

Proposed Road Upgrade Nebraska Estate Aboriginal Archaeological Assessment

A Report to Cowman Stoddart Pty Ltd on behalf of
Shoalhaven City Council

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1. SUMMARY

1.1 Introduction

New South Wales Archaeology Pty Ltd was commissioned by Cowman Stoddart Pty Ltd, on behalf of Shoalhaven City Council, to undertake an Indigenous cultural heritage assessment in regard to proposed road upgrade works at Nebraska Estate, near St Georges Basin.

The works have been identified to be undertaken in two stages as follows:

- Stage 1 – Construction of a culvert and road upgrading with the eventual provision of kerb and guttering along a section of Waterpark Road; and
- Stage 2 – Construction and sealing of the remainder of Waterpark Road and Nebraska and Pelican Roads.

1.2 The Archaeological Study

An archaeological investigation for Aboriginal objects within the investigation area has been conducted by Julie Dibden, New South Wales Archaeology Pty Ltd and [REDACTED] Jerringa Local Aboriginal Land Council.

The study has sought to identify and record any Aboriginal objects that may be present in the proposal area, to assess the archaeological potential of the landform elements present and to formulate management recommendations based on the results of background research, a field survey and site significance assessment.

The New South Wales National Parks and Wildlife Service (now incorporated in the Department of Environment and Climate Change – *the NSW DECC*) has prepared a draft document that provides a series of guidelines regarding the assessment and management of Aboriginal cultural heritage in New South Wales. This report has been prepared in accordance with these draft guidelines (NSW NPWS 1997).

1.3 Previously Recorded Aboriginal Objects

A search of the NSW DECC Aboriginal Heritage Management Information System has indicated that two previously recorded Aboriginal objects (comprised of stone artefacts) are present within the proposed Stage 2 impact area:

- NSW DECC AHIMS #58-2-0307 “Nebraska Road”. This site has been added to AHIMS as #58-2-0345 and is a duplicate recording; and
- NSW DECC AHIMS #58-2-0305 “Pelican Road”. This site has been added to AHIMS as #58-2-0344 and is a duplicate recording.

1.4 Survey Results

The survey area measured 2.1345 hectares in total. Of that area 1.7076 hectares was subject to direct visual inspection. Ground exposures encountered are estimated to have measured 8324 square metres. Ground exposure varied from high on the roads to low off-road. Archaeological visibility varied between survey units from high on simple slopes due to erosion of topsoil, to low in open depressions due to the presence of sediment accumulation and surface wash. Taking into consideration the archaeological visibility estimated to be present within ground exposures, the Net Effective Exposure observed is calculated to have measured 6707 square metres. Effective Survey Coverage achieved during the survey is assessed to be high (31.4% on average) across the proposed impact areas.

The survey results are set out below:

- Stage 1 proposal area: No Aboriginal objects were identified within any of the Stage 1 proposal area. The proposed impact areas within Stage 1 are assessed to be of low archaeological sensitivity.
- Stage 2 proposal area: The location of the two previously recorded Aboriginal objects were subject to a detailed inspection however no stone artefacts were recorded during the current assessment. The

proposed impact areas within Stage 2 are all assessed to be of low archaeological sensitivity given high levels of previous disturbance.

1.5 Statutory Context

Sections 84 and 90 of the *National Parks and Wildlife Act 1974* (as amended) provide statutory protection for any physical/material evidence of Aboriginal occupation of NSW and places of cultural significance to the Aboriginal community.

The implementation of the Aboriginal heritage provisions of the Act is the responsibility of the NSW DECC. It is an offence to knowingly disturb an Aboriginal object, *irrespective of its nature or significance*, without the prior written consent of the Director-General of the NSW DECC.

The Act defines an Aboriginal ‘object’ as

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

The legislative constraints relating to the project are listed below:

- Stage 1: There are no identified heritage legislative constraints relating to the proposed Stage 1 works.
- Stage 2: Two previously recorded Aboriginal objects are located within the proposed Stage 2 works area. A s90 Aboriginal Heritage Impact Permit (AHIP) will be required before works can be commenced in these locations.

1.6 Conclusions and Recommendations

The proposed impact areas within both the Stage 1 and Stage 2 areas are assessed to be of low archaeological sensitivity. The impact areas are highly disturbed as a result of previous road construction and vehicle usage and accordingly any archaeological deposits will have very low integrity and significance. Furthermore the environmental context of the landforms in which impacts are proposed are each assessed to contain stone artefacts in low or very low density only.

The following recommendations are set out below:

1. There are no Indigenous legislative constraints relating to the proposed Stage 1 works.
2. Shoalhaven City Council should seek to obtain a s90 AHIP from the Director-General, NSW DECC, for the previously recorded Aboriginal objects #58-2-0307 “Nebraska Road” and #58-2-0305 “Pelican Road” before the commencement of the proposed works in the Stage 2 area.
3. No further archaeological assessment such as subsurface test excavation is required in respect of the proposal.

Acknowledgements

Gratitude is extended to the following people for their assistance in this project:

██████████ Jerringa Local Aboriginal Land Council
██████████ Cowman Stoddart Pty Ltd

2. INTRODUCTION

New South Wales Archaeology Pty Ltd was commissioned by Cowman Stoddart Pty Ltd, on behalf of Shoalhaven City Council, to undertake an Indigenous cultural heritage assessment in regard to proposed road upgrade works at Nebraska Estate, near St Georges Basin (Figure 1).

The works have been identified to be undertaken in two stages as follows:

- Stage 1 – Construction of a culvert and road upgrading with the eventual provision of kerb and guttering along a section of Waterpark Road; and
- Stage 2 – Construction and sealing of the remainder of Waterpark Road and Nebraska and Pelican Roads.

In accordance with the NSW NPWS guidelines for archaeological survey reporting this report aims to document (NPWS 1997):

- the proposed impacts;
- the participation of the Aboriginal community in the archaeological assessment;
- the methodology implemented during the study;
- the environmental setting of the study area in order to establish background parameters;
- a review of archaeological and relevant literature and heritage listings on the NSW DECC Aboriginal Heritage Information Management System;
- any Aboriginal objects or areas of archaeological potential known to exist within the study areas;
- a synthesis of local and regional archaeology;
- a predictive model of site location for the study area;
- the field survey results;
- the archaeological sensitivity of the study area; and
- a series of recommendations based on the results of the investigation.

The fieldwork for this project was undertaken by Julie Dibden, NSW Archaeology Pty Ltd and [REDACTED] Jerringa Local Aboriginal Land Council. This report has been written by Julie Dibden.



Figure 1. Location of the study area in a local context (9027 Jervis Bay 1:100 000 scale; edition 1).

3. PARTNERSHIP WITH THE ABORIGINAL COMMUNITY

The NSW DECC Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants (IGACC) (NSW DEC 2004) requires proponents to undertake consultation with the Aboriginal community "...as an integral part of the impact assessment" process (NSW DEC 2004; this document can be viewed at <http://search.nationalparks.nsw.gov.au>).

The NSW DECC manages Indigenous cultural heritage in NSW in accordance with the National Parks and Wildlife Act 1974. Part 6 of the Act provides protection for Aboriginal objects and Aboriginal Places. When an activity is likely to impact Aboriginal objects or declared Aboriginal Places approval of the Director-General of the NSW DECC under s90 or s87 of the NPW Act is required. The decision as to whether or not to issue s90 Consents or s87 Aboriginal Heritage Impact Permits is based on the supply to the NSW DECC by a proponent of adequate information to enable the Director-General to make an informed decision (NSW DEC 2004).

When administering its approval functions under the NPW Act the NSW DECC requires applicants to have consulted with the Aboriginal community about the Aboriginal cultural heritage values (cultural significance) of Aboriginal objects and places present in the area subject to development (NSW DEC 2004).

