Pty Limited in 1996 to delineate soil types within and surrounding the Project area and to map their capability for irrigation. The following soils have been identified within MLA 1 (Veness and Associates Pty Limited, 1996):

- ✧ Structured Loams;
- ✧ Yellow and Gleyed Podzolics;
- ✧ Structured Plastic Clays;
- ✧ Minimal Prairie Soils; and
- ✧ Brown and Gleyed Podzolics.

Hydrology and Hydrogeology

The Karuah River is located to the west of the study area (Figure J-1), rising in the Chichester State Forest and draining to Port Stephens some 40 km south of the DCM. The primary watercourse in the vicinity of the study area is the Mammy Johnsons River, a tributary of the Karuah River (Figures J-2 and J-3).

The Mammy Johnsons River flows through an undulating landscape which has been extensively cleared for cattle grazing and runs in a roughly north-south direction immediately to the east of the study area (Figure J-2).

The original alignment of Coal Shaft Creek has been diverted as a component of the approved DCM and the diversion comprises a series of dams and drainage structures to the north and west of the current mining operation (Figure J-2).

An unnamed tributary of Mammy Johnsons River flows in a north-easterly direction through MLA 1. Its confluence with the Mammy Johnsons River is located approximately 400 m to the north-east of MLA 1.

The various sedimentary rocks at the Project area generally have low primary or intergranular porosity and permeability (DCPL, 1996). Groundwater is present in fissures and fractures in the otherwise low permeability rock.

Specific surface water and groundwater assessments have been undertaken for the Project by Gilbert & Associates Pty Ltd (2009) and Heritage Computing (2009) and are included as Appendices A and B of the EA, respectively.

J2.3. Vegetation and Fauna

The vegetation of an area is dependent upon the geology and soil landscapes, which have a direct impact on soil fertility and vegetation cover. This in turn provides an indication of the type and locations of resources available to Aboriginal groups in the past.

The Project is located in a rural area characterised by cattle grazing on native and improved pastures, along with some poultry farming and other agricultural production. The majority of the Project area has been cleared as part of past rural landuse practices.

The vegetation patches in the Project area are mostly regrowth resulting from previous pastoral land clearance, with scattered old growth trees (Cenwest Environmental Services and Resource Strategies, 2009a) (Appendix E of the EA). As a result, there is a greater mixing of flora species across the landscape, than there otherwise would be in climax vegetation communities, where species have distinct niches.

The Terrestrial Flora and Fauna Assessment is provided as Appendix E of the EA and provides a comprehensive assessment of the flora and fauna attributes of the study area.

J2.4. Resources for Subsistence

As outlined above, a range of floral and faunal resources are available in the study area and were potentially seasonally exploited by Aboriginal communities. Past climatic changes and modern landuse have however altered the distribution of vegetation and amount of water available, which in turn have influenced the distribution of plants and animals.

Semi-permanent water sources were available to Aboriginal groups in the drainage lines located within and surrounding the study area, with permanent water sources located immediately to the east of the study area at the Mammy Johnsons River. Variable climatic conditions affected the availability of water and may have subsequently influenced the way Aboriginal people moved through the landscape over time.

J2.5. Disturbance and Visibility

The study area has been subjected to a number of current and past landuses, which would affect the context of any potential archaeological sites.

There are a number of factors to be considered when assessing visibility over a study area. These include, but are not limited to, the time of day, aspect of the sun, vegetative cover, weather conditions and soil matrix.

On the days of fieldwork, ground visibility within the study area varied, but was generally rated between moderate and low, with vegetation cover being the most influential factor affecting visibility. Areas of moderate visibility were characterised by areas of exposure associated with open ground under established trees, whilst areas of low visibility were characterised by native and introduced species of grass cover and scrub.

J3. ARCHAEOLOGICAL CONTEXT

J3.1. Ethnographic History

J3.1.1. Pre-contact

European historical accounts of past Aboriginal practice are often subjective and succumb to the prevailing morals and beliefs of the time. For this reason the following information is possibly an embellished reflection of Aboriginal culture in the study area and best understood as a non-academic record subject to culturally insensitive viewpoints and is potentially variable in nature.

Tribal boundaries with pre-contact Aboriginal groups are indistinct, and subject to temporal variation and variation between sources. For example, Dr David Horton's map (1996) uses major language groups to illustrate the distribution of Aboriginals at the time of European contact (Horton, 1996). Horton's map shows the area as bounded by Forster-Tuncurry in the north, Maitland in the west and Nelson's Bay in the south as belonging to the Worimi language group (National Archives of Australia, undated). Horton, however, adds a disclaimer that the locations are general, and that more precise boundaries should be sought from Local Aboriginal Land Councils (*ibid.*).

According to Tindale's (1974) mapping of tribal boundaries based on linguistic divisions, the study area is located on lands which include the border of the Birpai (or Birripai) tribe and the Worimi tribe. The Birpai tribe occupied the area from the mouth of the Manning River at Taree and inland to near Gloucester (South Australian Museum, undated). They were principally on the south side of the river and also on the Forbes, Upper Hastings and Wilson rivers. The Worimi tribe were located from the Hunter River to Forster near Cape Hawke along the coast, at Port Stephens and inland to near Gresford (South Australian Museum, undated). They also occupied territory around Glendon Brook, Dungog, the head of Myall Creek and south to Maitland.

Wafer and Lissarrague (2008) indicate that the study area is located within the Lower North Coast Language group (Gadhang) (Figure J-4).

ERM Mitchell Cotter Pty Ltd (1995) indicates that the historical literature contains evidence of contact between Aboriginal groups living in the region. Regular gatherings or corroborees were described indicating that songs, dances and stories were exchanged and wives sought (ERM Mitchell McCotter Pty Ltd, 1995). There was also inter-tribal participation in specific rituals such as food increase rites and initiation ceremonies (ERM Mitchell McCotter Pty Ltd, 1995).

Leon and Feeney (1998) indicate that the Worimi people had a distinctive way of life and periodically visited the coast, which corresponded with seasonal movements of seafood. The Worimi people also attended various locations for ceremonial purposes. Natural stone material used for manufacturing tools was obtained within the Worimi's area and also through trade with neighbouring tribal groups (Leon and Feeney, 1998).



Figure J-4: Language Groups in Central Coastal NSW (Wafer and Lissarrague, 2008: 161)

In their report provided to DCPL (dated September 2009), Minimbah and District Elders Group Inc. provided a summary of the ethnohistory of the area:

“There are many Aboriginal people in the Stroud – Gloucester region. Most are direct descendents of the region’s traditional tribal groups.

*The two main tribal groups are the **Gringai** (whose tribal boundaries stretch from the southern sides of the Gloucester-Barrington Tops, east to Stroud) and the **Worimi** whose country adjoined the **Gringai** at Boral and (many say) continued all the way South to Tocal.*

Most local Aboriginal descendants still observe their cultural connections with both the lands and waters of the before mentioned regions. The Elders of both tribal groups are generally referred to as knowledge-holders. Before any knowledge is passed down to the young respect has to be gained.

The **Gringai** and **Worimi** enjoyed a healthy and abundant lifestyle before non-Aboriginal exploration and settlement disrupted their way of life. Up to 500 members existed within each tribal nation before non-Aboriginal contact was made. The shell middens around the regions lakes suggest that food from the lake and sea was abundant, as well as wallabies, kangaroos, echidnas, waterfowl and fruit bats. Fire was an important feature of life, both for campsites and the periodic ‘burning of the land’.

Each tribe has significant areas and things that are still very important to continuing customary lore. “The Three Brothers Mountains are a very significant spiritual place for the Biripi people. Within the regional context of the study area, Gloucester is well known for it’s traditional cultural significance. In the years 1918-1924, early settlers observed and recorded significant places that they had been told, were especially important to the local Aboriginal population living in the Gloucester area at the time. The current site of the Gloucester Primary School is important, in that it once was a ceremony – bora or “Bumbat” place. This is supported by anthropological records that record 8 “dendroglyphs/teletglyphs” or marked trees surrounding the “Bumbat” at Gloucester.

Recognition as an Aboriginal place sends a strong message to the whole community about their past and ongoing Aboriginal significance, “Greg Croft NPWS 2003. Another area is Saltwater, south of Wallabi Point. Dark Point south of Seal Rocks is an important cultural place of the Worimi people. Both tribes have similar cultural associations with the Grt Dividing Range, notably the Barrington-Gloucester-Nowendoc mountain regions. Each significant place has a dance, song or story about it.

Scientific evidence indicates the Biripi and Worimi tribal groups occupying the coast and ranges up to the last ice age around 7,000yrs BP.

- ✧ An Aboriginal shell midden near Bohnock has been C-14 Carbon dated to 6,400yrs BP.
- ✧ Another shell midden near Green Point has been C-14 carbon dated at 4,450yrs BP.

Many books and historical documents contain detail of Aboriginal people around the turn of the 18th century. This information supports Aboriginal descendants’ knowledge and use of the Gloucester-Manning-Great Lakes regions.

At the time of the first European settlement in the Gloucester-Stroud district was inhabited by the Kattang speaking peoples of the Gringai and Worimi tribes (Enright 1932; Holmer 1966; Gilbert 1954a; Miller 1985). These tribes were divided into a number of local groups, each with a degree of autonomous identity and rights associated with a specific geographical estate. The size, composition and distribution of individual extended family bands within the estate of the larger local group varied in response to social and economic circumstances (Dawson 1935: 25).

Available ethnographic information suggests that a seasonal pattern of movement and resource exploitation was followed (Ella Simon in Ramsland 1987: 180; Brayshaw 1986:41; Byrne & Nugent 2004: 30, 143), but this may not necessarily have been the case prior to European contact.

Even though coastal hinterland groups had economic, social and ceremonial links spanning wide areas (including the study area), life on the ranges and coastal plains seem to have been fairly settled, prompting Cunningham (1827: 185) to write of the ‘better order of things’ obtaining amongst Aboriginal people at Port Stephens and to the north. He describes their ‘comfortable’ huts of tea-tree bark that were capable of holding several persons.

Some families with inherent knowledge of association with the study area.

- ✧ Cook’s
- ✧ Clark’s (spelt with an ‘e’ or without)
- ✧ Buckshiram

- ✧ Thorpe's
- ✧ Simon's
- ✧ Syron's
- ✧ Saunders
- ✧ Ridgeway's
- ✧ Miller's



Family of Aborigines Taking Shelter (in a Cave) During a Storm (Lycett 1775-1828 in Minimbah and District Elders Group Inc., 2009)

In 1818, Oxley (1820: 342-343) noted a large Aboriginal population in the Manning – Great Lakes region, attributing this to the favourable environment.

In addition to day to day subsistence of environmental resources, historical references indicate that within a 40km radius of the study area there are 7 Keepara/Bora/Bumbat (ceremonial) grounds recorded;

- ✧ AHIMS #30-50005 Tugrahakh 35.2km north east,
- ✧ 38-3-0007 Ridgeview 31km north east,
- ✧ 38-3-0223 Coneac 45/2km west-north west,
- ✧ 38-3-231 Wirradgurie 43km north east,
- ✧ 30-50011 Bakers Creek 46km north east,
- ✧ 38-1-100066 Washpool 11.5km south- south west,
- ✧ 38-10004 Stroud 16km south

By 1850 most of the coastal ranges and plains had been appropriated by Europeans and traditional social and land-use systems were severely affected. Deprived of their economic base, the remaining Kattang speakers were forced to depend on handouts of food and blankets, many becoming fringe-dwellers on the edges of European settlements (as per the Wards River 'fringe-camp'). A number of other campsites, possibly used prior to European intrusion, have been reported in the Copeland and Barrington areas, including one beside the Barrington River near the Barrington Public School. The Gloucester Historical Society has hand-written records (ND) of Aboriginal people playing cricket at Copeland".

Further to the above, comments received from Norma Fisher indicate:

"the history of the marriage of James Bugg to the local Aboriginal woman Charlotte is well documented. And also we believe that the history of this family is well known in the district and is made obvious by the prominence of Mrs Norma Fisher who is active in local Aboriginal organizations".

J3.1.2. Post-contact

The DCM area formed part of a large land grant held from the early nineteenth century by the Australian Agricultural Company (AA Company). The AA Company was established in London in 1824 and, supported by an Act of Parliament and a Royal Charter and on the basis of a nominal one million British pounds capital, was granted one million acres in 1826 in NSW on which to raise merino sheep (Heritage Management Consultants Pty Ltd, 2009) (Appendix K of the EA).

In their report provided to DCPL (dated September 2009), Minimbah and District Elders Group Inc. summarised the post-contact history of the area:

"Land was fenced and cleared to make way for intensive agricultural practices. During the years 1830-1840, the first white settlers arrived overland from Gloucester with bullock teams en-route to the Manning valley. This would indicate that settlers were arriving in the study area before and during the 1830's. Aboriginal people who occupied lands deemed for farming or forestry were herded to places they could be 'controlled'. Some of these places still exist today and are often referred to as 'missions'".

The ending of convict assignment in 1838, general economic difficulties in the 1840s and the increasing realisation that the Port Stephens land was unsuited to sheep, led to major problems for the AA Company (Appendix K of the EA). The labour shortages during the gold rushes in the early 1850s compounded the problems. As a result, AA Company was reorganised, with the company's sheep operations (and the Port Stephens sheep) being transferred to Warrah, and the northern part of the Port Stephens Estate being developed for cattle in the mid-1850s (Appendix K of the EA).

Around Stroud, land was sold and leased for agricultural purposes from as early as 1849, and there was some timber-getting in the district. In 1850, Stroud became the AA Company's headquarters in Australia. This role was short-lived, with the headquarters relocated to Sydney in 1856, and Stroud abandoned entirely by AA Company in 1873 (Appendix K of the EA).

In an attempt to diversify AA Company activities, a mineralogical survey of the AA Company's Port Stephens Estate was undertaken in 1855 and located major coal deposits in the Johnson's Creek area. In 1858, four pits were sunk and although coal was found of excellent quality, it was considered too costly to extract. A proposal to mine was again raised in the company in 1872, but was dropped (Appendix K of the EA).

Mining was undertaken on Coal Shaft Creek between about 1930 and 1934, and fragmentary material from that mining enterprise has been recovered in relation to the current open pit mining activities at DCM (Appendix K of the EA).

Sale of AA Company land remained slow during the 1870s, because expired grazing leases on Crown land elsewhere in the colony became available and were taken up in preference. While 1.8 million hectares (ha) of NSW grazing land was taken up by settlers during the decade, the AA Company only sold 1,567 ha. Sales improved in the 1880s and 1890s, including the properties 'Cheer up' and 'Durally' which were auctioned by the AA Company in November 1899 and March 1900 respectively, with blocks varying in size from 21 to 433 acres which sold for between 14/6 and 30/- per acre. Dairying began on the freehold land bordering the AA Company's land in these decades, and slowly spread to the AA Company land as blocks were sold. Three of the earliest purchasers of land for dairying in the district were Messrs Ashworth, Fry and Henderson, dairymen from Gippsland, Victoria. 'Wards River Run', north of the study area, was sold in about 1901.

Former AA Company land was sold on to individual settlers, most of whom took up dairying and cattle production.

A comprehensive description of the Non-Aboriginal heritage context of the study area is provided as Appendix K of the EA.

J3.2. Regional Context

The eastern coast of Australia has been inhabited by Aboriginal people for at least 30,000 years, and possibly longer (see Nanson *et al.*, 1987; McDonald, 2007). Archaeological sites from Parramatta, the Blue Mountains and Hawkesbury/Nepean River System have provide the earliest evidence of occupation within the region.

Sites identified at Parramatta have an estimated age of between 13,000 and 30,000 years old (McDonald, 2005a: 87-94, 96; 2006: 86-88, 90). A radiocarbon sample was taken at site RTA-G1 from a deposit 80 to 100 centimetres (cm) deep, which was dated at approximately 30,735 years BP, "the earliest date for human occupation along the east coast of Australia" (McDonald, 2005b: 156, 119-20). Although this cannot clearly be associated with cultural activity, it is argued that deeply stratified assemblages (below 40 cm depth) present at Parramatta may be over 13,000 years old (McDonald, 2006: 86). These same excavations also recorded geomorphologic evidence for a previously unrecorded swamp within the sand body, altering the current understanding of exploitable resources (and therefore patterns of cultural behaviour) within the landscape (McDonald, 2006: 90).

Stockton and Holland (1974) produced a radiocarbon date of approximately 22,000 years BP from a site at Kings Tableland in the Blue Mountains. Excavation of the Greaves Creek rock shelter site at Walls Cave near Medlow Bath has produced a date of approximately 12,000 years BP (*ibid.*). At Shaws Creek KII, a rock shelter located on the western bank of the Nepean River north of Penrith, was dated at approximately 13,000 BP (Kohen *et al.*, 1984).

Sites situated on the south coast of NSW including Burrill Lake and Bass Point have been dated as being approximately 20,000 and 17,000 years old, respectively (Lampert, 1971; Bowdler, 1970). At the time of these periods of occupation, both sites would have been located in hinterland areas located some distance from the sea. In the case of Burrill Lake, the sea would have been up to approximately 16 km further east than at present (McDonald, 1992). No other Pleistocene sites have been recorded on the NSW coastline. There are, however, two sites (located at Curracurrang and the Prince of Wales Hospital) which are dated as being approximately 7,000 years old.

Comparatively few Aboriginal sites have been reported within the Newcastle region of the eastern seaboard (Gay, 2000: 11; McCardle Cultural Heritage Pty Ltd, 2008: 12-13). As a limited number of archaeological assessments have been carried out within the region, the number of known sites and our understanding of this area should increase with future assessments (McCardle Cultural Heritage Pty Ltd, 2008: 12). Typological analysis of artefactual material recovered indicates that occupation of the region can be dated to the Holocene period. However, on the basis of evidence from Glennies Creek, occupation may date to 10,000 to 13,000 BP (Koettig 1986a; 1986b).

It is very likely that a large number of coastal sites within the Sydney region of a similar antiquity have been submerged and/or destroyed by sea level changes that have occurred in eastern Australia during the last 17,000 years.

On the basis of the available evidence, it would appear that the initial occupation of the eastern seaboard region was sporadic, and with low population densities. From around 5,000 years ago, an increased and continued use of many sites appears to have ensued. Evidence of the use and occupation of the eastern seaboard region from this period is far more 'archaeologically visible' than for the previous periods.

In support of the likelihood that occupation of the region intensified around this time, the majority of rock shelter and open artefact scatter sites which have been investigated to date contain archaeological deposits, features and artefacts which are generally dated as approximately 2,500 years old or less. Kohen (1986) suggests that there was a more intensive use of open sites in the region during the last 1,500 years. Kohen (1986) suggests that the majority of open artefact scatter sites would therefore belong within this time frame.

During the 30,000 years of occupation in the region, and in particular the last 5,000 to 8,000 years, changes in excavated stone tool assemblages have been observed. A number of temporal markers have subsequently been established by archaeologists in an attempt to distinguish what are considered to be the more significant changes in tool types and tool kit composition (e.g. McCarthy, 1948; Megaw, 1965; Lampert, 1971; Wright, 1997).

J3.3. Model Of Aboriginal Occupation

It is expected that the greatest evidence of occupation would be found in association with reliable water sources such as creeks and rivers. Whilst the presence of water has been identified as having been the overriding factor in determining levels of past Aboriginal occupation, the presence of suitable landforms for occupation to occur is also important. Basically, landform determines the type of archaeological evidence, which may be present or, in many instances, whether any evidence at all can be expected to occur.

The formulation of predictive statements regarding the spatial distribution of open sites in the Avon River valley lowlands is constrained by the limited amount of information which has been recorded on sites in the district. Instead, we have to rely on the results of archaeological studies conducted in similar landscape contexts (i.e. river valley lowlands) elsewhere to make these predictions.

The general pattern recorded for lowland landscapes located north and west of Gloucester are that open sites are highly likely to occur in close vicinity to major watercourses. For example, the survey of 'Riverine Zones' in the Walcha-Nundle State Forest Management Areas, located 50 to 100 km north of Gloucester, confirmed that "Artefact occurrences may occur on low spurs and high stream banks adjacent to watercourses" (Davies, 1995: 65). In addition, numerous surveys and archaeological excavations in the Hunter Valley Central Lowlands, located approximately 100 km west of Gloucester, indicate that open artefact scatter sites occur almost anywhere in the landscape where Aboriginal people have travelled, but they tend to occur in larger numbers on well drained landforms adjacent to major creek lines (Davies, 1995; Gay, 2000; Kuskie, 2004; ENSR Australia Pty Ltd, 2008).

Excavations of archaeological deposits in these contexts show that the density and/or number of artefacts declines dramatically greater than 50 m from the edge of creek banks. However, this patterning is dependent upon the microtopography and previous land disturbance which may have affected the survival of archaeological deposits (Koettig, 1990, 1991; Baker, 1997).

An explanation for this site distribution is that groups of Aboriginal people were attracted to the channels and junctions of major watercourses as the ponding of water was probably associated with a concentration of a variety of foods including fish, shell fish, birds, mammals and plant foods. The possible picture of landuse strategies in the lowlands is of groups of Aboriginal people occupying base camps on well drained rises close to the major watercourses or wetlands. From these base camps, people would range out to collect resources on the flats, rises and hills some distance away from watercourses.

This argument and the survey data derived from other regions is used to support the predictions for the relative archaeological potential of landforms within the study area. It is predicted that there is potential for open artefact scatter sites and isolated artefacts to occur on level and well-drained land within 100 m of the ephemeral watercourses within the study area. However, given the lack of a regular water supply available within the study area capable of supporting long-term occupation, it is considered that this potential is low.

Possible remains of past Aboriginal occupation along the ephemeral drainage lines are predicted to consist of a very low density scatter of artefacts and occasional isolated artefacts. It is likely that more intensive occupation, resulting in the deposition of larger numbers of artefacts, would have occurred closer to the major watercourses (i.e. Mammy Johnsons River).

It should be noted that this is an occupation model for the study area only, and may vary significantly from region to region. It should also be noted that some sites may not conform to the model.

J3.4. Previous Archaeological Investigations

This section provides a summary of Aboriginal heritage surveys, assessments, monitoring and site inspections that have been previously undertaken within the study area and surrounds. Relevant archaeological information (e.g. site cards and photographs) on known sites within the study area from the below studies has been provided to registered stakeholders as part of this ACHA.

Brayshaw (1981) surveyed the Duralie Mine site in 1981 for Blue Metal Industries as part of an investigation of the then Stratford and Wards River potential mine sites (Brayshaw, 1981 in ERM Mitchell McCotter Pty Ltd, 1995). The field survey included both vehicular and pedestrian survey techniques. No Aboriginal heritage sites were recorded (Brayshaw, 1981 in ERM Mitchell McCotter Pty Ltd, 1995).

ERM Mitchell McCotter Pty Ltd conducted an archaeological survey within ML 1427 (Figure J-2) and the surrounding area in 1995. A representative of the Karuah Local Aboriginal Land Council participated in the survey. The field survey involved an opportunistic survey with transects concentrating on vehicular tracks, eroded areas and creek banks where exposures were evident (ERM Mitchell McCotter Pty Ltd, 1995). The field survey did not identify any Aboriginal heritage sites and based on the results of the field survey, the study area was not considered to be archaeologically significant (ERM Mitchell McCotter Pty Ltd, 1995).

As indicated in the DCM Aboriginal Cultural Heritage Management Plan (ACHMP), Karuah Local Aboriginal Land Council representatives inspect all construction areas at the DCM prior to disturbance and perform the role of Site Topsoil Monitors during construction works (DCPL, 2008b). To date, Karuah Local Aboriginal Land Council representatives have not identified any Aboriginal heritage items since commencement of the DCM (DCPL, 2006, 2007a, 2008a; DCPL pers. comm., 2009).

An archaeological survey was conducted in November 1998 by representatives of the Karuah Local Aboriginal Land Council and the Forster Local Aboriginal Land Council and NPWS officer (Leon and Feeney, 1998). Although no Aboriginal heritage sites were identified during the survey (Leon and Feeney, 1998), following the fieldwork, comment was sought from Dr Mike Morwood (Department of Archaeology and Paleoanthropology, University of New England) who indicated that the “Honey Tree” identified during the survey was of Aboriginal origin and required further investigation. Subsequent to this, the “Honey Tree” was registered on the Aboriginal Heritage Information Management System (AHIMS) database and appropriate management developed and included in the DCM ACHMP (DCPL, 2008b).

Comments received from the registered stakeholders on the draft ACHA indicate that there is some contention as to the origin of the modification to the “Honey Tree” (e.g. assertion that the modification may be non-Aboriginal in origin). Attachment JA provides a full account of comments received from registered stakeholders.

A field survey was undertaken in April 2008 by McCardle Cultural Heritage and a representative of the Barkuma Neighbourhood Centre Inc. The survey covered the area located to the north and west of the currently approved pit. The fieldwork involved a pedestrian survey by three people located 5 to 10 m apart, and covered an area of approximately 305 ha. One isolated artefact (DM1) was recorded during the survey (Figures J-2 and J-3).

In addition to the above, several archaeological surveys have been undertaken in the general vicinity of the Project area and these studies are summarised below.

Brayshaw (1984) surveyed an area of 2,000 ha for potential open pit mining operations located near Stratford. One artefact scatter and one isolated artefact were recorded on the periphery of the Brayshaw (1984) study area (ERM Mitchell McCotter Pty Ltd, 1995).

Preliminary inspections for Aboriginal sites and archaeological material were undertaken in 1992 along proposed optic fibre cable routes from Gloucester to Barrington (Griffith, 1992a) and Stratford to Gloucester (Griffith, 1992b). A representative from the Forster Local Aboriginal Land Council participated in the preliminary inspection, which was carried out on foot. No Aboriginal heritage sites were recorded during the inspections (Griffith, 1992a, 1992b).

Kuskie (1993a) conducted archaeological investigations of the proposed Optus Communications’ fibre optic cable route between Gloucester and the Maria River near Port Macquarie. The field survey methodology was based on consultation with local Aboriginal communities and a preliminary inspection of the proposed route. Areas of higher archaeological sensitivity and areas requested by the local Aboriginal community were inspected on foot, other areas were inspected from a vehicle. Representatives of four Local Aboriginal Land Councils attended the surveys. The survey identified one artefact scatter and one isolated artefact (Kuskie, 1993a).

Kuskie (1993b) conducted a field survey of an Optus Communications’ fibre optic cable route between Wyong and Gloucester. The survey utilised vehicular and pedestrian survey techniques and included representatives of a number of Local Aboriginal Land Councils (i.e. Darkinjung, Bahtabah, Koompahtoo, Awabakal, Mindaribba, Worimi, Karuah and Forster). The survey identified one artefact scatter along the proposed route (Kuskie, 1993b).

Brayshaw and Byrne (1994) provided an updated archaeological assessment of the Stratford study area surveyed by Brayshaw (1984). One open site consisting of two isolated artefacts was recorded during the Brayshaw and Byrne (1994) survey (ERM Mitchell McCotter Pty Ltd, 1995).

An Aboriginal heritage survey of the Gloucester Tops Quarry site was undertaken by NPWS, archaeologists Mary Dallas and David Watt (Mary Dallas Consulting Archaeologists) and representatives of the Forster Local Aboriginal Land Council in 1998 (Leon, 1998). The study involved a systematic pedestrian survey of the 20 to 40 m strip around the perimeter of the Gloucester Tops Quarry site and an inspection of the quarry face and excavated spoil. No Aboriginal heritage sites were recorded (Leon, 1998; Mary Dallas Consulting Archaeologists, 1998).

An Aboriginal heritage survey was undertaken in 2000 by Heritage Search and representatives of the Forster Local Aboriginal Land Council at the SCM (located approximately 20 km to the north of the DCM) (DCPL, 2006). The survey recorded an isolated artefact on the wall of the easternmost dam along the short ephemeral watercourse running east-west through the study area. The artefact was categorised as having no particular scientific or educational significance and is considered of no social significance by the local Aboriginal people (DCPL, 2006).

An intensive pedestrian field survey of Lucas Energy's proposed Stage 1 Gas Field Development Area and a pipeline corridor from Stratford to Hexham was conducted by ENSR Australia Pty Ltd (2008). Representatives of the Karuah Local Aboriginal Land Council, Worimi Local Aboriginal Land Council and Awabakal Descendents Traditional Owners Aboriginal Corporation participated in the survey. The survey identified seven Aboriginal heritage sites (*viz.* two possible scarred trees, two artefact scatters and three isolated artefacts) and eight potential archaeological deposits (PADs).

J3.5. Other Relevant Background Information

DCPL understands from the Public Notice dated 11 March 2009 that Garigal Aboriginal Community Inc. has lodged an Application seeking declaration under section 10 (s10) of the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act, 1984* (ATSIHP Act) for the area identified as ML 1427, on the basis that the area:

“Contains Mammy Johnsons River, ‘a women’s birthing place’ and a sacred site ‘sensitive to Aboriginal men of our community’ and is therefore of particular significance to the Garigal people in accordance with their traditions”.

DCPL notes that the original application made by Glen Jonas on behalf of the Garigal Aboriginal Community Inc. dated 6 March 2008 is in regard to the protection of a sacred site ‘sensitive to Aboriginal men of our community’, and does not refer to the Mammy Johnsons River. Notwithstanding, a letter provided by Ms D Arnold to the Commonwealth Department of the Environment, Water, Heritage and the Arts on 11 December 2008 on behalf of the Garigal Aboriginal Community Inc. has also been considered to be part of the application made under s10 of the ATSIHP Act. This letter refers to the Mammy Johnsons River and the excavation of land at Craven, located south of the SCM. Therefore, we understand that the s10 application (including the supplementary letter dated 11 December 2008) includes the Mammy Johnsons River.

