

**THE REPORT OF AN ABORIGINAL HERITAGE SURVEY OF THE PROPOSED
SOUTHERN DRILL EXTENSION & POWER STATION SITE FOR THE CENTRAL WEST
COAL MINE AND COOLIMBA POWER STATION PROJECT AREAS,
CENTRAL WEST REGION,
WESTERN AUSTRALIA**

JANUARY 2009

For the

***Yued* Native Title Claimant Group,
South West Aboriginal Land and Sea Council Aboriginal Corporation and
Aviva Corporation**

By

Anthropos Australis Pty Ltd

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Whilst every effort has been made to ensure that all relevant data has been presented, the Author is not accountable for omissions and inconsistencies that may result from information which may come to light in the future but which was not forthcoming at the time of this research.

The results, conclusions and recommendations within this Report are based on information available at the time of its preparation.

CO-ORDINATE CAPTURE

The Author advises that all co-ordinates for newly recorded sites quoted in this Report were obtained with a Garmin Hand Held GPS unit using the GDA 94 Datum. All co-ordinates are in Zone 50J, unless otherwise stated.



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ACKNOWLEDGEMENTS

The Author would like to acknowledge and thank the following people in this Report:

- *Yued* Consultants: Malcolm Ryder, Charlie Shaw, Bruce Jetta, Dennis Jetta, Bev Port-Louis, Mary Nannup and Diane Mippy (see Plate 1);
- *Yued* Working Group;
- Frances Finch and Wendy Gilbert of the South West Aboriginal Land and Sea Council;
- Stephen Jones of Aviva Corporation; and
- Justin Beal, Rebecca Liestman, Jim Stedman, Claire Blight and Nicholas Green of Anthropos Australis Pty Ltd.

Plate 1: The *Yued* Survey Team



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EXECUTIVE SUMMARY

- Aviva Corporation intends to undertake an Exploration Drilling Program in an area here referred to as the Southern Drill Extension Survey Area and to construct a coal-fired Power Station within an area here referred to as the Power Station Site Survey Area within the Central West Coal Mine and Coolimba Power Station Project Area. The Survey Area is located within the Shires of Carnamah and Coorow, approximately 25 km east of Leeman and 20 km south of Eneabba in the Central West Region of Western Australia.
- This Report details the results of an Aboriginal heritage survey that used a Work Area Clearance methodology to examine the Survey Area, which lies within the *Yued* Native Title Claim (WC97/71).
- The Survey was conducted from Monday 1st to Friday 5th September 2008 by Justin Beal, Rebecca Liestman and Jim Stedman of Anthropos Australis Pty Ltd.
- The *Yued* Consultants that participated in the Survey have had the opportunity to view the Survey Area. The *Yued* Working Group and the South West Aboriginal Land and Sea Council has also approved the recommendations set out in this document.
- It is **recommended** that Aviva Corporation ensures their employees and contractors, as appropriate, are advised that:
 1. There are **two Not Cleared Work Areas** recorded within the Power Station Site Survey Area;
 2. All *moodjar* (aka Christmas) trees, including those in the Southern Drill Extension Survey Area, are to be considered as **Not Cleared Work Areas**;
 3. There are four isolated stone artefacts recorded within the creek flowing through the southern portion of the Power Station Site Survey Area;
 4. That the above locations may constitute Aboriginal sites to which the *Aboriginal Heritage Act 1972* applies and should, therefore, be avoided.
- It is further **recommended** that Aviva Corporation ensure that all vehicular access within the Project Area is limited to only those **Cleared Work Areas**



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that have been the subject of a formal heritage survey to ensure compliance with the *Aboriginal Heritage Act 1972*.

- It is further **recommended** that Aviva Corporation ensure that proposed Drill Lines and Drill Holes within the Project Area are limited to only those **Cleared** Work Areas that have been the subject of a formal heritage survey to ensure compliance with the *Aboriginal Heritage Act 1972*.
- It is further **recommended** that Aviva Corporation engage *Yued* Heritage Monitors through the South West Aboriginal Land and Sea Council during ground disturbing activity due to the potential for subsurface cultural material.
- It is further **recommended** that Aviva Corporation ensure the *Yued* Working Group, through the South West Aboriginal Land and Sea Council, is provided with a copy of any report pertaining to environmental studies and approvals required for the Survey Area, to afford the *Yued* Working Group with the opportunity to comment on any such report.
- It is further **recommended** that Aviva Corporation ensure that additional Aboriginal heritage surveys using the Work Program Clearance methodology, occur for any future proposed works in the Central West Coal and Coolimba Power Station Project Area.
- It is further **recommended** that Aviva Corporation ensure the *Yued* Working Group through the South West Aboriginal Land and Sea Council, is invited to participate in the revegetation of the Project Area.
- It is further **recommended** that Aviva Corporation ensure that employment and training opportunities that arise from the development of the Project be provided to the *Yued* Working Group through the South West Aboriginal Land and Sea Council.
- It is finally **recommended** that Aviva Corporation ensure the *Yued* Working Group is kept informed of the progress of the Project.



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SECTION ONE – INTRODUCTION AND BACKGROUND DATA

INTRODUCTION

Aviva Corporation (Aviva) intends to undertake an Exploration Drilling Program in an area here referred to as the Southern Drill Extension Survey Area (Polygon A Survey Area), and to construct a coal-fired Power Station within an area here referred to as the Power Station Site Survey Area (Polygon B Survey Area) within the Central West Coal Mine and Coolimba Power Station Project Area (Polygon A and Polygon B combined, forming the Project Area). The Survey Area is located within the Shires of Carnamah and Coorow, approximately 25 km east of Leeman and 20 km south of Eneabba in the Central West Region of Western Australia.

This Report details the results of an Aboriginal ethnographic and archaeological survey (the Survey) that used a Work Area Clearance methodology to examine the Survey Area, which lies within the *Yued* Native Title Claim (WC97/71 – see Figure 1). A northern portion of the proposed Central West Coal Mine is located within the *Amangu* Native Title Claim (WC04/2), but was not the subject of this Survey and, in addition, the *Amangu* people are represented by the Yamatji Marlpa Barna Baba Maaja Aboriginal Corporation (YMBBMAC).

The South West Aboriginal Land and Sea Council Aboriginal Representative Body (SWALSC) manages the conduct of Aboriginal heritage surveys on behalf of the *Yued* native title claimants. The SWALSC in turn engaged Anthropos Australis Pty Ltd to undertake the Survey.

The Survey Area consists of:

- Polygon A – the Southern Drill Extension Survey Area, approximately 109 ha in size (see Table 1); and
- Polygon B – the Power Station Site Survey Area, approximately 120 ha in size (see Table 1).



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Table 1: Coordinates of Polygon A and Polygon B forming the Survey Area

Survey Area	Grid Reference GDA 94, Zone 50J	Corner
Southern Drill Extension Polygon	331150mE 6683841mN	North West
	331720mE 6683841mN	North East
	331150mE 6682000mN	South West
	331754mE 6682000mN	South East
Power Station Site Polygon	327379mE 6685799mN	North West
	328497mE 6685815mN	North East
	327383mE 6684614mN	South West
	328497mE 6684622mN	South East

The objective of the Survey was to:

- Examine the Survey Area in order to identify whether the Southern Drill Extension and Power Station Site Survey Area contained any Not Clear Work Areas in relation to the proposed Exploration Drilling and the proposed construction of a coal-fired Power Station.

The Survey was conducted from Monday 1st to Friday 5th September 2008 by Justin Beal, Rebecca Liestman and Jim Stedman of Anthropos Australis Pty Ltd. The Survey was conducted with the cooperation and involvement of the *Yued* native title claimants who had been nominated by the *Yued* Working Group at a meeting on July 31st 2008 (the *Yued* Consultants – see Plate 1).

This Report has been prepared in order to provide feedback to the Survey participants, the SWALSC and Aviva on the conduct and results of the Survey.

REPORT FORMAT

The format and contents of this Report follow those suggested by the *Draft Guidelines for Aboriginal Heritage Assessment in Western Australia* (DAS 1993; DIA 2005).

This Report is divided into two sections:

Section One contains this Introduction, providing details of the Survey Area itself, the Personnel involved and the Environmental Background. The Archaeological Background is discussed as well as the Survey Methods and Notes on Aboriginal Site Recognition; and

Section Two details the Results of the Survey including the Ethnographic and Archaeological Survey Process and the Survey Method. This section also includes



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the Recommendations of the Report as well as the References Cited and the Appendices.

THE SURVEY AREA

The Survey Area is located within the Shires of Carnamah and Coorow, approximately 25 km east of Leeman and 20 km south of Eneabba, in the Central West Region of Western Australia.

The Project Area lies within land that is subject to native title claims by the *Amangu* (WC04/2) and *Yued* (WC97/71) native title claim groups, with the Southern Drill Extension Survey Area and the Power Station Site Survey Area occurring only within lands subject to the *Yued* native title claim.