The NSW DECC requires consultation with the Aboriginal community because it recognises the following:

- That Aboriginal heritage has a cultural and archaeological significance and that both should be the subject of assessment to inform its decision process;
- That Aboriginal people are the primary determinants of the significance of their heritage;
- That Aboriginal community involvement should occur early in the assessment process to ensure that their values and concerns can be taken into account and so that their own decision making structures can function;
- That the information arising from consultation allows consideration of Aboriginal community views about significance and impact and allows for management and mitigation measures to be considered in an informed way (NSW DEC 2004).

The community consultation process as outlined in the IGACC document aims to improve the assessment by providing the Aboriginal community with an opportunity to:

- Influence the design of the assessment of cultural and scientific significance;
- Provide relevant information about cultural significance values of objects/places;
- Contribute to the development of cultural heritage management recommendations; and
- Provide comment on draft assessment reports (NSW DEC 2004).

The role of the Aboriginal Community is outlined as follows:

- The Aboriginal community is the primary determinant of the significance of their heritage;
- The Aboriginal community may participate in the process via comment on the assessment methodology, contribution of cultural knowledge; and
- The Aboriginal Community may comment on cultural significance of potential impacts and/or mitigation measures.

The DEC (2004) process of consultation has not yet been implemented in regard to this project. However given the requirement for a s90 AHIP before commencement of Stage 2 works, the process of consultation as set out in the DEC (1994) guidelines would need to be implemented, *if those works are to proceed as proposed*. The proposal area is located within the boundary of the Jerringa Local Aboriginal Land Council (JLALC). [REDACTED] as conducted the field assessment on behalf of JLALC.

4. PROPOSED IMPACTS

The information contained in this section of the report is provided in accordance with the NSW NPWS (1997) guidelines for archaeological survey reporting. A description of the proposal and potential impacts on the landscape and heritage resource is described below.

Shoalhaven City Council proposes to undertake the construction of road works within Waterpark, Nebraska and Pelican Roads, in Nebraska Estate. The work would be undertaken in stages as follows:

- Stage 1 – Construction of a culvert and road upgrading with the eventual provision of kerb and guttering along a section of Waterpark Road; and
- Stage 2 – Construction and sealing of the remainder of Waterpark Road and Nebraska and Pelican Roads.

4.1 Proposed Impacts

The roads in question are shown in Figure 2. The existing roads vary in width between 3 - 6 metres and generally consist of graded formations with associated drainage works. Some sections of the roads have been paved with introduced road base.

It is proposed to widen existing roads to an overall width of approximately 5 - 6 metres, inclusive of kerb and guttering. In addition a box culvert will be installed at the creek crossing on Waterpark Road.

4.2 Prior Impacts

As noted above the existing roads measure between 3 -6 metres wide. The majority of all roads are formed, that is they have been graded and in some instances paved with road base. Property entrances extend from the roads and various drainage works are present. All roads and areas immediately adjacent to them have accordingly been subject to substantial levels of prior disturbance.

4.3 Potential for Impacts to Aboriginal Objects

The proposed works have the potential to cause disturbance to any surface or subsurface Aboriginal objects present within the proposed impact areas. However, given the extent of prior disturbance, the potential for impacts to any previously undisturbed Aboriginal objects is generally low.



Figure 2. Layout of roads at Nebraska Estate showing location of Stage 1 area and Nebraska and Pelican Roads (supplied by client); note that the south end of Waterpark Road in the Stage 1 area has already been sealed and from the junction with Clarendon Crescent to the proposed culvert.

5. STUDY METHODOLOGY

This Aboriginal archaeological assessment has included the following components:

- A NSW DECC Aboriginal Heritage Information Management System site search to determine whether or not previously recorded Aboriginal objects are present in the proposal area and to list the type of sites known to be present within the local area.
- A review of local and regional archaeological reports and other relevant documents in order to provide a contextual framework to the study and heritage management context.
- A review of Aboriginal history of the area.
- A review of the landscape and landforms present.
- A review of resources the area would have provided to Aboriginal people.
- A comprehensive field survey of the proposal area aimed at recording Aboriginal objects and areas of archaeological sensitivity.
- Documentation of survey results.
- An analysis of survey results.
- A site significance assessment.
- The formulation of a set of management recommendations ensuing from the above.

5.1 Literature Review

Background research has been conducted to determine if known Aboriginal objects are located in the vicinity of the proposal area and to provide an analytical context to the assessment.

The following information sources have been accessed for this study:

- The NSW DECC Aboriginal Heritage Information Management System;
- Previous archaeological studies conducted within the local area and proposal area itself including:

Marshall, B and Webb, C. 1994 An archaeological survey of Nebraska Estate, Saint Georges Basin, New South Wales. A report on behalf of South East Archaeology to Shoalhaven City Council.

Kuskie, P. 2001 Further archaeological assessment of a proposed subdivision of the Park Road area, at Nebraska Estate, Saint Georges Basin, New South Wales. A report to Shoalhaven City Council;

- Relevant archaeological reports and site cards held in the NSW DECC archives;
- Background information and mapping supplied by the proponent;
- Huskisson 1:25,000 topographic map; and
- Academic reports and theses relevant to the area.

5.2 Field Survey and Methodology

The field survey was carried out on the 11th August 2009. Field survey was designed to assess the entire area subject to proposed impacts. Field inspection entailed a foot survey and was comprehensive. Survey coverage is described in Section 8 of this report. The survey was undertaken by two people.

Field survey was focused particularly on those areas which afforded ground visibility. Exposures present included unformed and formed vehicle tracks, driveways, erosional features, animal tracks, areas under trees and bare earth exposures. Survey units (as defined below) are described in Section 8 of this report and identified in Figure 4.

The field survey was aimed at locating Aboriginal objects as defined under the NPW Act. An assessment was also made of prior land disturbance, survey coverage variables (ground exposure and archaeological visibility) and the potential archaeological sensitivity of the land. All trees assessed to be of sufficient age as to bear evidence of Aboriginal scarring were examined.

The approach to recording in the current study has been a 'nonsite' methodology: the elementary unit recorded is an artefact rather than a site (*cf* Dunnell 1993; Shott 1995). The rationale behind this approach is that artefacts may be directly observed however 'sites' are a construction within an interpretative process. Given

that it can be expected that full archaeological visibility will not be encountered during the survey the process of identifying site boundaries (if they exist at all) will not be possible.

However, it can be expected that artefacts will be distributed across the proposal area in a virtual continuum. This phenomenon is not anomalous; subsurface work conducted elsewhere in the region confirms this pattern. Therefore in respect of stone artefact distribution the notion of site is itself a meaningless concept and cannot encompass or reflect the actual distribution of artefacts across the landscape. Given that artefacts are generally continuous in distribution and not discrete 'site' occurrences, artefact distribution is better conceptualised in continuous terms.

The density and nature of the artefact distribution will vary across the landscape in accordance with a number of behavioural factors which resulted in artefact discard. While cultural factors will have informed the nature of land use, and the resultant artefact discard, environmental variables are those which can be utilised archaeologically in order to analyse the variability in artefact density and nature across the landscape. Accordingly in this study while the artefact is the elementary unit recorded it is the Survey Unit which is utilised as a framework of recording, analysis and management (*cf* Wandsnider and Camilli 1992).

6. LANDSCAPE CONTEXT

A consideration of the landscape is necessary in archaeological work in order to characterise and predict the nature of Aboriginal occupation across the land (NPWS 1997). In Aboriginal society landscape could be both the embodiment of Ancestral Beings and the basis of a social geography and economic and technological endeavour. The various features and elements of the landscape are/were physical and metaphysical places that are known and understood within the context of social and cultural practice.

Given that the natural resources that Aboriginal people harvested and utilised were not evenly distributed across landscapes, Aboriginal occupation and the archaeological manifestations of that occupation, will not be uniform across space. Therefore, the examination of the environmental context of a study area is valuable for predicting the type and nature of Aboriginal objects which might be expected to occur. Factors that typically inform the archaeological potential of a place include the presence or absence of water, animal and plant foods, stone and other resources and as well, the nature of the terrain. The cultural meaning associated with a locale may also determine the nature of its use and the archaeological potential of a place.