DCPL lodged a representation in relation to the s10 application on 9 April 2009. The determination by the Commonwealth Minister for the Environment, Heritage and the Arts regarding the Garigal Aboriginal Community Inc.’s s10 application is currently pending.

A targeted search conducted during the August 2009 Project surveys with the assistance of Glen Jonas (who lodged the s10 application) failed to find any evidence of the “men’s site” in the study area (Section J5.1).

In 2000, an application was also made by Ms D Arnold under s10 of the ATSIHP Act for the protection of the area comprising ML 1427. The then Commonwealth Minister for the Environment, Senator Robert Hill, appointed Mr JG Menham to produce a report regarding the s10 application entitled “Duralie” in November 2000 (the Menham Report). The Application by Ms D Arnold in 2000 seeking declaration under s10 of the ATSIHP Act was not successful.

J3.6. Site Definitions

The following is a brief description of the site types that may occur in the current study area. Predictions of the type and nature of sites considered likely to occur within the study area is provided in Section J3.7. Where relevant, these definitions have come directly from the NPWS’s (1997) *Aboriginal Cultural Heritage: Standards and Guidelines Kit*.

Artefact Scatters

Artefact scatters are defined by the presence of two or more stone artefacts in close association (i.e. within 50 m of each other) (NPWS, 1997). An artefact scatter may consist solely of surface material exposed by erosion, or may contain sub-surface deposit of varying depth. Associated features may include hearths or stone-lined fireplaces, and heat treatment pits.

Artefact scatters may represent:

- ✧ camp sites: involving short or long-term habitation, manufacture and maintenance of stone or wooden tools, raw material management, tool storage and food preparation and consumption;
- ✧ hunting or gathering activities;
- ✧ activities spatially separated from camp sites (e.g. tool manufacture or maintenance); or
- ✧ transient movement through the landscape.

The detection of artefact scatters depends upon conditions of surface visibility, including vegetation cover, ground disturbance and recent sediment deposition. Unfavourable conditions can obscure artefact scatters and prevent their detection during surface surveys.

Bora Grounds

Bora grounds are a ceremonial site associated with initiations. They are usually comprise two circular depressions in the earth, and may be edged with stone. Bora grounds generally occur on soft sediments in river valleys, although they may also be located on high, rocky ground in association with stone arrangements.

Burials

The internment of human remains varies considerably throughout NSW and over time. In some cases human remains were placed in hollow trees, caves or sand deposits and may have been marked by carved or scarred trees. Others may be marked through the scattering of shells, glass and other materials or planting of various species. In some cases, markers may have been historically removed (NPWS, 1998a). Burials have been identified eroding out of sand deposits or creek banks, or when disturbed by development. Knowledge of the locations of burials is frequently dependent on community awareness and may not be culturally appropriate to disclose (NPWS, 1998a).

Culturally Modified Trees

Culturally modified trees include scarred and carved trees and are defined by the process of deliberate removal of bark or wood from a tree. Cultural modification of trees occurred for several reasons including: the manufacture of items such as canoes, containers, shields or shelters; the manufacture of foot or hand holds for tree climbing; the hollowing of trees to collect food; and for carving (Long, 2005). Carved trees are caused by the removal of bark to create a working surface, on which petroglyphs are incised. Carved trees were used as markers for ceremonial and symbolic purposes, including burials. Scarring from cultural modification is most likely to be present only on mature/old growth trees remaining from original vegetation. While culturally modified trees were more common in the early 20th century; the natural lifespan of tree species, changes in landscape management practices and intense fire events have all reduced the visibility of culturally modified trees in the landscape. Furthermore, the identification of culturally modified trees is complicated by a range of natural impacts that result in very similar scarring patterns including long-term traumas, storm and fire damage, animal damage, impacts and abrasions and ringbarking (Long, 2005: 36-49).

Isolated Artefacts

Isolated artefacts occur where only one artefact is visible in a survey area. These finds are not found in association with other evidence for prehistoric activity or occupation. Isolated artefacts occur anywhere and may represent loss, deliberate discard or abandonment of an artefact, or may be the remains of a dispersed artefact scatter.

Middens

Shell middens comprise deposits of shell remaining from consumption and are common in coastal regions and along watercourses. Middens vary in size, preservation and content, although they often contain artefacts made from stone, bone or shell, charcoal, and the remains of terrestrial or aquatic fauna that formed an additional component of the Aboriginal diet. Middens can provide significant information on landuse patterns, diet, chronology of occupation and environmental conditions.

Mythological/Traditional Sites

Mythological and traditional sites of significance to Aboriginal people may occur in any location, although they are often associated with natural landscape features. They include sites associated with dreaming stories, massacre sites, traditional camp sites and contact sites. Consultation with the local Aboriginal community is essential for identifying these sites.

Stone Arrangements

Stone arrangements include lines, circles, mounds, or other patterns of stone arranged by Aboriginal people. These may be associated with bora grounds, ceremonial sites, mythological or sacred sites. Stone arrangements are more likely to be identified on hill tops and ridge crests that contain stone outcrops or surface stone, where impact from recent landuse practices has been minimal.

Stone Quarries

A stone quarry is a place at which stone resource exploitation has occurred. Quarry sites are only located where the exposed stone material is suitable for use either for ceremonial purposes (e.g. ochre) or for artefact manufacture.

J3.7. Site Type Predictions

Based upon analysis of existing archaeological information (Section J3.4), relevant background information (Section J3.5), the potential site types described in Section J3.6 and the local and regional archaeological and environmental contexts expressed above, the types of sites which could be expected to occur within the study area are outlined below.

Whilst evidence for Aboriginal occupation within the broader Gloucester Valley is sparse there is no doubt that the area was occupied by Aboriginal inhabitants in the past. Open artefact scatter sites are generally situated at relatively flat locales that are in direct (<50 m) association with permanent water. With this in mind the ridgeline in the east of the study area, which overlooks Mammy Johnsons River presents the areas of highest potential for stone artefactual material. Other portions of the study area have limited potential for artefactual material due to the absence of permanent water and/or gradient of the slope of the landform.

Conditions for the potential for old growth and/or mature trees suitable to retain evidence of Aboriginal cultural modification (i.e. carving or scarring) is dependent on the nature and distribution of certain environmental parameters such as soils, aspect and drainage. Changes to the land management regimes of the past 200 or so years have also contributed to the rapid decline in mature/old growth trees, which may retain evidence of cultural modification. The traditional Aboriginal land management strategies, in particular regular low intensity burn off, which removed the understorey vegetation but retained large vegetation species has been replaced by uncontrolled bush/wild fires of sufficient intensity to consume the mature/old growth trees. This is in addition to the utilisation of the area by the AA Company for timber which is expected to have lead to a reduction in the number and availability of mature/old growth trees.

Where old growth/mature trees are present the potential for cultural modification is moderate.

Areas utilised for ceremonial purposes are reported to exist within and surrounding the study area. The actual locations for these sites can sometimes be difficult to determine as physical features within the landscape often do not exist. Ceremonial features such as bora rings or grounds and stone arrangements are generally present with more obvious physical characteristics (i.e. stones and earthen rings, carved trees) and therefore may be more easily identified. Locations such as ‘increase’ sites, birthing areas and men’s areas are more difficult to identify and generally fall into what is considered *intangible heritage*. In other words, there is limited to no physical evidence of their location and many are unmodified natural environment features (Burke and Smith, 2004: 206). However, knowledgeable individuals within the Aboriginal community may have had the location of these sites passed down through the transfer of oral histories.

As discussed in Section J3.6, mythological/traditional sites are likely to be located in any location, although they are often associated with natural landscape features.

Stone arrangements are likely to occur on hill tops and ridge crests that contain stone outcrops or surface stone.

Although stone arrangements are mentioned above as potentially being mythological/traditional sites, the possibility also exists for them to provide a more utilitarian function i.e. route markers, hut walls or fish trap (Burke and Smith, 2004: 205). Of these types of stone arrangement, route markers are considered the most likely to be present with the study area, although their potential is considered to be limited.

Further to the above, in a report provided to DCPL, the Minimbah and District Elders Group Inc. indicated that:

“The regional barriers are Carboniferous formations (as within the study area) containing siltstone, greywacke, quartz, chert and tuff that form mountainous regions (cf. Perram and Partners 2000: 2.2). These materials are all highly suited to the production of Aboriginal flaked stone tools and are likely to be available in places along major rivers and their tributaries originating from the Barrington/Gloucester uplands, and probably used within the study area”.

Minimbah and District Aboriginal Elders Inc. also indicated that the study area has some potential for:

- *“open artefact scatter sites across all landforms within the study area where original A-horizon topsoils are present. The integrity of stone artefact deposits will depend on the degree of disturbance of original topsoils caused by erosion and farming activities;*
- *isolated finds anywhere across the landscape;*
- *natural cultural/mythological features, particularly on the eastern portion of the subject land near the state Government reserves (Forests/National Parks);*
- *pre and post contact places mentioned within ethnohistorical inferences; and*
- *burials within caves and on lands with favourable loamy soil locations at lower levels on the eastern margin of the subject lands”.*

Further, Minimbah and District Elders Group Inc. indicated that some potential exists for “...archaeological materials (particularly middens) to occur close to the eastern perimeters of the subject lands”. A full copy of the report by the Minimbah and District Elders Group Inc. is provided in Attachment JA.

J4. METHODOLOGY AND METHODS

This study brings together sources of information, which assist in understanding and assessing the Aboriginal heritage within the study area.

A preliminary model of Aboriginal occupation, developed from historical sources, is given in Section J3.3 to provide a social context for the study area and the wider region.

Several archaeological studies have been carried out in the study area and in the surrounding region. The results of those studies undertaken in areas immediately adjacent to the study area have been summarised within this report and been utilised to provide a context for the study area.

This ACHA utilises the results of previous surveys, assessments and data recordings (Section J3.4) undertaken within the study area. This existing information was used as the basis for determining appropriate fieldwork (survey and inspections) extent, methods and locations and for determining appropriate assessment methods.

J4.1. Field Survey and Site Inspection

As described in Section J3.4, various archaeological surveys have been undertaken within the study area and surrounds. The field methodologies for more recent surveys within the study area are described in Section J3.4.

Fieldwork (including field surveys and site inspections) was undertaken by two teams over three days in August 2009 (i.e. 25, 26 and 27 August 2009) in the study area. Each team consisted of one archaeologist and between three and five representatives from the registered stakeholders. The aim of the field survey and inspections was to provide the contemporary Aboriginal community the opportunity to survey the study area and an area to the east of Johnsons Creek Road (including those portions of the study area not subject to recent survey) and inspect Aboriginal heritage sites within and proximal to the study area in order to provide comment on cultural significance and proposed management recommendations. The field survey strategy was designed to maximise the potential to identify previously unrecorded archaeological material. Assessments were made on levels of disturbance from previous landuse, survey variables (ground visibility and archaeological visibility) and the potential archaeological sensitivity of the area.

To assist in field surveys and inspections, the following desktop tasks were undertaken prior to the fieldwork:

- ✿ A review of existing archaeological reports and the NSW Department of Environment, Climate Change and Water (DECCW) (2009) AHIMS Register site cards for the study area and surrounding region.
- ✿ Interpretation of the topographic context and landform units of the study area.
- ✿ Plotting of all known Aboriginal sites onto a topographic map of the study area.
- ✿ Consultation with the registered stakeholders in regard to specific known sites and/or areas of particular interest.

Also prior to the commencement of fieldwork, all registered stakeholders were provided with several comprehensive documents including a copy of the AHIMS registered site cards of known sites within the study area and surrounds. Each registered stakeholder was encouraged to review the information provided and advise the archaeologist/s of any particular sites/areas that they wished to survey/inspect. Where practicable, such requests raised by the registered stakeholders were incorporated into the survey design and undertaken during the fieldwork.

All registered stakeholders were required to provide certificates of currency of public liability and workers compensation for their representatives attending the fieldwork. Fieldwork participants attended an occupational health and safety site induction on the first day of fieldwork at DCPL's administration office at the DCM.

The registered stakeholders were given an indication of the areas/sites to be surveyed/inspected by each team and were given the opportunity to select which field survey team they wanted to participate in. A list of the registered stakeholders involved in the field surveys is provided in Section J5.1 and Attachment JB.

Survey

The survey involved pedestrian survey of topographic traverses and opportunistic transects across the survey area:

- ✧ Topographic traverses involved people spaced evenly across the width of the survey area (i.e. up-slope and down-slope) and inspecting the ground while walking along the length of the survey area. The surveyors were spaced between 5 and 50 m apart depending on the width of the survey area, the level of ground exposure and topographic features present.
- ✧ Opportunistic transects were undertaken to inspect areas of particular archaeological sensitivity within the study area (e.g. areas of exposed ground).
- ✧ The number of survey transects conducted in any particular area were dependent on the presence of features of potential archaeological interest.
- ✧ Old growth trees were inspected for Aboriginal scarring.
- ✧ Any sites identified in the course of the survey were recorded (see site recording).

Inspections

Based on existing available information (including sites cards, photographic records, position in the landscape and previous archaeological survey/assessment results) previously recorded sites within the study area and surrounds were inspected during the fieldwork. In addition, as described above, where practicable, sites/areas identified by the registered stakeholders as being of particular interest were also inspected.

During the site inspections, opportunistic transects were undertaken in areas of topographic sensitivity. This resulted in a wider coverage of the area than would otherwise be expected with direct travel to any given site.

Site Recording

The fieldwork aimed at identifying material evidence of Aboriginal occupation. When a known site was inspected, it was compared with the existing site card. Where the global positioning system (GPS) recording was considered inaccurate, new GPS readings were taken using a handheld unit. A basic photographic record of the site was then taken and photograph numbers recorded.

Any previously unrecorded sites located during the field survey were subject to full recording (e.g. recording of GPS co-ordinates, photographic recording, site description and site inventory).

J4.2. Archaeological Significance Criteria

The archaeological significance assessment was based on data gathered during the field survey and site inspections and the information on site cards registered on the DECCW (2009) AHIMS database.

The assessment of archaeological significance was undertaken in accordance with the *Aboriginal Cultural Heritage: Standards and Guidelines Kit* (NPWS, 1997) and the *Burra Charter* (Marquis-Kyle and Walker, 2004) value criteria (i.e. scientific, aesthetic, social, spiritual and historical). With consideration of these value criteria, an overall archaeological significance assessment (low, medium or high) of each of the sites within the study area was determined on a context with consideration of the wider region. The following features were considered in the assessment of archaeological significance:

- ✿ the current condition of the Aboriginal heritage site (e.g. has the Aboriginal heritage site been subject to historical and ongoing natural deterioration/damage);
- ✿ the potential for natural impacts in the future which may affect the condition of the Aboriginal heritage site (e.g. wind, water or fire impacts);
- ✿ the representativeness of the Aboriginal heritage site in the region (e.g. is the Aboriginal heritage site represented by other similar Aboriginal heritage sites or site types in the region); and
- ✿ the rarity of the Aboriginal heritage site type or elements within the Aboriginal heritage site (e.g. does the Aboriginal heritage site include motifs rare to the region or include an uncommon collection of items/artefacts).

While the above criterion act as a guide to assessing archaeological significance, for any site or place to have the capacity to inform any of these values, it must be in the condition to do so. Therefore the preservation, conservation and general condition of the site is a key factor in any significance assessment. This includes the risk of natural or cultural impacts to the places in question. As a result, an assessment of archaeological significance is not static. Significance changes over the life of a place, as does its associated values, in correlation with the awareness of the visitor or user of the place (Marquis-Kyle and Walker, 2004: 11).

As an archaeological significance assessment, greater weighting is given to scientific values – the ability for a place to inform future studies on human behaviour and past practices. Taking into consideration each of the above value criteria, an overall archaeological significance assessment (low, medium or high) is assigned to each site. Examples of how these criteria have been used to determine archaeological significance for specific site types within the study area are provided in Section J4.2.1.

As part of the cultural heritage assessment and as outlined above, representatives of the registered stakeholders have surveyed the study area and immediate surrounds and inspected the majority of known Aboriginal heritage sites (including all site types) within the study area and immediate surrounds. The cultural significance of the study area and known Aboriginal heritage sites within the study area is determined by representatives of the registered stakeholders throughout the cultural heritage assessment. Cultural significance is discussed in Section J7.2.

J4.2.1. Site Type Specific Criteria

Artefact Scatters/Isolated Artefacts

Isolated artefacts and open artefact scatters have the potential to provide insight into a number of aspects of past Aboriginal culture in terms of trading practices, technological capabilities and resource utilisation among other things. There is also an established chronology for isolated artefacts and the approximate date that may be attributed to a site based upon the style/type of isolated artefacts present at a site. There are a number of characteristics and attributes that distinguish isolated artefacts from naturally occurring stone in the landscape. These features include a striking platform, bulb of percussion, point of impact, bulbar scar, shear fracture and hertzian cone.

Criteria used to assess the significance of sites with artefacts in the study area include:

- ✦ the number of artefacts;
- ✦ variation of assemblage (i.e. variation of tool types, raw materials and stages in production) (where practicable);
- ✦ representativeness of the site within the study area and/or region;
- ✦ connectivity to other sites; and
- ✦ potential to inform future studies of human behaviour.

Culturally Modified Trees

The presence of culturally modified trees may provide evidence of a range of past economic and cultural practices. At the most practical level, the size of the scar may indicate that coolamons were utilised locally, which could indicate that the resources were available in the immediate resource catchment that required these types of containers for efficient collection and transport. Larger scars (e.g. canoe-sized scars) may indicate that local subsistence was based on riverine and/or estuarine environments.

At a more ritual level, culturally modified trees are known to have been used to signify important locations (i.e. burials) and demarcate tribal boundaries. As such, the presence of culturally modified trees is significant and specimens that present evidence of carving are highly significant. Criteria used to assess the significance of these features include:

- ✿ nature of the scarring (e.g. bark removal, wood removal, toe holds);
- ✿ size of the host tree;
- ✿ position of the scar on the host tree/limb;
- ✿ size of the scar;
- ✿ evidence of axe marks (woodsmans axe blade length 10 to 15 cm, small steel axes or 'hatchets' blade length 5 to 10 cm; and
- ✿ evidence of stone tool marks.

Stone Arrangements

Stone arrangements can be difficult to identify. More obvious stone arrangements are cairns (piles of rocks) or linear and geometric arrangements. Challenges begin when elements of the original arrangement have been removed from the original location either making the arrangement look like a random scatter of rocks or interruption of the linear features. There is also the possibility that stone arrangements were established to blend into the natural environment. Different stories may be discerned from the stone arrangement dependent upon the level of initiation and/or understanding an individual contains.

Criteria used to assess the significance of these features include:

- ✿ stack of rocks is considered to be the result of human intervention and not a natural accumulation/arrangement of rocks;
- ✿ arrangement of rocks in linear, circular or geometric patterns; and
- ✿ the presence of rocks of a size inconsistent with the natural processes in a given area.

J5. CONSULTATION

This section provides an outline of the consultation process undertaken for this assessment.

J5.1. Consultation Process Overview

The DECCW has adopted the following heritage management principles (NPWS, 1997: 8-10):

- ✧ DECCW recognises that Aboriginal culture is living and unique and recognises the right of Aboriginal people to protect, preserve and promote their culture;
- ✧ DECCW recognises that Aboriginal people are the rightful cultural owners of Aboriginal cultural heritage information and Aboriginal sites and objects;
- ✧ DECCW encourages Aboriginal participation in assessment and salvage work and supports direct negotiation between Aboriginal communities and developers; and
- ✧ DECCW encourages Aboriginal communities to carry out their own assessments, including oral history and anthropology.

The following section outlines consultation undertaken to date in relation to this ACHA. This section includes the following:

- ✧ an overview of the key steps undertaken during the consultation process in accordance with the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC, 2005) and *National Parks and Wildlife Act 1974: Part 6 Approvals Interim Community Consultation Requirements for Applicants* (DEC, 2004); and
- ✧ comments received from the registered stakeholders in relation to the proposed methodology, Aboriginal heritage sites and cultural significance.

Consultation with respect to this ACHA has (to date) consisted of the following:


Notification to Interested Parties

- ✧ DCPL published a public notice in the *Dungog Chronicle*, *Gloucester Advocate* and *Great Lakes Advocate* on 6 May 2009 advising of its intention to seek approval under Part 3A of the EP&A Act for further development of the DCM and to undertake an ACHA (Attachment JC). The advertisement asked persons or groups to contact DCPL if they wished to be consulted in relation to the ACHA. All those stakeholders who registered an interest were invited to participate.
- ✧ DCPL wrote separately to the following bodies:
 - NSW Native Title Tribunal;
 - Hunter-Central Rivers Catchment Management Authority;
 - DECCW;
 - Great Lakes Council;
 - NTS Corp Limited;
 - Office of the Registrar, Aboriginal Land Rights Act 1983;


- Karuah Local Aboriginal Land Council; and
- Forster Local Aboriginal Land Council.

These organisations were provided with a copy of the advertisement that was published in the Dungog Chronicle, Gloucester Advocate and Great Lakes Advocate and were requested to advise DCPL of any person or group who would like to be involved in the consultation process.

Registration of Interested Parties

 Subsequent to the above, the following stakeholders registered their interest in being involved in the consultation process:

- Barrington-Gloucester-Stroud Preservation Alliance Inc.;
- EB Phillips;
- Forster Local Aboriginal Land Council;
- Garigal Aboriginal Community Inc.;
- Garry Smith;
- Gavin Callaghan;
- Gidawaa Walang Cultural Heritage Consultancy²;
- Gloucester Environment Group;
- Harry Callaghan;
- Johnsons Creek Conservation Committee;
- Karuah Local Aboriginal Land Council;
- Maaiangal Group;
- Minimbah and District Aboriginal Elders Inc.;
- Norma Fisher; and
- NTS Corp.

 In addition to the above, the DECCW identified the following additional groups/parties as having a potential interest in the ACHA:

- Ghinni Ghinni Youth and Culture Aboriginal Corporation;
- Indigenous Cultural Resource Management;
- Jo-anne Kelly; and
- Saltwater Tribal Council.

These four additional groups/parties were subsequently invited to be involved in the consultation process for the ACHA and provided with a copy of the proposed methodology and invited to provide comment. As at 1 October 2009, no response had been received from the above parties/groups in regard to their involvement in the consultation process or in response to the proposed methodology.

² The Gidawaa Walang Cultural Heritage Consultancy initially registered as Barkuma Neighbourhood Centre Inc. A facsimile (dated 17 August 2009) was provided to DCPL which indicated that Barkuma Neighbourhood Centre Inc. is now trading as Gidawaa Walang Cultural Heritage Consultancy.

Proposed Methodology for the Aboriginal Cultural Heritage Assessment

- ✧ DCPL wrote to each of the registered stakeholders (including those additional stakeholders identified by the DECCW as having a potential interest in the ACHA) on 27 July 2009 providing a copy of the Proposed Methodology for the Cultural and Archaeological Assessment of the Project. The accompanying letter invited feedback in regard to the proposed methodology.
- ✧ Attachment 2 of the Proposed Methodology for the Cultural and Archaeological Assessment of the Project provided detailed information (i.e. AHIMS site cards) on each of the known Aboriginal heritage sites within the Project study area and immediate surrounds.
- ✧ Both written and verbal comments were received from some of the registered stakeholders regarding the proposed methodology. Received comments were considered and, where relevant, implemented as part of the finalised methodology. A copy of the finalised methodology is provided in Attachment JD.
- ✧ Several registered stakeholders either indicated that they agreed with the proposed methodology (i.e. Gidawaa Walang Cultural Heritage Consultancy) or that they had no comment on the proposed methodology (i.e. Forster Local Aboriginal Land Council and Gloucester Environment Group).

The below discussion details the comments received in relation to the proposed methodology and how they have been considered and/or addressed as part of this assessment:

Comments Regarding Section 10 Applications

- ✧ The Garigal Aboriginal Community Inc. indicated *“I am concerned that you have failed to mention that the Garigal Aboriginal Community has sought, via Peter Garrett a section 10 protection order to protect men’s sacred site and the Mammy Johnsons River”*. In addition, Garigal Aboriginal Community Inc. indicated *“I would like to request that all proposals be put on hold until Minister Peter Garrett has reached his Decision on the protection order”*.
- ✧ The Johnsons Creek Conservation Committee indicated *“Johnsons Creek Conservation Committee & our aboriginal members are concerned that Duralie Coal have failed to acknowledge the request for a Protection Order under Section 10 of the Act, by the Garigal Group for the protection of Mammy Johnsons River including “a women’s birthing place” and a sacred site “sensitive to aboriginal men of the community”*”. The Johnsons Creek Conservation Committee also indicated *“We believe that the remaining scarred trees should be protected under section 10 of the Aboriginal and Torres Strait Island Heritage Protection Act 1984”*.
- ✧ The Maaingal Group consider the Menham Report on the 2000 application under s10 of the ATSIHP Act (Section J3.5) to contain *“flaws in the methodology and process involved, as it is full of inconsistencies”* and expressed concern that *“future studies would, if performed in the same manner would be discredited”*.

As discussed in Section J3.5, the Public Notice dated 11 March 2009 indicates that Garigal Aboriginal Community Inc. has lodged an application seeking a declaration under s10 of the ATSIHP Act for the area identified as ML 1427, on the basis that the area:

“Contains Mammy Johnsons River, ‘a women’s birthing place’ and a sacred site ‘sensitive to Aboriginal men of our community’ and is therefore of particular significance to the Garigal people in accordance with their traditions”.

The s10 application is discussed in Section J3.5. The “remaining scarred trees” referred to by the Johnsons Creek Conservation Committee are not known to be the subject of Garigal Aboriginal Community Inc.’s s10 application.

The NSW legislation and guidelines that govern the ACHA process are separate to the application process under s10 of the ATSIHP Act and the NSW Minister for Planning is not prohibited from making a determination under Part 3A of the EP&A Act if a determination on an application under s10 of the ATSIHP Act is pending.

As described below, a targeted survey undertaken in August 2009 failed to find any physical evidence of a reported “men’s site” in the study area.

Based on information provided by the Maaiangal Group during the August 2009 fieldwork, the reported “women’s birthing site” referred to by the Johnsons Creek Conservation Committee and the Maaiangal Group is understood to be located on the banks of the Mammy Johnsons River, proximal to Mammy Johnson’s Grave. The Mammy Johnsons River and the reported “women’s birthing site” (based on information provided by the Maaiangal Group during the August 2009 fieldwork) are not located within ML 1427 nor MLA 1, as claimed in the s10 application. As discussed in Section J7.2, the Mammy Johnsons River is located outside the study area (Figure J-2) and on this basis, was not specifically surveyed/inspected as part of the August 2009 fieldwork programme. However, the Mammy Johnsons River has been identified by Aboriginal representatives as being a natural landscape feature/resource of particular cultural significance. The potential impacts on the Mammy Johnsons River as a result of the Project are considered in Section J8.

As discussed below, DCPL has committed to inspecting the reported “women’s birthing site” that may be located outside of the study area on the banks of the Mammy Johnsons River with representative(s) of the registered stakeholder at a later date.

Comments Regarding Mammy Johnson’s Grave



The Maaiangal Group indicated that:

- *“It has now been verified, after 8 yrs research, still ongoing, that it is the last resting place of this grand lady (MIDWIFE AND HELPER TO THE COLONISTS). Aboriginal people have known the story of Mammy Johns from the early days. RESEARCH & STUDY HOUSED GREAT LAKES COUNCIL. FORSTER. NSW”.*
- *“Where is documentation about MAMMY JOHNSON [sic] GRAVE SITE. Register NSW Aboriginal Sites? REG 38-1-34 LOT 135 DP 95697”.*

- *“The grave is listed with G.L.C. – archaeology carried out by Cr. Len Roberts - archaeologist of Aboriginal and European sites. Heritage Committee Member. Kuruah Local Aboriginal Land Council [sic]”.*

✧ The Garigal Aboriginal Community indicated *“I am also concerned that you have not mentioned the discovery of Mammy Johnsons Grave and have failed to recognise the significance of this to the aboriginal people”.*

✧ The Johnsons Creek Conservation Committee indicated:

- *“New evidence has found the gravesite of Mammy Johnson situated approximately 300 meters from the river and is in a close proximity to the mine site”.*
- *“We believe that blasting is already having an impact on Mammy Johnson’s gravesite and that continual blasting in the area will have a detrimental impact on the grave of Mammy Johnson and the possibility of riverbed cracking”.*
- *“A National Parks and Wildlife Officer claimed that he contacted NSW Aboriginal Sites Register on the 15th March 2006 regarding Mammy Johnsons Grave”.*
- *“We Believe Mammy Johnsons Grave wasn’t actually registered until the 1st of July 2009 when it was placed on the NSW Aboriginal Sites Register & recorded under Burials. Registration Number 38-1-0034”.*
- *“Why has Mammy Johnsons Grave never been acknowledged in any Duralie Coal Archaeology studies as this holds a high significance to the project area and the Aboriginal Communities?”*

On the basis of the above comments, the Mammy Johnson’s Grave was taken into account in finalising the methodology for the ACHA. Mammy Johnson’s Grave was listed in Table 1 (Known Aboriginal Heritage Sites within the Study Area Surrounds) of DCPL’s letter dated 18 August 2009 inviting registered stakeholders to attend the fieldwork. Enclosed with this letter was the NPWS site card and a figure which showed the location of site 38-1-0034 (Mammy Johnson’s Grave).

Further, Mammy Johnson’s Grave was inspected during the field survey and site inspection conducted in August 2009. The location of Mammy Johnson’s Grave is shown on Figures J-2 and J-3 of this ACHA and the site is discussed in Sections J6 to J9. The AHIMS site card for 38-1-0034 is provided in Attachment JE.