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PERSONNEL

The following people and organisations participated in the Survey (the Survey Team):

ANTHROPOS AUSTRALIS PTY LTD

Justin Beal

Rebecca Liestman

Jim Stedman

YUED CONSULTANTS

Malcolm Ryder

Charlie Shaw

Bruce Jetta

Bev Port-Louis

Mary Nannup

Diane Mippy

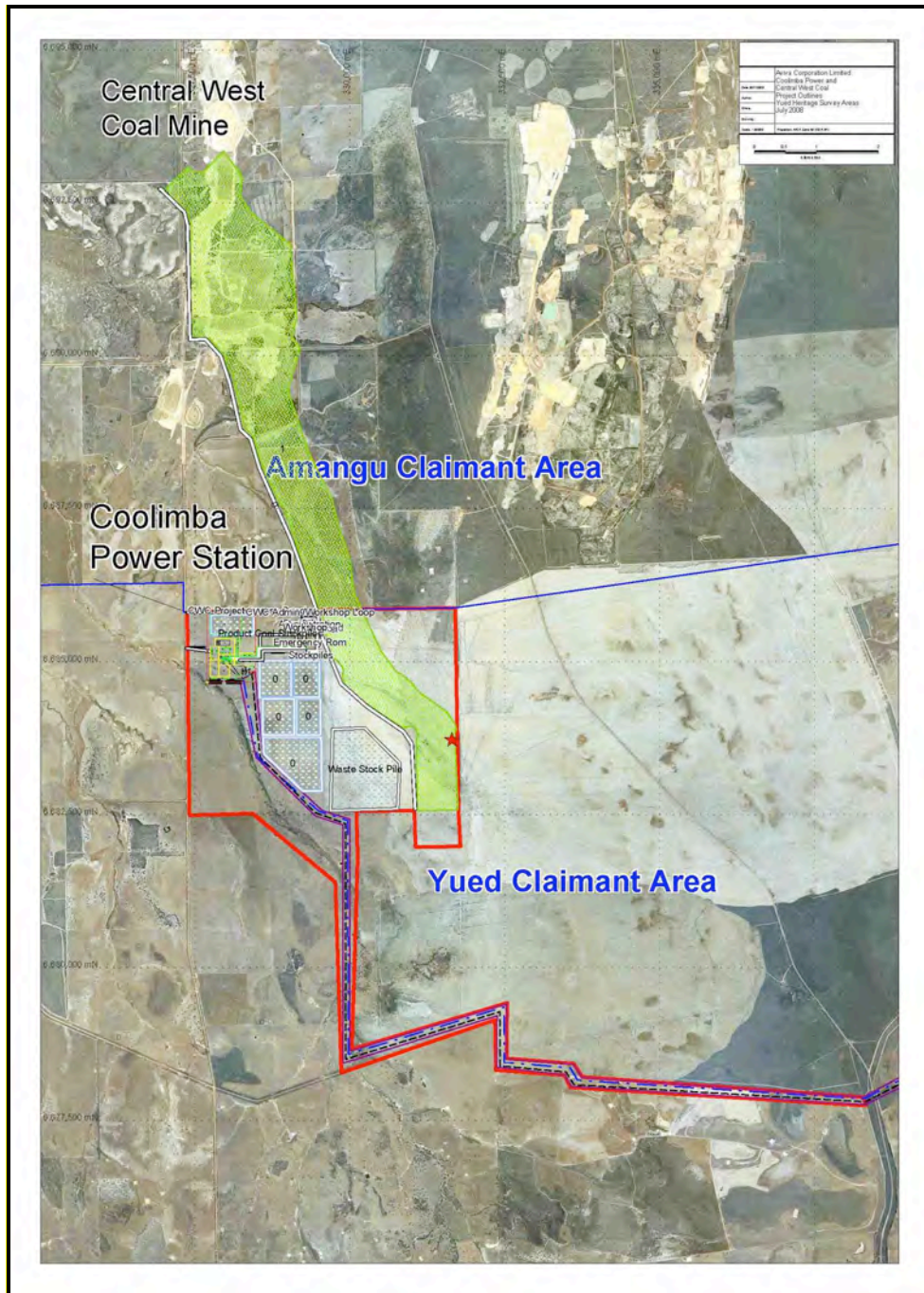
Dennis Jetta



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Figure 1: The Location of the Survey Area



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ENVIRONMENTAL BACKGROUND

The Survey Area is located within the Shires of Carnamah and Coorow, approximately 25km east of Leeman in the Central West Region of Western Australia.

CLIMATE

Leeman experiences a typical Mediterranean climate of hot, dry summers and cool wet winters (Beard 1976). During winter, mild weather and light winds are interspersed with occasional northwesterly gales and storms due to periodic low-pressure cyclonic systems from the south. Fine summer conditions are occasionally interrupted by strong winds and heavy rain resulting from periodic low-pressure tropical cyclones from the north (D'Adamo & Monty 1997; Marine Parks and Reserves Authority 2000). Air temperatures range from an average maximum temperature of 30.7 °C in February to an average minimum temperature of 9.4 °C in August (BOM 2006).

Maximum average monthly rainfall is 115.3 mm in July with a minimum of 6 mm in December (BOM 2006). Annual rainfall is on average of 480 mm, which is high compared to inland regions. Summer weather is controlled by high-pressure cells located over the Australian Bight, which direct hot easterly winds over southwestern Australia.

GEOLOGY AND GEOMORPHOLOGY

Jurien Bay, southwest of the Survey Areas, is located at the northern end of the Perth Basin, which is defined on its eastern margin by the Darling Fault, a major feature of Western Australia's western rim. Cretaceous and Tertiary sediments cover the area west of the Darling Fault and extending to the coast, where dunes have formed in the Quaternary (Playford *et al.* 1975).

The Leeman shoreline, west of the Survey Areas, is aligned generally north/south. Coastal landforms include curved sandy beaches, low dunes, sand promontories, fore-dune plains, rocky bluffs and headlands and low limestone cliffs. Tamala limestone deposited during the Quaternary period, around 240,000 years ago, underlies yellow quartz sand and surface sand layers of calcium carbonate, derived from marine sediments. Sediments are nutrient poor, porous and water repellent (Marine Parks and Reserves Authority 2000).

A low laterite ridge at the southwestern end of the Southern Drill Extension Survey Area gives way to less elevated, sandier country towards the north. The eastern boundary of the Southern Drill Extension Survey Area abuts the South Eneabba Nature Reserve and a gravel track runs along the fence line.



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VEGETATION

The Southern Drill Extension Survey Area (see Plate 2) comprises undulating sandy heath vegetated with remnant native bush. A wide range of plant species are present including *Acacia* spp, *Banksia* spp, *Grevillea* spp as well as scattered grass trees (*Balga*). Wildflowers were prolific at the time of the Survey and western grey kangaroos and emu were also observed. The average ground surface visibility at the time of the Survey was approximately 70%

The Power Station Site Survey Area (see Plate 3 and Plate 4) comprises undulating sandy farmland that has been cleared for sheep grazing. An old homestead surrounded by large *Eucalyptus* spp. trees is located in the central eastern portion of the Survey Area. The surrounding farm paddocks are vegetated with dandelion weeds and lupins. The northern paddock had sheep grazing in it at the time of the Survey. Ground surface visibility varied within the farm paddocks and averaged approximately 60%. The southwestern portion of the Survey Area comprises a reach of Bindoon Creek, which flows northwest through the Survey Area before flowing north into Lake Indoon. The creek was flowing at the time of the Survey. Paperbark trees line the creek banks, particularly on the northern side and an understorey of dense grasses resulted in low surface visibility levels. The incised and braided creek channel itself however, provided excellent surface visibility.



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Plate 2: Example of the vegetation of the Southern Drill Extension Survey Area



Plate 3: Example of the vegetation of the southern Power Station Site Survey Area



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**Plate 4: Example of the vegetation of the northern Power Station Site Survey Area,
view west**



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ARCHAEOLOGICAL BACKGROUND

Archaeological evidence and ethnographic data confirm the importance of fresh water for hunting, gathering, births and burials. The local Aboriginal site distribution around Dongara and Eneabba is similar to that along the coast from Busselton to Geraldton. Diaries of early settlers and explorers suggest that (from the mid-Holocene to the recent past) the chain of lakes, extending from Geraldton to Busselton, and the river systems, served as major highways offering rich hunting, reliable drinking water and good habitation sites (Quartermaine et al 2001).

The terrain along the coast generally consists of a band of coastal dunes, on the edge of a flat sandy plain intersected by major permanent rivers and minor ephemeral creeks. Due to natural water channels the coastal dunes and underlying limestone blocked the flow of many rivers leaving seasonal lakes, swamps and wetlands to develop. Hammond (1933) describes the established “native pads” or highway system that connected water sources. Many of these pads continued to be used by the early colonial settlers and are now major roads. Certain areas along these “native pads” served as the prime meeting places where different Aboriginal groups would meet, trade and feast almost exclusively on fish, caught in *mungahs* or wickerwork traps across rivers. Aboriginal groups would travel as far as Gingin for festivities in the Eneabba and Dongara areas. As a result, many births occurred at these locations from the congregation of large numbers of Aboriginal people. Also closely associated with large occupation sites are burials. Along the Irwin River, burials found suggest that the river held some significance as a final resting place. As burials are most likely to occur in the immediate area where a person died, burial sites can also be found near water. (Harris 1998).

