AN ARCHAEOLOGICAL SURVEY
FOR THE PROPOSED 11kV POWERLINE EXTENSION
BETWEEN RITTARANGU AND NGUKURR, NT

A report for PowerWater.

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SUMMARY

An archaeological survey was carried out over the 12 metre wide corridor that will be disturbed by the proposed above ground powerline to be constructed by the Power and Water Corporation between Rittarangu and Ngukurr.

The survey did not identify any archaeological or historic sites or objects. Therefore no further action is required for compliance with the provisions of the *Northern Territory Conservation Act, 1991*. 
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1.0. INTRODUCTION

This report describes an archaeological survey that was carried out over the route of a proposed 11kV powerline between Rittarangu and Nagukurr to be constructed by the Power and Water Corporation. The alignment commences approximately three kilometres north of Ngukurr at the end of the existing powerline and then runs along the northern side of the Roper Highway between the road and the existing optic fibre cable. The alignment crosses the road near the Telstra repeater tower and then travels across country and over the Wilton River to the existing alignment at Rittarangu. Another 500 metres of powerline will be constructed south of the power station at Rittarangu to several bore holes.

The total length of the proposed route is approximately 18.5 kilometres and the area surveyed for both powerlines was 6m either side of the powerline centreline (Figure 1). The exact alignment of the powerline is dependent, in part, on the results of this investigation.

Begnaze Pty Ltd was engaged by the Power and Water Corporation to undertake the archaeological survey. The survey was carried out over two days by Christine Crassweller accompanied by Nadine Riethmuller, an employee of Power and Water and for half a day by Max Wark from the Yugal Mangi Council in August 2008.

1.1. Consultancy Brief.

The aim of the study is to locate and record any archaeological objects or places and to ensure compliance with the provisions of the Northern Territory Heritage Conservation Act 1991. The archeological survey will be carried out as follows:

- The archaeological and heritage study will identify archaeological material within the designated areas by means of a survey carried out in a manner that will ensure the highest possible coverage of the area.

- Any archaeological or heritage places, objects or classes of objects located during the survey will be recorded in such detail as to permit independent assessment of their significance. The location of any archaeological places and objects will include coordinates obtained by a Global Positioning System (GDA94). All sites will be named in order to identify the sites on the ground.

- After assessing the significance of the archaeological places or objects that will be disturbed by the development, recommendations will be made regarding compliance with the provisions of the Northern Territory Heritage Conservation Act 1991.

2.0 BACKGROUND INFORMATION

2.1. Environmental

The proposed route of the 11kV power line lies over the Roper Group Sandstones with outcrops of the Redcliff Pound Group of dolerites north of the alignment and the Mt Rigg Group of siltstones on the stony hills in the east of the route (Aldrich et al. 1992). The majority of the alignment crosses either flat to gently undulating plains, or undulating to rolling hills and low rises, both overlying sandstone, siltstone or shale (Kinhill 1995). Near the Wilton there are prominently bedded sandstones or siltstone on low low rises. Small floodplains surround several ephemeral creeks. The vegetation consists of woodlands of Eucalyptus tectifica and Eucalyptus terminalis with a grassland understorey (Wilson et al. 1991).
2.2. Ethnographic / historic background

The first recorded description of the inhabitants of the region was by the explorer Leichhardt (1964: 442-451) who crossed the area in 1845. Evidence of Aboriginal occupations included fish traps, camps sites with the remains of fish and mussels, well worn footpaths, burnt areas and frequent grinding stones used to pound seeds. He also noted that the camps near the Roper River appeared older than those surrounding the billabongs from the freshness of mussel shells and the evidence that burning had occurred earlier in the season. These descriptions correspond with the earliest research in northern Australia investigating Aboriginal subsistence strategies and material culture, which was carried out by Basedow (1907), Foelsche (1882), Thomson (1983) and Spencer (1914). Their observations describe general information regarding Aboriginal life including the various weapons and other implements used during the contact period in the Top End. The early accounts (Basedow 1907, Foelsche 1882) describe swamps and lagoons as being focal points of subsistence activities providing sources of fish, geese, ducks, turtles, crocodiles and their eggs, shellfish and the roots of water lilies and rushes. Away from the lagoons, wallabies, snakes, goannas and other small game were hunted. Seasonal factors were a key determinant on camp locations, types of residential grouping, the degree of mobility and the nature of subsistence activities. During the wet season groups of people would have been able to access resources over a wider area, as water was readily available, and higher uplands used to avoid the rivers and tributaries. In the dry season as water receded the location of camps would have contracted to more permanent sources of water.