The potential impacts of the Project on the Mammy Johnson’s Grave site are considered in Section J8.

General Comments

- ✧ The Garigal Aboriginal Community Inc. indicated *“I believe that the men’s site is in the new proposed area and under threat”.*

At the request of the Garigal Aboriginal Community Inc., a survey for the reported “men’s site” was incorporated into the August 2009 fieldwork programme.

In addition to the general survey coverage of the study area, a targeted survey was undertaken to locate the “men’s site” that is reportedly located within the study area, north-west of the existing open pit and proximal to the existing gravel pit shown on Figure J-2.

A hand-drawn map and written locality descriptions were provided by a representative of the Garigal Aboriginal Community Inc. and were available during the field survey. These materials were used by the field archaeologist and male survey participants to attempt to locate the reported “men’s site”. It was advised that the site’s physical characteristics included markings on rocks.

Despite the use of the locality map, descriptions and the assistance in the field of the Garigal Aboriginal Community Inc. representative Glen Jonas, the reported “men’s site” was not located during the general site surveys or the targeted survey for this site. On this basis, the reported “men’s site” is not considered likely to be within the study area and has not been considered further in this ACHA.

- ✦ The Garigal Aboriginal Community Inc. indicated *“I believe that the Mammy Johnsons River is under threat”*.

The Mammy Johnsons River is located outside the study area (Figure J-2), and on this basis, it was not specifically surveyed/inspected as part of the August 2009 fieldwork programme. However, the Mammy Johnsons River has been identified by Aboriginal representatives as being a natural landscape feature/resource of particular cultural significance. The potential impacts on the Mammy Johnsons River as a result of the Project have been considered (Section J8).

- ✦ The Garigal Aboriginal Community Inc. indicated *“I feel that further independent surveys of the project area are needed, as you have failed to accept that the project area holds a high significance to aboriginal people”*. Similarly, The Johnsons Creek Conservation Committee indicated *“Because this area is of high significance to the Aboriginal Community we believe that independent studies should be included in the Archaeology Assessment”*.

An assessment of the cultural significance of the study area is provided in Section J7.2.

The ACHA does not include an independent survey and assessment, as this is not a requirement of the *National Parks and Wildlife Act 1974: Part 6 Approvals Interim Community Consultation Requirements for Applications* (DEC, 2004). The robustness of the consultation process and field survey component required by the *National Parks and Wildlife Act, 1974: Part 6 Approvals Interim Community Consultation Requirements for Applications* (DEC, 2004) makes the inclusion of an additional, independent assessment unnecessary.

Notwithstanding, further survey of the study area has been undertaken as described in Section J4. As described above, all registered stakeholders were invited to participate in the August 2009 Aboriginal heritage field survey and site inspection. Representatives of the Garigal Aboriginal Community Inc. and the Johnsons Creek Conservation Committee participated in the fieldwork (Attachment JB).

- ✦ The Garigal Aboriginal Community Inc. indicated *“I would also like to know were [sic] the three camp sites are located as they do not appear to be on the map?”*
- ✦ The Johnsons Creek Conservation Committee indicated *“We are concerned about the exact location of the open camp sites referred to as (37-2-0336) (37-2-037) (37-2-0338). These sites are not shown on Figure 2 (map) but are supposedly on the NPWS Register”*.

The “camp sites” referred to by Garigal Aboriginal Community Inc. and the Johnsons Creek Conservation Committee are AHIMS sites 37-2-0336, 37-2-0337 and 37-2-0338. According to the locality information provided in the AHIMS site cards, these sites are located over approximately 1.5 km south-west of the Project area. The relevant AHIMS site cards indicate that the sites have been the subject of section 87/90 Permits issued under the NSW *National Parks and Wildlife Act, 1974* (NP&W Act). On the basis that these sites are located outside the study area, they were not incorporated into the final methodology for the ACHA and their management has not been considered further in this report.

✴ The Garigal Aboriginal Community Inc. indicated *“I would also like to know where the isolated artefact is now?”*

As indicated in Section J3.4, Karuah Local Aboriginal Land Council representatives have not identified any Aboriginal heritage items to date during pre-clearance and construction topsoil monitoring. No isolated artefacts have been salvaged at the DCM (DCPL, pers. comm., 22 September 2009).

On this basis, it is assumed that the isolated artefact referred to by Garigal Aboriginal Community Inc. is the isolated artefact ‘DM1’ which was recorded during an Aboriginal heritage survey undertaken by McCardle Cultural Heritage Pty Ltd in April 2008. DM1 is located on private property which was accessed with the consent of the landholder in 2008. DM1 was recorded and left *in-situ* following the April 2008 survey.

As shown on Figures J-2 and J-3, DM1 is located outside the study area, but has been considered, for the purposes of this ACHA, to be an Aboriginal heritage site located in the study area surrounds. Potential impacts of the Project on DM1 are considered in Section J8.


✴ The Johnsons Creek Conservation Committee indicated that *“We are concerned that the Aboriginal Men’s Sacred Site, Aboriginal Artifacts, DM1, the Honey Tree (38-1-0033) and the only remaining Honey Scarred Tree (38-1-0027) in the Duralie project area could eventually be destroyed under section 87/90 of the National Parks and Wildlife Act 1974 (NSW)”*.

As discussed above, at the request of the Garigal Aboriginal Community Inc., a targeted survey for the reported “men’s site” was incorporated into the August 2009 fieldwork programme. The reported “men’s site” was not located and on this basis, the site has not been considered further in this ACHA as it is not considered likely that it is located within the study area.


The AHIMS database indicates that 38-1-0027 is located within the study area, adjacent to site 38-1-0033 (the Honey Tree). It is understood that this AHIMS record was related to scarred trees listed on the AHIMS database in 1998. Leon and Feeney (1998) indicated that the trees in question were inspected during a site inspection conducted by the Karuah and Forster Local Aboriginal Land Councils and NPWS on 12 November 1998 and concluded that the trees were not of Aboriginal origin. It is understood that the NPWS advised DCPL at that time that the scarred trees would remain on the AHIMS system, however, their listing was considered to be erroneous as the trees in question had been inspected by the Karuah and Forster Local Aboriginal Land Councils and NPWS and the scars were determined not to be Aboriginal in origin. It is understood that the area in which the trees were located was subsequently cleared and developed as a component of the approved DCM. On this basis, this site has not been considered further in this report. The Honey Tree (38-1-0033) is further discussed below on pages J-48 and J-49 and in Sections J6 and J7.

The potential impacts of the Project on the known Aboriginal heritage sites located within the study area are considered in Section J8. As shown on Figures J-2 and J-3, DM1 is located outside the study area. Notwithstanding, the potential for indirect or accidental impacts on this Aboriginal heritage sites is considered in Section J8.

Fieldwork

 DCPL wrote to each of the following registered stakeholders on 18 August 2009 inviting them to participate in the Aboriginal heritage field survey and site inspections for the Project:

- Barrington-Gloucester-Stroud Preservation Alliance Inc.;
- EB Phillips;
- Forster Local Aboriginal Land Council;
- Garigal Aboriginal Community Inc.;
- Garry Smith;
- Gavin Callaghan;
- Gidawaa Walang Cultural Heritage Consultancy;
- Gloucester Environment Group;
- Harry Callaghan;
- Johnsons Creek Conservation Committee;
- Karuah Local Aboriginal Land Council;
- Maaiangal Group;
- Minimbah and District Aboriginal Elders Inc.;
- Norma Fisher; and
- NTS Corp.

 In addition to the invitation to participate, the abovementioned letters also encouraged each of the registered stakeholders to notify DCPL of any specific Aboriginal heritage sites of interest that they wished to inspect during the field surveys.

✿ In accordance with the finalised methodology, the Aboriginal heritage surveys and site inspections were undertaken in August 2009. Representatives from the following registered stakeholders decided to participate in the Aboriginal field surveys and site inspections:

- Barrington-Gloucester-Stroud Preservation Alliance Inc.;
- Garigal Aboriginal Community Inc.;
- Gidawaa Walang Cultural Heritage Consultancy;
- Johnsons Creek Conservation Committee;
- Karuah Local Aboriginal Land Council;
- Maaiangal Group; and
- Minimbah and District Aboriginal Elders Inc.

Additional detail on Aboriginal participation in the Aboriginal heritage survey and site inspections is provided in Attachment JB.

✿ During the August 2009 field survey, registered stakeholders were invited to indicate Aboriginal heritage sites/areas of particular interest that they wished to inspect. All such requests made by the registered stakeholders in relation to the inspection of sites/areas of particular interest within the study area were accommodated.

As described above, on the basis of comments/requests received from the registered stakeholders, a targeted survey was undertaken to locate a “men’s site” reportedly located within the study area, north-west of the existing open pit and proximal to the existing gravel pit shown on Figure J-2. The reported “men’s site” was not located during this targeted survey or the general surveys undertaken in the study area.

As mentioned above, Mammy Johnson’s Grave was incorporated into the fieldwork programme on the basis of comments/requests received from the registered stakeholders.

✿ The Maaiangal Group indicated that the Mammy Johnsons River was historically a walking and trade route for Aboriginal people both from the local area and the wider region and she was aware of the existence of a “women’s birthing site” along the banks of the Mammy Johnsons River in the vicinity of Mammy Johnson’s Grave. The Maaiangal Group inquired whether this site could be inspected during the August 2009 survey.

It is understood that the reported “women’s birthing site” is located outside of the study area and east of ML 1427. Notwithstanding, as previously indicated, DCPL has committed to inspecting the reported “women’s birthing site” that is reportedly located on the banks of the Mammy Johnsons River proximal to Mammy Johnson’s Grave with representative(s) of the registered stakeholders at a later date.

✿ A representative of the Maaiangal Group remarked that the survey participants and archaeologists should be on the look-out for stone arrangements that might be markers for a ceremonial site.

Stone arrangements were incorporated into the design of the August 2009 field survey. As described in Section J3.7, stone arrangements may be ceremonial features or may serve a more utilitarian function (i.e. route markers). Although the potential for these types of stone arrangements to occur within the study area was considered to be limited, it was noted that stone arrangements are most likely to occur on hill tops and ridge crests that contain stone outcrops or surface stone.

- ✿ Comments (including cultural significance comments and suggested management and mitigation comments) received from the registered stakeholders throughout the ACHA process to date (including those received during the August 2009 field surveys) have been considered as part of this ACHA.
- ✿ Comments received from the registered stakeholders to date relevant to the cultural significance of the study area are discussed in further detail in Section J7.2 and comments which relate to management and mitigation measures are discussed in Section J9.

Supplementary Information/Consultation

Subsequent to the August 2009 fieldwork, a letter (dated 27 August 2009) was provided to Kayandel Archaeological Services by the Maaiangal Group (a full copy of this letter is provided in Attachment JA). The letter provided information including notes and a photograph relating to Mammy Johnson's Grave and a copy of a letter from Worimi Local Aboriginal Land Council addressed to Susan Phillips (dated 9 April 2009).

The following comments were provided by the Maaiangal Group's letter in relation to the August 2009 fieldwork:

- ✿ *"Could you please list the items that were noted on that day and how many are likely to be registered?"*

Section J6 provides the survey results and describes the known Aboriginal heritage sites located within the study area and surrounds. The previously unrecorded sites that were recorded during the August 2009 field survey are described in this report and would be registered on the AHIMS database.

- ✿ *"I would greatly appreciate your opinion of the status of the area".*

The archaeological significance ratings for each of the known Aboriginal heritage sites within the study area are presented in Section J7.1. Section J7.2 considers the cultural significance of the study area and known Aboriginal heritage sites within the study area and indicates that on the basis of consultation with representatives of the registered stakeholders, *"it is considered that the general landscape surrounding the study area is of cultural significance"*.

- ✿ *"It was very strange that the other team failed to identify anything in the other half of the east side (where they (DCPL) wish to put irrigation. On this side of MAMMY JOHNSON RIVER, I am convinced that you would find more artefacts if given the chance to return and re-examine the area".*

The survey methodology employed in this area was the same as employed throughout the study area during the August 2009 surveys, described in detail in Section J4. As described in Section J1.5, vegetation and groundcover can reduce surface visibility and it is possible that some sites may be present that have not have been identified during previous or recent surveys.

Further, the Project does not include the irrigation of land located outside of ML 1427 and MLA 1, including land located to the east of Mammy Johnsons River. This area is therefore not included in the study area.

Subsequent to the August 2009 fieldwork, a report (dated September 2009 and titled *Aboriginal Cultural Heritage Assessment of Clareval North West Pit, Duralie, near Gloucester*) was provided to DCPL by the Minimbah and District Aboriginal Elders Inc. (a full copy of the report is provided in Attachment JA). The report provided the following information:

- ✿ A description of soils/geology, the uses of these materials by Aboriginal people and an indication of where such materials were likely to be located in the landscape. Section J3.7 of this ACHA has been updated to include this information.
- ✿ A description of the ethnographic history of the region. Sections J3.1.1 and J3.1.2 of this ACHA have been updated to include this information.
- ✿ A description of the potential Aboriginal heritage site types within the study area. Section J3.7 of this ACHA has been updated to include this information.
- ✿ A description of the results of the August 2009 fieldwork. Section J6 of this ACHA has been updated to incorporate this information.
- ✿ It is possible that sites of archaeological, scientific, cultural or social significance may occur within the study area.

As described in Section J3.4, previous archaeological investigations have been undertaken in the study area and surrounds. Section J4.1 describes the field survey and inspection methodology undertaken specifically for this ACHA in consultation with the registered stakeholders. Section J6 provides the results and a description of Aboriginal heritage sites within the study area. Sections J7.1 and J7.2 provide the outcomes for the archaeological and cultural significance assessments, respectively.

- ✿ A discussion relating to the cultural significance of the study area. Section J7 of this ACHA has been updated accordingly.
- ✿ A discussion of management recommendations, including:
 - *“To ensure due diligence and prevent the unmitigated destruction of Aboriginal cultural materials it is recommended that all contractors engaged in construction earthworks (including environmental rehabilitation projects) be advised of their statutory obligations prior to the commencement of those works. Under the terms of the National Parks and Wildlife Act 1974 it is illegal for any person to knowingly disturb, deface, damage or destroy, or to permit the disturbance, defacement, damage or destruction of an Aboriginal object without first obtaining an Aboriginal Heritage Impact Permit from the DECC”.*

The offences described in the above quote and legislated by the NP&W Act do not apply to projects approved under Part 3A of the EP&A Act. Notwithstanding and as described in Section J9 of this ACHA (Management and Mitigation Measures), the ACHMP provides that mining employees and contractors (who as a consequence of their roles at site have the potential to disturb ground), would be provided with guidance on Aboriginal cultural heritage matters as part of the DCPL induction program.

- *“DCMST-1 immediately have a 50m perimeter exclusion zone placed around the tree. And that selected staff for Duralie Coal are made familiar with the site and its locality. The suggested exclusion zone is to keep any earth movement (explosions or vehicle transmitted) at a distance that doesn’t place the tree into an instability situation. As most of the tree is dying, an appropriately funded stability program should be instigated to prevent a complete collapse of the tree”.*

As discussed in Section J6, DCMST-1 is equivalent to DM10. Section J9 provides mitigation and management measures to manage the impact of surface disturbance on Aboriginal heritage sites within the study area, including:

- Where earthworks are required in close proximity to known Aboriginal heritage sites, the sites be demarcated with temporary flagging tape or another suitable method to reduce the risk of accidental damage during the works.
- Culturally modified trees located outside of Project disturbance areas be suitably fenced and signed to reduce the risk of incidental damage.
- DCPL maintain a record of known sites and mark these sites on site plans and relevant Project documentation and implement a protocol for surface works to reduce the risk of accidental damage to known sites.

DM10 is a stag which is subject to natural deterioration processes. Given the current condition of DM10 and the potential for collapse of the tree, future consideration should be given to the possibility of (and risks to the site associated with) salvaging the scarred section of the tree as part of the development of the ACHMP in consultation with the Aboriginal community.

- *“Monitoring of seismic activities also include places not deemed to be impacted upon and places such as Mammy Johnsons burial”.*

As described in Section J8, ground vibration levels have been calculated by Heggies Pty Ltd in Appendix C of the EA for the Mammy Johnson’s Grave site. These calculations indicate that the ground vibration (95% exceedance) level for the largest proposed Project open pit mining Maximum Instantaneous Charge (MIC) (1,500 kilograms [kg]) would be approximately 2 millimetres per second (mm/s) at Mammy Johnson’s Grave (Heggies Pty Ltd, 2009) (Appendix C of the EA).

This vibration estimate is well below the maximum ground vibration level (i.e. 5 mm/s) recommended by Australian Standard (AS) 2187.2-1993 *Explosives – Storage, Transport and Use – Part 2 Use of Explosives* (AS 2187.2) for structures that may be particularly susceptible to ground vibration (Appendix C of the EA). While this criteria is not directly applicable to the grave site as it is not considered to be a vibration sensitive building or structure, this comparison provides an indication that the Project open pit blasting vibration levels at the Mammy Johnson's Grave are predicted to be well below this criteria (Appendix C of the EA).

Given the results of these ground vibration calculations, blast monitoring is not proposed to be undertaken at Mammy Johnson's Grave.

- *"That any suspected skeletal material unearthed is reported immediately to the NSW Police Service".*

As described in Section J9, the ACHMP presents measures to be implemented in the event of discovery of human remains, including notification of the local police.

Draft ACHA

The draft ACHA was provided to each of the registered stakeholders on 1 October 2009. Comments on the draft ACHA were requested by 26 October 2009. Following this, a supplementary letter was sent to the registered stakeholders on 13 October 2009 advising that the period for comments had been extended and that comments on the draft ACHA would be received until 30 October 2009. The registered stakeholders were advised that comments on the draft ACHA could be provided verbally or in writing.

The majority of the registered stakeholders were contacted in the week commencing 5 October 2009 to confirm that the draft ACHA had been received and to discuss any comments or queries. Some of the registered stakeholders could not be contacted as provided contact details had been disconnected or there was no option to leave a message.

The majority of the registered stakeholders were again contacted in the week commencing 26 October 2009 to remind them that comments on the draft ACHA would only be incorporated and/or considered for the purposes of the ACHA if they were received by 30 October 2009. The registered stakeholders were also invited to discuss any queries and to provide verbal comments on the draft ACHA.

Written comments were received from the Barrington-Gloucester-Stroud Preservation Alliance Inc., the Garigal Aboriginal Community Inc., the Gidawaa Walang Cultural Heritage Consultancy, Gloucester Environment Group, Johnsons Creek Conservation Committee, the Maaialang Group and Norma Fisher. A full copy of these comments is provided in Attachment JA.

Comments (including cultural significance comments, suggested management and mitigation comments and general comments) received from the registered stakeholders throughout the ACHA process to date (including those received during the August 2009 fieldwork) have been considered as part of this ACHA by considering relevance to cultural significance, potential impacts to Aboriginal heritage and proposed management and mitigation measures.

J5.2. Consideration of Comments Received

As outlined above, comments were received from seven registered stakeholders with a full copy of these comments provided in Attachment JA. The below discussion details the comments received in regard to cultural heritage on the draft version of this ACHA and how they have been considered and/or addressed

Barrington-Gloucester-Stroud Preservation Alliance Inc. made the following comments:

Comment

“ ... artefacts vulnerable to damage during the Project will be collected by an archaeologist for safekeeping (page 47) and I am pleased that this is the case”.

Comment

“I believe all proposed actions should be implemented”.

Comment

Barrington-Gloucester-Stroud Preservation Alliance Inc. noted that the Project does not include the irrigation of land located out of ML 1427 and indicated that:

“The Alliance is pleased that such irrigation will no longer be carried out”.

Comment

“... I wish to state that I was pleased to participate in the survey which I judge to have been carried out with sincerity by the archaeological team, the survey participants and the staff of Duralie Coal Pty Ltd.

I was pleased that during my own time with the survey several items and sites were discovered and recorded”.

Comment

“I was surprised that the artefacts discovered by the party to which I was attached during the August 09 survey were left in situ, which seems to me to leave those artefacts vulnerable to damage or loss”.

Consideration of the above Comment

The NPWS (1998b) *Standards For Archaeological Practice in Aboriginal Heritage Management* indicates that best practice in on-site recording involves minimal handling of artefacts and recording of artefacts on a one-by-one basis. Artefacts should be placed as precisely as possible in their original positions on the ground (NPWS, 1998b).

In order to comply with NSW legislation and best practice, artefacts recorded during the August 2009 fieldwork were left *in-situ* with recommendations for salvage prior to disturbance. Such recommendations are included in Section J9.

Comment

The Barrington-Gloucester-Stroud Preservation Alliance Inc. requested that the terminology in the second paragraph on page 39 of the draft ACHA be revised from ‘inspected by the Aboriginal community’ to ‘inspected by the Aboriginal community and other participating parties’.

Consideration of the above Comment

Based on this comment, the terminology used throughout the ACHA has been revised to “registered stakeholders”.

Comments

“I have doubts that the scars on the Honey Tree (38-1-0033) are of aboriginal origin.

I doubt that that is the case... none of the other scarred trees we saw showed any instance of pieces of timber being inserted as ‘foot pegs’. I do not believe the aboriginal people would have taken such action... if a tree was a regular source of honey than perhaps toeholds might be cut into the trunk to facilitate climbing, but I do not believe timber pieces of the type I saw on the Honey Tree would have been inserted... there would have been no advantage and no point.

I believe the timber inserted into the trunk has been put there by early timber-getters in preparation of felling the tree. For some reason felling has not been carried out”.

Consideration of the above Comments

On the basis of these comments, text has been included in Sections J3.4 and J6.1 of this ACHA stating: *“Comments received from the registered stakeholders on the draft ACHA indicate that there is some contention as to the origin of the modification to the “Honey Tree” (e.g. assertion that the modification may be non-Aboriginal in origin). Attachment JA provides a full account of comments received from registered stakeholders”.*

Comment

In relation to the high archaeological significance rating for the “Honey Tree”, the Barrington-Gloucester-Stroud Preservation Alliance Inc. indicated that:

“I agree that its archaeological significance is high because I believe it represents history of the area in regards to early colonial settlement. I believe that the tree should continue to be protected by a fence but I believe that the signage portraying it as of aboriginal significance is incorrect”.

Consideration of the above Comment

The “Honey Tree” would continue to be protected within a fenced and signed enclosure to reduce the risk of accidental damage. Given that Dr Mike Morwood (Department of Archaeology and Paleoanthropology, University of New England) has indicated that the “Honey Tree” is of Aboriginal origin and that the “Honey Tree” has been registered on the AHIMS database, the existing signage which identifies the “Honey Tree” as an Aboriginal site would remain in place.

Comment

“I enclose with this commentary a copy of a photograph that I took at Dorriggo last Sunday the 18th October 09. The instant I saw the photograph I recognised the similarity of the placement of the timber-getter’s foot-plank to that displayed in the Duralie Honey Tree in question.

I draw the reader’s attention to the similarity and, if it is agreed that the tree modifications are not of aboriginal origin, I request that the records be corrected. In any event, the tree is of historical significance and I ask that it remain protected from damage”.

Consideration of the above Comment

On the basis of these comments, text has been included in Sections J3.4 and J6.1 of this ACHA stating: *“Comments received from the registered stakeholders on the draft ACHA indicate that there is some contention as to the origin of the modification to the “Honey Tree” (e.g. assertion that the modification may be non-Aboriginal in origin). Attachment JA provides a full account of comments received from registered stakeholders”.*

Notwithstanding, as described in Section J9, the “Honey Tree” would continue to be protected within a fenced and signed enclosure to reduce the risk of accidental damage. Given that Dr Mike Morwood (Department of Archaeology & Paleoanthropology, University of New England) has indicated that the “Honey Tree” is of Aboriginal origin and that the “Honey Tree” has been registered on the AHIMS database, the existing signage which identifies the “Honey Tree” as an Aboriginal site would remain in place.

Comment

In relation to Appendix 1 of the draft ACHA:

“DM3, DM7, DM8 and DM9: Primary Recorder: not completed, not dated.

DM10: Primary Recorded: not completed not dated. Features are classed as artefact and habitation structure, but under Preliminary Site Assessment DM10 is described as a scarred tree.

DM11: Primary Recorder: not completed not dated. As with DM10, DM11 is classed as an artefact and habitation structure but us assessed and photographed as an artefact only”.

Consideration of the above Comment

A copy of the draft site cards was provided to the registered stakeholders as an appendix to the draft ACHA. The site cards have subsequently been finalised and included as Attachment JE of this final ACHA. The finalised site cards address the above comments.

Garigal Aboriginal Community Inc. made the following comments:

Comment

“Where is the new irrigation area referred to?”

Consideration of the above Comment

As described in Section J1.2, the Project would include continued disposal of excess water through irrigation (including development of new irrigation areas within ML 1427 and MLA 1). Based on the above comment, a figure showing the approximate extent of the existing/approved and additional irrigation areas has been incorporated as Figure J-3 of this ACHA.

Comment

In relation to Section J2.2, Garigal Aboriginal Community Inc. commented:

“Coal-Shaft and Un-named Creek become major tributaries with rain and should never be portrayed as ‘small’”.

Consideration of the above Comment

The third paragraph under the ‘Hydrology and Hydrogeology’ heading in Section J2.2 of this ACHA has been revised to remove the word “small”.

Comment

Section 3.4 of the draft ACHA indicated that during pre-construction inspections and in their role as Site Topsoil Monitors during construction works, Karuah Local Aboriginal Land Council representatives have not identified any Aboriginal heritage items to date. In regard to this statement, the Garigal Aboriginal Community Inc. queried:

“Does this include the 14 years of the mine project”.

Consideration of the above Comment

To clarify, the text in Section J3.4 has been updated as follows:

“To date, Karuah Local Aboriginal Land Council representatives have not identified any Aboriginal heritage items since commencement of the DCM (DCPL, 2006, 2007a, 2008a; DCPL pers. comm., 2009)”.

Comment

“The group I was a part of found artefacts and scarred trees. I would like to be a part of a research of the area covered by the other group”.

For logistical and safety reasons, as described in Section J4.1, the August 2009 fieldwork was undertaken by two teams. Each team consisted of one archaeologist and between three and five representatives from the registered stakeholders. As described in Section J4.1, the registered stakeholders were given an indication of the areas/sites to be surveyed/inspected by each team and were given the opportunity to select which field survey team they wanted to participate in.

Further, as outlined in Section J9, it is recommended that the ACHMP be revised to include a protocol for consultation with the Aboriginal community over the life of the Project including a course of action to be undertaken in determining appropriate Aboriginal community representation during fieldwork (e.g. pre-clearance salvage and topsoil inspections, baseline recording, monitoring and implementation of mitigation measures).

Comment

In relation to Section 3.5 of the draft ACHA, Garigal Aboriginal Community Inc. commented:

“DCPL state application by Glenn Jonas on behalf of Garigal Aboriginal Community Inc. does not refer to or include Mammy Johnsons River. It is my belief that the section 10 protection order that is pending involves the entire Mammy Johnsons River and tributaries, and therefore should have been included in the study”.

Consideration of the above Comment

The text in Section J3.5 has subsequently been updated to more clearly describe our understanding of the s10 application, as follows:

“DCPL notes that the original application made by Glen Jonas on behalf of the Garigal Aboriginal Community Inc. dated 6 March 2008 is in regard to the protection of a sacred site ‘sensitive to Aboriginal men of our community’, and does not refer to the Mammy Johnsons River. Notwithstanding, a letter provided by Ms D Arnold to the Department of the Environment, Water, Heritage and the Arts on 11 December 2008 on behalf of the Garigal Aboriginal Community Inc. has also been considered to be part of the application made under s10 of the ATSIHP Act. This letter refers to the Mammy Johnsons River and the excavation of land at Craven, located south of the SCM. Therefore, we understand that the s10 application includes the Mammy Johnsons River”.

Mammy Johnsons River is located outside of the study area. Notwithstanding, as described in Section J7.2, the Mammy Johnsons River is considered to be a natural landscape feature/resource of particular cultural significance. Consequently, the potential impacts of the Project on the Mammy Johnsons River are considered in Section J8 and the Mammy Johnsons River has been considered in the Project management and mitigation measures as described in Section J9.

Comment

“DCPL state that Mammy Johnsons River is outside of study area but the river is still under threat by any tributary that may affect or impact on river and its environs and therefor (sic) should have been included in the study.

...Although blasting is within guide-lines, I still hold concerns that damage could be caused to the river bed and Mammy Johnson’s Grave”.

Consideration of the above Comment

Section J8 provides an assessment of potential impacts of the Project on known sites proximal to the study area, including an assessment of potential blasting impacts on Mammy Johnson's Grave and impacts on the Mammy Johnsons River.

As described in Section J8 and detailed in Appendix B of the EA, there is limited potential for significant hydraulic connection between the Project open pits and the Mammy Johnsons River. Nonetheless, Mammy Johnsons River has been considered in the development of Project management and mitigation measures as described in Section J9.

As described in Section J8, ground vibration levels have been calculated by Heggies Pty Ltd for the Mammy Johnson's Grave site. These calculations indicate that the ground vibration (95% exceedance) level for the largest proposed Project open pit mining MIC (1,500 kg) would be approximately 2 mm/s at Mammy Johnson's Grave.

This vibration estimate is well below the maximum ground vibration level (i.e. 5 mm/s) recommended by AS 2187.2-1993 *Explosives – Storage, Transport and Use – Part 2 Use of Explosives* (AS 2187.2) for structures that may be particularly susceptible to ground vibration. While this criteria is not applicable to a site such as Mammy Johnson's Grave (i.e. the grave site is not considered to be a vibration sensitive building or structure), this comparison provides an indication that the Project open pit blasting vibration levels at the Mammy Johnson's Grave are predicted to be well below this criteria.