During the 1980’s, the Department of Aboriginal Sites conducted an investigation of reported Aboriginal sites and consultant archaeologists carried out a number of Aboriginal archaeological surveys prior to infrastructure development in the region. Pearce (1982), in a survey along the Oakajee River, recorded 17 stone artefact scatters. Of these 17 Aboriginal sites, nine held the potential for stratification with small to moderate numbers of artefacts observed. The majority of the Aboriginal sites were found eroding from riverine sediment within a floodplain. In general, stone artefacts lay between 15 cm to 50 cm below the surface within the clay and silt banks of the river. The remainder of the Aboriginal sites consisted of only a few simple stone artefacts. Pearce interpreted these Aboriginal sites as evidence of periodic use of the area by small groups of Aboriginal people.

In 1984, Veth & Quartermaine, recorded nine Aboriginal sites along a 42 km survey transect for a lateral gas pipeline route. Several of the Aboriginal sites alongside rivers contained substantial and varied assemblages. Subsequently, other surveys have noted sparse surface scatters of quartz/quartzite flakes and fragments. A number of shellfish



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middens have also been recorded in the region. A study in the coastal zones between Geraldton and Cape Arid have test pitted middens containing fragments of shell and paperbark from within a hearth layer dating between 6300 \pm 150BP, 5840 \pm 100BP years, 4880 \pm 90 BP years and 300 \pm 90BP years. (Dortch *et al* 1984a and 1984b). These Aboriginal sites were interpreted as seasonal campsites, temporary occupation sites or evidence of Aboriginal people travelling through the area on annual visits to known food resource areas.

Schwede & von Bamberger (1996) have conducted a detailed study of Aboriginal archaeological sites in the Geraldton region which focused on the coastal area between Coronation Beach and Greenough River and the associated tributaries within the coastal strip, the Oakajee, Buller and Chapman Rivers. Their study concluded that most Aboriginal sites were adjacent to, or within one km of, water; large and extensive sites were usually highly positioned and located in deflations of yellow sand ridges which overlie the coastal limestone; extensive sites were generally found along the coastal belt in association with adjacent off-shore reefs; continuous artefact scatters were adjacent to major river systems; artefacts were made of quartz, chert and granite obtained from local sources such as rock outcrops and stream beds; all sites have flake, fragment and core components and most larger sites have grinding material. Most Aboriginal sites were small or part of a continuous scatter along river edges, which may be a product of site formation processes.

Schwede concluded that while ethno-historic sources suggest that Aboriginal occupation was focused on the major river systems and the wide alluvial valleys where huts and yam grounds were constructed, little archaeological evidence remains to support these notions.

Patterns of Aboriginal site distribution along rivers may be due to factors pertaining to site preservation and disturbance. The assemblages in the sites that occur along rivers suggest floodwaters have most likely redistributed artefacts. Many areas along the river valleys have also been cleared and developed for use as grazing or farmland, so that the surviving archaeological record is incomplete.

Although water is vitally important, the inherent dangers of water, particularly to young children, were well recognized; the *Waugal* mythology included highlighting the dangers of camping too close to water (Schwede & von Bamberger 1996).

There is little known information about the Survey Area. Information from various sources was ascertained to give a general outlook of the surrounding region. Further regional Aboriginal archaeological research may give a better understanding of the region encompassing the Survey Area in the future.



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SURVEY METHODS

The Survey involved the use of the following methods:

1. archival research;
2. a formal field survey of the Survey Area; and
3. Consultation with the *Yued* Consultants as representatives of the *Yued* native title claimant group

ARCHIVAL RESEARCH

The archival research involved a Register search conducted at the Department of Indigenous Affairs in order to access Aboriginal site files pertaining to previously recorded Aboriginal sites within the Survey Area and heritage survey reports detailing previous heritage surveys conducted in the region.

The object of the archival research was to:

1. ensure that any previously recorded Aboriginal sites which may be located within, or in close proximity to, the Survey Area was identified in advance;
2. gain an appreciation of the type of Aboriginal sites previously recorded in the region to provide an indication of the site types likely to be encountered during the Survey; and
3. gain an appreciation of site patterning throughout the region to provide an indication of the general distribution of sites and identify areas of high and low potential for sites in the region.

The results of the archival research were used to inform the Survey Team as to the nature and type of Aboriginal sites that could be expected to be encountered during the Survey and also to alert the Survey Team to the presence of those sites that have already been recorded in close proximity to the Survey Area itself.

The Register search revealed that there are **no** previously recorded Aboriginal sites within the Survey Area (see Appendix 1).

ETHNOGRAPHIC AND ARCHAEOLOGICAL SURVEY METHOD

The ethnographic component of the Survey was undertaken by driving the Senior *Yued* Consultants around and through the Survey Area, observing the archaeological Survey



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Team members undertaking the pedestrian Transects. In addition, Justin Beal undertook consultations with the Senior *Yued* Consultants.

The archaeological Survey methodology allowed for a minimum of 20% of the Survey Area to be sampled.

The archaeological component of the survey was undertaken conducted using a series of parallel pedestrian Transects, spaced at 25 m intervals. The creek flowing through the southern portion of the Power Station Site Survey Area was surveyed in a less formal manner, with the Survey Team walking meandering pedestrian Transects along both banks and within the creek bed itself.

It is estimated that 70% of the area of the Southern Drill Extension Survey Area and 40% of the area of the Power Station Site Survey Area was surveyed.

Justin Beal, Rebecca Liestman and Jim Stedman undertook regular briefings and debriefings with the *Yued* Consultants during the course of the Survey.

Justin Beal, Rebecca Liestman and Jim Stedman recorded details of the Survey in field notebooks. A pictorial record of the conduct of the Survey was also recorded on digital camera. GPS readings using the GDA 94 Datum, MGA Zone 50J, were used for navigation and for recording selected points within the Survey Area.

ABORIGINAL SITE RECOGNITION

On the basis of previous Aboriginal heritage surveys in the region, a number of different types of Aboriginal sites could be encountered within the Survey Area. Definitions of these sites are as follows:

Artefact scatter refers to locations where a range of activities has occurred such as the manufacture and maintenance of tools and the processing of foods. These sites will often contain a wider range of lithic materials than quarries and knapping floors.

Burial refers to a place where Aboriginal people were buried pre- and post-contact. These sites may be marked by stones and/or star pickets (for historic burials) or may have no recognisable features at all. Burial sites may have an associated traditional name or will be referred to by the *Yued* Consultants as the place “where x is buried”.

Camp refers to a location, which may have associated stone artefacts, or may be a historic camp with evidence of post-contact settlement such as star pickets, wire, cans, glass, Government Wells and old car bodies.

Ceremonial refers to a location where Aboriginal people practice or continue to practice traditional ceremonies. Ceremonial sites usually have an associated traditional name.



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Gnamma hole/water source refers to a natural or artificial rock cavity, which holds water after rain or is linked to the water table. Gnamma holes may have an associated traditional name. A water source may be a pool in a creek. If it is a permanent pool, it may have mythological significance.

Grinding patches refers to patches of smoothed rock of varying size.

Modified tree refers to a tree, which has trunks and/or limbs that have been modified by the removal of bark and/or wood. Aboriginal people removed wood and bark for material items such as shields and baskets or to access native honey inside hollows in the tree.

Mythological refers to a location where Aboriginal people have knowledge in story and or song about the activities of their Ancestral Beings. Mythological sites usually have an associated traditional name.

Named locality usually refers to a creek, section of river or other natural feature that has no associated mythological or ceremonial significance. Such localities are not necessarily considered to be Aboriginal sites.

Quarry refers to a location from which stone used to manufacture flaked or ground stone artefacts has been extracted.

Reduction area (or knapping floor) refers to a cluster of stone artefacts, which represent the remains of an episode (or episodes) of stone artefact manufacture. Artefacts within a knapping floor can usually be conjoined back together.

Rock art refers to art placed on a rock surface that may be created by additive (such as painting or drawing) or subtractive (such as abrading or engraving) processes.

Stone arrangement refers to a location where stones/rocks have been placed either as single events (standing stones) or as clusters or arrangements and which may have contemporary ceremonial and/or mythological significance. Stone arrangements may have an associated traditional name.

Structure is a term used by the DIA to refer to groupings or piles of rocks or tree branches, relating to economic (e.g. habitation) or ceremonial practices. For example, cairns may mark water sources; rock shelters may be walled to make small animal habitats and traps; and tall stones or lines of stones may indicate ritual grounds.



SECTION TWO - RESULTS

BACKGROUND

As noted in the introduction above, this Report details the results of an Aboriginal heritage survey within the Central West Coal Mine and Coolimba Power Station Project Area, located within the Shires of Carnamah and Coorow, approximately 25 km east of Leeman and 20 km south of Eneabba, in the Central West Region of Western Australia.

The Survey was conducted from Monday 1st to Friday 5th September 2008 by Justin Beal, Rebecca Liestman and Jim Stedman of Anthropos Australis Pty Ltd. The Survey was conducted with the cooperation and involvement of the *Yued* native title claimants nominated by the SWALSC (the *Yued* Consultants – see Plate 1).

The objective of the Survey was to:

- Examine the Survey Area in order to identify whether the Southern Drill Extension and Power Station Site Survey Area contained any Not Clear Work Areas in relation to the proposed Exploration Drilling and the construction of a coal-fired Power Station.

The results of the Survey are discussed in detail, below.