Additionally, geomorphological and humanly activated processes need to be defined as these will influence the degree to which Aboriginal objects may be visible and/or conserved. Land which is heavily grassed will prevent the detection of archaeological material while land which has suffered disturbance may no longer retain artefacts or stratified deposits. A consideration of such factors is necessary in assessing site significance and formulating mitigation and management recommendations.

The following section provides information in regard to the landscape context of the proposal area.

6.1 Topography, Geology and Vegetation

The study area is located approximately one kilometre west of the St Georges Basin village. Access to Nebraska Estate is via Wool Road which extends in an east/west alignment between Basin View and St Georges Basin.

The area is located in the coastal lowlands land system and is situated in the immediate hinterland of St Georges Basin. The landscape is comprised of gentle gradient slopes drained by ephemeral 1st and 2nd order unnamed drainage lines. The drainage flows south-easterly into Pats Bay, a small inlet of St Georges Basin. The drainage lines within Nebraska Estate are wide, amorphous open depressions which generally do not possess an incised channel.

The landform elements present in the study area include simple slopes and open depressions. Gradients vary between gentle to flat.

The underlying geology is Permian Wandrawandian Siltstone comprised of grey micaceous siltstone with silty, pebbly sandstone. Residual pebbles are present across the study area, however no bedrock outcrops were observed. Soils are silty and shallow on slopes and deeper within the drainage lines. Generally on slopes the topsoil has been removed by vehicle traffic and downslope movement, exposing hard packed sediments and clay.

The roads themselves are devoid of vegetation however the adjacent terrain comprises both cleared (within occupied lots) and native bushland. The vegetation includes Blackbutt and Stringybark with an understory of thick shrubs; ground cover includes bracken and various sedges.

6.2 Summary of Environmental Context

The majority of the landform elements in which impacts are proposed are unlikely to be archaeologically sensitive; that is they are unlikely to have been used for sustained Aboriginal occupation and to contain high density archaeological distributions. The landforms in question are likely to have been used mainly for transitory movement and hunting and gathering activities. This form of land use is likely to result in relatively low levels of artefact discard. Furthermore, the extent of prior impacts in the proposed impact areas is such that the potential for previously undisturbed archaeological deposits is low. Taking into consideration the topography and extent of prior impacts, the proposal areas are generally predicted to be of low archaeological sensitivity.

7. ARCHAEOLOGICAL CONTEXT

7.1 Social Geography and Occupation Models

Aboriginal people have occupied Australia for at least 40,000 years and possibly as long as 60,000 years (Mulvaney and Kamminga 1999: 2). By 35,000 years all major environmental zones in Australia, including periglacial environments of Tasmania, were occupied (Mulvaney and Kamminga 1999: 114).

At the time of early occupation Australia experienced moderate temperatures. However, between 25,000 and 12,000 years BP (a period called the Last Glacial Maximum) dry and either intensely hot or cold temperatures prevailed over most of the continent (Mulvaney and Kamminga 1999: 114). At this time the mean monthly temperatures on land were 6 - 10°C lower; in southern Australia coldness, drought and winds acted to change the vegetation structure from forests to grass and shrublands (Mulvaney and Kamminga 1999: 115-116).

With the cessation of glacial conditions, temperatures rose with a concomitant rise in sea levels. During the Late Pleistocene the sea was as much as 130 metres below the present level, and accordingly, the continent was correspondingly larger. By ca. 6000 BP sea levels had more or less stabilised to their current position. With the changes in climate during the Holocene Aboriginal occupants had to deal with reduced landmass and changing vegetation and hydrological systems; forests again inhabited the grass and shrublands which had been present at the time of the Late Glacial Maximum. As Mulvaney and Kamminga (1999: 120) have remarked:

When humans arrived on Sahul's shores and dispersed across the continent, they faced a continual series of environmental challenges that persisted throughout the Pleistocene. The adaptability and endurance in colonising Sahul is one of humankind's inspiring epics.

Occupation of the NSW south east dates from at least 20,000 years ago as evidenced by dated sites at Burrill Lake (Lampert 1971), and two sites near Buchan in Victoria; Cloggs Cave (Flood 1980) and New Guinea 2 (Ossa *et. al* 1995). The Bulee Brook 2 site in the south coast hinterland ranges, excavated by Boot (1994), provides evidence that occupation of this zone had occurred by at least 18,000 years ago. These known Pleistocene occupation sites are few on the south coast; the majority of recorded sites date from the mid to late Holocene at the time when the sea more or less stabilized to its current level. It is nevertheless reasonable to assume that the local area was occupied and utilised by Aboriginal people from the late Pleistocene onwards.

The study area is situated within a broader area extending south from the lower Shoalhaven River to the Ulladulla area, and inland to the Shoalhaven River north of Braidwood that was defined by Tindale (1974) as Wandandian tribal territory. The Wandandian people spoke the Dhurga language, which was spoken over an area ranging from the Shoalhaven District south to Narooma (Eades 1976).

Information about traditional Aboriginal culture and their recent history in the Jervis Bay region is derived from various records and oral sources. However, it must be noted that many early observations were made by untrained people, often incorporating biases from their own cultural perspectives.

Jervis Bay was identified by Captain Cook in 1770 and named Cape St. George (Jervis 1937). Joseph Banks, recorded the same voyage and noted in his diary on the 25th of April that large fires were visible so that "...we suposd (sic) that the gentlemen ashore has a plentiful (sic) breakfast to prepare" (Brunton 1998:20).

In 1791 Lieutenant Richard Bowen of the HMS Atlantic carried out a detailed survey and named the bay Port Jervis. Lieutenant Bowen noted 'many traces of inhabitants' including numerous canoes and natives armed with spears (Jervis 1937:120).

George Bass landed at Jervis Bay in December 1797 and spent four months exploring the region. Following his descriptions the bay became a regular port of call for a large whaling fleet operating along the coast. Aboriginal people had some involvement in the whaling industry, however the extent of this is not clear (Navin 1990). Navin (1990) suggests that consistent contact between Europeans and the local Aboriginal population would have begun from this period.

The records indicate that early contact was on reasonably friendly terms (Egloff 1995:31). Lieutenant Grant of the Lady Nelson visited the Bay in 1801 and observed large numbers of unarmed Aborigines (Egloff *et. al* 1995:31). However, by this time it is apparent that the Aboriginal people were well acquainted with European

practices (Navin 1990). Grant describes many adult Aborigines having what appeared to be small-pox scarring which was said by the locals to have resulted from sickness. Lieutenant Grant described the extensive and skilled use of bark canoes by the local people, and also their enthusiastic use of red paint, obtained from the boats' stores, for body painting. A ceremonial ground was noted by Grant (1803:112-113 cited in Egloff *et. al* 1995) and described as a:

...small eminence free from brush, having no habitation near it. We counted the marks of fifteen different fires, that had been employed in cooking fish and other eatables ... the grass was much trodden down, and many of the bones of animals appeared fresh.

Cane (1987) considered that this site may have been located near Currambene Creek, although Navin (1990) considers the eastern portion of Bherwerre Peninsula to be a more probable location.

Shipwrecked sailors made the first overland crossing at the Jervis Bay area during 1797 and 1805. The sailors of the *Cumberland* found the crossing difficult. It is recorded that "hunger, disease, fatigue and the Aborigines all took their toll" (Bayley 1975:15). However, as Navin (1990) notes, not all such encounters with the local Aborigines were hostile. Sailors from the *Nancy* were guided to the bay by a local and upon arriving were crowded by more people "... who made no attempt to molest them" (Jervis 1937:121).

Reports made by overland explorers and settlers during the 1820s and 1830s indicate that the local Aboriginal groups appear to have remained relatively intact, conducting traditional activities using European clothing and tools (Egloff 1995:13).

Despite colonial government attempts to control settler expansion, large scale European settlement of the Shoalhaven River commenced in 1822 (Egloff 1995:13). Aboriginal people worked for Alexander Berry at his Mount Coolangatta property near Nowra and according to the contemporary account of James Backhouse were badly treated (Egloff 1995:13). By 1840 over 11,000 acres had been granted to settlers in Vincentia, Callala, Currambene and Woollamia (Bayley 1975:28). The Aboriginal communities survived in reduced, yet still large numbers in the area (Egloff 1995).