Comment

In relation to scarred trees DM3, DM4, DM5 and DM10, the Garigal Aboriginal Community Inc. indicated that:

"These scarred trees have been described but not dated. I would like to know an app. age so I could know how long ago trees were used by the original people".

Consideration of the above Comment

Three techniques can be employed to estimate the age of a tree (Koch *et al.*, 2008). The most common technique is ring counting, however, this method relies on complete wood samples and is time intensive. Where the wood sample is incomplete, a combination of ring counting and extrapolation is generally utilised. Where wood samples are unavailable, growth models can be used.

When considering options to date modified trees, options which require the destruction of the specimen should only be considered if no other options are available. Consequently, growth models are a likely method to be employed in cultural heritage management. It should be noted that simple regressions between tree age and diameter at breast height (overbark, diameter, breast, height [DBH]) have been shown generally to be the most accurate growth models (Koch *et al.*, 2008: 147). However, when a sample size is small or in specimens with variable growth rates, the accuracy of the estimate tends to be compromised (Koch *et al.*, 2008: 147). In terms of providing a broad approach to estimating the age of Eucalyptus trees, it is best to examine the entire tree for the occurrence of hollows. The presence of hollows generally indicates a tree of >100 years (Ambrose, 1982; Gibbons *et al.*, 2000; Whitford, 2002). Further, large hollows are rare in specimens <220 years (Gibbons and Lindenmayer, 2002).

In relation to DM10, Minimbah and District Elders Group Inc. indicated that the site's height from current ground level would indicate that the cultural modification had occurred within the last 100 years.

Comment

"I find there to be a lack of information dealing with the effects the planned extension will have on the environment and the people who live in the mines path".

Consideration of the above Comment

The potential impacts of the Project on the environment and nearby landholders/residents are assessed in the Main Report of the EA and in the relevant technical appendices to the EA, including:

- ✦ Appendix A - Surface Water Assessment.
- ✦ Appendix B - Groundwater Assessment.
- ✦ Appendix C - Noise and Blasting Impact Assessment.
- ✦ Appendix D - Air Quality Assessment.
- ✦ Appendix E - Terrestrial Flora and Fauna Assessment.
- ✦ Appendix F - Aquatic Ecology Assessment.
- ✦ Appendix G - Socio-Economic Assessment.
- ✦ Appendix H - Road Transport Assessment.
- ✦ Appendix I - Geochemistry Assessment.
- ✦ Appendix K - Non-Aboriginal Heritage Assessment.
- ✦ Appendix L - Preliminary Hazard Analysis.
- ✦ Appendix M - Environmental Risk Assessment.
- ✦ Appendix N - Rehabilitation and Landscape Management Strategy.
- ✦ Appendix O - Visual Assessment.

A full copy of the EA including all of the above listed technical appendices would be provided to each of the registered stakeholders during public exhibition of the EA.

Gidawaa Walang Cultural Heritage Consultants made the following comment:

“Gidawaa Walang Cultural Heritage Consultancy has read the Draft Aboriginal report and agrees with the Management and Mitigation Measures in section 9 on page 47 of the report:- Surface Disturbance, Blasting Vibration, General Management Measures and the Aboriginal Cultural Heritage Management Plan and the recommendation the ACHMP be updated if the project is approved with the additional measures on page 49 of the draft report”.

Gloucester Environment Group made the following comments:

Comment

“... as far as we can judge Duralie Coal are providing protection for whatever Aboriginal remains exist within the mine sites”.

Comment

“...regarding Mammy Johnson’s Grave this is in urgent need of maintenance and protection. The photograph in your document gives the impression that the grave is very neglected. We would urge that Duralie Mining Company provide suitable display signage (detailing Mammy Johnson’s history) and replace the barbed wire fence with a more attractive and durable one. Of course this may already be in planning but if not, it would be appreciated if the Mining Company would upgrade the grave’s surrounds”.

Consideration of the above Comment

The proposed management and mitigation measures for the Project are presented in Section J9. Based on the above comment, the following recommendation has been included in Section J9:



“Commitment to fund a study and associated research of Mammy Johnson and her involvement in the region. The study could include an investigation into the location of Mammy Johnson’s grave and document Mammy Johnson’s story and connection with the local Aboriginal community. The findings of the study could be provided to the local Aboriginal community with the potential to develop interpretative signage, or similar, to be established at a location considered suitable by the Aboriginal community, DCPL and any relevant landowner”.

Johnsons Creek Conservation Committee made the following comments:

Comment

“Considering the fact that 3 open camp sites were found & identified in 1998 & a scarred honey tree was also found & identified by Delica Arnold 1998, then Mammy Johnsons Grave was later located & identified as a Burial Site by Dianne Nurpula Stephenson and that artefact scatter site, isolated artifacts and several scarred trees have since been located & identified, we believe this is proof that aboriginal people extensively used this area and therefore it is of high cultural significance to the aboriginal people”.

Consideration of the above Comment

The cultural significance assessment (Section J7.2) has been updated to incorporate this comment. As indicated in Section J7.2, on basis of comments received from the registered stakeholders, the general landscape surrounding the study area is considered to be of cultural significance.

Comment

“Numerous medicinal plants & bush tucker plants were located as stated by Carol Ridgeway-Bisset in the proximity of the DM2 site. What data does Duralie Coal have to identify these plants? If Duralie Coal has not as yet obtained this data we request that further studies are warranted to properly identify & list the native flora”.

Consideration of the above Comment

Sections J2.3 and J2.4 provide an overview of the vegetation and fauna and resources for subsistence within the study area. In addition, the Terrestrial Flora and Fauna Assessment (Appendix E of the EA) describes the flora within the study area and assesses the magnitude, nature and significance of potential impacts of the Project on flora, including threatened species, populations and ecological communities. A full copy of the Project EA (including Appendix E) would be provided to each of the registered stakeholders during public exhibition.

Comment

“The site description given on the basalt flake has us wondering. Lance Syme states that it was located on a slope that is on an unreliable drainage channel. Is Lance referring to un-named creek or is there a drain that we are unaware of and if so what is it used for?”

Consideration of the above Comment

The basalt flake referred to above is presumed to be DM1, as this is the only known basalt artefact recorded within the study area and surrounds.

DM1 was recorded by McCardle Cultural Heritage Pty Ltd in 2008 and the description of the site provided in Section J6.1 is sourced from the site card completed by Gillian Goode. Section J6.1 states that DM1 is located on the western side of Cheerup Road, on an east facing, moderately inclined slope to the west of an ephemeral drainage line running parallel to the road. The location of DM1 is shown on Figures J-2 and J-3. The ephemeral drainage line is located in a small gully on privately-owned property and drains east to Coal Shaft Creek.

Comment

“It seems unusual that on the recent field survey Group 1 found several artifacts. These artifacts along with comments were recorded in the methodology & mapping of sites, where as Group 2 found no artifacts and didn’t seem to participate in any of the comments in the methodology. We are concerned that in past surveys artifacts & sites may have been overlooked and for this reason we would like to request that Group 1 assisted by Lance Syme should be entitled to revisit the areas covered by Group 2 including the area on the eastern side of Mammy Johnsons River”.

Consideration of the above Comment

As described in Section J4.1, the registered stakeholders were given an indication of the areas/sites to be surveyed/inspected by each team and were given the opportunity to select which field survey team they wanted to participate in.

The survey methodology employed in this area was the same as employed throughout the study area during the August 2009 surveys, described in detail in Section J4. As described in Section J1.5, vegetation and groundcover can reduce surface visibility and it is possible that some sites may be present that have not have been identified during previous or recent surveys. It is considered, however, that there has been sufficient fieldwork for the purpose of this ACHA.

Further, the Project does not include the irrigation of land located outside of ML 1427 and MLA 1, including land located to the east of Mammy Johnsons River. This area is located outside of the study area.

Comment

“We have concerns that Mammy Johnsons River has not been included in the methodology and believe that any mining activity connected to the un-named creek will directly affect Mammy Johnsons River”.

Consideration of the above Comment

The study area is defined in Section J1.1 as comprising ML 1427 and MLA 1 (Figure J-2).

As described above, although the Mammy Johnsons River is located outside of the study area, due to its particular cultural significance, the potential impacts of the Project on the Mammy Johnsons River are considered in Section J8. The Mammy Johnsons River has also been considered in the Project management and mitigation measures as described in Section J9.

Comment

“Although it states that blasting is within the guidelines there has been incidents of over blasting at the Duralie mine site. We hold grave concerns that the continual blasting will cause cracking to Mammy Johnsons River and also cause damage to Mammy Johnsons Grave”.

Consideration of the above Comment

Blast monitoring is conducted at the DCM in accordance with the DCM Blast Monitoring Program (DCPL, 2007b). Blast monitoring undertaken to date has not recorded any instances of ground vibration exceeding the licensed criteria of 5 mm/s (Appendix C of the EA).

Section J8 provides an assessment of potential impacts of the Project on known sites proximal to the study area, including an assessment of potential blasting impacts on Mammy Johnson’s Grave and impacts on the Mammy Johnsons River.

As described in Section J8, ground vibration levels have been calculated by Heggies Pty Ltd for the Mammy Johnson’s Grave site. These calculations indicate that the ground vibration (95% exceedance) level for the largest proposed Project open pit mining MIC (1,500 kg) would be approximately 2 mm/s at Mammy Johnson’s Grave.

This vibration estimate is well below the maximum ground vibration level (i.e. 5 mm/s) recommended by AS 2187.2-1993 *Explosives – Storage, Transport and Use – Part 2 Use of Explosives* (AS 2187.2) for structures that may be particularly susceptible to ground vibration. While this criteria is not applicable to a site such as Mammy Johnson’s Grave (i.e. the grave site is not considered to be a vibration sensitive building or structure), this comparison provides an indication that the Project open pit blasting vibration levels at the Mammy Johnson’s Grave are predicted to be well below this criteria.

The potential impacts of the Project on the Mammy Johnsons River are discussed in Section J8. As described in Section J8 and detailed in Appendix B of the EA, there is limited potential for significant hydraulic connection between the Project open pits and the Mammy Johnsons River. To date, there is no evidence to indicate flow losses from Mammy Johnsons River due to the DCM (from blasting or any other mechanism), as evidenced by the relatively elevated salinity of groundwater inflows to the open pit (i.e. monitoring data in the Weismantel open pit sump suggests an electrical conductivity (EC) of approximately 3,530 microSiemens per centimetre (µS/cm) compared to a median EC of 290 µS/cm in the Mammy Johnsons River [Appendix A of the EA]).

Notwithstanding, Mammy Johnsons River has been considered in the Project management and mitigation measures as described in Section J9.

Comment

“Any plans to move and/or destroy Aboriginal objects under a section 90 consent of the National Parks & Wildlife Act 1974 is a moral injustice to Aboriginal people & their Heritage”.

Consideration of the above Comment

As described under the heading “Supplementary Information/Consultation” above, the permits/consents required by the NP&W Act do not apply to approved projects under Part 3A of the EP&A Act. Notwithstanding, as described in Section J9, several management and mitigation measures have been developed and recommended to reduce potential impacts on Aboriginal heritage.

Comment

“We feel the scarred trees should be dated and given an approximate age so it can then be estimated how long ago the trees were used by the Aboriginal people”.

Consideration of the above Comment

Three techniques can be employed to estimate the age of a tree (Koch *et al.*, 2008). The most common technique is ring counting, however, this method relies on complete wood samples and is time intensive. Where the wood sample is incomplete, a combination of ring counting and extrapolation is generally utilised. Where wood samples are unavailable, growth models can be used.

When considering options to date modified trees, options which require the destruction of the specimen should only be considered if no other options are available. Consequently, growth models are a likely method to be employed in cultural heritage management. It should be noted that simple regressions between tree age and diameter at breast height (overbark, DBH) have been shown generally to be the most accurate growth models (Koch *et al.*, 2008: 147).

However, when a sample size is small or in specimens with variable growth rates, the accuracy of the estimate tends to be compromised (Koch *et al.*, 2008: 147). In terms of providing a broad approach to estimating the age of Eucalyptus trees, it is best to examine the entire tree for the occurrence of hollows. The presence of hollows generally indicates a tree of >100 years (Ambrose, 1982; Gibbons *et al.*, 2000; Whitford, 2002). Further, large hollows are rare in specimens <220 years (Gibbons and Lindenmayer, 2002).

In relation to DM10, Minimbah and District Elders Group Inc. indicated that the site’s height from current ground level would indicate that the cultural modification had occurred within the last 100 years.

Maaiangal Group made the following comments:

Comment

The Maaiangal Group advised that the archaeologist Lance Syme:

“was a very competent person in his duties”.

Comment

“What data on rainfall information is there in this area?”

Consideration of the above Comment

Climate data and a description of the local meteorological characteristics (e.g. temperature, rainfall and evaporation) are provided in Section J2.1 of this ACHA. Further details are provided in the Surface Water Assessment (Appendix A of the EA), a copy of which would be provided to all registered stakeholders during the EA public exhibition.

Comment

“Why is the evaporation data for some months missing in the 2008 AEMR? As we has several wet months during 2008, what months are missing?”

Consideration of the above Comment

In response to the above comment, footnote 1 in Section J2.1 has been updated to read: *“Evaporation data provided from the 2007 AEMR reporting period as the evaporation data for some months is missing in the 2008 AEMR due to technical problems with the monitoring equipment (i.e. corrosion in the sensor cable junction)”*.

Comment

“Could (DCPL) explain what unreliable drainage channel that Lance Symes – “archaeologist” spoke of at the DM1 site”.

Consideration of the above Comment

DM1 was recorded by McCardle Cultural Heritage Pty Ltd in 2008 and the description of the site provided in Section J6.1 is sourced from the site card completed by Gillian Goode. Section J6.1 states that DM1 is located on the western side of Cheerup Road, on an east facing, moderately inclined slope to the west of an ephemeral drainage line running parallel to the road. The location of DM1 is shown on Figures J-2 and J-3. The ephemeral drainage line is located in a small gully on privately-owned property and drains east to Coal Shaft Creek.

Comment

“In (DCPL) methodology it is stated that I do not agree with the section 10, and the birthing area as only on the eastern side and it is now not in the “area of interest”. Somewhere (DCPL) has made a wrong assumption after a request by myself, for access to the eastern side of Mammy Johnson River. This did not mean only that side of the river. Mammy Johnson was known to cross back and forth at will. This is part of oral tradition concerning her midwifery along the river. This may also include parts of ML 1427. It would take a comprehensive archaeological survey to assertane [sic] the full extent of the site in its entirety”.

Consideration of the above Comment

The draft ACHA (based on information provided by a representative of the Maaialang Group during the August 2009 fieldwork) described the reported “women’s birthing site” as being located on the banks of the Mammy Johnsons River, proximal to Mammy Johnson’s Grave. The draft ACHA did not specify which side of the Mammy Johnsons River the reported “women’s birthing site” is located. However, the reported “women’s birthing site” is considered to be located outside the study area as the Mammy Johnsons River (including both east and west banks) is not located within ML 1427 nor MLA 1.

The proposed disturbance areas within ML 1427 were surveyed during the August 2009 Aboriginal heritage survey and site inspection. As previously described, DCPL has committed to inspecting the reported “women’s birthing site” that may be located outside of the study area on the banks of the Mammy Johnsons River with representative(s) of the registered stakeholders at a later date.

Comment

“Again (DCPL) has said that MLA1 is not in the “area of interest”, it is relevant, as the new extension [sic] will impact on the east end running parallel to Mammy Johnson River”.

Consideration of the above Comment

As described in Section J1.1, the study area comprises ML 1427 and MLA 1. As shown on Figure J-2, MLA 1 is located immediately adjacent to the north and west of ML 1427.

Comment

“(DCPL) states that the mens sites that the Garigal Group were looking for were not located, it appears to myself that those sites may have been damaged and therefore not recognisable. If this is the case it would be a blow to all concerned”.

Consideration of the above Comment

As indicated in Section J5.1, a targeted survey for the reported “men’s site” was incorporated into the August 2009 fieldwork programme at the request of the Garigal Aboriginal Community Inc.

Despite the provision of a hand-drawn map and written locality descriptions by a representative of the Garigal Aboriginal Community Inc. and assistance in the field by the Garigal Aboriginal Community Inc., the reported “men’s site” was not located during the general site surveys or the targeted survey for this site. On this basis, the reported “men’s site” is not considered likely to be within the study area and has not been considered further in this ACHA.

Comment

“On the eastern side of the Mammy Johnson River where artefacts were found on half (approximately 1000 acres) it is possible because of much rougher terrain with rutted gullies and thick overgrowth of grass that the result which was so contrast, was the problem. I therefore ask that the half of that parcel of land be looked at and be surveyed again. Even though it is classed as not being in the “area of interest”, I feel that it still needs to be looked at more carefully as I am concerned that something may have been missed. I also ask that the archaeologist be Lance Syme, as he was a very competent person in his duties”.

As described under the heading “Supplementary Information/Consultation” above, a similar comment was previously made by the Maaialang Group in a letter provided to Kayandel Archaeological Services (dated 27 August 2009).

As described in Section J4.1, the registered stakeholders were given an indication of the areas/sites to be surveyed/inspected by each team and were given the opportunity to select which field survey team they wanted to participate in.

The survey methodology employed in this area was the same as employed throughout the study area during the August 2009 surveys, described in detail in Section J4. As described in Section J1.5, vegetation and groundcover can reduce surface visibility and it is possible that some sites may be present that have not been identified during previous or recent surveys. It is considered, however, that there has been sufficient fieldwork for the purpose of this ACHA.

Further, the Project does not include the irrigation of land located outside of ML 1427 and MLA 1, including land located to the east of Mammy Johnsons River. This area is located outside of the study area.

Comment

“The irrigation that was proposed on the eastern side of Mammy Johnson River has thankfully been withdrawn by (DCPL). However the fact is it should be kept an “area of interest” because it will still be affected with the new extensions planned. The eastern side has been included in my quest to have the River, its environs (BANKS) including Mammy Johnson grave site protected.

The eastern side is the environs, therefor it must be relevant and included as an “area of interest”.

Consideration of the above Comment

The Project does not include the irrigation of land located outside of ML 1427 and MLA 1, including land located to the east of Mammy Johnsons River. This area is therefore not considered to be part of the study area which is defined in Section J1.1 as comprising ML 1427 and MLA 1 (Figure J-2).

Notwithstanding, as described in Section J4.1, the area to the east of Johnsons Creek Road was surveyed and the known Aboriginal heritage site in this area (i.e. Mammy Johnson’s Grave) was inspected during the August 2009 fieldwork.

Comment

“The Worimi (LALC) are watching the process and wish to be kept informed of all outcomes”.

Consideration of the above Comment

As outlined above, relevant comments received from registered stakeholders throughout the ACHA process (including comments on the draft ACHA) have been detailed and considered and/or addressed as part of this assessment.

Further, a full copy of the EA would be provided to each of the registered stakeholders for their information, review and comment as part of the public exhibition period of the EA.

Comment

“Worimi people are connected to the land and rivers. That means the land underneath the water, therefore the river itself is culturally significant also. The desecration and destruction of the Mammy Johnson River would be a great loss”.

Consideration of the above Comment

The Maaiangal Group provided supporting information from a variety of sources to augment their comments on the draft ACHA. This supporting information related to the cultural value of water and indigenous peoples’ rights to water and was seen to further evidence the particular cultural significance of the Mammy Johnsons River.

The cultural significance of the study area and known Aboriginal sites within the study area is assessed in Section J7.2. Section J7.2 indicates that the Mammy Johnsons River is considered to be a natural landscape feature/resource of particular cultural significance and has been revised to incorporate the above comment received from the Maaiangal Group.

Due to its particular cultural significance, the potential impacts of the Project on the Mammy Johnsons River are considered in Section J8. While Mammy Johnsons River is located outside of the study area, it has been considered in the Project management and mitigation measures as described in Section J9.

Comment

“In any correspondence with Duralie Coal Pty Ltd (DCPL) I have always addressed myself as an Aboriginal person of the MAAIANGAL GROUP of the Worimi Nation. I am affiliated with the Group. I would appreciate it if, registration as a stakeholder is written in any paperwork in such a manner, to reflect the correct information. I did state that even though I was using my Johnson Creek Conservation Committee (JCCC) membership, it was only as an insurance coverage necessity. I am always speaking on behalf of the MAAIANGAL GROUP”.

Consideration of the above Comment

On the basis of the above comment, the ACHA has been revised to indicate that Nurpula Stephenson has acted as a representative of the Maaiangal Group and that any comments provided by Nurpula Stephenson have been provided on behalf of the Maaiangal Group.

Comment

“The new extensions (168-99 MOD 6) which would include further threats to the River, such as cracking the river bed. Regardless of the precise reading of (DCPL) blast monitoring system, it is of no use to the Aboriginal people if permanent damage is done. Cracking the riverbed is a common problem when mine companies are mineing less than 20 klms from a river or its tributary. It is absolute folly to risk such devastating consequence!”

Mammy Johnson gravesite will be adversely affected by further vibrations from blasting and dust particles settling on the surface, should the extension be approved”.

Consideration of the above Comment

Section J8 provides an assessment of potential impacts of the Project on known sites proximal to the study area, including an assessment of potential blasting impacts on Mammy Johnson’s Grave and impacts on the Mammy Johnsons River.

As described in Section J8, ground vibration levels have been calculated by Heggies Pty Ltd for the Mammy Johnson’s Grave site. These calculations indicate that the ground vibration (95% exceedance) level for the largest proposed Project open pit mining MIC (1,500 kg) would be approximately 2 mm/s at Mammy Johnson’s Grave.

This vibration estimate is well below the maximum ground vibration level (i.e. 5 mm/s) recommended by AS 2187.2-1993 *Explosives – Storage, Transport and Use – Part 2 Use of Explosives* (AS 2187.2) for structures that may be particularly susceptible to ground vibration. While this criteria is not applicable to a site such as Mammy Johnson’s Grave (i.e. the grave site is not considered to be a vibration sensitive building or structure), this comparison provides an indication that the Project open pit blasting vibration levels at the Mammy Johnson’s Grave are predicted to be well below this criteria.

As indicated in Section J8, the Mammy Johnson’s Grave is not considered to be particularly sensitive to potential indirect effects (e.g. erosion and sedimentation).

The potential impacts of the Project on the Mammy Johnsons River are discussed in Section J8. As described in Section J8 and detailed in Appendix B of the EA, there is limited potential for significant hydraulic connection between the Project open pits and the Mammy Johnsons River. Nonetheless, Mammy Johnsons River has been considered in the Project management and mitigation measures as described in Section J9.

Norma Fisher made the following comments:

Comments

“Above all we seek an extension of time to be able to seek independent historical, anthropological, archaeological and legal advice.

... We are available to meet with your representatives at a mutual time to discuss possible ways forward”.

Consideration of the above Comments

The draft ACHA was provided to each of the registered stakeholders on 1 October 2009. Comments on the draft ACHA were requested by 26 October 2009. Following this, a supplementary letter was sent to the registered stakeholders 13 October 2009 advising that comments on the draft ACHA would be received until 30 October 2009. The registered stakeholders were advised that comments on the draft ACHA could be provided verbally or in writing.

DCPL attempted to contact Norma Fisher on several occasions in the week commencing 5 October 2009 to confirm that the draft ACHA had been received and to discuss any comments or queries.

DCPL again attempted to contact Norma Fisher in the week commencing 26 October 2009 as a reminder that comments on the draft ACHA could only be incorporated and/or considered for the purposes of the ACHA if they were received by 30 October 2009, to discuss any queries and to invite verbal comments on the draft ACHA if easier.

Comment

“We wish to draw your attention to the section of the report that covers the post-contact history. This is only one page and makes no mention of the Aboriginal families that continue to reside in the district, even though the history of the marriage of James Bragg to the local Aboriginal woman Charlotte is well documented. And also we believe that the history of this family is well known in the district and is made obvious by the prominence of Mrs Norma Fisher who is active in local Aboriginal organizations.

While we are interested in preserving good relationships with your company into the future we cannot stand by while the history of our family is being ignored. If this continues it is easy to ignore the custodianship rights of the descendents of James and Charlotte Bragg and the impact on us of the mining project. Therefore this situation needs to be redressed immediately”.

Consideration of the above Comment

Section J3.1 has been updated on the basis of the above comments to indicate that the descendents of James and Charlotte Bragg continue to reside in the district and are active in local Aboriginal organisations.

Comment

In their written comments on the draft ACHA, the Barrington-Gloucester-Stroud Preservation Alliance Inc., Garigal Aboriginal Community Inc., Johnsons Creek Conservation Committee and the Maaialang Group commented on the existing hydrological, meteorological, noise, blasting, air quality, fauna and aquatic ecology characteristics of the Project area and also potential impacts of the Project on these aspects. Comments were also raised in relation to the re-establishment of Coal Shaft Creek. A full copy of the written comments provided by registered stakeholders is provided in Attachment JA.

Consideration of the above Comment

Potential impacts of the Project on these issues are assessed in the relevant technical appendices of the EA, listed above and summarised in the main text of the EA. A full copy of the EA would be provided to each of the registered stakeholders for their information, review and comment as part of public exhibition of the EA.

J6. SURVEY RESULTS

J6.1. Aboriginal Heritage Sites

Nine Aboriginal heritage sites were identified within the study area including three isolated artefacts, four scarred trees, one open artefact scatter and one scarred “Honey Tree” (Figures J-2 and J-3 and Table J-1).

The approximate location of all known Aboriginal heritage sites within the study area is provided on Figures J-2 and J-3. Table J-1 indicates that all sites within the study area were inspected by the registered stakeholders during the August 2009 fieldwork.

Site Code (Refer Figures J-2 and J-3)	Site Name	Site Type	Sites Inspected During August 2009 Fieldwork
DM2	Duralie Mine 2	Isolated Artefact	✓
DM3	Duralie Mine 3	Scarred Tree	✓
DM4	Duralie Mine 4	Scarred Tree	✓
DM5	Duralie Mine 5	Scarred Tree	✓
DM6	Duralie Mine 6	Isolated Artefact	✓
DM9	Duralie Mine 9	Open Artefact Scatter	✓
DM10	Duralie Mine 10	Scarred Tree	✓
DM11	Duralie Mine 11	Isolated Artefact	✓
38-1-0033	“Honey Tree” (002)	Scarred Tree - Honey Tree	✓

Table J-1: Known Aboriginal Heritage Sites Within the Study Area

In addition, four Aboriginal heritage sites (viz. one isolated artefact, two open artefact scatters and one burial site) have been recorded within the immediate surrounds of the study area (i.e. within approximately 1 km). The location of these sites is also shown on Figures J-2 and J-3 and relevant site information is provided in Table J-2.

Attachment JE provides a copy of detailed information on each of the Aboriginal heritage sites identified within the study area and surrounds.

AHIMS Site No.	Site Code (Refer Figures J-2 and J-3)	Site Name	Site Type	Sites Inspected During August 2009 Fieldwork
N/A	DM1	Duralie Mine 1	Isolated Artefact	-
N/A	DM7	Duralie Mine 7	Open Artefact Scatter	✓
N/A	DM8	Duralie Mine 8	Open Artefact Scatter	✓
38-1-0034	38-1-0034	Mammy Johnson's Grave	Open site – burial site	✓

Source: DECCW (2009).

N/A Information not yet registered on the AHIMS database.

Table J-2: Known Aboriginal Heritage Sites Within the Study Area Surrounds

A brief summary description of each of the known Aboriginal heritage sites within the study area and surrounds is provided below. Representative photographs of the known Aboriginal heritage sites within the study area and surrounds (with the exception of DM1) are provided in Plates J-1 to J-25.

DM1

DM1 is an isolated artefact site which contains a single basalt flake. The site is located on the western side of Cheerup Road, on an east facing, moderately inclined slope to the west of an ephemeral drainage line running parallel to the road.

DM2

DM2 is an isolated artefact, an irregular shaped river cobble (9.7 x 6.2 x 5.4 mm). Crushing is evident at one end of the artefact with black patina on one side of artefact assumed to be from a fire event. DM2 is located on the north side of Duralie Road, on the north-western side of a small spur overlooking a first order unnamed tributary to the Mammy Johnsons River.

DM3

DM3 is a mature Yellow Box tree with a scar located on the main trunk. The scar is symmetrical ovoid in shape and faces 300 degrees (°). The scar length is approximately 1.3 m in length and 18 cm in width. The scar is located approximately 40 cm from the ground. Glen Jonas indicated that the markings on scarred trees generally did not extend all the way to ground level, in order to avoid insects/diseases entering the tree. The height of the tree is estimated to be approximately 25 m and the circumference is approximately 3.5 m. DM3 is situated on a gentle crest overlooking the Mammy Johnsons River.

DM4

DM4 is a mature Yellow Box tree with a scar located on the main trunk. The scar is symmetrical ovoid in shape and faces 50°. The scar is approximately 1 m in length and 10 cm in width. The scar is located approximately 80 cm from the ground. The tree has an estimated height of approximately 30 m and a circumference of approximately 2.8 m. DM4 is situated on a gentle slope overlooking the Mammy Johnsons River, and is situated slightly north-west of DM3.

DM5

DM5 is a mature Yellow Box tree with a scar located in an elevated position on the main trunk. The scar is a symmetrical ovoid, however, there is a slight reduction in scar width in the upper portions. The scar face is deteriorated and a growth is present at the top of the scar. The scar is oriented at approximately 0°. The height of the tree is approximately 25 to 30 m.