ETHNOGRAPHIC AND ARCHAEOLOGICAL SURVEY PROCESS

It is a requirement of the professional anthropological and archaeological organizations (Anthropological Society of Western Australia Inc., the Australian Anthropological Society Inc. and the Australian Association of Consulting Archaeologists Inc.) that indigenous people (selected by the relevant Aboriginal organizations) participate in heritage surveys. This ensures that the views of relevant Aboriginal organizations and interested individuals concerning Aboriginal ethnographic and archaeological sites are adequately represented and recorded during the conduct of surveys.

The Survey was conducted with the cooperation and involvement of selected representatives of the *Yued* claimant group. This group asserts traditional responsibility for and rights to protect and care for sites and objects within its native title claim area and assert their rights to participate in heritage surveys and to be consulted under the Act.

The Survey Area is located within the *Yued* Native Title Claim. Some of the *Yued* Consultants that participated in the Survey were born and live in the immediate region and are very familiar with the general area. The *Yued* Consultants were chosen and organised by the *Yued* Working Party Region 5 to participate in the Survey.



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SURVEY METHOD

At 6:45 am on Monday September 1st 2008, Justin Beal collected up Rebecca Liestman and then travelled to Mirrabooka and collected Bev Port-Louis. The three then travelled to Western Flora Caravan Park (Western Flora), approximately 22 km north of Eneabba, to meet with the other *Yued* Consultants and archaeologist Jim Stedman.

At 11:35 am, Justin Beal, Rebecca Liestman and Bev Port-Louis arrived at the Western Flora Caravan Park and met with Jim Stedman and the *Yued* Consultants. After checking in to the accommodation, the Survey Team gathered at 12:00 pm, for a briefing about the Survey and filled out medical and other forms.

At 1:15 pm, the Survey Team travelled to Eneabba for lunch.

At 2:30 pm, Justin Beal used a satellite telephone to contact the property owners of the land that was the subject of the Survey, and left a message on their telephone. Justin Beal also spoke with a second property owner and advised him that the Survey Team would be travelling on and through his property during the week.

At 2:45 pm, the Survey Team travelled out to the Survey Area for a reconnaissance.

At 3:15 pm, having driven the length of the western boundary of the Power Station Site Survey Area, the Survey Team stopped on Erindoon Road, adjacent to the southwest corner of the Survey Area and Justin Beal briefed the Survey Team on the nature of the proposed Works in the Survey Area, and referred to a map provided by Aviva. Justin Beal also briefed the Survey Team on the proposed methodology for the Survey.

At 3:25 pm, the Survey Team left Erindoon Road, adjacent to the southwest corner of the Survey Area, and drove to the Southern Drill Extension Survey Area to view this area. The Survey Team navigated to the northwest corner of the Survey Area, then drove in a southeast direction to the eastern boundary, then bearing south, drove the remaining length of the eastern boundary, and Justin Beal indicated the size of the Survey Area. The Survey Team stopped at the southeast corner of the Survey Area. While at this location, Justin Beal, Rebecca Liestman and Jim Stedman discussed, with the *Yued* Consultants, the proposed methodology for the following day's Survey.

At 4:15 pm, the Survey Team then left the Survey Area and drove back to their accommodation, and arrived at approximately 5:00 pm.

At 8:00 am on Tuesday 2nd September 2008, the Survey Team left their accommodation for the Southern Drill Extension Survey Area, and arrived at the southeastern corner of the Survey Area at 9:00 am. Malcolm Ryder spoke as a Senior *Yued* Consultant to welcome the Survey Team to the *Yued* traditional lands (see Plate 5).



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Plate 5: Briefing the Survey Team on Day 2



At 9:10 am, Justin Beal briefed the Survey Team on the proposed Survey methodology for the day, followed by a brief from Jim Stedman and Rebecca Liestman who explained the proposed archaeological Survey methodology.

At 9:20 am, Justin Beal made a scheduled call to Anthropos Australis in order to notify the location of the Survey Team. Justin Beal also returned a telephone call to Stephen Jones, of Aviva, but was unable to contact him at that time.

At 9:30 am, Jim Stedman placed the members of the Survey Team at 25 m intervals along the eastern boundary (331754mE in the southeast corner, changing to 331720mE in the northeast corner) of the Survey Area in preparation to walk the first Transect across the Survey Area. Rebecca Liestman commenced the Transect in the southeast corner, and maintained the southern boundary line (6682000mN) and walked in a westerly direction to the southwest corner, while five *Yued* Consultants were spaced at 25 m intervals, with Justin Beal amidst the *Yued* Consultants and Jim Stedman on the northernmost end of the first Transect. The Survey Team commenced the first Transect from the eastern boundary to the western boundary (331150mE) at 9:35 am. This Transect was completed at approximately 9:55 am.

After some group discussion at the end of the first Transect, the Survey Team spaced out again at 25 m intervals along the western boundary, and walked Transect 2 from the



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western boundary to the eastern boundary at 10:20 am. Again, the southern, “middle” and northernmost Transect lines were maintained by Jim Stedman (6682200mN), Justin Beal (6682300mN) and Rebecca Liestman (6682375mN) respectively, and each used a handheld GPS. The *Yued* Consultants were spaced at 25 m intervals between the GPS-using walkers. This Transect was completed at 10:40 am, on the eastern boundary of the Survey Area. Vehicles were retrieved and the Survey Team then had a tea break at 10:55 am.

At tea break, Justin Beal, Jim Stedman and Rebecca Liestman discussed the Survey methodology for the next Transect. It was decided to conduct a sample of the Survey Area, and so the archaeologists decided to travel further north along the eastern boundary before they lined up for Transect 3. It was decided to start the next Transect east/west along northing 6682800mN.

At 11:55 am, the Survey Team lined up for Transect 3, to be walked from the eastern boundary to the west. Rebecca Liestman maintained an east/west line on northing 6682800mN, Justin Beal maintained an east/west line on northing 6682900mN and Jim Stedman maintained an east/west line on northing 6682975mN. The *Yued* Consultants were spaced out at 25 m intervals between these three bearings. The Survey Team commenced walking this Transect at 12:00 pm, and completed the Transect at the western boundary (331150mE) at 12:20 pm.

The Survey Team then positioned themselves for Transect 4, which was to be walked from the western boundary to the eastern boundary of the Survey Area. As before, lines were maintained by the three members of the Survey Team with handheld GPS units – Jim Stedman (6683000mN), Justin Beal (6683100mN) and Rebecca Liestman (6683175mN), with the *Yued* Consultants spaced at 25 m intervals between these walkers. Transect 4 commenced at 12:30 pm, and was completed at 12:45 pm.

The vehicles were retrieved at 12:50 pm, and the Survey Team then travelled to Eneabba for lunch, and arrived at 1:20 pm. After lunch and errands were completed in Eneabba, Justin Beal discussed the proposed Survey methodology for the remainder of the afternoon with the archaeologists and the *Yued* Consultants. It was decided to go back to the Southern Drill Extension Survey Area.

At 2:30 pm, the Survey Team left Eneabba and arrived back at the eastern boundary of the Southern Drill Extension Survey Area in order to walk additional Transects.

At 3:10 pm, the Survey Team lined up on the eastern boundary of the Survey Area, along the sandy track immediately adjacent to the western boundary of the Eneabba Nature Reserve, on an easting of 331730mE. Rebecca Liestman maintained northing 6683325mN, Justin Beal 6683375mN and Jim Stedman 6683425mN with one *Yued* Consultant walking between those members of the Survey Team with handheld GPS units. Transect 5 commenced at 3:15 pm and ended on the western boundary (331150mE) at 3:35 pm. During this Transect Justin Beal recorded ethnographic information provided by Charlie Shaw in relation to a tree commonly referred to as a “Christmas Tree”, and which the *Yued*



people refer to as a *moodjar* tree (see the Results section of this Preliminary Advice and Plate 6). At the end of the Transect, Justin Beal recorded additional ethnographic information on the *moodjar* tree with Charlie Shaw and Malcolm Ryder.

Plate 6: *Moodjar* tree located at 331361mE 6683505mN



The Survey Team lined up for Transect 6 at 3:45 pm, on the western boundary (331150mE) of the Survey Area - Jim Stedman at 6683450mN, Justin Beal at 6683500mN, Rebecca Liestman at 6683550mN and *Yued* Consultants Malcolm Ryder and Charlie Shaw between those lines. The Survey Team commenced walking east at 3:50 pm, and finished on the sandy track forming the eastern boundary of the Survey Area at 4:10 pm. Justin Beal again recorded ethnographic information on the *moodjar* tree in discussion with Charlie Shaw.

The Survey Team arrived at the vehicles at 4:15 pm and commenced the return drive to their accommodation at the Western Flora Caravan Park, and arrived at 5:00 pm. Justin Beal attempted to telephone Stephen Jones of Aviva at 5:20 pm, but the latter was unable to be contacted at that time. Dennis Jetta joined the *Yued* Consultants at the accommodation that evening.

On Wednesday 3rd September 2008, the Survey Team left their accommodation at 7:45 am, and went to the Eneabba Service Station.