The finding of gold in Pine Creek in the early 1870s and the beginning of the pastoral industry in the late 1870s resulted in the movement of cattle and people through the region from Queensland. During the period of pastoral expansion Aboriginal inhabitants started to leave their traditional life style and work on the stations. It was also a time when there was a number of violent conflicts because of the loss of access by Aboriginals to resources and the pollution of waterholes by cattle. The Aboriginals fought back by cattle spearing at waterholes and the pastoralists retaliated by denying access to the water holes by patrolling these areas and shooting Aborigines (McGrath 1987).

2.4. Archaeological background

There have been two archaeological surveys in the vicinity of the survey area (Kinhill 1994, Guse 1998). The Kinhill (1995) archaeological survey was carried out along the northern side of the Roper Highway from Jilkminggan to Ngukurr and identified a quarry / stone artefact scatter and three stone artefact scatters which were located in eroded areas near a source of fresh water. No sites were identified east of the Wilton River.
Guse (1998) carried out a small survey west of the Wilton River near Urapunga and located a medium density artefact scatter containing chert, siltstone, quartzite, silcrete and tuff flakes.

A search of the Archaeological Sites Register held by the Heritage Conservation Services listed three archaeological sites on the Urapunga and Chapman 1:100,000 map sheets; a rock engraving, a grinding hollow and a rock painting. None of these sites are located near the proposed development area.

An archaeological survey along a proposed pipeline route in the Bulman region (Crassweller 2004), which has a similar environment to the study area, identified very few archaeological sites. However there was a regular frequency of isolated stone artefacts. There was a 34 kilometre section along the pipeline route where no archaeological material was located.

2.5. Predictive model for distribution of archaeological material

The ethnographic data indicate that the banks of creeks and billabongs were frequently used as camp sites in the past. The environmental data indicates that the majority of the alignment crosses featureless plains with only two sections of the proposed route crossing rocky hills or ridges, which may have been used a source of a raw material used to make stone tools. The archaeological background indicate that the archaeological material will be distributed near creeks and rivers in areas where erosion has disturbed the surface. There is only a very low potential for archaeological material on the plains and undulating terrain.

3.0. FIELDWORK PROCEDURES

The survey was carried out by pedestrian transects along the majority of the proposed alignment. The proposed route had been previously marked out by star pickets and flagging tape. All creek crossings, rock outcrops and hills along the route were examined. Five sections of 150 - 300 metres in length were not survey along the Roper Highway as visibility was greatly reduced by the presence of dense grass cover.

The following section consists of the definitions used to describe the archaeological material located during the survey.

3.1. Types of archaeological sites.

On the basis of previous archaeological studies in the region, it was considered possible that at least three types of sites might be discovered during the survey:

- **Artefact scatters.** These may contain flaked or ground artefacts and hearthstones. They occur as surface scatters of materials or as stratified deposits when there has been repeated occupations.
- **Art sites** that include engravings or poundings where the pictures or designs are produced by the removal of material from the rock surface.
- **Stone quarries** are generally sites where stone for flaked or edge ground artefacts have been extracted from an outcropping source of rock (Hiscock and Mitchell 1993).

3.2. Site definition.

An archaeological site is defined for this survey as a concentration of artefactual material, such as stone artefacts, with an average density that is 5 times greater than the average density of the background scatter and there are more than ten artefacts that cover an area of at least 2m$^2$. A site will have an identifiable boundary where either artefact densities decrease to the extent as to be classified as background scatter or environmental features determine the boundary.
Background scatter is generally a very low density, more or less continuous distribution of isolated artefacts or shell over the landscape. Although these artefacts do not constitute a site they will be given location details for research purposes.

3.3. Artefact identification.
A requirement for a successful archaeological project involves the accurate identification of archaeological materials. For an object to be identified as a flaked object it needs to possess one or more of the following:
- a positive or negative ring crack.
- a distinct positive or negative bulb of percussion.
- a distinct eraillure scar in an appropriate position below the platform.
- definite remnants of flake scars on dorsal surface or ridges.