DM6

DM6 is an isolated artefact, a flaked piece of grey fine-grained siliceous material. The artefact has a 25% reef cortex to dorsal surface and is potentially a bipolar flake. The location of DM6 is consistent with the predicative model. DM6 is situated on a ridgeline located immediately west of the Mammy Johnsons River and parallel to the rivers in orientation. The ridgeline provides views of the Mammy Johnsons River to the east and of Coal Shaft Creek and the upper catchment to the west.

DM7

DM7 is an open artefact scatter which consists of six lithic pieces. There is some potential for more artefacts to be present within the surrounding deposits. The raw materials recorded include red silcrete and jasper. The artefacts include one horsehoof core, three flaked pieces and two flakes. DM7 is located in an eroded area beside a small tributary that drains west to the Mammy Johnsons River.

DM8

DM8 is an open artefact scatter which contains an extensive artefact scatter. Only a small percentage of lithic pieces were recorded and the site was estimated to contain more than 25 surface artefacts.

One artefact recorded was a river cobble with evidence of flaking at one end and crushing at the other. This artefact was considered to be an axe blank.

A jasper core was recorded with five negative scars all from a single platform. The platform is the margin of a previous scar and therefore it is considered that the core has been rotated. The platform contains evidence of striking. The angle of the platform is >90°, and it is therefore assumed that the core is discard.

A jasper core was recorded with three negative scars and a single platform. Two of the scars are full flake scars and the other is a truncated scar.

A broken core was located which contained two negative flake scars and a single platform.

DM8 is situated a slight distance from the top of a spur line in the upper reaches of a small tributary. Given the gradient at the site, it is probable that any deposits are not in their original context as a result of natural fluvial processes. Accurate predictions of the sub-surface potential at this site would depend upon the extent of this natural disturbance.

DM9

DM9 is an open artefact scatter, consisting of three artefacts. The artefacts comprise a flaked piece of quartzite (approximately 6 x 4 cm) and two pieces of red silcrete (approximately 5 x 5 cm and 8 x 5 cm).

In their report provided to DCPL (dated September 2009) (Attachment JA), Minimbah and District Elders Group Inc. indicated that a few scattered undetermined stone artefacts were recorded along the exposed surface areas that follow the ridge containing the stand of dry sclerophyll forest and again close to the southern extent of this survey, close to Duralie Road. Minimbah and District Elders Group Inc. indicated that the artefact recordings could be warranted as PADs.

One open artefact scatter (i.e. DM9) is known from this area. As described above, this recording is located on a ridgeline characterised by skeletal soils (e.g. approximately 5 to 10 cm in depth) and is therefore not considered to be significant a PAD as it has insufficient stratigraphic integrity and very limited research potential.

DM10

DM10 is a scarred tree. The scar is situated approximately 3.3 m from the base of the tree, and the approximate dimensions of the scar are 0.5 x 1 m. The circumference of the tree is approximately 3.2 m.

In their report provided to DCPL (dated September 2009) (Attachment JA), Minimbah and District Elders Group Inc. described the results of the field survey undertaken on 25 August 2009 within the western portion of MLA 1 and indicated that one incidence of Aboriginal cultural material evidence was detected (i.e. DCMST-1). Based on the mapping and site description provided for DCMST-1 it is considered equivalent to DM10. Minimbah and District Elders Group Inc. indicate that DCMST-1 (DM10) is a modified tree and is additionally deemed to be a PAD due to its visible surface content.

DM10 is located on a ridgeline characterised by skeletal soils (e.g. approximately 5 to 10 cm in depth). This site is not considered to be a significant PAD as it has insufficient stratigraphic integrity and very limited research potential.

DM11

DM11 is an isolated artefact, situated in an access track. The artefact is quartzite and is approximately 5 x 5 cm in size.

38-1-0033

38-1-0033 is a scarred “Honey Tree”, a mature Broad-leaved Ironbark with the scarred evidence of up to approximately three footholes located in an ascending spiral around the trunk and approximately two intact foot peg/s. As indicated in Section J5.2, the consensus is that the “Honey Tree” has had timber pieces inserted into the trunk in a spiral pattern to allow someone to scale the tree and access the crown – possibly to collect honey (DCPL, 2008b). Section J3.4 indicates that, on the basis of comments received from the registered stakeholders on the draft ACHA, that there is some contention as to the origin of the modification to the “Honey Tree” (e.g. assertion that the modification may be non-Aboriginal in origin). Attachment JA provides a full account of comments received from registered stakeholders.

The “Honey Tree” is located between the eastern extent of the study area and the Main Northern Railway Line. DCPL has erected a painted post and rail fence to protect the site and signage on the fence directs persons not to enter the area.

38-1-0034

38-1-0034 is an open (burial) site located on the ‘Rannoch’ property, on Johnsons Creek Road. The site is orientated in an east-west direction. The site grave site is rectangular in shape (approximately 1.2 x 2.0 m) and sandstone blocks (generally rectangular or square in shape) mark the perimeter of the grave. The largest sandstone block has been placed at the western end of the grave site, and would probably have supported a headstone. This rock features a number of small indentations on its uppermost surface. The site has been fenced and bordered with timber sleepers and parts of the site have been covered with garden mulch and small plants.

In addition to the sites described above, the AHIMS database indicates that a further site (38-1-0027) is located within the study area, adjacent to site 38-1-0033 (the Honey Tree). It is understood that this AHIMS record was related to scarred trees listed on the AHIMS database in 1998. Leon and Feeney (1998) indicated that the trees in question were inspected during a site inspection conducted by the Karuah and Forster Local Aboriginal Land Councils and NPWS on 12 November 1998 and concluded that the trees were not of Aboriginal origin.

It is understood that the NPWS advised DCPL at that time that the scarred trees would remain on the AHIMS system, however, their listing was considered to be erroneous as the trees in question had been inspected by the Karuah and Forster Local Aboriginal Land Councils Land Council and NPWS and the scars were determined not to be Aboriginal in origin. It is understood that the area in which the trees were located was subsequently cleared and developed as a component of the approved DCM. On this basis, this site has not been considered further in this report.

J7. ARCHAEOLOGICAL AND CULTURAL SIGNIFICANCE ASSESSMENT

J7.1. Archaeological Significance

The archaeological significance ratings for each of the Aboriginal heritage sites within the study area are presented in Table J-3. Attachment JF provides the individual significance ratings for each of the four criterion (i.e. scientific, aesthetic, social and historical) for each Aboriginal heritage site within the study area that were used to determine the overall ratings provided in Table J-3.

Archaeological Significance Rating	Site Code	Number of Sites
High	38-1-0033	1
Moderate	DM2, DM3, DM4, DM5, DM9, DM10	6
Low	DM11, DM6	2

Table J-3: Archaeological Significance Ratings for Known Aboriginal Heritage Sites within the Study Area

Within the study area, one Aboriginal heritage site is deemed to be of high archaeological significance, six Aboriginal heritage sites are deemed to be of moderate archaeological significance and two sites are deemed to be of low archaeological significance (Table J-3).

J7.2. Cultural Significance

Consultation with the registered stakeholders regarding the cultural significance of the study area and known Aboriginal heritage sites with the study area was undertaken throughout the cultural heritage assessment process.

The following comments were made by the registered stakeholders regarding cultural significance:



The Johnson Creek Conservation Committee indicated that:

- *“Local Aboriginal communities consider healthy rivers with natural flows and good biodiversity as being very important”.*
- *“Mammy Johnsons gravesite has been located in a close vicinity to Mammy Johnsons River and it is believed Mammy Johnson worked the river and environs and travelled long distances to deliver not only Aboriginal babies but also European babies”.*
- *“The Australian Agricultural Company provided the burial place and headstone in recognition of Mammy Johnson’s highly respected role as a midwife during Stroud’s early development”.*
- *“Why has Mammy Johnsons Grave never been acknowledged in any Duralie Coal Archaeology studies as this holds a high significance to the project area and the Aboriginal Communities?”*
- *“We believe the burial of Mammy Johnson adjacent to the river makes Mammy Johnsons River a sacred river and many people believe that Mammy Johnsons spirit remains in the river”.*

- *“We believe Mammy Johnsons River & environs are significant and must be PROTECTED at all cost”.*
- *“The project area is particularly significant to community members of Aboriginal descent because of their traditions, observances, lore, customs, beliefs and history. We also believe it provides evidence of the lives and existence of Aboriginal people before European settlement”.*
- *“Considering the fact that 3 open camp sites were found & identified in 1998 & a scarred honey tree was also found & identified by Delica Arnold 1998, then Mammy Johnsons Grave was later located & identified as a Burial Site by Dianne Nurpula Stephenson and that artefact scatter site, isolated artifacts and several scarred trees have since been located & identified, we believe this is proof that aboriginal people extensively used this area and therefore it is of high cultural significance to the aboriginal people”.*



The Maaialgal Group indicated that:

- *“These are special and sacred places, but Aboriginal people do not wish to reveal such places, for fear of desecration and/or because it is mens or womens secret business, of which they are not inclined to disclose. It is evident to most people, you can’t just point to one place on the rivers or lands; they were the living quarters of our ancestors. This River and its environs including the burial site of Mammy Johnson, must be made a “sacred place” and protected from desecration from further mining along the river systems”.*
- *“Elders of the Worimi and Local Aboriginal Land Councils have made looking after country a priority of Aboriginal culture. It is their tribal land given to them by their Ancestors. It is a living culture with a beautiful heritage, the only one of its type. Anthropologists have confirmed our culture is ANCIENT. It is in their role as a representative of their people to protect any Cultural Heritage that may be at a site; in or on the land they are caretaking. The Local Aboriginal Land Councils must abide by rules stipulated in their regulations”.*
- *“Worimi people are connected to the land and rivers. That means the land underneath the water, therefore the river itself is culturally significant also”.*



The Garigal Aboriginal Community Inc. indicated that the Mammy Johnson’s Grave is significant to Aboriginal people and that the Project area holds a high significance to Aboriginal people.



As described in Section J6, the Minimbah and District Elders Group Inc. described a site recorded during the August 2009 fieldwork as ‘DCMST-1’ (equivalent to DM10). Minimbah and District Elders Group Inc. indicate that this site *“is an especially important icon that can provide educational qualities for the local Aboriginal community as well as educational bodies”.*



Carol Ridgeway-Bisset indicated that numerous bush medicine plants were located proximal to the DM2 site.



The Maaialgal Group indicated that Aboriginal people often used to find/make holes in trees to hide or store objects and Aboriginal people tended to camp near paperbark trees.



The Maaialgal Group indicated that Aboriginal people used to wrap their dead in bark from paperbark trees. The bodies were then placed high in a tree, buried or put in caves.

On the basis of these comments, it is considered that the general landscape surrounding the study area is of cultural significance and that the Mammy Johnson's Grave and DM10 are sites of particular cultural significance. The Mammy Johnsons River is considered to be a natural landscape feature/resource of particular cultural significance.

Due to their particular cultural significance, the potential impacts of the Project on the Mammy Johnsons River, the Mammy Johnson's Grave and DM10 are considered in Section J8. Although Mammy Johnsons River and Mammy Johnson's Grave are located outside of the study area, these three sites/features have been considered in the Project management and mitigation measures as described in Section J9.

J8. NATURE OF POTENTIAL IMPACTS FROM THE PROJECT

Potential Impacts to Known Sites in the Study Area

Of the nine Aboriginal heritage sites located within the study area (Table J-1), four may be potentially subject to direct or indirect disturbance.

Of these, two sites (DM5 which is a scarred tree and DM11 which is an isolated artefact) are located within the proposed open pit or the waste rock emplacement areas (Figure J-2) and would therefore be subject to direct Project disturbance associated with mining activities.

Sites located outside of the proposed open pits and waste emplacement area (e.g. DM2 and DM6) could also be directly disturbed as a result of the development of Project ancillary infrastructure (e.g. water management infrastructure and storages, access roads, etc.), however this would be avoided where practicable (Section J9).

The types of sites that have been identified in the study area (i.e. isolated artefacts, open artefact scatters and scar trees) are not considered to be particularly sensitive to potential indirect effects (e.g. erosion or blasting vibration) and hence the potential impacts of the Project on these sites would be largely limited to direct effects. Notwithstanding, management measures for erosion, sedimentation and blasting are described in Section J9 and would be applied at the Project, where relevant.

Potential Impacts to Known Sites and Key Features Proximal to the Study Area

The Mammy Johnsons River is located outside of the study area, but in close proximity to the east (Figure J-2). A number of Aboriginal representatives indicated in the field and in written correspondence that the Mammy Johnsons River is considered to be a natural landscape feature/resource of particular cultural significance to Aboriginal people.

Based on operational experience at the DCM and the previous groundwater assessments conducted for the *Duralie Coal Environmental Impact Statement* (DCPL, 1996), there is limited potential for significant hydraulic connection between the Project open pits and the Mammy Johnsons River. Comprehensive surface water and groundwater assessments have been undertaken for the Project and are provided in Appendices A and B of the EA, respectively, to assess the potential impacts of the Project on local and regional groundwater and surface water resources. The results of groundwater modelling undertaken (Appendix B of the EA) for the Project are consistent with the findings of DCPL (1996).

The tributaries of Mammy Johnsons River located within the study area (i.e. headwater sections of Coal Shaft Creek and an unnamed tributary) are best described as degraded and incised ephemeral drainage lines (Cenwest Environmental Services and Resource Strategies, 2009b) (Appendix F of the EA). Potential impacts of the Project on the Mammy Johnsons River and its tributaries are assessed in detail in Appendix A of the EA. As described in Section J2.2, the original alignment of Coal Shaft Creek has been diverted as a component of the approved DCM and the diversion comprises a series of dams and drainage structures to the north and west of the current mining operation (Figure J-2). Section J1.2 indicates that the Project would include establishment of permanent Coal Shaft Creek alignment adjacent to the existing DCM mining area. The portions of Coal Shaft Creek and the unnamed tributary located within the study area were included in the Aboriginal heritage survey and site inspection undertaken in August 2009 and no Aboriginal heritage sites were recorded in these tributaries.

Notwithstanding, these areas would be subject to pre-clearance inspections in consultation with the Aboriginal community as described in Section J9.

DCPL currently employs a site water management system to intercept and divert runoff from undisturbed and rehabilitated landforms around mining activities and to collect, treat (where necessary) and irrigate excess mine water within ML 1427 (DCPL, 2008c). Measures to manage potential surface water impacts associated with the Project would be detailed in the surface water assessment.

Further, the Project does not include the irrigation of land located outside of ML 1427 and MLA 1, including land located to the east of Mammy Johnsons River. This area is therefore not included in the study area.

Blasting would be used as a component of the Project open pit mining operations. Blasting generates ground-borne vibration emissions. Ground vibration levels would be highest at the source (i.e. within the open pit) and would decrease relative to distance from the source.

Ground vibration levels have been calculated by Heggies Pty Ltd for the Mammy Johnson's Grave site. These calculations indicate that the ground vibration (95% exceedance) level for the largest proposed Project open pit mining MIC (1,500 kg) would be approximately 2 mm/s at Mammy Johnson's Grave.

This vibration estimate is well below the maximum ground vibration level (i.e. 5 mm/s) recommended by AS 2187.2-1993 *Explosives – Storage, Transport and Use – Part 2 Use of Explosives* (AS 2187.2) for structures that may be particularly susceptible to ground vibration. While this criteria is not applicable to a site such as Mammy Johnson's Grave (i.e. the grave site is not considered to be a vibration sensitive building or structure), this comparison provides an indication that the Project open pit blasting vibration levels at the Mammy Johnson's Grave are predicted to be well below this criteria.

As described above, the "Honey Tree" (38-1-0033) located to the east of the existing waste rock emplacement within a fenced and signed enclosure to reduce the risk of accidental damage. The remaining open sites that have been identified outside of, but in close proximity to, the study area (e.g. artefact scatter sites and isolated artefacts) could potentially be subject to accidental disturbance during ongoing exploration and general land management activities.

The types of sites that have been identified within the study area surrounds (i.e. isolated artefact, open artefact scatters and open site – burial site) are not considered to be particularly sensitive to potential indirect effects (e.g. erosion and sedimentation).

Recommended management and mitigation measures are provided in Section J9.

J9. MANAGEMENT AND MITIGATION MEASURES

Based on the known and predicted Aboriginal heritage values within the study area, it is concluded that impacts to Aboriginal heritage as a result of the Project can be effectively managed or mitigated through the following actions and strategies.

Surface Disturbance

It is recommended that the following measures be undertaken to manage the impact of surface disturbance on Aboriginal heritage sites within the study area:

- ✿ DCPL maintain a record of known sites and mark these sites on site plans and relevant Project documentation and implement a protocol for surface works to reduce the risk of accidental damage to known sites.
- ✿ Where practicable, known Aboriginal sites be avoided during Project construction works.
- ✿ The “Honey Tree” would continue to be protected within a fenced and signed enclosure to reduce the risk of accidental damage.
- ✿ Where avoidance of known Aboriginal heritage sites is not practicable, site(s) be subject to baseline recording in consultation with representatives of the Aboriginal community prior to disturbance and artefacts salvaged for safekeeping in consultation with the Aboriginal community.
- ✿ Where earthworks are required in close proximity to known Aboriginal heritage sites, the sites be demarcated with temporary flagging tape or another suitable method to reduce the risk of accidental damage during the works.
- ✿ Culturally modified trees located outside of Project disturbance areas be suitably fenced and signed to reduce the risk of incidental damage.
- ✿ If appropriate in the context of the tree condition, culturally modified trees subject to direct surface disturbance (e.g. DM5) be salvaged and a suitable location for the storage and/or display of the salvaged sections be identified and managed in consultation with the Aboriginal community.

It is anticipated that the Aboriginal community would provide advice on the storage of collected artefacts, management of artefacts at the completion of Project activities (e.g. artefact replacement onto the post-mining landscape) and the implementation of management measures for salvaged culturally modified trees.

Blasting Vibration

The DCM Blast Monitoring Program (DCPL, 2007b) contains measures to mitigate the effects of blasting, including the following:

- ✿ Blast design addressing aspects including total charge size, instantaneous charge size, delay between hole explosive initiation, direction of initiation (taking into account potentially affected receivers), type and quantity of stemming material, geology, etc.

- ✿ Adequate preparation of the blast floor (e.g. dozing/grading) to provide an even surface for drilling.
- ✿ Inspection of the blast floor to ensure that there is no significant geological weakness (e.g. fracturing from a previous blast) that may contribute to inadequate containment of explosive energy during blasting.
- ✿ Maintaining the integrity of the stemming material such that it is not contaminated with foreign matter such as clay which may result in the explosive materials being insufficiently stemmed.

The Blast Monitoring Program sets out the requirements for blast monitoring, and it is recommended that blast monitoring continues to be undertaken throughout the life of the Project in accordance with the requirements of the Project Approval.

General Management Measures

It is recommended that the following general approach be taken to manage Aboriginal cultural heritage during the life of the Project:

- ✿ Ongoing consultation with the Aboriginal community over the life of the Project. Appropriate Aboriginal representation would occur during archaeological fieldwork (e.g. collection of artefacts prior to construction).
- ✿ DCPL to provide opportunities for Aboriginal community members to access identified Aboriginal sites located on DCPL-owned land (e.g. for personal reasons or as part of scheduled field activities) in accordance with Occupational Health and Safety Requirements.
- ✿ Erosion and sediment control works be undertaken in accordance with the requirements of the Project Approval.
- ✿ Update the irrigation monitoring programme currently in place for the DCM as necessary to address the Project in accordance with the requirements of the Project Approval.
- ✿ Any new sites which may be identified during the development of the Project be registered with the DECCW in consultation with the Aboriginal community.
- ✿ A record of known Aboriginal heritage sites, their status and location be maintained by DCPL.

Aboriginal Cultural Heritage Management Plan

The existing ACHMP (DCPL, 2008b) describes measures that are currently employed at the DCM for the management of surface disturbance activities. These measures include:

- ✿ Provision of guidance on Aboriginal cultural heritage matters to mining employees and contractors who, as a consequence of their roles at site, have the potential to disturb ground, as part of the induction program.
- ✿ Conduct of pre-clearance inspections prior to major construction works.
- ✿ Monitoring of topsoil stripping activities.
- ✿ Protocols in the event of identification of new Aboriginal heritage finds.

- ✧ Measures to be implemented in the event of discovery of human remains.
- ✧ Reporting and communication protocols.

In the event that the Project is approved, it is recommended that the ACHMP be updated to reflect the conditions of the Project Approval and the findings of this assessment.

It is recommended that the ACHMP include the following additional measures:

- ✧ A summary of the legislative framework, including requirements under Part 3A of the EP&A Act.
- ✧ A protocol for consultation with the Aboriginal community over the life of the Project including a course of action to be undertaken in determining appropriate Aboriginal community representation during fieldwork (e.g. pre-clearance salvage and topsoil inspections, baseline recording, monitoring and implementation of mitigation measures).
- ✧ Commitment to fund a study and associated research of Mammy Johnson and her involvement in the region. The study could include an investigation into the location of Mammy Johnson's grave and document Mammy Johnson's story and connection with the local Aboriginal community. The findings of the study could be provided to the local Aboriginal community with the potential to develop interpretative signage, or similar, to be established at a location considered suitable by the Aboriginal community, DCPL and any relevant landowner.
- ✧ If appropriate in the context of tree condition, consideration should be given to the possibility of salvaging culturally modified trees of particular cultural significance (i.e. DM10). A suitable location for storage and/or display of the salvaged sections should be identified and managed in consultation with the Aboriginal community. It is important to acknowledge that this measure has the potential to cause damage to the site and/or its setting, possibly a risk of impact to the site greater than the Project itself. Consideration of such a measure should be undertaken in consultation with the Aboriginal community and the DECCW as part of the ACHMP review process.
- ✧ Updated tables/figures identifying the known Aboriginal heritage sites located within the study area to date and additional detailed information for known sites located within the study area.
- ✧ A program for developing updated site cards and plans and for revising the records for registered sites where necessary.
- ✧ A protocol for managing Aboriginal heritage during the installation/construction of required ancillary surface infrastructure (e.g. surface runoff diversion drains, internal roads etc.). Such a protocol may include: avoidance of known Aboriginal sites and demarcation of known Aboriginal sites where works are required in close proximity to avoid accidental damage; and pre-clearance salvage and topsoil inspections.

J10. REFERENCES

- Ambrose, G.J. 1982. *An ecological and behavioural study of vertebrates using hollows in eucalypt branches*. PhD thesis, La Trobe University, Bundoora, Victoria, Australia.
- Baker, N. 1997. *Test excavation of three areas, Betty's Creek*. Report to Mt Owen Mine, BHP Pty Ltd.
- Bowdler, S. 1970. *Bass Point, the excavation of a south-east Australian shell midden, showing cultural and economic change*. Unpublished B.A. (Hons) Thesis. Sydney University.
- Brayshaw, H. 1981. *Archaeological Survey of the Blue Metal Industries' Coal Mine Sites at Stratford and Wards River*. Report prepared for Dames and Moore.
- Brayshaw, H. 1984. *Appendix 9.1. Aboriginal Heritage 1984 Report*.
- Brayshaw, H. and Byrne, D. 1994. *Stratford Environmental Impact Statement: Updated Archaeological Assessment*. Report to AGC Woodward-Clyde Limited.
- Bureau of Meteorology. 2009. *Climate Data Online*.
Downloaded from: <http://www.bom.gov.au/climate/averages>.
- Burke, H. and Smith, C. 2004. *The Archaeologist's Field Handbook*. Allen and Unwin, Crows Nest.
- Burra Charter. 1999. *The Australian ICOMOS Charter for Places of Cultural Significance*.
- Cenwest Environmental Services and Resource Strategies. 2009a. *Duralie Extension Project Terrestrial Flora and Fauna Assessment*. Report prepared for Duralie Coal Pty Ltd.
- Cenwest Environmental Services and Resource Strategies. 2009b. *Appendix F Duralie Extension Project Aquatic Ecology Assessment*.
- Davies, S. 1995. *An Archaeological Assessment of Walcha-Nundle and Styx River Management Areas Northern Region State Forests of New South Wales*. Report to State Forests Northern Region.
- Department of Environment, Climate Change and Water. 2009. *Aboriginal Heritage Information Management System*. Search Areas: (AMG) 393000, 6435000; 408000, 6435000; 393000, 6417000; 408000, 6417000 (Data received 30 June 2009).
- Department of Environment and Conservation. 1997. *Aboriginal Cultural Heritage Standards and Guidelines Kit*.
- Department of Environment and Conservation. 2004. *National Parks and Wildlife Act 1974: Part 6 Approvals Interim Community Consultation Requirements for Applicants*.
- Department of Environment and Conservation. 2005. *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*.

- Duralie Coal Pty Ltd. 1996. *Duralie Coal Environmental Impact Statement: Volume 1, Text*.
- Duralie Coal Pty Ltd. 2006. *Annual Environmental Management Report Stratford Coal Mine*.
- Duralie Coal Pty Ltd. 2007a. *Annual Environmental Management Report Duralie Coal Mine*.
- Duralie Coal Pty Ltd. 2007b. *Duralie Coal Mine Blast Monitoring Program*.
- Duralie Coal Pty Ltd. 2008a. *Annual Environmental Management Report Duralie Coal Mine*.
- Duralie Coal Pty Ltd. 2008b. *Duralie Coal Mine Aboriginal Cultural Heritage Management Plan*.
- Duralie Coal Pty Ltd. 2008c. *Duralie Coal Mine Site Water Management Plan*.
- ENSR Australia Pty Ltd. 2008. *Gloucester Coal Seam Gas Project Environmental Assessment: Heritage Gloucester to Hexham, NSW*. Report prepared for Lucas Energy.
- ERM Mitchell McCotter Pty Ltd. 1995. *Archaeological Investigation of the Proposed Duralie Open-cut Mine Site at Stroud, NSW*. Report prepared for Duralie Coal Pty Ltd.
- ERM Mitchell McCotter Pty Ltd and AGC Woodward-Clyde Pty Limited. 1996. *Soils and Land Capability*.
- Flood, J. 1995. *Archaeology of the Dreamtime: The story of pre-historic Australia and its people*. Sydney: Angus and Robertson.
- Gay, L. 2000. *Proposed Bowens Road North Project, Stratford, NSW: Assessment of Aboriginal and Non-Aboriginal Heritage*. Report prepared for Resource Strategies.
- Gibbons, P. and Lindenmayer, D. 2002. *Tree Hollows and Wildlife Conservation in Australia*. CSIRO Publishing, Collingwood, Victoria, Australia.
- Gibbons, P., Lindenmayer, D.B. and Tanton, M.T. 2000. Hollow formation in eucalypts from temperate forests in southeastern Australia. *Pacific Conservation Biology* 6, 218–228.
- Gilbert & Associates. 2009. *Duralie Extension Project Surface Water Assessment*. Report prepared for Duralie Coal Pty Ltd.
- Griffith, T. 1992a. *Proposed Optic Fibre Cable Route from Gloucester to Barrington, New South Wales: Preliminary Inspection for Aboriginal Sites and Archaeological Material*. Report prepared for Telecom Australia.
- Griffith, T. 1992b. *Proposed Optic Fibre Cable Route From Stratford to Gloucester, New South Wales: Preliminary Inspection for Aboriginal Sites and Archaeological Material*. Report prepared for Telecom Australia.
- Guilfoyle, D. 2006. *Aboriginal Cultural Heritage Regional Studies: an illustrative approach*. Department of Environment and Conservation NSW.

Harrison, S. A. and Dodson, J.R. 1993. *Climates of Australia and New Guinea since 18,000 B.P.* In Wright, Jr., H.E., Kutzbach, J., Webb, III, T., Ruddiman, W.F., Street-Perrot, F.A. and Bartlein, P.J. (eds.) *Global Climates since the Last Glacial Maximum*. University of Minnesota Press, Minneapolis, pp. 265-293.

Heggies Pty Ltd. 2009. *Appendix C Duralie Extension Project Noise and Blasting Impact Assessment*. Report prepared for Duralie Coal Pty Ltd.

Heritage Computing. 2009. *Duralie Extension Project Groundwater Assessment*. Report prepared for Duralie Coal Pty Ltd.

Heritage Management Consultants Pty Ltd. 2009. *Appendix K Duralie Extension Project Non-Aboriginal Heritage Assessment*. Report prepared for Duralie Coal Pty Ltd.

Horton, D.R. 1996. *Aboriginal Australia Wall Map*. Aboriginal Studies Press, AIATSIS.
Downloaded from: http://www.decs.sa.gov.au/corporate/files/pages/aboriginal_aust/ab_aust_south_east.pdf.

Koch, A. J., Driscoll, D. A. and Kirkpatrick, J. B. 2008. Estimating the Accuracy of Tree Ageing Methods in Mature Eucalyptus oblique Forest, Tasmania [online]. *Australian Forestry*: 71(2): 147-159.

Koettig, M. 1986a. *Test Excavations at Six Locations along the Proposed Pipeline Route between Glennies Creek Dam, Hunter Valley Region, NSW*. A report to the Public Works Department, NSW.

Koettig, M. 1986b. *Assessment of Archaeological Sites along the Proposed Singleton to Glennies Creek Water Pipeline Route and the Reservoir Site at Apex Lookout, Hunter Valley, New South Wales*. Unpublished report for The Public Works Department.

Koettig, M. 1990. *Assessment for Aboriginal sites Vol 3 of the regional study of heritage significance, Central Lowlands Hunter Valley*. Report to the Electricity Commission of NSW.

Koettig, M. 1991. *Survey and test excavations Bulga Lease Authorisation 219*. Report to Saxonvale Coal Pty Ltd.

Kohen, J.L. 1986. *Prehistoric settlement in the western Cumberland Plain: Resources, environment and technology*. Unpublished PHD thesis. Macquarie University.