From the late 1800s local Aboriginal people have continued to live in communities at locations either determined by government policy or chosen by them (*cf* Egloff 1995:13). Roseby Park at Orient Point was established as an Aboriginal Reserve in the 1880s. People from the Berry Estate and a small camp at Greenwell Point came to live there. At or around this time, Aboriginal people were also living at Wreck Bay, Currambene Creek and around the fringes of Nowra (Egloff 1995:13-14). A reserve was established at Long Beach, adjacent to Green Point, although it was not a permanent settlement.

Fishing has been an important activity for the people of the Jervis Bay environs, both in economical and cultural terms. As Egloff (1995:14) noted 'the good times and fish go together in the memories of coastal Aboriginal people'. However, considerable use has also been made of adjacent scrub lands, both in the prehistoric past, historic past and the present, so that today Aboriginal people are concerned with such land issues as the impacts of tourism, the alienation of coastal recreation lands and perceived inappropriate restrictions on land use (Egloff 1995:15). Heritage is perceived to be of considerable importance, demonstrating that local Aboriginal people have a long and unbroken history in the area, "...to the extent that the archaeology of the past and the attachment to land by contemporary Kooris must be understood as being a part of the same process' (Feary 1997).

When in 1985 it was planned to move the naval fleet base from Sydney to Jervis Bay the Jerringa and Wreck Bay communities strongly objected to the proposal (Egloff 1995:15, Lesser 1985). Egloff *et. al* (1995:19) concluded that the continuity of traditions within the culture of the Jervis Bay Aboriginal community is an indication of the significance of the Bay.

Several locations around Nowra and Jervis Bay have significance to the local Aboriginal community for their historical connections and others are important for their connection to story lines. During the early 1970s Lampert (1971; Lampert & Sanders 1973) conducted archaeological and ethnobotanical studies on Beecroft peninsula. Lampert was informed by a local Aboriginal, Dave Carpenter, that a Bunan (ceremonial) ground existed at Hammer Head Point, adjacent to Cararma Inlet (Cane 1988). Dave Carpenter also informed Lampert that a story about a mythological being, Yaroma, is associated with the area. In this story, two boys caught fish and quarrelled over the distribution of the largest fish. Because of their greed, Yaroma, a 'huge, hairy man' arrived during the night with the intention of taking them and dropping them into Devils Hole (located on Beecroft Peninsula). However, due to the heavy load, Yaroma slept in a cave at the upper reaches of Currarong Creek, at which time the boys escaped.

A story line relating to the figure Bundoola/Spandula links Hare Bay (in the Red Point locality) with Green Point and other locations both on Beecroft Peninsula and the coastal hinterland (*cf.* Cane 1988:38, Egloff *et. al* 1995:19). Cane (1988:39) reports that the characteristics relating to this figure appear to have changed in recent times. There are at least eight separate recordings relating to this figure, spanning a period of 118 years. Three versions of the story had initially been reported by Andrew Mackenzie in 1872.

A number of sites and places of traditional and/or mythological importance have been recorded at Orient Point. In 1977 Kelly and Creamer (Kelly 1978) surveyed a series of 15 sites including a mission cemetery, two other burial areas, a massacre site, three middens, a natural feature known as the Kings Chair, hidden artefacts, two waterholes, three bora grounds, and a destroyed women's site. Some of these sites had at the time of recording already been impacted by various aspects of the residential development in the area. Orient Point is also of historical significance as the location of Roseby Park Aboriginal Reserve, which was formed in 1900 from a portion of the Roseby (AKA Crookhaven) Park Crown Land Reserve that was established in 1879. While the Aboriginal Reserve officially only extended over a small portion of the peninsula, during the first half of the twentieth century Aboriginal dwellings were scattered throughout the area (Kelly 1978).

Two natural places, Mount Coolangatta and Moeyan Hill located north of Nowra, are identified as places of local Aboriginal importance. Mount Coolangatta is a mythological site where the mountain rises from the coastal plain adjacent the ocean. It is typical of sites where spirits of the dead are believed to "jump off" into the sky-world (*cf.* Boot 2002). Specifically, there is a rock on the eastern side of this mountain that functioned in this way, although the locality as a whole is understood to be of Aboriginal cultural significance (Clarke and Kuskie 2006a). Moeyan Hill is the location of a *bunan* ceremonial ground that was recorded by Mathews in the late nineteenth century. It is described as being an initiation ground for the tribes of the Shoalhaven River.

The pre-European occupation on the south coast has been explored within archaeological research. Until recently archaeologists have identified higher site densities in the coastal zone than in the coastal hinterland. Several models have been forwarded to account for this pattern of recorded site distribution. Bowdler (1970) argued that occupation of the coast during summer was intensive, with some exploitation of the hinterland when coastal resources were less abundant. Lampert (1971) proposed a mixed economic regime on the coast, involving exploitation of littoral, estuarine and land resources, but with a greater emphasis on the littoral component. Poiner (1976) produced a model of occupation based on a strict seasonal regime: abundant coastal resources were exploited during summer, and the coastline and hinterland were both exploited during winter when resources were far less abundant. Flood (1980) argued that the hinterland was only used when coastal resources were in short supply during the winter season.

Attenbrow (1976) proposed a model in which the coast and hinterland were occupied all year round and that movement between the two zones occurred at the family or small group level, rather than at the large population level suggested by Poiner (1976). Attenbrow's model incorporates a higher proportion of terrestrial animal foods in the diet during winter. Hinterland river valleys and highland areas would have been occupied during summer. In winter, the population distribution would have been widespread, based on family groups.

Vallance (1983) opposed the seasonal model postulated by prior researchers and instead argued that a range of subsistence strategies would have existed that varied both within and between seasons and even from year to year. Following Vallance's model, Boot (1994) suggests that if this were the case, larger archaeological sites could be expected in areas where large quantities of food were available on a single occasion or on a regular basis, and smaller sites would be the result of short term occupation during movement between such locations.

Surveys by Byrne (1983, 1984) of forests within the hinterland began to reveal evidence challenging models of occupation focused primarily on the coastline. While the highest site densities still occurred near the coast, high densities were also found in the hinterland 13 - 18 km from the coast. Byrne (1983) found there was an absence of sites 3 - 10 km from the coast in the Five Forests study. Several researchers developed theories to account for this apparent paucity of evidence. Walkington (1987) suggested that camp sites were focused along the coastline and this section of the hinterland (3 - 10 km distance) was only exploited on daily return journeys. Distances further than 10 km inland would have required overnight camps in the hinterland (Walkington 1987).

More recently surveys focused on the hinterland zone north of Batemans Bay by Australian National University Honours students and Boot (2002) have revealed a vastly different body of evidence. Thousands of sites have been located within the hinterland areas dramatically changing the pattern of recorded site distribution. It is apparent that the intensity of utilisation of the coastal hinterland is far greater than previously believed and previous researchers may have inadequately accounted for the coastal bias of earlier surveys.

7.2 Previously Recorded Aboriginal Objects

A search of the NSW DECC Aboriginal Heritage Information Management System (AHIMS) was conducted on 20 July 2009 (Site search #26534). The search area measured nine square kilometres and extended between easting 278000-281000 and northing 6113000-6116000. A total of 12 Aboriginal objects are listed in the search; some of which are duplicate recordings (Table 1; Figure 3).

AHIMS #	Name	Easting	Northing
58-2-0285	SGB1 St Georges Basin		
58-2-0286	SGB2 St Georges Basin		
58-2-0305	Pelican Road		
58-2-0306	Fishermans Road		
58-2-0307	Nebraska Road		
58-2-0309	St Georges Basin 1		
58-2-0310	St Georges Basin 2		
58-2-0311	St Georges Basin 3		
58-2-0344 (duplicate of 58-2-0305 with different grid ref.)	Pelican Road Nebraska Estate		
58-2-0345 (duplicate of 58-2-0307 with different grid ref.)	Nebraska Road Nebraska Estate		
58-2-0346 (duplicate of 58-2-0306 with different grid ref.)	Fishermans Road Nebraska Estate		
58-2-0407 (duplicate of 58-2-0311)	St Georges Basin 3		

Table 1. Aboriginal objects listed on NSW DECC AHIMS.