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At 8:20 am, the Team left the Eneabba Service Station and drove to the Southern Drill Extension Survey Area, in particular, the northwest corner of the Survey Area, and then drove in a southeast direction to the eastern boundary, then bearing south, drove the remaining length of the eastern boundary – this was to show Dennis Jetta, who had recently joined the Survey Team, the location and extent of the Survey Area.

The Survey Team then stopped the vehicles at 9:10 am, and Justin Beal then gave a debrief regarding the previous day's Survey of the Southern Drill Extension Survey Area. At this point, Justin Beal also recorded the *Yued* Consultants' recommendations in relation to the Survey Area. The Survey methodology for the remainder of the day was discussed, and it was agreed to proceed to the Power Station Site Survey Area. The Survey Team left the Southern Drill Extension Survey Area at 10:05 am, and drove to the Power Station Site Survey Area, entered the farm property of Brian and Tessa White at a gate marked with a sign, "Langford", at 327359mE 6685223mN, which is approximately midway along the western boundary of the Power Station Site Survey Area.

Once through the "Langford" gate, the Survey Team followed a fence line before they stopped at 10:30 am, at 328188mE 6684942mN on the western front of a dilapidated homestead. The Survey Team then stopped for a tea break. Jim Stedman walked around the homestead and inspected the trees for signs of Aboriginal use. It was determined that the trees were planted around the homestead and showed no signs of use by Aboriginal people.

At 10:45 am, Justin Beal called the property owners again and left a message to inform them that the Survey Team would be moving about their property.

From 11.15 am to 11:45 am, the *Yued* Consultants discussed with Justin Beal about what opportunities may or may not be available to them in the eventuality of a Mine and Power Station being constructed within the Survey Area. Justin Beal took notes and agreed to forward this information to the SWALSC.

At 11:50 am, the Survey Team drove the perimeter of the Power Station Site Survey Area, drove east then south from the dilapidated homestead and along the eastern boundary (328497mE) to the southeast corner of the Survey Area (328497mE 6684622mN).

At 12:00 pm, in the southeast corner of the Survey Area, Jim Stedman and Charlie Shaw inspected the farm paddock for ground visibility – the paddock was covered with yellow daisy and a blue-flowered legume.

At 12:05 pm, the Survey Team navigated west along the southern boundary (varying from northing 6684622mN in the southeast corner to 6684614mN in the southwest corner), and before they reached the southwest corner and were diverted northwest by a fence before they stopped to inspect a dam at 327536mE 6684953mN (see Plate 7) for stone artefacts. The Survey Team left the dam at 12:25 pm, and travelled to the western boundary fence line, then bearing north and back to the "Langford" gate, then travelled on to Eneabba.



The Survey Team had lunch at Eneabba from 12:45 pm. Justin Beal telephoned Stephen Jones of Aviva at 12:55 pm. Justin Beal asked Stephen Jones questions regarding the proposed drilling at the Southern Drill Extension Survey Area, and the western boundary of the Power Station Site Survey Area, in addition to reporting that the Survey was progressing successfully.

Plate 7: The Survey Team inspecting the dam at 327536mE 6684953mN



At 1:25 pm, the Survey Team left Eneabba and drove to the Power Station Site Survey Area, and stopped at 327365mE 6684602mN on Erindoon Rd, adjacent to the southwest corner of the Survey Area. From the road, some of the Survey Team looked for access through or over the fencing into the Survey Area. Some of the Survey Team was able to access the Survey Area through the fence. Justin Beal took the remainder of the Survey Team in a vehicle and through the “Langford” gate, then travelled south down the western boundary fence line before he stopped the vehicle at 2:15 pm, at 327548mE 6684872mN, in proximity to a creek (see Plate 8) that runs southeast to northwest in the southwest corner of the Survey Area. The Survey Team conducted meandering pedestrian Transects along the creek line, and inspected the area for evidence of Aboriginal occupation.



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Plate 8: Female *Yued* Consultants inspecting the creek in the Power Station Site Survey Area



At 2:42 pm, Jim Stedman located an isolated stone artefact at 327467mE 6684780mN.

At 2:45 pm, *Yued* Consultant Charlie Shaw located another isolated stone artefact at 327463mE 6684788mN. At this time, Jim Stedman and Rebecca Liestman recorded the morphological data regarding these artefacts.

At 2:50 pm, the Survey Team discussed the methodology for re-examining the remainder of the creek within the Survey Area. Meanwhile, three of the male *Yued* Consultants continued to inspect westwards along the creek until they reached the western boundary of the Survey Area. The archaeologists completed recording the artefacts at 3:10 pm, and the Survey Team returned to the vehicles.

At 3:20 pm, the Survey Team left the Survey Area for their accommodation, stopped via Eneabba, and arriving back at the Western Flora Caravan Park at 4:10 pm.

On Thursday 4th September 2008, the Survey Team left their accommodation at 7:45 am, for the Power Station Site Survey Area, and arrived at the “Langford” gate at 8:30 am. The Survey Team then drove east until they reached the eastern boundary of the Survey Area at 328497mE, then drove north along the eastern boundary.



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At 8:45 am, the vehicles reached 328480mE 6685826mN, in immediate proximity to the northeast corner of the Survey Area, which is located at 328497mE 6685815mN. The Survey Team drove west along the northern boundary fence line and at 8:55 am, the vehicles stopped at 327383mE 6685797mN, in immediate proximity to the northwest corner of the Survey Area at 327379mE 6685799mN. Justin Beal discussed with Jim Stedman and Rebecca Liestman the proposed Survey methodology for walking the pedestrian Transects of the Survey Area. The male *Yued* Consultants asked to commence the Transects from the northeast corner, as they had noticed points of interest when they drove the northern boundary, so the Survey Team then drove the vehicles back to the northeast corner of the Survey Area.

At 9:10 am, the Survey Team lined up from the northeast corner and points south along the eastern boundary in preparation to walk the first formal Transect of the Power Station Site Survey Area. Again, spacings for the walkers were in multiples of 25 m. Rebecca Liestman maintained the line of the northernmost Transect at 6685800mN, Justin Beal at 6685725mN and Jim Stedman at 6685650mN, with the male *Yued* Consultants at 25 m intervals between those points. The Survey Team commenced the walk east to west at 9:15 am, and completed the Transect 1 at 9:45 am, on the western boundary fence line.

At 10:00 am, having moved further south along the western boundary fence line (327388mE), the Survey Team commenced Transect 2 of the Power Station Site Survey Area, and Rebecca Liestman maintained the west/east line at northing 6685225mN, Justin Beal at 6685150mN and Jim Stedman at 6685075mN, with the *Yued* Consultants at 25m intervals between those points. The Survey Team walked west, at approximately 10:20 am, past the dilapidated homestead and completed Transect 2 at 10:25 am, on the eastern boundary fence line (328497mE). The Survey Team then walked back to the dilapidated homestead and stopped for a tea break.

During the tea break it was discussed that the Survey Team would re-inspect the creek in the southwest corner of the Survey Area.

At 11:25 am, the Survey Team left the homestead and drove to the southern boundary and followed it to the point where it intersected with the creek. The Survey Team disembarked from the vehicles, Justin Beal, Malcolm Ryder, Dennis Jetta, Rebecca Liestman, Mary Nannup and Diane Mippy navigated to the point where the southern boundary of the Power Station Site Survey Area intersected the creek, which flowed in a northwesterly direction through the southwest corner of the Survey Area, and arrived at 327643mE 6684611mN at 11:50 am. Meanwhile, Jim Stedman and Charlie Shaw inspected part of the creek that was to the south of and outside the boundary of the Survey Area.

The Survey Team divided into three members who walked west on the north bank of the creek and three members who walked west on the south bank of the creek (see Plate 9), towards the western boundary of the Survey Area.



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Plate 9: Dennis Jetta inspecting the creek in the Power Station Site Survey Area



At 12:25 pm, Rebecca Liestman recorded an isolated stone artefact, located at 327517mE 6684721mN. Justin Beal then walked in a south-southwesterly direction towards the southwest corner of the Survey Area (327383mE 6684614mN) before being stopped by a fence at 327403mE 6684711mN, approximately 20 m east and 100 m north of this corner. The Survey Team arrived back at the creek at 12:35 pm, and Rebecca Liestman and Jim Stedman recorded another isolated stone artefact at 327460mE 6684807mN. The Survey Team then walked back to the vehicles at 12:40 pm.

At 12:50 pm, Rebecca Liestman and Jim Stedman went to record an additional isolated stone artefact located just south and outside of the Survey Area at 327815mE 6684533mN. Once the archaeologists returned to the vehicles, the Survey Team agreed to drive to Eneabba for lunch. At this point, the male *Yued* Consultants were still on the walk amongst the trees on the north bank of the creek.

At 1:05 pm, the Survey Team stopped at a stand of four *moodjar* trees and the male *Yued* Consultants asked Justin Beal to record the trees as a **Not Clear Work Area** (see Plate 10 and Table 2 in Ethnographic Results section below). Justin Beal recorded additional ethnographic information to support that request. A south-facing photograph was taken from 327544mE 6684850mN. Justin Beal completed recording the **Not Clear Work Area** around the *moodjar* trees at 1:20 pm.



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Plate 10: View south of *moodjar* trees located at 327544mE 6684850mN – Not Clear Work Area



At 1:25 pm, the Survey Team drove to Eneabba for lunch, and arrived at approximately 1:40 pm.