Kohen, J.L., Stockton, E.D. and Williams, E.D. 1984. Shaws Creek KII Rockshelter: A prehistoric occupation site in the Blue Mountains piedmont, eastern New South Wales. *Archaeology and Physical Anthropology in Oceania* 19: 57-93.

Kuskie, P.J. 1993a. *Further Archaeological Investigations of the Proposed Route of Optus Communications' Fibre Optic Cable Between Gloucester and Port Macquarie, NSW*. Report prepared for Landscan Pty Ltd.

Kuskie, P.J. 1993b. *Further Archaeological Investigations of the Proposed Route of Optus Communications Fibre Cable Between Wyong and Gloucester*.

Kuskie, P.J. 2004. *An Aboriginal Heritage Assessment of “Investigation Area C” at Thornton North, Lower Hunter Valley, New South Wales*. A report to Beechwood Homes and CPG Estates

Lampert, R.J. 1971. *Burril Lake and Currarong*. In *Terra Australis* 1. Department of Prehistory. RSPacStuds. ANU, Canberra.

Leon, M.J. 1998. *National Parks & Wildlife Service Aboriginal Sites Investigation of Gloucester Tops Quarry 25th May 1998*.

Leon, M.J. and Feeney, D. 1998. *Duralie Coal Mine Proposal Aboriginal Sites Investigation of Coal Shaft Creek 12 November 1998*.

Long, A. 2005. *Aboriginal Scarred Trees in New South Wales*. Department of Conservation NSW: Hurtsville.

Marquis-Kyle, P. and Walker, M. 2004. *The Illustrated Burra Charter: Good Practice for Heritage Places*. Australia ICOMOS: Victoria.

Mary Dallas Consulting Archaeologists. 1998. *Archaeological Survey of a Gravel Quarry at Gloucester Tops, in Barrington Tops State Forest*. Report to the Gloucester Sub-District Office NSW National Parks & Wildlife Service.

McCardle Cultural Heritage Pty Ltd. 2008. *Proposed Further Development of the Duralie Coal Mine: Indigenous Archaeological Assessment*. Report prepared for Gloucester Coal Pty Ltd.

McCarthy, F.D. 1948. The Lapstone Creek excavation: Two culture periods revealed in eastern NSW. *Records of the Australian Museum*. 22: 1-34.

McDonald, J. 1992. *The Archaeology of Angophora Reserve Rock Shelter*. Environmental Heritage Monograph Series No. 1, NPWS.

McDonald, J. 2005a. *Archaeological Salvage Excavation of Site CG1 (NPWS* 45-5-2648), at the corner of Charles and George Streets, Parramatta, NSW, January 2005*. Report prepared for Meriton Apartments Pty Ltd.

McDonald, J. 2005b. *Archaeological Salvage Excavation of Site RTA-CG1, 109-113 George Street, Parramatta, NSW, October 2005*. Report prepared for Landcom.

McDonald, J. 2006. *Archaeological Salvage Excavation of Site CG3, 101A-105 George Street, Parramatta, NSW, May 2006*. Report prepared for Rahi Developments Pty Ltd.

McDonald, J. 2007. *A Pleistocene Sand Sheet in Downtown Parramatta: Indigenous Archaeology Below the Pavement*. Abstract of paper presented at the Australian Archaeological Association's "New Ground" Conference, Sunday 23 September 2007.

Megaw, J.V.S. 1965. Excavations at the Royal National Park, NSW. A first series of radiocarbon dates from the Sydney district. *Archaeology and Physical Anthropology in Oceania* 35(3): 202-207.

Mulvaney, J. and Kamminga, J. 1999. *Prehistory of Australia*. Allen and Unwin, Crows Nest.

Nanson, G.C., Young, R.W. and Stockton, E. 1987. Chronology and paleoenvironment of the Cranebrook Terrace (near Sydney) containing artefacts more than 40,000 years old. *Archaeology and Physical Anthropology in Oceania* 22(2): 72- 78.

National Archives of Australia. Undated. *Pathways*. Downloaded from:
<http://www.foundingdocs.gov.au/pathways.asp>. Data downloaded 31 August 2009.

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

National Parks and Wildlife Service. 1998a. *In Sad but Loving Memory: Aboriginal Burials and Cemeteries of the Last 200 Years in NSW*.

National Parks and Wildlife Service. 1998b. *Standards For Archaeological Practice in Aboriginal Heritage Management*. In NPWS. *Aboriginal Cultural Heritage Standards & Guidelines Kit*.

South Australian Museum. Undated. *Tribal Boundaries*. Downloaded from:
http://www.samuseum.sa.gov.au/page/default.asp?site=2&page=TIN_Tribal&level=3&code=4&item=E5#.

Stockton, E.D. and Holland, W.N. 1974. Cultural sites and their environment in the Blue Mountains. *Archaeology and Physical Anthropology in Oceania* 9: 36-64.

Tindale, N. 1974. *Tribal Boundaries in Aboriginal Australia*. Australian Institute of Aboriginal Studies. Four Map series 1:2,500,000.

Veness and Associates Pty Limited. 1996. *Soil Sampling Program Duralie Coal December 1996*.

Wafer, J. and Lissarrague, A. 2008. *A Handbook of Aboriginal languages of New South Wales and the Australian Capital Territory*. Murray Aboriginal Language and Culture Co-operative, Nambucca Heads.

Whitford, K.R. 2002. Hollows in jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) trees I. Hollow sizes, tree attributes and ages. *Forest Ecology and Management* 160: 201–214.

Wright, R.V.S. 1997. *Stone Tools as Cultural Markers: Change, Evolution and Complexity*. Prehistory and Material Cultural Series No. 12, AIAS, Canberra.

PLATES



Plate J-1: DM2 - General Location



Plate J-2: DM2 - River Cobble



Plate J-3: DM2 - View of Crushing on River Cobble

Plate J-4: DM3



Plate J-5: DM3 – Close-up View of Scar



Plate J-6: DM4



Plate J-7: DM4 – Close-up View of Scar



Plate J-8: DM5 – General Location



Plate J-9: DM5





Plate J-10: DM6 - General Location



Plate J-11: DM6 - View of the Dorsal Surface of Grey Fine-grained Silcrete Artefact



Plate J-12: DM6 - View of the Ventral Surface of Grey Fine-grained Silcrete Artefact



Plate J-13: DM7 – General Location



Plate J-14: DM7 - Artefacts and Ochre Recorded



Plate J-15: DM8 – General Location



Plate J-16: DM8 – Pan view

Note: DM8 is located within the exposure surrounding the saplings in the mid-left of the image.



Plate J-17: DM8 - Selection of Artefacts Recorded



Plate J-18: DM9 - Artefact



Plate J-19: DM9



Plate J-20: DM10 – General Location



Plate J-21: DM10 – Close-up View of Scar



Plate J-22: DM11 - Artefact



Plate J-23: 38-1-0033 ("Honey Tree") – General Location



Plate J-24: 38-1-0033 ("Honey Tree")



Plate J-25: 38-1-0034 (Mammy Johnsons Grave)

ATTACHMENT JA:

FORMAL CORRESPONDENCE FROM REGISTERED STAKEHOLDERS



John Trotter
Environmental Manager- Duralie Coal Pty Ltd
PO Box 168
GLOUCESTER NSW 2422

COMMENTARY ON DRAFT ABORIGINAL HERITAGE ASSESSMENT-DURALIE COAL MINE PROJECT

I, Jane Stevenson, took part in the Aboriginal Cultural Heritage Assessment Survey carried out for Duralie Coal Pty Ltd (DCPL) on 25th, 26th and 27th August 2009. My colleague David Hare-Scott also participated and we were present on behalf of the Barrington-Gloucester-Stroud Preservation Alliance (the Alliance). I have received the Draft Aboriginal Cultural Heritage Assessment and I have identified that I was present at the site of DM7, DM8, DM9, DM10, DM11, Mammy Johnson's grave and the Honey Tree (38-1-0033). I assume that David Hare-Scott was present at other sites discovered during the three days of the survey.

I submit the following comments in page order of the draft assessment:

Page 4, Re-establishment of Coal Shaft Creek.

I note that re-establishment of the creek is to be undertaken at a future date. I did not see Coal Shaft Creek in its original form, I have only seen photographs taken since its conversion into a concrete drain. I hope that any re-establishment will be undertaken with the sincere intention of returning it as closely as possible to its original state. No matter how well it is done it will take many years for the creek eco-system to re-establish itself and I hope the re-establishment is fully successful.

Page 17, Previous Archaeological Investigations have been carried out on various areas owned by DCPL. It appears that very few cultural items were discovered during investigations carried out since 1981. I was pleased that during my own time with the survey several items and sites were discovered and recorded.

I was surprised that the artefacts discovered by the party to which I was attached during the August 09 survey were left in situ, which seems to me to leave those artefacts vulnerable to damage or loss. I note, however, that artefacts vulnerable to damage during the Project will be collected by an archaeologist for safekeeping (page 47) and I am pleased that that is the case.

Page 24. At the top of page 24 it is stated that all registered stakeholder groups were provided with documents. I am secretary of the Alliance and I hereby state that no such documents were received by myself. It is possible, however, that documents may have been given to another member of the Alliance committee who may not have passed them on to myself. I will appreciate advice as to whom the documents were given.

Page 30. It is stated that DCPL wrote to each of the registered groups providing a copy of the proposed methodology. As in the items above re page 24 I did not receive any such documents and I will appreciate advice as to whom they were given.

Page 35, the Honey Tree (38-1-0033). Please see comment below.

Page 38, Last paragraph. The Project no longer includes the irrigation of land located out of the ML1427 area. The Alliance is pleased that such irrigation will no longer be carried out.

Page 39, Second paragraph. 'inspected by the Aboriginal community'. Please add 'and other participating parties'.

Pages 35, 42 and 43 The Honey Tree (38-1-0033).

The Honey Tree was shown to participants in the survey on its final day, 27th August, at the conclusion of field work. I note (Appendix 1) that the tree was inspected by Barry Cain in November 1998, with the description of three toeholds and two foot pegs, and with the comment 'If the tree is determined to be of aboriginal origin and significance the tree must be retained in situetc'.

Although I have no aboriginal heritage and little knowledge of aboriginal culture, I thought when I saw the Honey Tree that it was quite unlike any other scarred trees that we had inspected, and quite unlike anything I had ever seen that was attributed to aboriginal origins.

Page 35 refers to the Honey Tree (38-1-0033) and also to another scarred honey tree (38-1-0027). It is stated that the scars on the latter (38-1-0027) were subsequently determined not to be aboriginal in origin, but no such determination is quoted about the Honey Tree we were shown (38-1-0033). I therefore assume that the Honey Tree we were shown (38-1-0033) displays modifications that are assumed to be of aboriginal origin.

I have doubts that the scars on the Honey Tree (38-1-0033) are of aboriginal origin.

On page 42 it is stated that 'the consensus is that the 'Honey Tree' has had timber pieces inserted into the trunk in a spiral pattern to allow someone to scale the tree and access the crown ... possibly to collect honey (DCPL, 2008b)'.

I doubt that that is the case ... none of the other scarred trees we saw showed any instance of pieces of timber being inserted as 'foot pegs'. I do not believe the aboriginal people would have taken such action if a tree was a regular source of honey then *perhaps* toeholds might be cut into the trunk to facilitate climbing, but I do not believe timber pieces of the type I saw on the Honey Tree would have been inserted ... there would have been no advantage and no point.

Page 43, Table 3

I note that the Honey Tree is given a high rating for its Archaeological Significance.

I agree that its archaeological significance is high because I believe it represents history of the area in regards to early colonial settlement. I believe that the tree should continue to be protected by a fence but I believe the signage portraying it as of aboriginal significance is incorrect.

I believe the timber inserted into the trunk has been put there by early timber-getters in preparation for felling the tree. For some reason the felling has not been carried out.

I enclose with this commentary a copy of a photograph that I took at Dorrig last Sunday the 18th October 09. The instant I saw the photograph I recognised the similarity of the placement of the timber-getter's foot-plank to that displayed in the Duralie Honey Tree in question.

I draw the reader's attention to the similarity and, if it is agreed that the tree modifications are not of aboriginal origin, I request that the records be corrected. In any event, the tree is of historical significance and I ask that it remain protected from damage.

Page 48, Aboriginal Cultural Heritage Management Plan

I believe all proposed actions should be implemented.

Appendix 1

DM3, DM7, DM8, DM9: Primary Recorder: not completed, not dated

DM10: Primary Recorder: not completed not dated. Features are classed as artefact and habitation structure, but under Preliminary Site Assessment DM10 is described as a scarred tree.

DM11: Primary Recorder: not completed not dated. As with DM10, DM11 is classed as an artefact and habitation structure but is assessed and photographed as an artefact only.

In conclusion I wish to state that I was pleased to participate in the survey which I judge to have been carried out with sincerity by the archaeological team, the survey participants and the staff of Duralie Coal Pty Ltd.

Jane Stevenson, 235 Curricabark Rd, Rookhurst, 2422

Secretary, Barrington-Gloucester-Stroud Preservation Alliance

25th October 2009



Wishes of
WANG HONG
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Wishes of
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Pg 1

TO JOHN TROTTER.

MY COMMENTS ON YOUR METHODOLOGY.

I FIND THERE TO BE A LACK OF INFORMATION DEALING WITH THE EFFECTS THE PLANNED EXTENSION WILL HAVE ON THE ENVIRONMENT AND THE PEOPLE WHO LIVE IN THE MINES PATH.

REFER
PAGE 1
OF
REPORT

DCM FAILS TO MENTION THE PROXIMITY OF WARDS RIVER VILLAGE. ALL THE PEOPLE WHO LIVE IN WARDS RIVER ARE GOING TO BE AFFECTED BY ANY EXTENSION. WARDS RIVER PEOPLE RELY ON TANK WATER, WATER THAT IS ALLREADY BEING CONTAMINATED BY COAL DUST FROM YOUR TRAINS AND ANY EXTENDED TRAIN RUNNING HOURS IS ONLY GOING TO MAKE THIS A WORSE PROBLEM.

I UNDERSTAND THERE IS NO LEGISLATION TO MAKE DCM COVER THE COAL WAGONS BUT WHY DON'T YOU? WHY CANT DCM SUPPLY PEOPLE AFFECTED BY YOUR COAL DUST WITH FILTERS AND DIVERTERS?

THE TRAIN ENGINES USED TO TRANSPORT YOUR COAL ARE THE NOISIEST I HAVE EVER HEARD, AND ANY EXTENSION OF TRAIN RUNNING TIME IS GOING TO BE UNBEARABLE FOR WARDS RIVER PEOPLE, ESPECIALLY PEOPLE WHO LIVE IN ANDERSON ST.. THERE IS NOTHING BETWEEN THE HOUSES AND THE

Pg. 2 RAILWAY LINE TO SUPPRESS NOISE. TRAINS CARRYING COAL TO NEWCASTLE ARN'T ANYWHERE AS NOISY AS THE FOUR ENGINES DCM USES. WHY DONT DCM LIAISE WITH US ABOUT SOME FORM OF NOISE SUPPRESSION ALONG THE LINE - MAYBE SOME OVERBURDEN WALL WITH TOPSOIL AND GREEN GRASS, INSTEAD OF JUST WALKING ALL OVER US.

WHERE IS THE NEW IRRIGATION AREA REFERRED TO?

RAISING THE WALL OF DAM 2.

WHAT HAPPENS TO THE WATER WHEN THE DAM IS FULL? WILL THE WALL GO HIGHER WILL IT BE FAIL PROOF?

Refer
PAGE 2

THE WISEMANTLE EXTENSION TAKES IN THE HEAD OF UN-NAMED CREEK, WHICH FLOWES INTO JOHNSONS RIVER.

CLAREVIL NW EXTENSION TAKES IN TOP OF COAL SHAFT CREEK WHICH FLOWS INTO JOHNSONS RIVER.

I FEEL FURTHER STUDY IS NEEDED ON THE UN-NAMED CREEK SYSTEM AND ASSURANCE GIVEN THAT THIS SYSTEM WILL NOT BE DIVERTED OR BECOME A DRAIN.

PG. 3

CLIMATE, RAINFALL ETC.

REFER
PAGE 7

THIS IS A HIGH RAINFALL AREA AND I HAVE OFTEN SEEN THE RESULTS OF THE FAST HEAVY SHOWERS ON THIS COUNTRY. THE GULLIES BECOME CONDUITS FOR MASSIVE RUN-OFF INTO M. JOHNSONS RIVER.

REFER
PAGE 9.

COAL-SHAFT AND UN-NAMED CREEK BECOME MAJOR TRIBUTARIES WITH RAIN AND SHOULD NEVER BE PORTRAYED AS 'SMALL'.

REFER
PAGE 17.

STATES KARUHA LAND COUNCIL HAVE FOUND NO ARTEFACTS TO DATE. DOES THIS INCLUDE THE 14 YEARS OF THE MINE PROJECT.

THE GROUP I WAS A PART OF FOUND ARTEFACTS AND SCARRED TREES. I WOULD LIKE TO BE PART OF A RESEARCH OF THE AREA COVERED BY THE OTHER GROUP

PG. 4.	<p>DCPL STATE APPLICATION BY GLENN JONAS ON BEHALF OF GARIGAL ABORIGINAL COMMUNITY INC. DOES NOT REFER TO OR INCLUDE MAMMY JOHNSONS RIVER. IT IS MY BELIEF THAT THE SECTION 10 PROTECTION ORDER THAT IS PENDING INVOLVES THE ENTIRE AREA MAMMY JOHNSONS RIVER AND TRIBUTARIES, AND THEREFORE SHOULD HAVE BEEN INCLUDED IN THE STUDY.</p>
REFER PAGE 19.	
REFER PAGE 34.	<p>DCPL STATE THAT MAMMY JOHNSONS RIVER IS OUTSIDE OF STUDY AREA BUT THE RIVER IS STILL UNDER THREAT BY ANY TRIBUTARY THAT MAY AFFECT OR IMPACT ON RIVER AND ITS ENVIRONS AND THEREFOR SHOULD HAVE BEEN INCLUDED IN THE STUDY.</p>
REFER PAGE 46	<p>ALTHOUGH BLASTING IS WITHIN GUIDE-LINES, I STILL HOLD CONCERNS THAT DAMAGE COULD BE CAUSED TO THE RIVER BED AND MAMMY JOHNSON'S GRAVE.</p>
REFER APP 1	<p>DM3, DM4 DM5 DM10. THESE SCARRED TREES HAVE BEEN DESCRIBED BUT NOT DATED. I WOULD LIKE TO KNOW AN APP. AGE SO I COULD KNOW HOW LONG AGO TREES WERE USED BY THE ORIGINAL PEOPLE</p>

PG-5-

DURING THE FIELD STUDY I WAS AWARE OF THE LARGE RANGE OF ANIMAL AND BIRD LIFE IN THE PROPOSED EXTENSION AREA. THE LARGER ANIMALS AND THE BIRDS SHOULD BE ABLE TO ESCAPE IF DCM IS ALLOWED TO GO AHEAD WITH EXTENSION BUT WHAT ABOUT THOSE ANIMALS WHO'S ONLY DEFENCE IS TO HIDE, SUCH AS THE FROGS AND ECHIDNAS. THEY WILL BE DOOMED. WE ARE INDIGINOUS AND WE ARE CONCERNED ABOUT THESE THINGS.

Glen R. Jones

CHAIRPERSON GARIGAL ABORIGINAL
COMMUNITY INC.

Gidawaa Walang

Cultural Heritage Consultancy

...To keep our Culture...



16th October 2009


John Trotter
Environmental Manager
Duralie Coal Pty Ltd
PO Box 168
Gloucester NSW 2422

Dear John,

RE: DRAFT ABORIGINAL CULTURAL HERITAGE ASSESSMENT- DURALIE
COAL MINE PROJECT

Gidawaa Walang Cultural Heritage Consultancy has read the Draft Aboriginal report and agrees with the Management and Mitigation Measures in section 9 on page 47 of the report:- Surface Disturbance, Blasting Vibration, General Management Measures and the Aboriginal Cultural Heritage Management Plan and the recommendation the ACHMP be updated if the project is approved with the additional measures on page 49 of the draft report.

Yours sincerely


Annie Hickey
Project Officer

**76 Lang Street
Kurri Kurri
NSW 2327**



**Phone: 4937 1094
Fax: 4936 4449
Mob: 0411 196 991**

-----Original Message-----

From: Penny Brockman [mailto:penneb@gmail.com]
Sent: Thursday, 15 October 2009 3:34 PM
To: Steve Robinson; J Kite; tayven@austarnet.com.au
Subject: Aboriginal Cultural Heritage Assessment

Mr. John Trotter
Environment Manager, Duralie Coal Pty Ltd
P O Box 168 Gloucester 2422

Re: Draft Aboriginal Cultural Heritage Assessment - Duralie Coal Mine
Project

Dear Mr. Trotter

In reply to your letter of 1st October enclosing the above document, as far as we can judge Duralie Coal are providing protection for whatever Aboriginal remains exist within the mine sites.

However regarding Mammy Johnson's grave this is in urgent need of maintenance and protection. The photograph in your document gives the impression that the grave is very neglected. We would urge that Duralie Mining Company provide suitable display signage (detailing Mammy Johnson's history) and replace the barbed wire fence with a more attractive and durable one. Of course this may already be in planning but if not, it would be appreciated if the Mining Company would upgrade the grave's surrounds. Perhaps you would let us know what may be proposed.

Yours sincerely,

Penny Drake-Brockman
Hon. Secretary, Gloucester Environment Group
15 October 2009

--

This message has been scanned for viruses and dangerous content by MailScanner, and is believed to be clean.

Johnsons Creek **Conservation** **Committee** INC

John Trotter
Environmental Manager- Duralie Coal
PO Box 168
Gloucester 2422

Jennifer Thomson
1186 Terreel Rd
Wards River
NSW 2422
27/10/09

RE: Aboriginal Cultural Heritage Assessment

Dear John,

Several of our members have concerns regarding the Aboriginal Cultural Heritage Assessment. Please find these concerns listed below:

Field Survey- It seems unusual that on the recent field survey Group 1 found several artifacts. These artifacts along with comments were recorded in the methodology & mapping of sites, where as Group 2 found no artifacts and didn't seem to participate in any of the comments in the methodology. We are concerned that in past surveys artifacts & sites may have been overlooked and for this reason we would like to request that Group 1 assisted by Lance Syme should be entitled to revisit the areas covered by Group 2 including the area on the eastern side of Mammy Johnsons River.

Aboriginal Sites- Considering the fact that 3 open camp sites were found & identified in 1998 & a scarred honey tree was also found & identified by Delica Arnold 1998, then Mammy Johnsons Grave was later located & identified as a Burial Site by Dianne Nurpula Stephenson and that artifact scatter site, isolated artifacts and several scarred trees have since been located & identified, we believe this is proof that aboriginal people extensively used this area and therefore it is of high cultural significance to the aboriginal people. We feel the scarred trees should be dated and given an approximate age so it can then be estimated how long ago the trees were used by the Aboriginal people. Any plans to move and/or destroy Aboriginal objects under a section 90 consent of the National parks & Wildlife Act 1974 is a moral injustice to Aboriginal people & their Heritage.

Blasting- Although it states that blasting is within the guidelines there has been incidents of over blasting at the Duralie mine site. We hold grave concerns that the continual blasting will cause cracking to Mammy Johnsons River and also cause damage to Mammy Johnsons Grave.

Bush Medicine Plants- Numerous medicinal plants & bush tucker plants were located as stated by Carol Ridgeway- Bisset in the proximity of the DM2 Site. What data does Duralie Coal have to identify these plants? If

Duralie Coal has not as yet obtained this data we request that further studies are warranted to properly identify & list the native flora.

Raising the wall of existing Dam no 2;

What are your intentions when this dam is full and you cannot make the wall any higher?

What will be the affect on the environment if, in the case the dam wall fails?

Have the Dam Safety Committee been involved in assessing the structural security of the dam wall guaranteeing it is failsafe? If not, why not?

In the case of unforeseen extreme rain events filling all dams sooner than planned and the irrigation areas have become heavily saturated, how is Duralie Coal planning to dispose of the copious amounts of mine wastewater?

Evaporation Data- Page (7) 2Why is the evaporation data for some months missing in the 2008 AEMR? As we had several very wet months during 2008, what months are missing?

Irrigation Areas- Do the additional irrigation areas have gullies that run into Mammy Johnsons River or the Karuah River (*on the western side of the mine site*) either directly or indirectly? It is well known that we are in a high rainfall area and have always been concerned about the quick heavy falls we experience. Our gullies soon turn into rushing torrents that flow into Mammy Johnsons River/ Karuah River therefore putting both these rivers at an extremely high risk of contamination from associated mine/wastewater run off. The methodology does not include an aquatic study. We feel this is a major issue that has been totally overlooked and therefore we request a full study be carried out on Mammy Johnsons River, the Karuah River and any of their tributaries from the mining lease areas.

Un-named Creek- In the map on page 2 it appears that the soil stock pile & the Clareval North west extension takes in the top of Coal shaft creek, we believe this will adversely affect Mammy Johnsons River as it is a tributary to Mammy Johnsons River. The top section of the un-named Creek seems to be in the Weismantel Extension and this creek appears to flow directly into Mammy Johnsons River. We have concerns that Mammy Johnsons River has not been included in the methodology and believe that any mining activity connected to the un-named creek will directly affect Mammy Johnson River. Is this a spring fed creek? We believe a full flora/fauna, aquatic & environmental study of the entire un-named creek needs to be carried out and assurances given that this creek is not going to be diverted & turned into another Coalshaft Creek.

Basalt Flake

The site description given on the basalt flake has us wondering. Lance

Syme states that it was located on a slope that is on an unreliable drainage channel. Is Lance referring to un-named creek or is there a drain that we are unaware of and if so what is it used for?

Additional Trains- Any additional trains & hours run will affect the people in a close proximity to the rail line by generating more noise, dust & related health issues.

Everyone in the vicinity of the Duralie Coalmine & the north coast railway line between the Duralie Coalmine & the Stratford Coalmine rely on good quality tank water for their household & drinking water supply. It is a proven fact that coalmine dust is already contaminating many tanks in the Stratford area. We request that you pay for the testing of water tanks of anyone in the vicinity of the Duralie Coalmine & the north coast railway line with concerns about their drinking water tanks.

If it is proven that coal dust has contaminated the water tanks we urge you to pay for the cleaning of these water tanks and supply the household with water diverters & water filters and that you also cover all coal train wagons.

Regards

Jennifer Thomson

Jennifer Thomson

JCCC/Secretary

Email:jennifer6@ipstarmail.com.au



PAGE 2 - 2 PAINTS MAMMY JOHNSON GRAVE SITE. 2002

27/8/09
"RANNOCH"


478 JOHNSON CREEK RD.
STROUD ROAD. NSW. 2415

Dear Lance,

Thankyou for your invaluable help and respect. On behalf of the MAIANGAL GROUP of the WORIMI NATION.

Here are a few bits of paperwork that may be of assistance in your survey or just for your own files. I will develop those prints of the photos I took and send them to you. Could you list the items that were noted on that day and how many are likely to be registered. I would greatly appreciate your opinion on the status of the area. It was very strange that the other team failed to identify any thing in the other half of the east side (where they ~~del.~~ wish to put irrigation. On this side of MAMMY JOHNSON RIVER, I am convinced that you would find more artefacts if given the chance to return and ^{re}examine the area.

I will probably be speaking to you by phone soon.

Yours in Unity. 

Mi "NURPULA" STEPHENSON

MAIANGAL GRAVE WORIMI NATION.

CARETAKER MAMMY JOHNSON GRAVE

SD10 Mammy Johnsons Grave, Stroud Road

Notes submitted by Dianna Bell-Stephenson

'Rannoch'

478 Johnsons Creek Road

Stroud Road

NSW 2315

phone 02 49945540

26 February 2008.

These notes were submitted in response to Great Lakes Council's request for community input into the Great Lakes (Community Based) Heritage Study 2003 – 2008. Ms Bell-Stephenson nominated the grave of 'Mammy Johnson' for inclusion in the study. (The dotted lines mark the original handwritten pages. Apologies if any minor errors have escaped proof-reading.)

.....
DPP NO. ~~838079~~ ⁹⁵⁶⁹⁷ STUDY 1

RESEARCH OF GRAVE SITE LOT 10 JOHNSON CREEK ROAD. STROUD ROAD NOW KNOWN AS 'RANNOCH 478. JOHNSON CREEK ROAD STROUD ROAD. FORMERLY KNOWN AS 'THE MCINTYRE ESTATE'.

In the 2nd month of 2002 whilst cleaning the grounds of the property now known as "Rannoch" on Johnson Creek Road, Stroud Road, I was attempting to pick up what I thought was a moderately small rock jutting out of the grass. I asked a companion of mine Mr. Greg Marriott, to assist me with removing the surrounding soil and dirt.

Not having much knowledge of such things. I decided to contact the "Hunter History Consultants". Wolfe Street, Newcastle. A Rosemary Melville instructed me to seek further information from the "Senior Project Planning Officer" Christiana Martin at the Great Lakes Council, Forster. This I did, and also made a time to inspect and photograph the site.

After this I received a letter informing me the structure was in fact a grave. Also, the officer had looked at graves of Saint John's Church Stroud. Somewhat concluding, along with her colleagues one being a qualified "Archaeologist of Aboriginal and European Sites", that the grave was of historical significance.