Two previously recorded Aboriginal objects (comprised of stone artefacts) are present within the proposed Stage 2 impact area:

- NSW DECC AHIMS #58-2-0307 “Nebraska Road” - *see Plate 3*. This site has also been added to AHIMS as #58-2-0345 and is a duplicate recording; and
- NSW DECC AHIMS #58-2-0305 “Pelican Road” - *see Plate 5*. This site has also been added to AHIMS as #58-2-0344 and is a duplicate recording.

The “Nebraska Road” and “Pelican Road” sites were recorded by Marshall and Webb (1994) during a survey of the entire Nebraska Estate area. Nebraska Road comprised a single stone artefact (chert flake on elevated ground above a drainage line) and the Pelican Road site comprised an artefact scatter. The “Pelican Road” site contained 23 artefacts in a low density distribution. The artefacts included quartzite and silcrete flakes, several quartz items and two microblade cores, a broken hammerstone and a small sandstone grindstone. The site is situated on a flat adjacent to a junction of the 2nd order watercourse and a 1st order tributary.

The AHIMS register only includes sites which have been reported to NSW NPWS/DECC. Accordingly, this search cannot be considered to be an actual or exhaustive inventory of Aboriginal objects situated within the study area. Generally, recordings are made during targeted surveys undertaken in either development or research contexts. It can be expected that others may be present within the search area but that to date they have not been recorded and/or reported to NSW DECC.

The following discussion in Section 7.3 will present a review of previous archaeological work in the local area for the purposes of producing a relevant predictive model of site type and location.

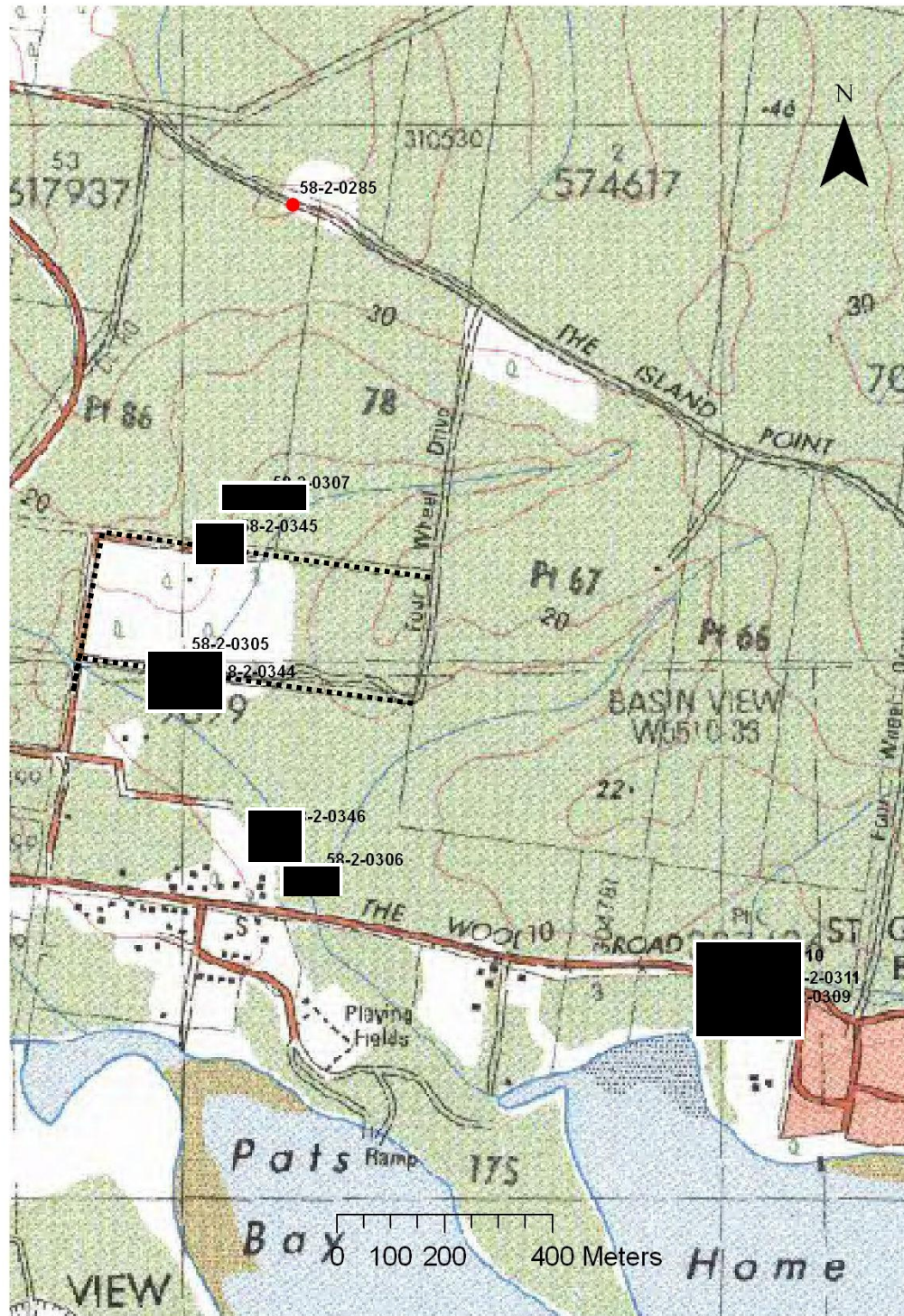


Figure 3. Location of NSW DECC AHIMS Aboriginal object recordings; dashed lines indicate roads subject to survey and assessment.

7.3 Archaeology of the Local Area

A number of surveys and test excavations have been undertaken in relation to Princes Highway upgrades at Tomerong located between one kilometre northwest and three kilometres north of Nebraska Estate. Koettig (1989) identified one small surface scatter of stone artefacts and several areas of archaeological potential associated with the Tomerong bypass Option A. The site consisted of four stone artefacts distributed over a 100 metre area located on a low, broad ridge top. Test excavations of the identified areas of archaeological potential were subsequently undertaken by Silcox (1990). Two of the areas were located on alluvial flats bordering major creeks; the results of which have some significance to sections of the current proposal area. The other was located on a broad sloping ridgetop. The results revealed one artefact on a broad ridge where the artefact scatter had previously been recorded, three artefacts on an alluvial flat adjacent Suffolk Creek and ten artefacts on the broad sloping ridge crest. Artefact density at each of the three locations containing artefacts was very low and was interpreted as representing infrequent occupation; no artefacts were recovered from along the alluvial flat of Tomerong Creek. Based on the spatial distribution of artefacts recovered Silcox (1990) argued that ridgetops were preferred camping sites compared to poorly drained creek flats.

Lance (1986) conducted a survey of the proposed sewerage treatment plant three kilometres east of the study area. The survey encompassed a low ridge and no sites were recorded.

Silcox (1991) conducted a survey of the proposed Island Point/Wool Road link route located less than one kilometre north of Nebraska Estate. Two small artefact scatters were recorded on low spur crests.

Silcox (1992) conducted a survey of Worrowing Estate located five kilometres further to the east at Old Erowal Bay. One small artefact scatter and three PADs were recorded. Subsurface test excavation was subsequently undertaken at two of these locations (Silcox 1993). One artefact was located at a series of excavations and subsequent to that 92 artefacts were recorded in one two square metre area. Kuskie (1995a) then undertook further excavation at that locale to determine its extent at which time one artefact only was recovered.