At 2:10pm, during lunch, the *Yued* Consultants discussed their recommendations for the Power Station Site Survey Area with Justin Beal.

At 2:30 pm, the Survey Team discussed the methodology for continuing the Survey that afternoon. It was agreed to drive back to the creek and mark out GPS points along the northern and southern boundaries of the creek to demarcate the creek and its associated vegetation as a **Not Clear Work Area**.

The Survey Team arrived back at the northwestern corner of the creek at 2:55 pm, and Justin Beal, in consultation with the *Yued* Consultants, recorded GPS waypoints to demarcate the boundaries of a **Not Clear Work Area** around the creek and its vegetation where it was within the Power Station Site Survey Area (see the Results section). This **Not Clear Work Area** of the creek also incorporates the stand of four *moodjar* trees earlier recorded as a **Not Clear Work Area**.



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In recording the GPS waypoints to form a boundary around the creek, Justin Beal recorded waypoints along the northern boundary of the creek and its vegetation, and Rebecca Liestman recorded waypoints along the southern boundary of the creek.

Recording of the waypoints around the creek was completed at approximately 3:40 pm. From 3:45 pm to 4:10 pm, Justin Beal sat on the banks of the creek with the male *Yued* Consultants and recorded ethnographic information pertaining to the creek (see the Results section). The Survey Team then left the creek and Survey Area at 4:20 pm, and arrived back at their accommodation at approximately 5:00 pm.

On the final day of the Survey, Friday 5th September 2008, the Survey Team, having agreed to walk additional Transects at the Southern Drill Extension Survey Area, drove in the “Big Valley” gate off Erindoon Rd, and arrived at 8:20 am. The *Yued* Consultants left their vehicles at the gate and then travelled in the vehicles driven by Jim Stedman and Justin Beal to the Southern Drill Extension Survey Area.

The Survey Team stopped on the eastern boundary of the Southern Drill Extension Survey Area at 8:45 am. The Survey Team then lined up on the eastern boundary, in preparation to walk Transect 7 of the Survey Area in a westerly direction. The Survey Team commenced the Transect from the sand track on the eastern boundary (331765mE), and the walkers were spaced at 25 m intervals. Rebecca Liestman maintained the east to west line along northing 6682400mN, with Justin Beal at 6682475mN and Jim Stedman at 6682550mN. Transect 7 commenced at 8:55 am, and was completed at 9:15 am.

At 9:20 am, the Survey Team inspected an existing drill hole at 331152mE 6682558mN, which was located on the edge of a sandy track (see Plate 11), which ran east west through the Survey Area along an approximate northing of 6682550mN. The *Yued* Consultants had numerous questions as to the origin and age of the drill hole, and whether it had been the subject of a previous heritage survey.

At 9:30 am, the Survey Team commenced on the western boundary (331150mE) and walked Transect 8 back towards the eastern boundary of the Survey Area. Jim Stedman was on northing 6682575mN, Justin Beal on 6682650mN and Rebecca Liestman on 6682725mN with the *Yued* Consultants spaced at 25 m intervals north and south between these locations. The Transect was completed at 10:00 am.

The Survey Team considered another Transect, but decided the Survey Area had been amply sampled. Instead, some recordings were made of existing drill hole locations within the Survey Area and questions were noted as to why and when the drill holes may have been created, and whether they were preceded by heritage surveys. An uncapped drill hole with animal tracks ending at its edge was recorded at 331639mE 6683450mN.



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Plate 11: View north east of capped Drill Hole located at 330962mE 6683929mN



At 10:35 am, Justin Beal conducted a debrief of the entire week's Survey, and reminded the *Yued* Consultants of the proposed Works, the areas surveyed and the recommendations recorded. Additional recommendations were also recorded at this point.

At 10:55 am, the Survey Team drove out from the Survey Area, and arrived back at the *Yued* Consultants' vehicles at 11:15 am. The male *Yued* Consultants left for their homes in their own vehicles, and Charlie Shaw left with Jim Stedman. Rebecca Liestman sat with the female *Yued* Consultants and discussed some gender specific ethnographic information.

At 11:45 am, Rebecca Liestman finished speaking with the female *Yued* Consultants and these women then left in their vehicles for their homes.

The Survey was complete and Justin Beal and Rebecca Liestman left the Survey Area at approximately 12:00 pm, and arrived back at the Anthropos Australis office in O'Connor at approximately 4:15 pm.



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RESULTS OF THE SURVEY

ETHNOGRAPHIC SURVEY RESULTS

The *Yued* Consultants that participated in the Survey have had the opportunity to view the Survey Area. The recommendations regarding the Survey Area are detailed below.

The *Yued* Consultants have advised that the proposed Southern Drill Extension Survey Area and Power Station Site Survey Area are cleared to proceed, excluding all Not Clear Work Areas as indicated below (see also Table 2).

The *Yued* Consultants have designated the creek and its associated vegetation within the Power Station Site Survey Area as a **Not Clear Work Area** (see Table 2) and, within this **Not Clear Work Area** they have added an additional **Not Clear Work Area**, being a stand of *moodjar* trees (see Plate 10). *Moodjar* trees are commonly known as Christmas Trees, and have an orange flower when in bloom. The *Yued* Consultants also refer to *moodjar* trees as “spirit trees”, as there are a number of practices and beliefs relating to death and burial practices that are associated with these trees. In consequence, the *Yued* Consultants have requested that **all *moodjar*/Christmas trees be avoided and considered as Not Clear Work Areas** in both the Southern Drill Extension Survey Area and Power Station Site Survey Area.

ARCHAEOLOGICAL SURVEY RESULTS

No Aboriginal archaeological sites or objects were located within the Southern Drill Extension Survey Area.

Four isolated stone artefacts were located and recorded within the creek flowing through the southern portion of the Power Station Site Survey Area (see Plate 12 and Plate 13). Details of these artefacts are provided in Table 3 below. An additional isolated stone artefact was recorded from the creek bank, outside the southern boundary of the Power Station Site Survey Area.



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Plate 12: Example of isolated stone artefacts-dorsal view (Scale = 10 cm)



Plate 13: Example of isolated stone artefacts-ventral view (Scale = 10 cm)



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Table 2: Waypoints demarcating Not Clear Work Areas in the Power Station Site Survey Area

Waypoint	Grid Reference GDA 94, Zone 50J	Not Clear Work Area Type	Notes
1	327389mE 6684912mN	creek and vegetation	north side of creek & vegetation, at western boundary of Power Station Site polygon
2	327450mE 6684906mN	creek and vegetation	north side of creek and vegetation
3	327553mE 6684857mN	creek and vegetation	north side of creek and vegetation
4	327593mE 6684827mN	creek and vegetation	north side of creek and vegetation
5	327645mE 6684727mN	creek and vegetation	north side of creek and vegetation
6	327665mE 6684637mN	creek and vegetation	north side of creek and vegetation
7	327738mE 6684576mN	creek and vegetation	north side of creek; south of southern boundary of Power Station Site Polygon
8	327625mE 6684548mN	creek and vegetation	south side of creek and vegetation
9	327570mE 6684634mN	creek and vegetation	south side of creek and vegetation
10	327520mE 6684703mN	creek and vegetation	south side of creek and vegetation
11	327455mE 6684744mN	creek and vegetation	south side of creek and vegetation
12	327390mE 6684810mN	creek and vegetation	south side of creek and vegetation, near western boundary of Power Station Site polygon
A	327535mE 6684855mN	<i>Moodjar</i> (Christmas Tree) stand	within the creek Not Clear Work Area of the Power Station Site polygon. <i>Moodjar</i> trees hold ethnographic significance for the <i>Yued</i> people. Referred to also as “spirit trees”, they are the potential site of human burials ¹ .
B	327555mE 6684855mN	<i>Moodjar</i> (Christmas Tree) stand	
C	327535mE 6684835mN	<i>Moodjar</i> (Christmas Tree) stand	
D	327555mE 6684835mN	<i>Moodjar</i> (Christmas Tree) stand	

¹ As described in the Ethnographic Survey Results, *moodjar* (aka Christmas) trees are also to be considered as **Not Clear Work Areas** where they occur in the Southern Drill Extension Survey Area.



Table 3: Isolated stone artefacts recorded within the Power Station Site Survey Area

Artefact Type	Lithology	Length (mm)	Width (mm)	Thickness (mm)	Platform Width (mm)	Platform Thickness (mm)	Platform Surface	Dorsal Flake Scars	#Parallel Arris	% of Cortex	Location
F	CL	23	17	8	8	3	FL	2	0	80	327467mE 6684780mN
F	CH	29	13	5	8	2	FA	2	1	0	327463mE 6684788mN
FF	CH	16	29	4				0	0	5	327517mE 6684721mN
F	QZ	18	8	2	1	1	FA	1	0	10	327460mE 6684807mN



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RECOMMENDATIONS

The *Yued* Consultants that participated in the Survey have had the opportunity to view the Survey Area. The *Yued* Working Group and the South West Aboriginal Land and Sea Council has also approved the recommendations set out in this document.