I was told the grave was now catalogued, never to be lost again. Discussed at the time, relevant care of the structure, in line with "Australian National Trust" guide lines. I am a bona-fide member of the "N.T.A." as caretaker, I have installed lighting and fencing in accordance with the requirements of the trust. Consultation has occurred with the archaeologist and after this, attempts to stabilise the grave, to prevent further movement inside and outside of the structure. There has been up to one cm movement since stabilisation. This is directly related to blasts from the mine site, being not of some great distance from the grave itself.

Research has been very difficult and some time QUIET DAUNTING, as most documents were burnt in 1856-57 which were kept in the local church rectory, St. John's.



WORIMI LOCAL ABORIGINAL LAND COUNCIL

09th April 2009

ABN 51 352 201 6

Susan Phillips
Barrister
Via Facsimile: (02) 9335 3099

2163 Nelson Bay
Williamstown NSW 23

Dear Susan,

PO Box
Tanilba Bay NSW 23

Re: Protection of Mammy Johnsons River

This letter is to confirm the position of the Worimi Local Aboriginal Land Council in our opposition to the (what we consider to be outrageous and illegal) dumping of 500 million litres of dirty mine waste water into Mammy Johnsons River by the Duralie open cut mine.

Phone: 02 4965 15
Fax: 02 4965 17

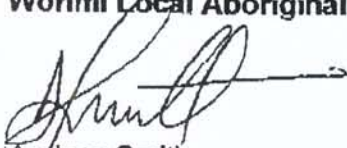
info@worimi.org.au

As is widely known, the Mammy Johnsons River is the major contributor to the Karuah River & Port Stephens as well as contributing to the water supply of both Stroud & Stroud Road via the Karuah River.

As Aboriginal people, it is extremely difficult to comprehend the thought process that would see any (reasonable) person arrive at a decision such as this?

We ask that the application by the Duralie mining company to vary their Environmental Protection Licence (that will allow them to partake in this atrocity) be aggressively refused and thrown out by the Department of Planning and any other governing authority charged with the responsibility of protecting this pristine and unique waterway system.

Yours in Unity
Worimi Local Aboriginal Land Council


Andrew Smith
Chief Executive Officer

DA 168-99 MOD 6.

RE: METHUENHOLM, ENVIRONMENTAL
ASSESSMENT.

22/10/09

To: Buralie Coal Pty Ltd

Environmental Manager. - John Satter.

In any correspondence with Buralie Coal Pty Ltd (DCPL), I have always addressed myself as an Aboriginal person of the MAAJANGAL and of the Worimi Nation. I am affiliated with this group. I would appreciate it if registration as a stakeholder is written in any paperwork in such a manner, to reflect the correct information. I did state that even though I was using my Johnson Creek Conservation Committee (J.C.C.) membership, it was only as an insurance coverage necessity. I am always speaking on behalf of the **MAAJANGAL GROUP**.

Worimi Local Aboriginal Land Council makes its intentions clear in its letter to Susan Phillips concerning discharge, irrigation or diversion of the rivers. I have discussed the issue with Andrew (CEO) of Worimi (SALC). (**ANDREW SMITH**)

The irrigation that was proposed on the eastern side of Mammy Johnson River has thankfully been withdrawn by (DCPL). However the fact is, it should be kept an "area of interest" because it will still be affected with the new extentions planned. The eastern side has been included in my quest to have the River, its environs (**BANKS**) including Mammy Johnson grave site protected.

The eastern side is the environs, there for it must be relevant and included as an "area of interest".

The new extentions (168-99 MOD 6) which would include further threats to the River, such as cracking the river bed. Regardless of the precise reading of (DCPL) blast monitoring system, it is of no use to the Aboriginal people if permanent damage is done. Cracking the river bed is a common problem when mine companies are mining less than 20 kms

from a river or its tributary. It is ~~absolute~~ folly to risk such devastating consequence!

The Worimi (NHW) are watching the process and wish to be kept informed of all outcomes. Worimi people are connected to the land and rivers. That means the land underneath the water, therefore the river itself is culturally significant also. The desecration and destruction of the Mammy Johnson River would be a great loss. A loss that no "saying sorry" would heal. An apology or compensation would not be enough, as we have objected to the application all along; we have said so from the start.

Some aspects should be taken into account. (DCPR) states that the mens sites that the Larigal Group were looking for were not located, it appears to myself that those sites may have been damaged and therefore not recognisable. If this is the case it would be a blow to all concerned.

This does not mean that the section 10 does not cover that area, as it is still a area of cultural significance, to Aboriginal people.

On the eastern side of Mammy Johnson River where artefacts were found on half (approximately 1000 acres) it is possible because of much rougher terrain, with rutted gullies and thick over growth of grass that the result which was so contrast, was the problem. I therefore ask that the half of that parcel of land be looked at and be surveyed again. Even though it is classed as not being in the "area of interest", I feel that it still needs to be looked at more carefully as I am concerned that something may have been missed. I also ask that the archaeologist be Lance Byrne, as he was a very competent person in his duties.

Mammy Johnson gravesite will be adversely affected by further vibrations from blasting and dust particles settling on the surface, should the extension be approved.

In (DCPH) methodology it is stated that I do not agree with the section 10, and the birthing area was only on the eastern side and it is now not in the "area of interest." Somewhere (DCPH) has made a wrong assumption after a request by myself, for access to the eastern side of Mammy Johnson River. This did not mean only that side of the river. Mammy Johnson was known to cross back and forth at will.

This is part of oral tradition concerning her midwifery along the river. This may also include parts of ML 1427. It would take a comprehensive archaeological survey to ascertain the full extent of the site in its entirety.

(DCPH) has offered registered stakeholders access to these sites at a later date, yet to be verified.

Again (DCPH) has said that ML 1427 is not in the "area of interest," it is relevant, as the new extension will impact on the east end running parallel to Mammy Johnson River.

The two tributaries Coal Shaft Creek is being diverted. When will it be restored and rehabilitated to allow correct flow back to Mammy Johnson River? What data is there on water quality over the period (DCPH) has been mining? What data is there on indigenous species in the Mammy Johnson River above + below the mine site?

2. What is the "yet named" creek being used for? Drainage, because of the terrain will still run towards the river. I believe the rivers in this area run from north to south, flowing into the Karuah River. These tributaries need restoring.

Irrigating on site still causes run off particularly when overburden is sprayed, as again it will end up in the Mammy Johnson River. What data or studies on the Bio-diversity and aquatic life?

DA 168-99 MOD 6

What are the Aboriginal people to do, when ceremonial areas are destroyed or contaminated. This is important. What data on rainfall information is there in this area?

Could (DCPL) explain what unreliable drainage channel that Lance Symes "archeologist" spoke of at the DMI site.

Where are the facts and figures on Ward River village, as they will be directly affected? I have spoken to some residents, they are very concerned.

Is (DCPL) aware that the rivers are where juvenile fish shelter till they are old enough to head to deeper waters. If these rivers and creeks, tributaries running into Mummy Johnson River are in any way polluted, fish stocks, mussels, crustaceans and any aquatic life will be compromised. This could be very serious, not just for the immediate area, Port Stephens Marine Park, fish farms and oyster growers down stream of the mine could be permanently affected.

Tourism in Port Stephens (MP) is worth millions of dollars. Lively hoods depend on these rivers. I am sure that the Marine Park would be very concerned if they are made aware of the massive risk of contamination.

I am convinced, there would be a major outcry, not just from the Aboriginal people but the wider non-indigenous community.

I feel that some issues need to be addressed before (DCPL) proceeds with any further extension or modifications.

It should be noted that an owl that is of a particularly special type was taken from a premises in the (DCPL) project area; to a vet, but passed away. Some more information is being catalogued and a report is coming, concerning its type and rarity. I will forward this information on to (DCPL) as soon as is possible. My own totem is the owl and I consider it a sacred bird.

DA 168-99 MOD 6

I have enclosed with this letter some information that I hope (DCR) will avail itself of.

Kiana NUREULA Stephenson
"RANNOCH"

478 JOHNSON CREEK ROAD.

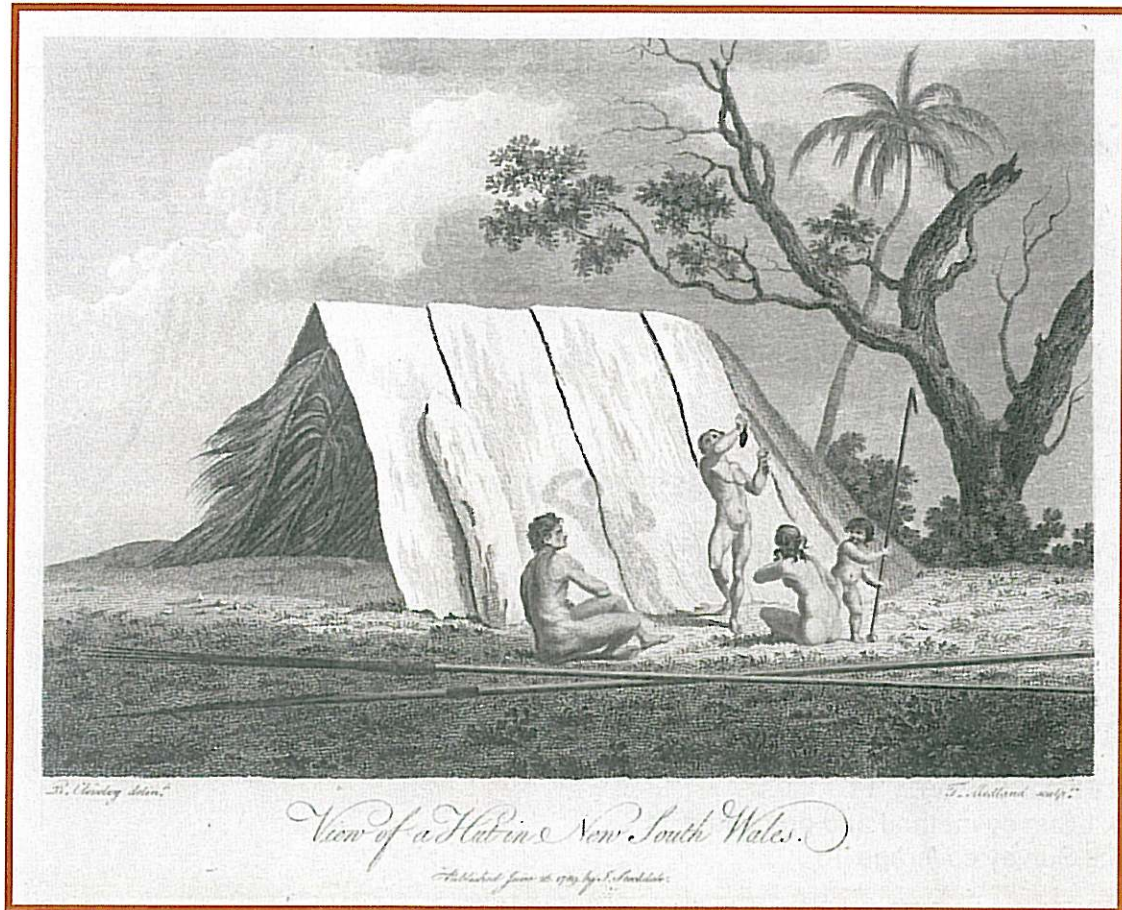
STROUD ROAD. NSW. 2415. PH. (02) 49945540

MAIANGAL GROUP - WORIMI NATION.

WORIMI KNOWLEDGE HOLDERS

ABORIGINAL CORPORATION.

CARE TAKER - MAMMY JOHNSON GRAVE SITE.



Aboriginal Cultural Heritage Assessment of Clareval North West Pit, Duralie, near Gloucester.

Report prepared on behalf of
Minimbah & Districts Elders Group Inc. for
Duralie Coal Pty Ltd
September 2009

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1 INTRODUCTION

1.1 Report background

Duralie Coal Pty Ltd as part of their intended environmental project proposal, required an Aboriginal/ archaeological investigation to be undertaken. The assessment was designed to determine whether known or potential sites/features of Aboriginal cultural heritage value would be affected by any proposed coal extraction works being carried out in the immediate area, and if so, to develop impact mitigation strategies appropriate to their level of cultural/social and archaeological/scientific significance.

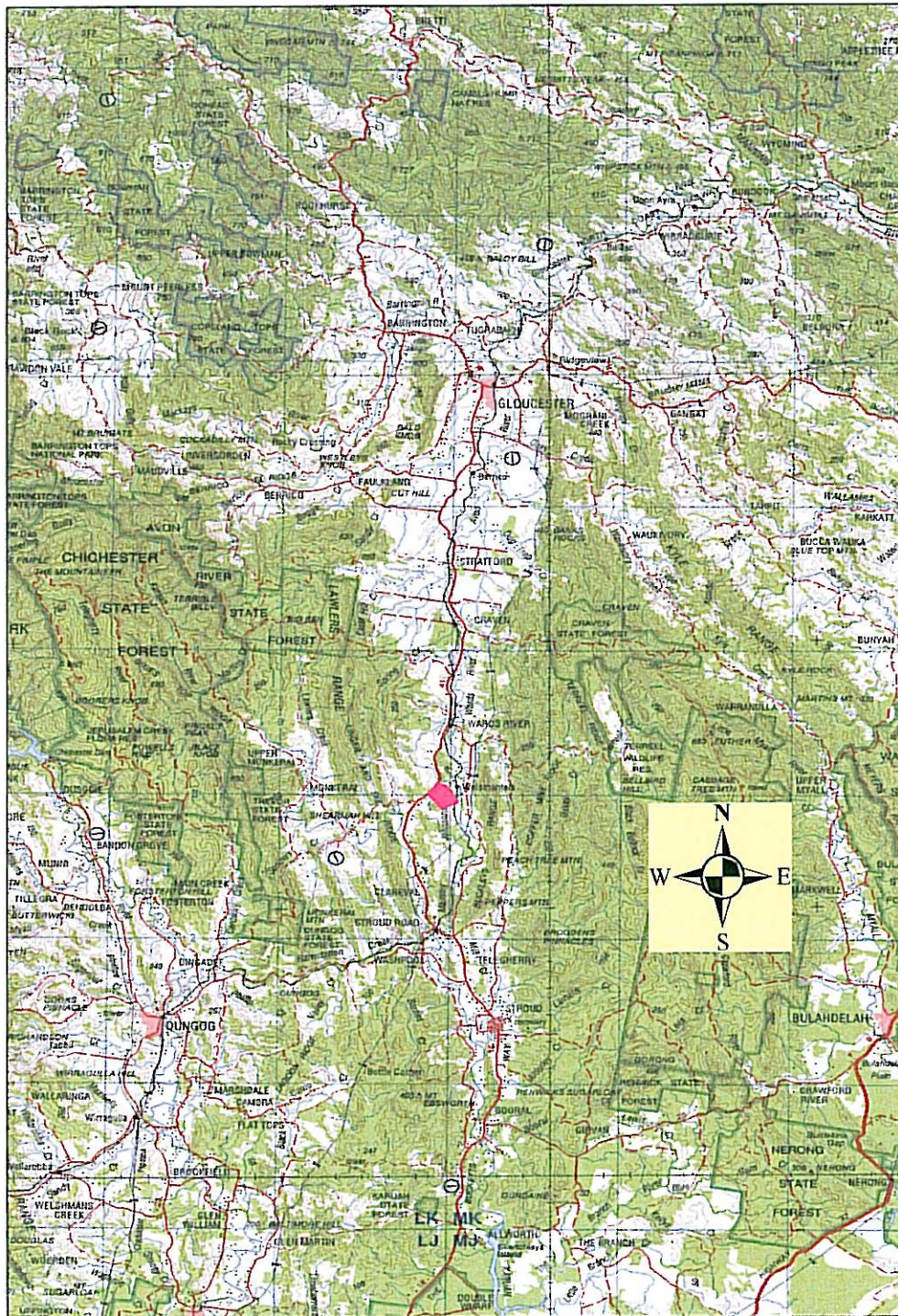


Figure 1. Regional view of study area in pink



Figure2. General location of the study area (outlined pink)¹

1.2 Nature and location of the project addressed in this report

Clareval North West Pit

The subject lands are located approximately 29.3km south of the Gloucester CBD, on the eastern side of the main arterial road, The Bucketts Way.

A small creek (Coal Shaft Creek) extends from the junction of the Bucketts Way and Duralie Road south for approximately 2.75km in a south east direction, this location comprises the western margins of the subject lands.

Duralie Coal

The proposed coal extraction works to clear and remove coal on the Northern margins of the Indicative Project Development Area and Proposed Extent of Mine Disturbance, is intending to expand its operations to include the before mentioned locations.

Cleared Agricultural Land

The cleared agricultural land on Lot 1 DP 595876 adjacent to the west of the project area, was investigated by Mr. Lance Syme of Kayandel Archaeological Heritage Services. Most of this land has been cleared for agricultural purposes. Some livestock still remain within the subject property. There are isolated pockets of sclerophyll forest adjoining cleared locations to the Western most sections that adjoin the Bucketts Way.

¹ Map supplied by Magellan, Discover Australian Streets & Tracks Series, Thales Navigation Inc. 2003.

2 ABORIGINAL INVOLVEMENT

2.1 Process

The study area falls within the territory administered by the Karuah Local Aboriginal Land Council (KLALC). Aboriginal Heritage Officers (Aunty Colleen Perry, Mr. Ron Tisdell, Ms. Adele Arnold, Aunty Carol Ridgeway-Bissett, Mr. Barry Bungie and Archaeologist Mick Leon) were contacted prior to the commencement of the project and Duralie Coal arranged that a site induction process and field survey be conducted on the 25th of August 2009.

During and following the survey, the results were discussed to identify further areas of potential archaeological sensitivity, to determine whether the proposed project would have an adverse effect on any sites, places or resources of Aboriginal cultural heritage value, and to devise strategies for mitigating development impacts on these values where appropriate. The management recommendations presented in Section 11 of this report were developed through these discussions.

2.2 Outcome

Consultation with Aboriginal family groups in Gloucester, Taree and Forster, has revealed places of known socio-cultural significance, having cultural associations within the study locality.

- The first of these is a place along the northern bank of the Wards River (9.163km South West) and the junction of Etheridges Creek. This area was described to the author in the 1980's as being a "fringe camp" used by Aboriginal people at the time of first contact².
- The second area of socio-cultural importance relates to the area commonly referred to as 'Strikealite'. This location is a transit route from Glen Road to Wauikivory and further to coastal locations. The transit route is highly likely to be in some way associated with the known ceremonial places recorded. Gloucester Ceremonial/Scarred Trees, AHIMS 38-10003 (28.9km to the North) Stroud Ceremonial Place AHIMS 38-10004 (15.8km to the South)

Each of the above mentioned localities is highly compromised, with proposed and established development affecting the cultural integrity of in-tact cultural material and spiritual meaning.

² 1989, Simon.D pers comm.

3 ENVIRONMENT AND LANDUSE EFFECTS

The study area lies 57km inland, and is set on Carboniferous formations that extend to the south for approximately 20-40km. Sedimentary rocks lie within the Wootton Beds (predominately to the east), and the north-south ridgeline to the east is upon the Nerong Volcanics. The soils can be grouped into two categories, those developed from volcanics and those developed from fine-grained sediments (Veness, 1995).

The regional barriers are Carboniferous formations (as within the study area) containing siltstone, greywacke, quartz, chert and tuff that form mountainous regions (cf Perram and Partners 2000:2.2).

These materials are all highly suited to the production of Aboriginal flaked stone tools and are likely to be available in places along major rivers and their tributaries originating from the Barrington/ Gloucester uplands, and probably used within the study area.

4 CULTURAL BACKGROUND

Aboriginal people in the Stroud - Gloucester region.

There are many Aboriginal people within the Stroud - Gloucester region. Most are direct descendants of the region's traditional tribal groups.

The two main tribal groups are the **Gringai** (whose tribal boundaries stretch from the southern sides of the Gloucester - Barrington Tops, east to Stroud) and the **Worimi** whose country adjoined the **Gringai** at Boral and (many say) continued all the way South to Tocal.

Most local Aboriginal descendants still observe their cultural connections with both the lands and waters of the before mentioned regions. The Elders of both tribal groups are generally referred to as knowledge-holders. Before any knowledge is passed down to the young respect has to be gained.

The **Gringai** and **Worimi** enjoyed a healthy and abundant lifestyle before non-Aboriginal exploration and settlement disrupted their way of life. Up to 500 members existed within each tribal nation before non-Aboriginal contact was made. The shell middens around the regions lakes suggest that food from the lake and sea was abundant, as well as wallabies, kangaroos, echidnas, waterfowl and fruit bats. Fire was an important feature of life, both for campsites and the periodic 'burning' of the land.

Land was fenced and cleared to make way for intensive agricultural practices. During the years 1830-1840, the first white settlers arrived overland from Gloucester with bullock teams en-route to the Manning valley.³ This would indicate that settlers were arriving in the study area before and during the 1830's. Aboriginal people who occupied lands deemed for farming or forestry were herded to places they could be 'controlled'. Some of these places still exist today and are often referred to as 'missions'.

Each tribe has significant areas and things that are still very important to continuing customary lore. "The Three Brothers Mountains are a very significant spiritual place for the Biripi people. Within the regional context of the study area, Gloucester is well known for it's traditional cultural significance. In the years 1918-1924, early settlers observed and recorded significant places that they had been told, were especially important to the local Aboriginal population living in the Gloucester area at the time. The current site of the Gloucester Primary

³ Mapping Attachment, A spatial approach to Aboriginal post contact heritage. pp. 21, NSW DEC 2004

School is important, in that it once was a ceremony – bora or "Bumbat" place. This is supported by anthropological records that record 8 "dendroglyphs/ teleteglyphs" or marked trees⁴ surrounding the "Bumbat" at Gloucester.

Recognition as an Aboriginal place sends a strong message to the whole community about their past and ongoing Aboriginal significance," *Greg Croft NPWS 2003*.

Another area is Saltwater, south of Wallabi Point. Dark Point south of Seal Rocks is an important cultural place of the Worimi people. Both tribes have similar cultural associations with the Great Dividing Range, notably the Barrington-Gloucester-Nowendoc mountain regions. Each significant place has a dance, song or story about it.

Scientific evidence indicates the Biripi and Worimi tribal groups occupying the coast and ranges up to the last ice age around 7,000yrs BP.

- *An Aboriginal shell midden near Bohnock has been C-14 Carbon dated to 6,400yrs BP.*⁵
- *Another shell midden near Green Point has been C-14 carbon dated at 4,450yrs BP.*⁶

Many books and historical documents contain details of Aboriginal people around the turn of the 18th century. This information supports Aboriginal descendants' knowledge and use of the Gloucester-Manning- Great Lakes regions.⁷

At the time of first European settlement the Gloucester - Stroud district was inhabited by the Kattang speaking peoples of the Gringai and Worimi tribes (Enright 1932; Holmer 1966; Gilbert 1954a; Miller 1985⁸). These tribes were divided into a number of local groups, each with a degree of autonomous identity and rights associated with a specific geographical estate. The size, composition and distribution of individual extended family bands within the estate of the larger local group varied in response to social and economic circumstances (Dawson 1935:25).

Available ethnographic information suggests that a seasonal pattern of movement and resource exploitation was followed (Ella Simon in Ramsland 1987:180; Brayshaw 1986:41; Byrne & Nugent 2004: 30, 143), but this may not necessarily have been the case prior to European contact.

Even though coastal hinterland groups had economic, social and ceremonial links spanning wide areas (including the study area), life on the ranges and coastal plains seem to have been fairly settled, prompting Cunningham (1827:185) to write of the 'better order of things' obtaining amongst Aboriginal people at Port Stephens and to the north. He describes their 'comfortable' huts of tea-tree bark that were capable of holding several persons.

Some families with inherent knowledge of association with the study area.

- ◆ Cook's
- ◆ Clark's (spelt with an 'e' or without)
- ◆ Buckshiram,
- ◆ Thorpe's
- ◆ Simon's
- ◆ Syron's
- ◆ Saunders
- ◆ Ridgeway's
- ◆ Miller's

⁴ 1918, R.Etheridge, Dept Mines, Memoirs of the Geological Survey of NSW, Ethnological Series No.3, The Dendroglyphs or "Carved Trees" of NSW.

⁵ J.Clark & NCHU NPWS 1983.

⁶ T.Bonholme 1998. A study of Coastal Midden sites.

⁷ © Mick Leon Aboriginal Culture & Heritage Supervisor/ Archaeologist 2005

⁸ J.Miller. The Heroic Resistance, Survival and Triumph of Black Australia, Koori: A Will To Win



Figure 3. Family of Aborigines taking shelter (in a cave) during a storm 17.6 x 27.6cm R5682⁹

In 1818, Oxley (1820:342-343) noted a large Aboriginal population in the Manning - Great Lakes region, attributing this to the favourable environment.

In addition to day to day subsistence of environmental resources, historical references indicate that within a 40km radius of the study area there are 7 *Keepara/ Bora/ Bumbat* (ceremonial) grounds recorded;

- ◆ AHIMS #30-50005 *Tugrabakh* 35.2km north east,
- ◆ 38-3-0007 *Ridgeview* 31km north east,
- ◆ 38-3-0223 *Coneac* 45.2km west-north west,
- ◆ 38-3-0231 *Wirradgurie* 43km north east,
- ◆ 30-50011 *Bakers Creek* 46km north east,
- ◆ 38-10006 *Washpool* 11.5km south- south west,
- ◆ 38-10004 *Stroud* 16km south

By 1850 most of the coastal ranges and plains had been appropriated by Europeans and traditional social and land-use systems were severely affected. Deprived of their economic base, the remaining Kattang speakers were forced to depend on handouts of food and blankets, many becoming fringe-dwellers on the edges of European settlements (as per the Wards River 'fringe-camp'). A number of other campsites, possibly used prior to European intrusion, have been reported in the Copeland and Barrington areas, including one beside the Barrington River near the Barrington Public School. The Gloucester Historical Society has hand-written records (ND) of Aboriginal people playing cricket at Copeland.

5 ARCHAEOLOGICAL BACKGROUND

5.1 DECC Aboriginal Heritage Information Management System

A search of the Aboriginal Heritage Information Management System (AHIMS) maintained by the Department of Environment and Climate Change (DECC) revealed that 2 registered sites (*not including the three additional sites recorded during the course of this survey and the burial site of prominent Aboriginal woman "*Mammy Johnson*") would be affected by the proposed project addressed in this report. As shown on Figure 3, the closest registered site is a recently recorded 'honey tree' (2 incidences) (AHIMS site ID 38-10027 and 38-10033) 3.5 & 4 kilometres south – south east of the Duralie Road – Bucketts Way intersection.

Although many of the artefact deposits or ceremonial/ marked trees occur throughout the regional landscape, the majority of registered sites are contained within higher altitudes.

⁹ J.I.Lycett 1775-1828. The Lycett album: drawings of Aborigines and Australian scenery.

5.2 Past surveys in the study locality

In the absence of academic research, the majority of known Aboriginal sites in the Gloucester - Stroud district have been recorded during survey work for individual impact assessment projects.

Prior surveys carried out in the study locality are continually reviewed to determine the contexts in which sites occur, and to provide a baseline against which to assess the archaeological potential of the study area itself, whenever studies of this type are required.

In 1998, Feeney and Leon surveyed a section of the Duralie area. Aboriginal Archaeological evidence was reviewed from that survey to aid this report.

5.3 Potential site types within the study area

On the basis of information gained through Aboriginal consultation, a review of background environmental, ethno-historical and archaeological data, and the results of past surveys in the Gloucester - Stroud district, unmined parts of the study area are considered to have some potential to contain the types of sites defined in this section.

The topography and distribution of natural resources within the study area indicates a potential for the site types described below.

In particular, the study area has some potential for:

- Open artefact scatter sites across all landforms within the study area where original A-horizon topsoils are present. The integrity of stone artefact deposits will depend on the degree of disturbance of original topsoils caused by erosion and farming activities;
- Isolated finds anywhere across the landscape;
- Natural cultural/ mythological features, particularly on the eastern portion of the subject land near the state Government reserves (Forests/ National Parks);
- Pre and post contact places mentioned within ethnohistorical inferences; and
- Burials within caves and on lands with favourable loamy soil locations at lower levels on the eastern margin of the subject lands.

Surveys along the NSW ranges and coast, indicate a high density of sites along the coastal fringe, especially in association with fresh water drainage lines. Whilst hills and mountainous locations contain remnants of heritage indicating either ceremonial or travelling routes.

There are exceptions however, through movement patterning throughout the regional landscape for sustenance gathering, meant periodic uses of the environment. This use patterning provides physical evidence such as modified trees, hafted axes (or similar stone tool types), axe grooving places, rock art, and Aboriginal modified ecological processes (fire-stick farming). The proximity of the study area to a dissecting river valley indicates natural hinterland resources such as timber, raw stone material, terrestrial fauna, fish and vegetation were immediately adjacent to the study area. Natural drainage lines crossing the study area would have provided sources of fresh water. The availability of fresh water in combination with terrestrial resources would have facilitated periodic Aboriginal occupation and associated social and economic activities within the study area.

The diversity of locally available resources indicates the study area is located within a resource intersection zone (RIZ). It has been argued that Aboriginal camp sites were

preferentially located at resource intersection zones in order to capitalise on a broader range of resources and permitted interaction between neighbouring tribal groups. This would suggest the study area was a favourable location for Aboriginal occupation and use.

The proximity of historically recorded ceremonial sites and natural mythological sites in the Gloucester – Stroud regions, indicates the local area had spiritual importance to Aboriginal people.

The potential for Aboriginal sites within the study area will largely depend on past land use and disturbances. In-situ sites, where artefacts are in primary deposition (ie. where they were placed or discarded by Aboriginal people in the past), will only be recorded in areas that retain original topsoils, alluvial deposits, or locations where Aboriginal people frequented for specific purposes.