Jerberra Estate, located 3.5 kilometres to the northwest of Nebraska Estate was subject to an archaeological investigation in 1994 at which time no Aboriginal sites or areas of archaeological potential were recorded (ERM Mitchell McCotter 1994). Jerberra Estate was subject to an additional assessment by Dibden (2005). No Aboriginal objects were recorded despite high levels of Effective Survey Coverage and the area was assessed to be of very low archaeological sensitivity. It is noted that the Jerberra Estate area is environmentally comparable to Nebraska Estate, being comprised of simple slopes and drainage depressions and without an abundant source of potable water.

Marshall and Webb (1994) conducted an investigation of the entire Nebraska Estate (see Section 7.2 above). Two artefact scatters and one isolated find were recorded. It was concluded that the low density artefact scatters were typical of those found in the region and they were assessed to be of low archaeological significance.

Kuskie (1995b) surveyed an area of some 6.8 hectares (Lot 1 DP796802) on the Wool Road, St Georges Basin. The proposal area was located several hundred metres north of the shoreline of St Georges Basin. Three loci comprising two small artefact scatters and one isolated artefact were recorded during that survey; all sites were found on low gradient simple slopes within 50 metres of a water course. It was however noted that visibility was inadequate for the purposes of assessing the archaeological potential of the area.

A program of subsurface testing was subsequently undertaken at the site (Kuskie 2006). Excavation was conducted along one transect measuring 100 metres spanning two environmental contexts, a gentle drainage depression and gentle simple slope. A total of 21 test pits, each measuring 1m², were excavated. A total of 78 artefacts were recovered with a density of 1.09/m² encountered on the gentle slopes adjacent the water course and a density of 6.6/m² within the drainage depression itself. It was concluded that the evidence represented either transitory movement and/or hunting and/or gathering without camping.

Kuskie (2001) conducted an assessment of a section of the Park Road area of Nebraska Estate. The landform comprised a gentle simple slope. No Aboriginal objects were found and this result was attributed to low levels of Aboriginal occupation. The area was assessed to contain low density artefacts only. During this investigation Kuskie also gave consideration to the remainder of Nebraska Estate and concluded that if extensive development was to occur in watercourse bordering flats subsurface excavation should be undertaken in at one location of such development.

Navin Officer Heritage Consultants (2005) inspected a 6.5 kilometre section of the Princes Highway between Warra Warra Road and Jervis Bay Road for proposed RTA upgrades. The survey included a range of different landforms and in most cases high levels of visibility were encountered. One artefact was recorded on a level spur crest above the highway cutting. An area of archaeological potential associated with this recording and a previously identified site #52-5-285 was also identified to the south of Currumbene Creek.

A program of subsurface investigation was subsequently undertaken (Navin Officer Heritage Consultants 2006). Eighteen test pits were excavated by mechanical auger in an areas of archaeological potential located south of Currumbene Creek. One stone artefact was recovered in a test pit located closest to the creek. It was concluded that the PAD area contained a very low density scatter of artefacts (calculated to be 0.4/sq m) and that it was of low archaeological sensitivity.

7.4 Archaeological Potential of the Proposal Area

A broad range of site types including middens, artefact scatters, rock shelters, grinding grooves, burials and ceremonial sites are well documented in and around the region. The potential for such sites to occur in various environmental contexts is however variable. For instance, midden deposits can be found on headlands, in shelters, and adjacent to estuaries and wetlands. Artefact scatters are found across the full range of environmental zones, and their size and nature can be expected to reflect different landuse patterns. Large and complex artefact scatters are most likely to be found in areas where a number of different resource zones and a source of reliable fresh water are present. Human burials are typically found in sandy deposits, while rock shelter and grinding groove sites are only likely in areas that contain suitable rock exposures.

Subsurface test excavation conducted in landforms comparable to that encountered in the study area has consistently revealed that they are present in low to very low densities only (see above).

Over the years the predictive model of Aboriginal occupation for the broader Nowra region has been modified and refined. Navin (1990) set out the following predictive model with regard to coastal sites around the Jervis Bay area:

- open camp sites are most likely to occur on level well drained land either adjacent to water sources or along the crest of ridgelines;
- ridgelines which provide effective through access across the landscape will tend to contain more and larger sites;
- estuarine middens are normally located close to the estuarine environment on elevated ground;
- coastal middens are frequently located on or near rocky headlands or rock platforms adjacent to a creek mouth or hind-dune water source;
- burial sites are generally found in landforms characterized by a relatively deep profile of soft sediments such as Aeolian sand and alluvium.
- scarred trees may occur in areas of remnant vegetation which contain trees of sufficient age.
- the location of sites such as bunan rings are difficult to predict;
- the survival of Pleistocene or early Holocene sites are rare. Those which have been located are characterized by rapid sedimentary regime and subsequent protection from erosion by burial.

More recently, Jo McDonald CHM (1999) proposed the following model of site type and location for sites along the coast of southern NSW generally:

- dune crests and elevated areas adjacent to resource zones (river/creek banks) could be expected to contain archaeological material;
- the top of headlands or ridge tops close to marine and estuarine zones would be expected to contain archaeological evidence;
- the most likely site type will be shell middens and or open sites. Such middens are likely to be associated with stone artefacts;
- isolated artefacts and shell scatters will also be found;
- scars on trees would be expected on old growth trees of the appropriate species;
- human skeletal remains could be found in rock shelters, sand bodies and middens.

Based on the above review and a consideration of the landscape context of the investigation area the type of sites known to occur in the region and the potential for their presence within the study area are listed as follows.

Stone Artefacts

Stone artefacts are found either on the surface and/or in subsurface contexts. The raw materials used for artefact manufacture will commonly be silcrete, chert, quartzite, quartz and volcanics.

Within the local area stone artefacts will be widely distributed across the landscape in a virtual continuum, but with significant variations in density in relation to different environmental factors. Artefact density and site complexity is likely to be greater near reliable water (c. 100 metres of the highest order streams and fresh water swamps) and the confluence of a number of resource zones.

The detection of stone artefacts depends on ground surface factors and whether or not the potential archaeological bearing soil profile is visible. Prior ground disturbance, vegetation cover and sediment/gravel deposition can act to obscure the presence of stone artefacts.

Given the environmental context of the proposal area and a prediction of the likely nature of Aboriginal landuse, stone artefacts can generally be expected to be present at a very low or low density only.

Middens

Middens consist of deposits of shell and sometimes contain stone artefacts, bone and human burials. Middens are a commonly recorded site type in the local area.

Middens situated in the area will vary in their species composition which is generally a factor of environmental location. Rock platform species typically dominate sites situated on headland contexts, while estuarine species are dominant in sites found around estuaries. Middens present in areas near to marine rock platforms are indicated to be situated in reasonable proximity and have reasonable access to the resource zone.

Given the environmental context of the proposal area away from the coast the potential for middens to be present is generally low.

Grinding Grooves

Grinding grooves are found in rock surfaces and result from the manufacture and maintenance of ground edge tools. Given the absence of sandstone exposures within the proposal area, it is unlikely that this site type will be present.

Burials sites

Burial sites have been recorded within the wider region. The potential exists for burials to be present in coastal Holocene sand bodies. However, burials are generally only visible in areas where the deposit has been disturbed either by natural erosion or human activity. This site type is rarely located during field survey.

Rock Shelter Sites

Rock shelter sites consist of any form of rock overhang that contains artefacts and/or art. Common archaeological features of rock shelter sites are: surface artefacts, occupation deposit such as stone artefacts, shell, bone and charcoal, rock drawings, paintings and stencils, engraved imagery, potential archaeological deposit and grinding grooves.

Given the absence of large vertical stone exposures in the proposal area this site type is unlikely to be recorded.

Rock Art

Painted, drawn or engraved imagery on rock surfaces either situated in sheltered or open contexts, usually called rock art, is occasionally found in the local area. Given the absence of vertical or large horizontal stone outcrops, this site type is unlikely to be recorded in the area.

Scarred and Carved Trees

Scarred and Carved trees result from either domestic or ceremonial bark removal. Carved trees associated with burial grounds and other ceremonial places have been recorded in the wider region. In an Aboriginal land use

context this site type would most likely have been situated on flat or low gradient landform units in areas suitable for either habitation and/or ceremonial purposes.