It is **recommended** that Aviva Corporation ensures their employees and contractors, as appropriate, are advised that:

1. There are **two Not Cleared Work Areas** recorded within the Power Station Site Survey Area;
2. All *moodjar* (aka Christmas) trees, including those in the Southern Drill Extension Survey Area, are to be considered as **Not Cleared Work Areas**;
3. There are four isolated stone artefacts recorded within the creek flowing through the southern portion of the Power Station Site Survey Area;
4. That the above locations may constitute Aboriginal sites to which the *Aboriginal Heritage Act 1972* applies and should, therefore, be avoided.

It is further **recommended** that Aviva Corporation ensure that all vehicular access within the Project Area is limited to only those **Cleared Work Areas** that have been the subject of a formal heritage survey to ensure compliance with the *Aboriginal Heritage Act 1972*.

It is further **recommended** that Aviva Corporation ensure that proposed Drill Lines and Drill Holes within the Project Area are limited to only those **Cleared Work Areas** that have been the subject of a formal heritage survey to ensure compliance with the *Aboriginal Heritage Act 1972*.

It is further **recommended** that Aviva Corporation engage *Yued* Heritage Monitors through the South West Aboriginal Land and Sea Council during ground disturbing activity due to the potential for subsurface cultural material.

It is further **recommended** that Aviva Corporation ensure the *Yued* Working Group, through the South West Aboriginal Land and Sea Council, is provided with a copy of any report pertaining to environmental studies and approvals required for the Survey Area, to afford the *Yued* Working Group with the opportunity to comment on any such report;

It is further **recommended** that Aviva Corporation ensure that additional Aboriginal heritage surveys using the Work Program Clearance methodology, occur for any future proposed works in the Central West Coal and Coolimba Power Station Project Area.



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It is further **recommended** that Aviva Corporation ensure the *Yued* Working Group through the South West Aboriginal Land and Sea Council, is invited to participate in the revegetation of the Project Area.

It is further **recommended** that Aviva Corporation ensure that employment and training opportunities that arise from the development of the Project be provided to the *Yued* Working Group through the South West Aboriginal Land and Sea Council.

It is finally **recommended** that Aviva Corporation ensure the *Yued* Working Group is kept informed of the progress of the Project.



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APPENDIX 1

DIA REGISTER SEARCH EXTRACT



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Search Criteria

0 sites in a search polygon. The polygon is formed by these points (in order):

MGA Zone 50	
Northing	Easting
6683841	351150
6683841	331720
6682000	331150
6682000	331754



Disclaimer

Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist. Consultation with Aboriginal communities is on-going to identify additional sites. The AHA protects all Aboriginal sites in Western Australia whether or not they are registered.

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Legend

Restriction	Access	Coordinate Accuracy
N No restriction	C Closed	Accuracy is shown as a code in brackets following the site coordinates.
M Male access only	O Open	[Reliable] The spatial information recorded in the site file is deemed to be reliable, due to methods of capture.
F Female access	V Vulnerable	[Unreliable] The spatial information recorded in the site file is deemed to be unreliable due to errors of spatial data capture and/or quality of spatial information reported.

Status

L Lodged	IR Insufficient Information (as assessed by Site Assessment Group)
I Insufficient Information	PR Permanent register (as assessed by Site Assessment Group)
P Permanent register	SR Stored data (as assessed by Site Assessment Group)
S Stored data	

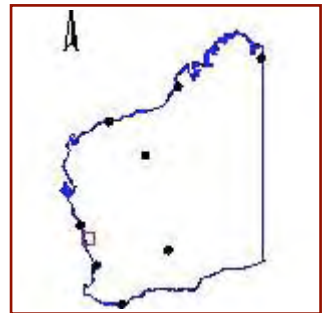
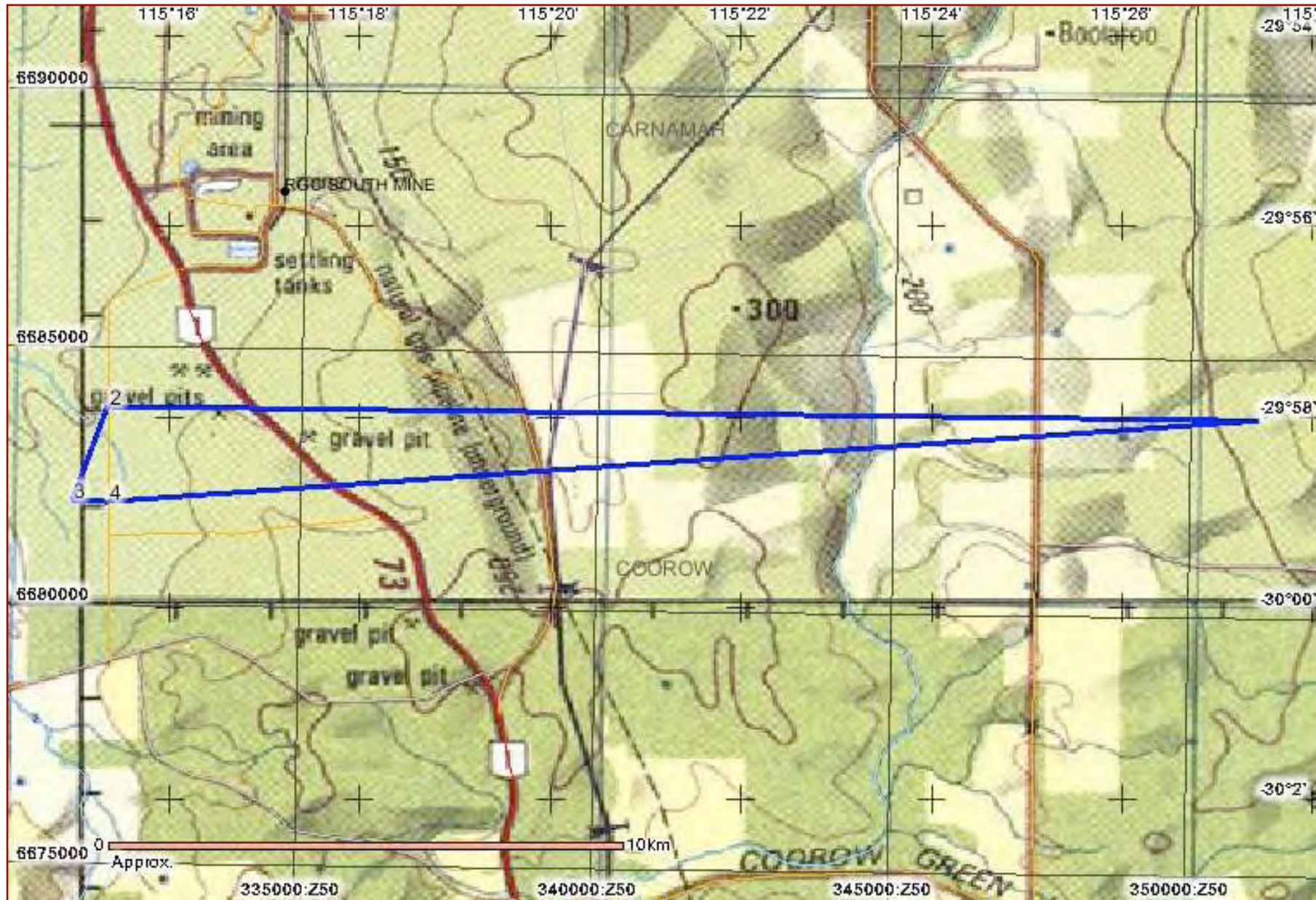
Site Assessment Group (SAG)

Sites lodged with the Department are assessed under the direction of the Registrar of Aboriginal Sites. These are not to be considered the final assessment.


Final assessment will be determined by the Aboriginal Cultural Material Committee (ACMC).

Spatial Accuracy

Index coordinates are indicative locations and may not necessarily represent the centre of sites, especially for sites with an access code "closed" or "vulnerable". Map coordinates (Lat/Long) and (Easting/Northing) are based on the GDA 94 datum. The Easting / Northing map grid can be across one or more zones. The zone is indicated for each Easting on the map, i.e. '5000000:Z50' means Easting=5000000, Zone=50.