Stone artefacts are divided into 4 main types (Hiscock 1984:128-129). They are defined as follows:

- **Cores** are pieces of stone that have one or more negative scars and the absence of positive flake scars.
- **Unretouched flakes** are pieces of stone that have been struck off another piece of stone and ideally possess platforms, positive bulbs of percussion, concentric ripples, ring cracks and/or eraillure scars on the ventral surface.
- **Retouched flakes** are flaked flakes. They are identified by the presence of negative scars that must have been created after the ventral surface of the flake had been created. There will be either negative scars on the ventral surface or negative scars on the dorsal surface, which have been formed by the flake being hit on the ventral surface.
- **Flaked pieces** are stone artefacts that have been formed by knapping but cannot be identified as either a core or a flake.

Other artefact and implement types that have been identified in the region are listed below following characteristics outlined by McCarthy (1976) and Holdaway and Stern (2004).

- **Unifacial points** are flakes that have been retouched along the margins from one surface, either ventral or dorsal to give or enhance its pointed shape. They are sometimes symmetrical or leaf shaped.
- **Bifacial points** are retouched along both ventral and dorsal surfaces of a flake to enhance or give the artefact its pointed shape. They may have the platform removed and the proximal end rounded.
- **Edge ground axes** have been shaped by the process of flaking, pecking and polishing. They generally have only one working edge that has been ground to a sharp margin although occasionally they may have two leading edges.
- **Grindstones** are characterized by a worn and abraded surface or surfaces. There also may be a concave surface.
- **Hammerstones** display use-wear on the surface in the form of the abrasion, pitting, edge fracturing with some negative scarring.
- **Manuports** are stone material that are not found naturally in an area and must have been carried in by humans.

3.4. Assessment of significance and heritage management principles
According to Sullivan and Bowdler (1984) archaeological significance means that it has scientific, archaeological or research value, that is, it has the potential to assist current or future research into problems of human history or other areas of enquiry. The Australian ICIMOS Charter for the Conservation of Places of Cultural Significance, otherwise known as the Burra Charter (Maquis-Kyle and Walker 1992:73) states that the scientific value or research potential of
a place depends upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place or object may contribute to further substantial information. Therefore the significance of a site is firstly related to the intactness or integrity of a site, that is the state of preservation as well as the stratigraphic reliability of the cultural material. Secondly, the representativeness of a site is important either because a site is unusual or because the site has research potential when taken in conjunction with other sites. Thirdly a site may provide chronology extending back into the past.

4.0. RESULTS

Approximately 75% of the alignment had been recently burnt resulting in a surface visibility for these areas over 85%. On the unburnt sections the surface visibility ranged from less than 5% to 30%. The proposed alignment next to the Roper Highway was highly disturbed by mitre drains gravel pits, trenches, soil mounds, vegetation clearance and fence construction. The alignment from the Roper Highway to the Wilton River avoided all stony hills and ridges, locations that have a higher potential for the presence of archaeological material than on the flat to undulating plains.

Visibility along the proposed alignment from the substation at Rittarangu to the boreholes was low (between <5-60%) as the vegetation had not been recently burnt. Approximately a quarter of the alignment had been previously cleared and/or leveled.

No archaeological sites or objects were identified during the survey. The lack of archaeological material away from creek lines was as predicted. Their absence along the Wilton River is probably associated with the yearly large wet season floods, which would either move and/or cover any archaeological material in the area. The surface of the proposed powerline crossing over the Wilton consists of silty banks on western side and rocky surfaces on the eastern side.

Photo 3. Western bank of the Wilton River powerline crossing

5.0. CONCLUSIONS AND RECOMMENDATIONS

As no archaeological sites or objects were identified during the survey of the proposed 11kV powerline between Rittarangu and Ngukurr, it is recommended that no further action is required for compliance with the provisions of the Northern Territory Heritage Conservation Act 1991. The absence of any archaeological material corresponds to other surveys in the regions and is most likely related to the environments over which the proposed alignment runs. The alignment along the Roper Highway has been highly disturbed in the past and when the alignment leaves the highway it avoids any landscape features such as hills and rises that would have a higher potential for the presence of archaeological material.
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Figure 1. Map of proposed 11kV power line alignment