Bark removal by European people through the entire historic period and by natural processes such as fire blistering and branch fall make the identification of scarring from a causal point of view very difficult. Accordingly, given the propensity for trees to bear scarring from natural causes their positive identification is impossible unless culturally specific variables such as stone hatchet cut marks or incised designs are evident and rigorous criteria in regard to tree species/age/size and specific characteristics in regard to regrowth is adopted.

Nevertheless, the likelihood of trees bearing cultural scarring remaining extant and in situ is low given events such as land clearance and bushfires. Generally scarred trees will only survive if they have been carefully protected (such as the trees associated with Yuranigh's grave at Molong where successive generations of European landholders have actively cared for them).

Given the removal of trees from the area in the historic period and the extent of prior disturbance at each of the proposal location, this site type has a low potential to be recorded during the current project.

Ceremonial and Mythological Sites

There are a number of known ceremonial or mythological sites situated in the Nowra region. In particular there are a suite of such sites known to occur at Orient Point. Given that the identification of these site types is generally dependent on 19th century recordings, it is unlikely that any new recordings of such sites will be made during the current study.

Stone Quarry and Procurement Sites

A lithic quarry is the location of an exploited stone source (Hiscock & Mitchell 1993:32). Sites will only be located where exposures of a stone type suitable for use in artefact manufacture occur. Given the absence of suitable stone outcrops in the proposal areas this site type is unlikely to be recorded during the study.

8. SURVEY RESULTS

8.1 Survey Coverage Variables

Survey Coverage Variables are a measure of ground surveyed during the study and the archaeological visibility present within that surveyed area. Survey coverage variables provide a measure with which to assess the effectiveness of the survey so as to provide an informed basis for the formulation of management strategies.

Specifically, an analysis of survey coverage is necessary in order to determine whether or not the opportunity to observe stone artefacts in or on the ground was achieved during the survey. In the event that it is determined that ground exposures provided a minimal opportunity to record stone artefacts it may be necessary to undertake archaeological excavation for determining whether or not they are present. Conversely, if ground exposures encountered provide an ideal opportunity to record the presence of stone artefacts, the survey results may be considered to be adequate and accordingly no further archaeological work may be required for determining the archaeological status of an area.

Two variables have been recorded during this study to measure ground surface visibility: The area of ground exposure encountered and the quality and type of ground visibility (archaeological visibility) within those exposures. These two variables of ground surface visibility are defined as follows:

Average Ground Exposure – an estimate of the total area of ground inspected which contained exposures of bare ground; and

Average Archaeology Visibility – an estimate of the average levels of potential archaeological surface visibility within those exposures of bare ground.

Based on the two visibility variables as defined above, a net estimate (Net Effective Exposure) of the archaeological potential of exposure area within a survey unit has been calculated. The *Effective Survey Coverage* (ESC) calculation is a percentage estimate of the archaeological potential of the ground surveyed. The ESC provides an estimate of the proportion of the total study area which provided a net 100% level of ground surface visibility (with archaeological potential).

The survey area measured 2.1345 hectares in total. Of that area 1.7076 hectares was subject to direct visual inspection noting that the surveyed width along the roads measured approximately 15 metres. Ground exposures encountered are estimated to have measured 8324 square metres. Ground exposure varied from high on the roads to low off-road. Archaeological visibility varied between survey units from high on simple slopes due to erosion of topsoil to lower levels in open depressions due to sedimentation accumulation and surface wash. Taking into consideration the archaeological visibility estimated to be present within ground exposures, the Net Effective Exposure observed is calculated to have measured 6707 square metres. Effective Survey Coverage achieved during the survey is assessed to be high (31.4% on average) across the proposed impact area.

Survey coverage is described in Tables 2 and 3 below. Survey Unit location is shown on Figure 4.

SU	Landform	Slope	Aspect	Biodiversity	Geology/soil	Potential for Subsurface Deposit	Geomorphology	Agents	Disturbance
SU1 (Plate 1)	simple slope	gently inclined	west	Low: forest	Sandstone; sandy loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	No	Eroded: eroded to clay	Precipitation; vehicle	<i>Nebraska Road</i> High: high erosion; vehicle traffic
SU2 (Plate 1)	open depression	very gently inclined	open	Moderate: forest and drainage depression	Sandstone; silty loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	Yes; however disturbed	eroded or aggraded; redeposited silt	Stream flow; vehicle	<i>Nebraska Road</i> High: vehicle traffic; deposited rubble (presumably to control boggy ground)
SU3 (Plate 2)	simple slope	gently inclined	east	Low: forest	Sandstone; sandy loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	No	Eroded: eroded to clay and mechanically modified	Precipitation; vehicle and mechanical	<i>Nebraska Road</i> High: vehicle traffic; mechanical excavation of road to depth of up to 40 cm; introduced road base in places
SU4 (Plate 4)	simple slope	gently inclined	south	Low: forest	Sandstone; sandy loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	No	Eroded; eroded to clay and mechanically modified	Precipitation; vehicle and mechanical	<i>Waterpark Road</i> High: vehicle traffic; mechanical excavation of road to depth of up to 40 cm
SU5 (Plates 5 and 6)	open depression	very gently inclined	open	Moderate: forest and drainage depression	Sandstone; silty loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	Yes; however disturbed	Eroded or aggraded; redeposited silt	Stream flow; vehicle and mechanical	<i>Waterpark Road and Pelican Road</i> High: vehicle traffic; mechanical excavation; high levels of introduced road base
SU6 (Plate 7)	simple slope	gently inclined	west	Low: forest	Sandstone; sandy loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	No	Eroded; eroded to clay	Precipitation; vehicle and mechanical	<i>Pelican Road</i> High: vehicle traffic; mechanical excavation of road to depth of up to 30 cm
SU7 (Plate 8)	Crest	very gently inclined	open	Low: forest	Sandstone; sandy loam; very slightly rocky: sandstone cobbles pebbles from bedrock; low levels of quartz background shatter	Yes	Eroded	Precipitation; vehicle	<i>Pelican Road</i> Moderate; vehicle traffic

Table 2. Description of survey units.

SU	SU Area	Area Inspected % (sq m)	Ground Exposure % (sq m)	Archaeological Visibility %	Net Effective Exposure sq m	Effective Survey Coverage %	Predicted Density
SU1	4050	80 (3240)	50 (1620)	100	1620	40	very low
SU2	660	80 (528)	50 (264)	50	132	20	very low
SU3	4170	80 (3336)	50 (1668)	100	1668	40	very low: location of previously recorded site <i>Nebraska Road</i>
SU4	2595	80 (2076)	30 (622.8)	50	311.4	12	very low
SU5	4890	80 (3912)	50 (1956)	40	782.4	16	low: location of previously recorded site <i>Pelican Road</i>
SU6	2520	80 (2016)	60 (1209.6)	100	1209.6	48	very low
SU7	2460	80 (1968)	50 (984)	100	984	40	very low
Total	21345	17076 sq m	8324.4 sq m		6707.4	31.4	

Table 3. Survey Coverage Data.



Plate 1. Survey Unit 1 in background and Survey Unit 2 in foreground; looking east along Nebraska Road.



Plate 2. Survey Unit 3 looking west along Nebraska Road.



Plate 3. Location of previously recorded Nebraska Road site at west end of Survey Unit 3 looking east; site location coincides with survey peg on side of road (to left); note drainage works.



Plate 4. Survey Unit 4 looking south along Waterpark Road (north end); note graded excavation of road.



Plate 5. Survey Unit 5 on Pelican Road and western end of previously recorded *Pelican Road* site looking east.



Plate 6. South end of Waterpark Road looking north: Part Survey Unit 5 and location of proposed culvert.



Plate 7. Survey Unit 6 on Pelican Road looking east.



Plate 8. Survey Unit 7 looking west.

8.2 Results

The proposed impact area was subject to a comprehensive survey and as noted above Effective Survey Coverage was high. However despite the high ESC achieved no Aboriginal objects were recorded. Furthermore the proposed impact areas are assessed to be of low archaeological sensitivity; that is they are predicted to contain artefacts in low or very low densities only. Given the relatively high levels of prior disturbance, the archaeological integrity of any deposits which may be present in the proposed impact areas is assessed to be low.