Where original topsoils or alluvial deposits have been stripped by erosion or past land use, there will be no in-situ Aboriginal sites or objects. Artefacts will be present, but not within the original context that it was discarded.

6 FIELD SURVEY

6.1 Survey method and procedure

Given the negligible possibility for site survival on the mined land, the field survey involved inspection of all un-mined and potentially unmined sections of the study area (access allowing), with selective inspection elsewhere to verify levels of disturbance and the attendant assessment of low archaeological sensitivity. To more conclusively identify and assess any direct or indirect effects of the proposed project, the survey was extended (transect widths included western fence boundaries) to permit potentially sensitive landforms ridge lines and spurs occurring through the subject lands close to Coalshaft Creek (where known evidence indicated that Aboriginal occupation sites were most likely to occur¹⁰).

To familiarise the survey team with the location and extent of the project components, a general field reconnaissance and aerial map overlay was supplied to all field survey participants.

¹⁰ Mammy Johnson Burial.

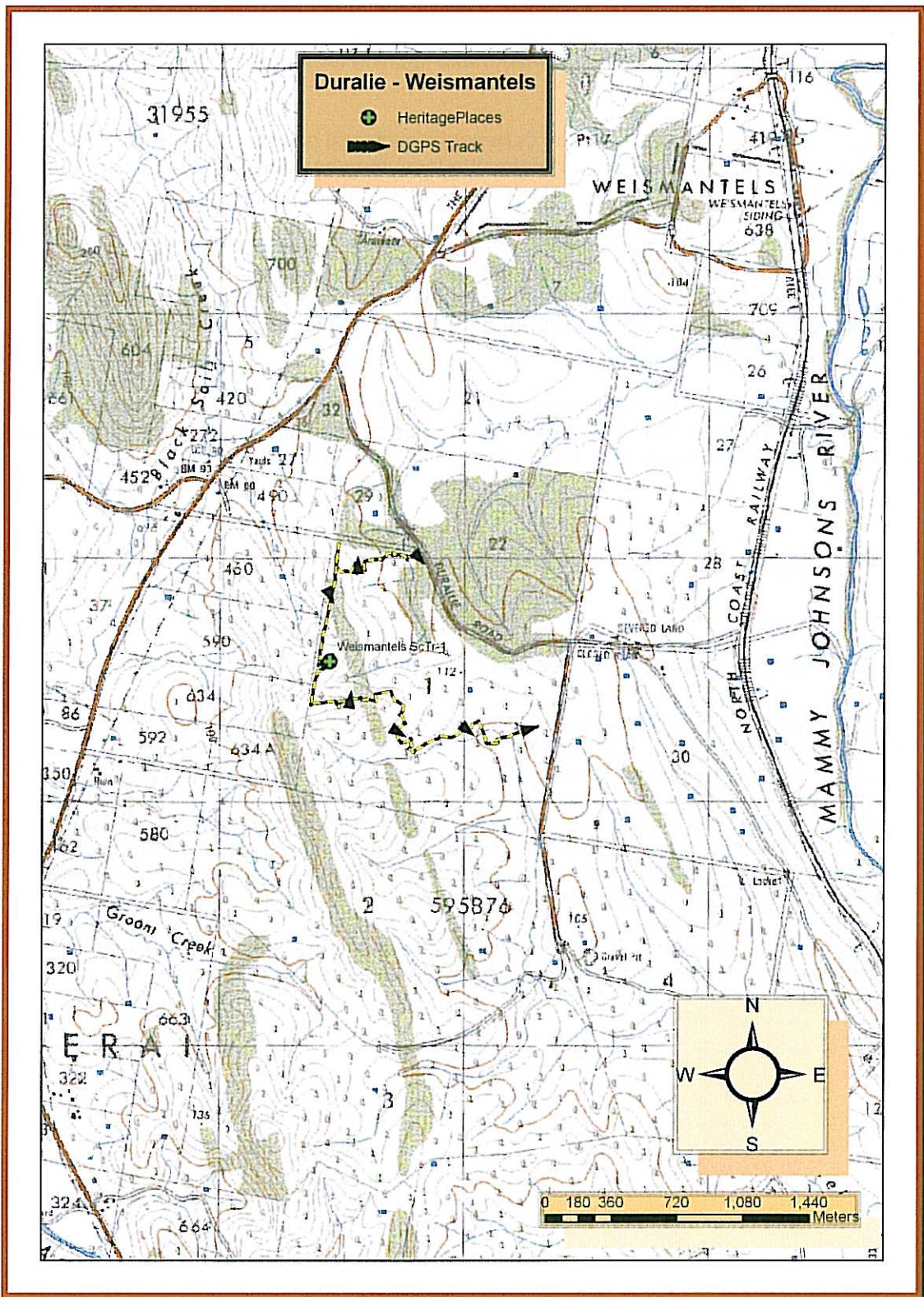


Figure 4. Transects across subject land and Observation Points (black arrows)

The survey was subsequently conducted by Mick Leon and Barry Bungie (on behalf of Minimbah & Districts Elders Group Inc.) in fine sunny conditions on the 25th of August 2009. The areas highlighted on Figure 4 were fully inspected using a parallel transect strategy (primarily north to south), resulting in close-interval coverage of a wider area.

All relevant archaeological and environmental information was noted in a field logbook and photographs taken (by Mr. Ron Tisdell) to document the various levels of exposure, visibility and disturbance. Selected photographs have NOT been included in this report due to technical problems with the digital camera used. At the time of preparing this report no other photographs have been obtained by the author. If copies of the photos are not secured to amend to this report, further field photographic recordings will be required.

6.2 Survey coverage

For reporting purposes, the study area was divided into two separate Survey Unit Teams (SUTs), delineated on the basis of topography (cf Speight 1990), exposure/visibility and levels of past disturbances. The SUTs and their extent of survey inspection (within the study area) are shown on Figure 4. As summarised in Table 1, approximately 50 percent of the study area was covered during the survey (SUT-2 covered the eastern margins), with the potential to provide for a more secure assessment of the study area itself.

Observation Point	Landform	Direction	Distance	Comments
OP-1	Duralie Road	West	0m	Road easement
OP-2	Descending into creek line low-medium rise, isolated rock exposure, creek banks with over-hanging flora, water in creek not flowing.	West south west	258m	Cattle paths and dung evident.
OP-3	Some lantana, medium incline to ridge peak, small strand of dry sclerophyll forest (this extends to the SSE approx 700m), broken rock numerous, some isolated orchids/ ferns, cleared land to NW boundary fence	West, north- north east, south- south west	462m	Fence line intersects in north west
OP-4	Away from standing trees, land extensively disturbed, low introduced grasses, sporadic clumps of endemic flora species, exposed rocks	South south west, north north east	434m	Transect covered with 2 SUT personnel, surface areas covered approx. 30m east of western fence line
OP-5	Undulating landform on western side of ridge, exposed rocks, <10m fall/rise, grass	South south west, east north east	427m	Erosion gullies noted across water flow line
OP-6	At 348m south from previous OP-5 DCMST-1 was recorded, remaining SUT-1 observable approx. 50m east investigating fractured stone material, grasses, medium-large rocks exposed, isolated stand of trees, gradual landform decline >5%, transect following 70m contour around mid southern spur, raw stone resembles quartz or quartzite at high points	East north east, south south east	445m	Fenced areas to south, sheds south west, SUT-1 were notified of DCMST-1 existence on small cleared easterly knoll, Ron Tisdell notified by 2way radio of intended mine blast at 1pm
OP-7	Some small shrubs close to tailing strands of trees, broken stone, evidence of prior agricultural and/or recent non-Aboriginal usage, tiles, roofing material.	East south east, north north east	449m	Cattle yards, other SUT-1 seen traversing to south
OP-8	Cleared open paddocks, some remnant native flora along banks of Coalshaft Creek, water clear and flowing, unknown species of fish seen, 1.7m red bellied black snake	North north east, south south east, north north east	478m	Ron Tisdell requested photo of snake with his camera, cattle with young calf defending young
OP-9	Duralie Road & Coalshaft Creek	Roadway	0m	Mine technical staff observed at this location in western perimeters of property

With the exception of the 700 metre stretch of strand of dry sclerophyll forest (OPs 2, 3[part], 4[part], 5, 6, 7 and some sections of 8), all potentially unmined sections of the study area (west) were thoroughly inspected. Owing to mainly to vegetation, however, not all of these areas provided conditions suitable for detecting unobtrusive archaeological evidence. To

generate data sufficient for evaluating survey effectiveness and the potential for undiscovered sites, variables constraining site detection were estimated for all survey units. These include an estimation of the mean frequency with which surface exposures were encountered, as well as an estimation of the quality of visibility on those exposures (mean frequency of bare ground suitable for artefact detection).

7 SURVEY RESULTS

One incidence of Aboriginal cultural material evidence (DCMST-1) was detected during the survey. A few scattered undetermined stone artefacts were recorded along the exposed surface areas that follow the ridge containing the strand of dry sclerophyll forest and again close to the southern extent of this survey, close to Duralie Road.

The artefact recordings could be warranted as Potential Archaeological Deposits (PADs), and any proposed works may affect a level of archaeological sensitivity.

Some potential also remains for archaeological materials (particularly middens) to occur close to the eastern perimeters of the subject lands.

8 RESULTS ASSESSMENT

8.1 Duralie Coal Mine Scarred Tree-1 (DCMST-1)

DCMST-1 is closely located within the the strand of dry sclerophyll forest landform, and the lower slopes with similar forest systems. A disturbed road margin borders the east and western perimeters of the site. The landforms mentioned are likely to have been utilised for Aboriginal occupation and sustaining purposes.

As outlined in Section 5.3, most of the known Aboriginal archaeological sites in the Duralie locality are associated with rock exposures, remnant old growth trees and watered areas. Field inspection of the 3.2 km² length of the study area on the western side of the southern roadway revealed further archaeological evidence. The proposed environmental methodology to be used for this locality would need not to impact on any pre-recorded heritage. It would similarly leave intact the traditional/historic transit routes reported along the Eastern quadrants.

DCMST-1 is a Dendroglyph or modified tree with clear indications of prior extraction of the bark to obtain a small bowl to carry items. The site's aspect is NNE, the internal thickness is 16mm x 37mm wide x 88mm long. The site's height from current ground level (2.8m) would indicate that the modification had occurred within the last 100 years.

9 SIGNIFICANCE ASSESSMENT

9.1 Management principles and the concept of significance

Assessments of the significance of cultural heritage sites and places are fundamental to their management.

Significance can be assigned to particular sites or places, or to a grouping of sites and/or places within an area. The heritage value of a site or site grouping is taken to include its 'aesthetic, historic, scientific or social significance, or other significance, for current and future generations of Australians' (Australian Heritage Council Act 2003).

With respect to Aboriginal sites and places, the two most important significance criteria (according to heritage management agencies) are social and scientific. While sites which are considered to be scientifically significant are usually also of significance to the Aboriginal community, others which may be of outstanding importance to the Aboriginal community may have little or no scientific value.

NPWS/ DECC management policies support (in principal, but not practicable) the objective of conserving all significant Aboriginal sites/places as resources for research, vehicles for interpreting history and culture, and as elements in landscapes. The National Parks and Wildlife Act (1974) is designed to ensure that the Aboriginal cultural heritage resource is carefully managed, and that unmitigated destruction of archaeological material does not occur.

9.2 Significance of the study area

Aboriginal cultural/social significance

A number of significant Aboriginal places (within a 20km radius of the study area) of socio-cultural significance have been identified in the study area. These comprise 'bumbat' ceremonial places towards the Stroud Golf Club and at Washpool, (noted comparatively, but not directly associated with the subject lands), and 2 traditional/historic places (NFP) in the immediate area of Mammy Johnsons Creek and the pathway that intersects the Forest reserve east of the subject lands. DCMST-1 is an especially important feature due to its continuing existence in the locality and its probable age. It is an important icon that can provide educational qualities for the local Aboriginal community as well as educational bodies.

Archaeological/scientific significance

The archaeological site recorded **DCMST-1** is additionally deemed as a PAD due to its visible surface content, and there are reasonable expectations that significant undetected sites/materials will occur on/or close to Ops 3,4,6,8. While the proposed environmental works will not directly impact on **DCMST-1** or any other place of Aboriginal significance, it is possible that sites of archaeological/scientific (and/or Aboriginal cultural/social) significance will occur within the cultural landscape.

This is analysed by factoring variables such as:

- ◆ yearly rainfall over subject lands,
- ◆ landowner agricultural activities over a 20 year period,
- ◆ raw stone material availability,
- ◆ seasonal availability of required ecological resources,
- ◆ introduction of chemical or flora/ fauna and effects on the natural landscapes of the study area,
- ◆ ethnohistorical records of climate/ Aboriginal people/ environment

10 STATUTORY OBLIGATIONS

The *National Parks and Wildlife Act 1974* (as amended) provides the primary basis for the statutory protection and management of Aboriginal sites/ objects/ places in NSW and the administration of legislation pertaining to sites is currently the responsibility of the Department of Environment and Climate Change (DECC).

Under the terms of the *National Parks and Wildlife Act 1974* an Aboriginal object is defined as- 'any deposit, object or material evidence (that is not a handicraft made for sale) relating to Aboriginal habitation of NSW, before or during the occupation of that area by persons of non-Aboriginal extraction (and includes Aboriginal remains).'

Part 6 of the Act provides specific protection for Aboriginal objects and gazetted Aboriginal places by making it an offence if impacts are not authorised by the DECC. An Aboriginal Heritage Impact Permit (AHIP) should be obtained if impacts on Aboriginal objects and/or places are anticipated.

The provisions of the Act apply to all Aboriginal objects, regardless of whether or not they have been registered with the DECC, or whether they occur on private or public land. Except where destruction of an Aboriginal object is or will be demonstrably unavoidable, it is DECC policy to require conservation in its original location and context.

11 MANAGEMENT RECOMMENDATIONS

11.1 General requirements

To ensure due diligence and prevent the unmitigated destruction of Aboriginal cultural materials it is recommended that all contractors engaged in construction earthworks (including environmental rehabilitation projects) be advised of their statutory obligations prior to the commencement of those works. Under the terms of the *National Parks and Wildlife Act 1974* it is illegal for any person to knowingly disturb, deface, damage or destroy, or to permit the disturbance, defacement, damage or destruction of an Aboriginal object without first obtaining an Aboriginal Heritage Impact Permit from the DECC.

- ♦ **DCMST-1** immediately have a 50m perimeter exclusion zone placed around the tree. And that selected staff for Duralie Coal are made familiar with the site and its locality. The suggested exclusion zone is to keep any earth movement (explosions or vehicle transmitted) at a distance that doesn't place the tree into an instability situation. As most of the tree is dying, an appropriately funded future stability program should be instigated to prevent a complete collapse of the tree.
- ♦ Monitoring of seismic activities also include places not deemed to be impacted upon and places such as Mammy Johnsons burial.
- ♦ That any suspected skeletal material unearthed is reported immediately to the NSW Police Service.
- ♦ Any act or legislation pertaining to Aboriginal heritage management is reviewed for future management regimes.
- ♦ Copies of this report be sent to:
 - Mrs. Eva Leon Chairperson, Minimbah & Districts Elders Group Inc.
 - Mr. David Feeney Co-Ordinator, Karuah Local Aboriginal Land Council
 - Mr. Tim Kelly Co-Ordinator, Forster Local Aboriginal Land Council
 - Ms. Carol Bissett-Ridgeway Chairperson, Worimi Knowledge Holders Council
 - Directorate Archaeologist – DEC/NPWS Northern Zone
 - Environmental Services Division Gloucester Shire Council
 - Mr. John Trotter, Environmental Services Duralie Coal Pty Ltd

REFERENCES

- H.K Garland & J. Wheeler 1982 *Myall Lakes- Creation to Controversy*.
- Bonhomme, T. 1988 *An archaeological survey and preliminary assessment of sites in the proposed North Tuncurry development area, NSW*. Report to the Great Lakes Shire Council.
- Brayshaw, H. 1986 *Aborigines of the Hunter Valley: A Study of Colonial Records*. Scone and Hunter Historical Society, Scone.
- Cunningham, P. 1827 *Two Years in New South Wales*. London.
- Enright, W.J. 1932 *The Kattang (Kutthung) or Worimi: an Aboriginal tribe*. *Mankind*. 75-77.
- Gilbert, L.A. 1954a *An old Aboriginal site*. *The Victorian Naturalist*. 71:121-123.
- 1954b *The History of Nahiack and District*. Nahiack Parents and Citizens Association.
- Speight, J. Walker and M.S. Hopkins (eds), *Australian Soil and Land Survey: Field Handbook*. Inkata Press, Sydney. Pp 87-102.
- Meehan, B. 1971 *The form, distribution and antiquity of Australian Aboriginal mortuary practices*.
- National Parks and Wildlife Service (NSW) 1997 *Guidelines for archaeological survey reporting. Working draft*. Cultural Heritage Services Division, National Parks and Wildlife Service.
- Oxley, J. 1820 *Journals of Two Expeditions into the Interior of NSW*. John Murray, London.
- Perram and Partners 2000 *Minimbah waste management centre. Landfill environmental management plan*. Report to Great Lakes Council.
- Ramsland, J. 1987 *The Struggle Against Isolation: A History of the Manning Valley*. Library of Australian History, North Sydney.
- Roy, P.S. 1991 *Coastal Quaternary geology*. In J. Roberts, B. Engel and J. Chapman (eds),
- *Geology of the Camberwell, Dungog and Bulahdelah 1:100,000 sheets*. Department of Mineral Resources. Pp 244-251.
- Roy, P.S., W-Y Zhuang, G.F. Birch, P.J. Cowell and Congxian Li 1997 *Quaternary Geology of the Forster-Tuncurry Coast and Shelf, Southeast Australia*. Department of Mineral Resources, Sydney.
- Speight, J.G. 1990 *Landform*. In R.C. McDonald, R.F. Isbell, J.G. Speight, J. Walker and M.S. Hopkins (eds), *Australian Soil and Land Survey: Field Handbook*. Inkata Press, Sydney. Pp 9-57.

Terminology

ALLUVIUM

General term for detrital deposits made by rivers or streams (Lapidus 1987:18).

ARCHAEOLOGICAL SITE

A place containing cultural materials of sufficient quality and quantity to allow inferences about human behaviour at that location (Plog *et al* 1978:383).

ARTEFACT

Any object having attributes as a consequence of human activity (Dunnell 1971).

CARVED/ Modified TREE [Dendroglyph]

Carved trees carry figures or patterns carved into the bark or wood and are generally found in direct association with either Aboriginal burial or ceremonial grounds. The designs carved into the trees were symbolic of totemic groups (Byrne 1989:15).

CEREMONIAL (KEEPARA) GROUND

While there are a number of different types of ceremonial/Keepara ground, most common on the north coast is that composed of one or a pair of raised earth circles ranging in size from two to 40 metres in diameter. The Keepara ground functioned as a stage for various initiation rites (Byrne 1989:18).

CHERT

A dense and extremely hard, microcrystalline or cryptocrystalline siliceous sedimentary rock, consisting mainly of inter-locking quartz crystals, sub-microscopic and sometimes containing opal (amorphous silica). Chert occurs mainly as nodular or concretionary aggregations in limestone and dolomite, and less frequently as layered deposits (banded chert). It may be an organic deposit (radiolarian chert), an inorganic precipitate (the primary deposit of colloidal silica), or as a siliceous replacement of pre-existing rocks. Flint is a variety of chert occurring as nodules in chalk and having a conchoidal fracture (Lapidus 1987:102).

GREYWACKE

Sedimentary rock. A very hard, dark grey or greenish-grey, coarse-grained sandstone characterised by angular particles and rock fragments embedded in a clayey matrix (Lapidus 1987:265).

HOLOCENE

The most recent epoch of geological time; the upper division of the Quaternary Period (Lapidus 1987:274).

PLAIN

A large very gently inclined or level element, of unspecified geomorphological agent or mode of activity (Speight 1990:32).

PLEISTOCENE

The lower division of the Quaternary Period dating from two million to 10,000 years ago (Lapidus 1987:96,411).

QUARTZ

Crystalline silica having no cleavage but a conchoidal fracture (Lapidus 1987:429).

SCARRED TREE

These are trees that bear scars caused through the removal of bark or wood for making material items such as shelters, canoes, shields and containers, or which have been marked for other reasons (eg toe-holds to aid climbing; cuts made to extract possums or honey from trees). Because scarred trees are usually associated with domestic activities, their distribution often correlates with the distribution of artefact scatters, middens and other types of campsites (Long 1998:28).

SILTSTONE

A fine-grained sedimentary rock principally composed of silt-grade material. Intermediate between sandstone and shale, siltstone contains less clay than shale and lacks its fissility and fine laminations (Lapidus 1987:474).

STONE ARTEFACT

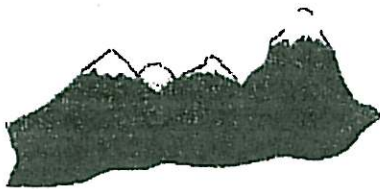
Fragment of stone which generally possesses one or more of the following characteristics:

- Positive or negative ring crack
- Distinct positive or negative bulb of force
- Definite errillure scar in position beneath a platform
- Definite remnants of flake scars (i.e.dorsal scars and ridges)

These traits indicate the application of an external force to a core, and are characteristic of the spalls removed by humans using direct percussion. Stone artefacts which have none of the above may be identified as such if they possess ground facet/s characteristic of human industry (Hiscock 1984:128).

TUFF

A pyroclastic rock composed mainly of volcanic ash. Tuffs may be crystal (composed mostly of crystal fragments), vitric (composed mostly of glass and pumice fragments) or lithic (composed mostly of rock fragments) (Lapidus 1987:519-520).



Berrico Traditional Owners

4488 Bucketts Way
Gloucester NSW 2422
Ph/Fax: 02 6558 1983



26 October 2009

The Manager
Duralie Coal Pty Ltd
PO Box 168
GLOUCESTER NSW 2422

Dear Sir,

This letter is in response to your draft Aboriginal Cultural Heritage Assessment for the Duralie Coal Mine Project from the Berrico Traditional Owners. Above all we seek an extension of time to be able to seek independent historical, anthropological, archaeological and legal advice.

We wish to draw your attention to the section of this report that covers the post-contact history. This is only one page and makes no mention of the Aboriginal families that continue to reside in the district, even though the history of the marriage of James Bugg to the local Aboriginal woman Charlotte is well documented. And also we believe that the history of this family is well known in the district and is made obvious by the prominence of Mrs Norma Fisher who is active in local Aboriginal organizations.

While we are interested in preserving good relationships with your company into the future we cannot stand by while the history of our family is being ignored. If this continues it is easy to ignore the custodianship rights of the descendants of James and Charlotte Bugg and the impact on us of the mining project. Therefore this situation needs to be redressed immediately. We are not people with access to the funds required for our independent documented assessment of the cultural heritage value of our country and we will be seeking support to be able to have this done.

We are available to meet with your representatives at a mutual time to discuss possible ways forward.

Yours sincerely

Mrs Norma Fisher
Chairperson
On behalf of the Deputy Chairs
Mrs Denise Ryan

Mrs Joan Fletcher

Mrs Lynne Gordon

Berrico Traditional Owners

CC Mr John Trotter

ATTACHMENT JB:

RECORD OF ABORIGINAL PARTICIPATION IN ABORIGINAL HERITAGE
SURVEY AND SITE INSPECTIONS –AUGUST 2009



Record of Aboriginal Participation in the August 2009 Aboriginal Heritage Survey and Site Inspections

Registered Stakeholder	Representative	Participation in the August 2009 Aboriginal Heritage Survey/Site Inspection		
		25 August 2009	26 August 2009	27 August 2009
Barrington–Gloucester–Stroud Preservation Alliance Inc.	Jane Stevenson	✓	–	✓
	Dave Hare–Scott	✓	✓	–
Garigal Aboriginal Community Inc. ¹	Glen Jonas	✓	✓	✓
Gidawaa Walang Cultural Heritage Consultancy	Ann Hickey	✓	✓	✓
Johnsons Creek Conservation Committee	Carol Ridgeway–Bisset	✓	–	–
Karuah Local Aboriginal Land Council	Colleen Perry	✓	✓	✓
	Ron Tisdell	✓	✓	✓
Maaiangal Group ¹	Nurpula Stephenson	✓	✓	✓
Minimbah and District Aboriginal Elders Group Inc.	Mick Leon	✓	–	–
	Barry Bungie	✓	–	–

✓ Denotes participation in the Aboriginal heritage survey/site inspections on the specified date.

Note: A representative of DCPL and a suitably qualified archaeologist(s) from Kayandel Archaeological Services were also present on all days of Aboriginal heritage survey and site inspection.

¹ Due to insurance arrangements, these registered stakeholders attended the August 2009 fieldwork as representatives of the Johnsons Creek Conservation Committee.

ATTACHMENT JC:

ADVERTISEMENT PUBLISHED IN THE DUNGOG CHRONICLE,
GLOUCESTER ADVOCATE AND GREAT LAKES ADVOCATE –
REQUEST FOR REGISTRATION OF INTERESTED PARTIES



Public Notice
Environmental Planning and Assessment
Act 1979 (NSW) – Part 3A
National Parks and Wildlife Act 1974
(NSW) – Sections 87 and 90

Duralie Coal Pty Ltd (DCPL) owns and operates the Duralie Coal Mine, an open cut mining operation located approximately 5 kilometres north of Stroud Road NSW.

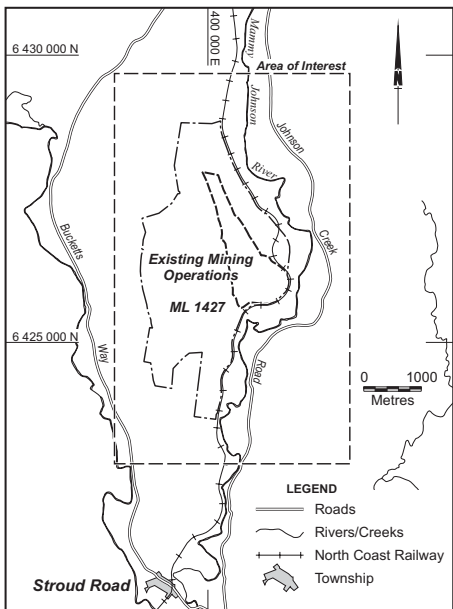
DCPL proposes to seek approval under Part 3A of the *Environmental Planning and Assessment Act 1979 (NSW)* for further development of the Duralie Coal Mine. The further development includes the continuation and expansion of open cut mining and related surface activities.

As part of the Part 3A application process, DCPL will be preparing an Aboriginal Cultural and Heritage Impact Assessment in respect of the area described as the “Area of Interest” in the map below.

In addition, DCPL has also lodged a request with the Minister for Planning under section 75W of the *Environmental Planning and Assessment Act 1979 (NSW)* and clause 8J(8)(b) of the *Environmental Planning and Assessment Regulation 2000 (NSW)* to modify Development Consent (DA No. 168/99) for the Duralie Coal Mine, which was granted by the Minister for Urban Affairs and Planning on 5 February 1999. The proposed modification is designed to enable improved water management at the Duralie Coal Mine, including expansion of the mine's agricultural irrigation areas and associated management systems.

As part of the section 75W process, DCPL will be preparing an Aboriginal Cultural Heritage Impact Assessment, and therefore may seek a section 87 permit and a section 90 consent under the *National Parks and Wildlife Act 1974 (NSW)* to move and/or destroy Aboriginal objects. The area the subject of any such application is also within the area described as the “Area of Interest” in the map below.

Aboriginal persons or aboriginal groups who wish to be consulted in relation to the assessment processes are invited to contact DCPL by 20th May 2009 to register their interest in writing.



GC-GCL-0026-01-Rev.3

Contact details are as follows:

John Trotter, Environmental Manager
Duralie Coal Pty Ltd
PO Box 168, Gloucester NSW 2422
Phone: (02) 4994 0121
Fax: (02) 4994 5718

ATTACHMENT JD:

METHODOLOGY FOR THE CULTURAL AND ARCHAEOLOGICAL
ASSESSMENT OF THE DURALIE COAL MINE PROJECT

This attachment contains culturally sensitive material and access is restricted to the Proponent, Aboriginal stakeholders, statutory authorities, and other parties with the consent of the DECCW.



ATTACHMENT JE:

DETAILED INFORMATION ON KNOWN ABORIGINAL HERITAGE SITES
WITHIN THE STUDY AREA AND SURROUNDS

This attachment contains culturally sensitive material and access is restricted to the Proponent, Aboriginal stakeholders, statutory authorities, and other parties with the consent of the DECCW.



ATTACHMENT JF:

ARCHAEOLOGICAL SIGNIFICANCE RATINGS OF INDIVIDUAL
CRITERION FOR KNOWN ABORIGINAL HERITAGE SITE WITHIN THE
STUDY AREA



**Archaeological Significance Ratings of Individual Criterion for Known Aboriginal Heritage Sites
within The Study Area**

Site Code	Significance Rating for Individual Criterion				Overall Significance Rating
	Scientific	Aesthetic	Social	Historical	
DM2	Moderate	Low	Moderate	Low	Moderate
DM3	Moderate	Moderate	High	Moderate	Moderate
DM4	Moderate	Moderate	High	Moderate	Moderate
DM5	Moderate	Moderate	High	Moderate	Moderate
DM6	Moderate	Moderate	Low	Low	Low
DM9	Moderate	Moderate	High	Moderate	Moderate
DM10	Moderate	Moderate	High	Moderate	Moderate
DM11	Low	Low	Low	Low	Low
38-1-0033	Moderate	Moderate	High	High	High