Legend

-  Highlighted Area
-  Town
-  Map Area
-  Search Area

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Search Criteria

0 sites in a search polygon. The polygon is formed by these points (in order):

MGA Zone 50	
Northing	Easting
6685799	327379
6685815	328497
6684622	328497
6684614	327383



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Status

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I Insufficient Information	PR Permanent register (as assessed by Site Assessment Group)
P Permanent register	SR Stored data (as assessed by Site Assessment Group)
S Stored data	

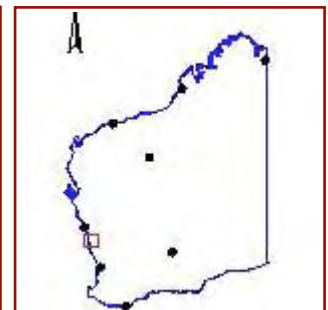
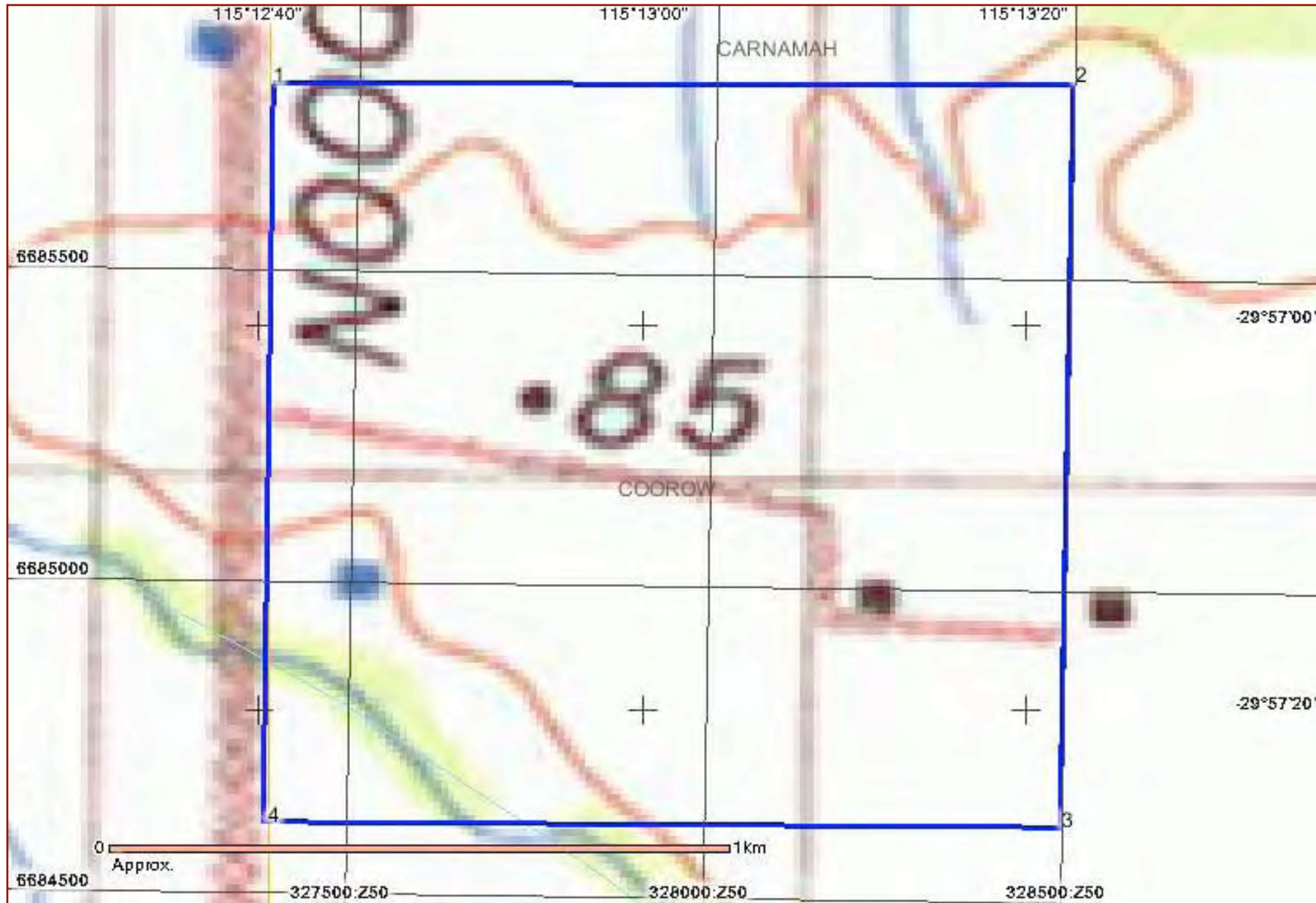
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Legend

- Highlighted Area
- Town
- Map Area
- Search Area

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APPENDIX 2

ARTEFACT RECORDING METHODS & ARTEFACT RECORDING CODES



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ARTEFACT RECORDING METHODS

Stone Artefact Identification

Flaked stone artefacts

Flaked stone objects are identified as *artefacts* if one or more of the following characteristics are present (after Hiscock 1984: 128):

1. A positive or negative ring crack;
2. A distinct negative or positive bulb of percussion;
3. A definite erailure scar beneath a striking platform; and
4. Definite remnants of flake scars (e.g. dorsal scars and ridges).

Three types of stone artefacts, flakes, cores and retouched flakes, are identifiable (after Hiscock 1984: 129).

A *flake* exhibits one or more of the following characteristics:

1. A ring crack where the percussor struck the core;
2. A positive bulb of percussion; and
3. An erailure scar beneath a striking platform.

A *core* displays one or more complete negative flake scars and no positive flake scars. There are two types of cores:

1. *Single-platform cores*, defined as artefacts from which flakes have been detached from a single platform.
2. A *multi-platform core*, by contrast, is an object from which flakes have been detached from several different striking platforms.

A *retouched flake* exhibits flake scars extending onto the ventral surface and/or deriving from the ventral surface. Since such flake scars may form during use or treadage, as well as during knapping, strict criteria must be applied. Only those flake scars longer than approximately 3 mm and which displayed a distinct ring crack, are recorded as retouch.

In addition, two types of formal implements have been identified from this region:



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1. A *tula*, defined as a flake with a prominent bulb, large striking platform and a platform/ventral surface angle of approximately 130°. Tulas are retouched at the distal end (Hiscock 1988: 331).
2. A *backed artefact* is a thin flake with steep, bipolar retouch on one lateral margin and a sharp edge on the opposite margin.

Artefacts, which cannot be identified as cores, retouched flakes or flakes owing to the absence of the above diagnostic attributes are usually classed as '*debris*'.

Manuports are unmodified humanly transported stone.

Ground stone artefacts

The following types of ground stone artefacts have been identified from the region (after Smith 1985: 33):

1. Muller: A triangular/oval shaped hand-sized pebble or rock. The grinding area can occur on one or both end surfaces;
2. Pestle: is a fist sized pebble with one abraded flat or convex surface;
3. Millstone: a movable large flat slab with one or two long shallow grooves worn through the process of abrasion. Such artefacts can have flaked margins; and
4. Mortar: A flat surfaced slab/pebble with an oval or round abraded area on one or two faces.

Stone Artefact Recording Procedures

Stone artefacts within both the background scatter and on Aboriginal archaeological sites were recorded individually in order to characterise spatial variation in the range and types of archaeological materials across the landscape.

Flakes and Retouched Flakes

The following morphological attributes were measured and recorded for flakes and retouched flakes in the background scatter:

1. Length, or the distance along the percussion axis from the ring crack to the distal margin;
2. Width, or the distance between the lateral margins measured at right angles to the percussion axis half way between the ring crack and distal margin;



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3. Thickness, or the maximum distance between the ventral and dorsal surface of the flake half way between the ring crack and the distal margin;
4. Platform width, or the distance along the striking platform from one lateral margin to the other;
5. Platform thickness, or the distance across the striking platform from the centre of the ring crack to the dorsal surface;
6. Type of striking platform. Five types of platforms were recognised on flakes:
 - a) cortical (unmodified platform consisting entirely of the outer surface of the parent rock);
 - b) flat (platform where it is not possible to determine whether it has a partial single flake scar, or if it has been heat fractured);
 - c) flaked (striking platform formed by one flake scar);
 - d) faceted (striking platform has a number of flake scars resulting from rotation of the core); and
 - e) crushed (the proximal end of the flake is constituted by a sharp edge lacking a distinct platform);
7. Number of dorsal flake scars;
8. Number of parallel dorsal flake scar arrises;
9. The proportion of cortex on the dorsal surface of flakes was measured to the nearest 5%;
10. Overhang removal. The presence or absence of this form of platform preparation, which is “accomplished when the knapper strikes or brushes the edge of the platform and removes small flakes from the edge” (Hiscock 1986: 49), was noted; and
11. Retouch/Utilisation. The presence of edge modification by the removal of small flakes is measured and the location is noted.

Cores

The following attributes were recorded for cores in the background scatter:

1. Length, or the size of the core along its maximum dimension;
2. Width, or the size of the core measured at a perpendicular angle to the length;



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3. Thickness, or the size of the core measured at 90° to the both the width and the length;
4. Number of platforms;
5. Number of flake scars;
6. The length and width of each complete flake scar. These are measured in the same way as complete flakes (see above).
7. Proportion of cortex measured to the nearest 5%; and
8. Presence of Retouch/Utilisation.

ARTEFACT RECORDING CODES

Artefact Type:

Artefacts were identified in accordance with the methodology outlined above. The following abbreviations have been employed in this Report.

F	Flake
FF	Flake fragment

Lithology:

The material from which the artefact was manufactured. The following abbreviations have been employed in this Report.

CL	Chalcedony	QZ	Quartzite
CH	Chert		

Platform Surface:

The type (or form) of striking platform of flakes. The following abbreviations have been employed in this Report.

FL	Flat	FA	Faceted
-----------	------	-----------	---------

Number of Dorsal Flake Scars:

The number of scars caused by the removal of flakes was recorded. In the case of the flakes the number of scars on the dorsal surface was recorded.



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Cortical Index:

Cortex is the weathered, chemically altered surface of a rock. The amount of cortex on the cores and on the dorsal surface of flakes was recorded to the nearest 5%.

Overhang removal:

Records the presence or absence of overhang removal. No overhang removal was recorded.

Location of Retouch:

Records the location and length of retouch on the margins of an artefact. No retouch was recorded.



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