Two previously recorded sites are however present in the Stage 2 proposal area. The *Nebraska Road* site was originally recorded as a single stone artefact (see Section 7.2). Given this it is not unexpected that this artefact was unable to be relocated during the current study. It is assessed that artefact density in the area of that site is very low.

No stone artefacts were recorded during the current survey of the area in which the previously located *Pelican Road* site is located. As noted in Section 7.2 a total of 23 artefacts were originally recorded along the east end of the drainage depression on Pelican Road. The artefacts extended for a length of c. 140 metres and it was described as a low density scatter. It is uncertain as to why no artefacts were recorded at this site location during the current assessment. However it is possible that road works undertaken since the original recording have acted to either remove or obscure their presence. Certainly during the current survey this area was found to have been graded and covered with road base gravels. Another possible explanation may be that high levels of leaf litter and/or sediment accumulation etc may now act to obscure artefacts.



Figure 4. Location of Survey Units inspected during the current assessment.

9. STATUTORY CONTEXT

Two pieces of legislation provide the primary basis for Aboriginal heritage management in NSW, the National Parks and Wildlife Act 1974 (NPW Act) and the Environmental Planning and Assessment Act 1979 (EP&A Act) (NPWS 1997).

The Environmental Planning and Assessment Act 1979 (EP&A Act), its regulations, schedules and guidelines provides the context for the requirement for environmental impact assessments to be undertaken during land use planning (NPWS 1997).

The NPW Act provides statutory protection for all Aboriginal objects and Aboriginal Places in NSW.

An ‘Aboriginal object’ is defined as

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

For the purposes of the Act an Aboriginal Place is an area declared by the Minister to be an Aboriginal Place being a place that in the opinion of the Minister *is or was of special significance with respect to Aboriginal culture*.

Under s90 of the NPW Act a person must not knowingly destroy, damage or deface or knowingly cause or permit the destruction, damage or defacement of an Aboriginal object or Aboriginal Place without first obtaining the consent of the Director-General of the NSW DECC. Consents which enable a person to impact an Aboriginal object are issued by the NSW DECC upon review of a s90 Consent application.

Under s87 of the NPW Act a person must not excavate or disturb land for the purposes of discovering an Aboriginal object without first obtaining the consent of the Director-General of the NSW DECC. Permits which enable a person to excavate land for the purposes of determining whether or not an Aboriginal object is present are issued by the NSW DECC upon review of a s87 Permit application.

The legislative constraints relating to the project are listed below:

- Stage 1: There are no identified heritage legislative constraints relating to the proposed Stage 1 works.
- Stage 2: Two previously recorded Aboriginal objects are located within the proposed Stage 2 works area. A s90 Aboriginal Heritage Impact Permit (AHIP) will be required before works can be commenced in these locations.

It is noted that Kuskie (2001) recommended that if *extensive development* (my emphasis) was to occur in watercourse bordering flats at Nebraska Estate subsurface excavation should be undertaken in at least one location (preferably close to either the *Fishermans Road* or *Pelican Road* sites) of such development. The current impacts associated with the proposed Stage 2 works cannot be considered to be “extensive development” and as such, subsurface excavation is not recommended in respect of the proposed works at the *Pelican Road* site.

10. SIGNIFICANCE ASSESSMENT

The information provided in this report and the assessment of significance of Aboriginal sites provides the basis for the proponent to make informed decisions regarding the management and degree of protection which should be undertaken in regard to the Aboriginal objects located within the study area.

10.1 Significance Assessment Criteria

The NPWS (1997) defines significance as relating to the meaning of sites: “meaning is to do with the values people put on things, places, sites, land”.

The following significance assessment criteria is derived from the relevant aspects of ICOMOS Burra Charter and NSW Department of Urban Affairs and Planning’s ‘State Heritage Inventory Evaluation Criteria and Management Guidelines’.

Aboriginal archaeological sites are assessed under the following categories of significance:

- cultural value to contemporary Aboriginal people,
- archaeological value,
- aesthetic value,
- representativeness, and
- educational value.

Aboriginal cultural significance

The Aboriginal community will value a place in accordance with a variety of factors including contemporary associations and beliefs and historical relations. Most heritage evidence is valued by Aboriginal people given its symbolic embodiment and physical relationship with their ancestral past.

Archaeological value

The assessment of archaeological value involves determining the potential of a place to provide information which is of value in scientific analysis and the resolution of potential archaeological research questions. Relevant research topics may be defined and addressed within the academy, the context of cultural heritage management or Aboriginal communities. Increasingly, research issues are being constructed with reference to the broader landscape rather than focusing specifically on individual site locales. In order to assess scientific value sites are evaluated in terms of nature of the evidence, whether or not they contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a part of a larger site complex. Increasingly, a range of site types, including low density artefact distributions, are regarded to be just as important as high density sites for providing research opportunities.

Representativeness

Representative value is the degree to which a “class of sites are conserved and whether the particular site being assessed should be conserved in order to ensure that we retain a representative sample of the archaeological record as a whole” (NPWS 1997). Factors defined by NPWS (1997) for assessing sites in terms of representativeness include defining variability, knowing what is already conserved and considering the connectivity of sites.

Educational value

The educational value of cultural heritage is dependent on the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

Aesthetic value

Aesthetic value relates to aspects of sensory perception. This value is culturally contingent.

The significance of a place can be usefully classified according to a comparative scale which combines a relative value within a geographic context. In this way a site can be of low, moderate or high significance within a local, regional or national context. This system provides a means of comparison, between and across places. However it does not necessarily imply that a place with a limited significance is of lesser value than one of greater significance rating. All places irrespective of significance are representative of a variety of contexts and accordingly can potentially contribute to a wider archaeological understanding of human behaviour.

10.2 Significance Value of the Aboriginal Objects

A significance assessment of each of the Aboriginal objects present in the proposal area is provided below.

Aboriginal object	Significance	Criteria
"Nebraska Road" 58-2-0307 58-2-0345	Low local scientific significance	Common site type Low educational value Low aesthetic value Low research potential: disturbed and assessed to be representative of very low density artefact distribution.
"Pelican Road" 58-2-0305 58-2-0344	Low local scientific significance	Common site type Low educational value Low aesthetic value Low research potential: highly disturbed and assessed to be representative of low density artefact distribution.

Table 4. Summary of significance assessment for the Aboriginal object recordings.

11. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made on the basis of:

- Legal requirements as set out under the National Parks and Wildlife Act 1974 (as amended) which states that it is illegal to knowingly destroy, damage or deface or knowingly cause or permit the destruction, damage or defacement of an Aboriginal object or Aboriginal Place in NSW without first obtaining consent of the Director-General of the NSW Department of Environment and Climate Change (see Section 9 Statutory Information).
- The results of the investigation as documented in this report.
- An analysis of the survey results.
- Consideration of the nature and extent of impacts proposed.
- Consultation with [REDACTED] Jerringa Local Aboriginal Land Council.

11.2 Conclusions and Recommendations

The proposed impact areas within both the Stage 1 and Stage 2 areas are assessed to be of low archaeological sensitivity. The impact areas are highly disturbed as a result of previous road construction and vehicle usage and accordingly any archaeological deposits will have very low integrity and significance. Furthermore the environmental contexts of the landforms in which impacts are proposed are each assessed to contain stone artefacts in low or very low density only.

The following recommendations are set out below:

1. There are no Indigenous legislative constraints relating to the proposed Stage 1 works.
2. Shoalhaven City Council should seek to obtain a s90 AHIP from the Director-General, NSW DECC, for previously recorded Aboriginal objects #58-2-0307 “Nebraska Road” (and duplicate: 58-2-0345) and #58-2-0305 “Pelican Road” (and duplicate 58-2-0344) before the commencement of the proposed works in the Stage 2 area.
3. No further archaeological assessment such as subsurface test excavation is required in respect of the proposal.

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