New South Wales ARCHAEOLOGY

Aboriginal Archaeological Study for Moss Vale Road North (MVRN) Urban Release Area

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EXECUTIVE SUMMARY

NSW Archaeology Pty Lt has been engaged to conduct a Due Diligence Assessment of the Moss Vale Road North Urban Release Area Master Plan and development Control Plan.

Accordingly, this report has been prepared in accordance with the NSW Office of Environment and Heritage – OEH (formally NSW DECCW) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*[1] (NSW DECCW 2010).

For the purposes of this project, due diligence means 'taking reasonable and practical steps to determine whether a person's actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm' (NSW DECCW 2010: 18).

The *Due Diligence Code* outlines a number of steps to be adhered to in order to exercise due diligence when activities are undertaken that have the potential to cause harm to Aboriginal objects. The code stipulates that these steps should be followed in order to:

- identify whether Aboriginal objects are or are likely to be present in an area;
- ascertain whether the proposed activities are likely to harm Aboriginal objects (if present); and
- determine whether an Aboriginal Heritage Impact Permit (AHIP) application is required.

If Aboriginal objects are present or likely to be present *and* an activity will harm those objects, an AHIP is required.

The archaeological sensitivity of the area has been assessed to be generally low. However, certain landforms have been assessed to have some archaeological potential.

The following recommendations are made:

1. One previously recorded Aboriginal object site is present in the project area.

[1] Hereafter referred to as the *Due Diligence Code*.

2. The project area is assessed to be of relatively low heritage sensitivity. However, during this Due Diligence Assessment, several Survey Units have been found to have a certain archaeological potential.

3. Given the identification of an AHIMS site and four potentially sensitive landforms in the study area, a full Aboriginal Cultural Heritage Assessment (ACHA) should be undertaken in respect of all proposed impacts (inclusive of corridor enhancement works) when the designs for each subdivision are finalised and at DA stage. This work does not need to be conducted prior to the finalisation of the Master Plan for the URA as a whole. The ACHA would need to be undertaken by an archaeologist in accordance with the NSW OEH (2011) *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* and the NSW DECCW (2010b) *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code of Practice).

   This ACHA work should include Aboriginal consultation in accordance with the relevant OEH guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (NSW DECCW 2010c) given the potential for the need for an Aboriginal Heritage Impact Permit (AHIP).

   During the ACHA, test excavation may be required to clarify the nature of landforms in certain areas. Test excavation would entail test pits conducted by an archaeologist in accordance with the Code of Practice as discussed in Section 4. Test excavation would only need to be undertaken in the four Survey Units described in Section 3 as archaeologically sensitive: SU11, SU14, SU15 and SU16.

4. It is considered unlikely that there would be Aboriginal heritage constraints relating to the proposed activities. However, an AHIP would be required if impacts are proposed for any areas containing Aboriginal objects (see Section 4).

1. INTRODUCTION

Allen Price and Scarratts has been engaged to assist with the preparation of a Development Control Plan and Master Plan for the Moss Vale Road North (MVRN) Urban Release Area (URA) which is located within the rural catchment to the west of Bomaderry and northwest of Nowra (Figure 1).

The client is the MVRN Owners Group (a joint venture) for the preparation of the Development Control Plan (DCP).

The site was first identified in the Nowra Bomaderry Structure Plan (NBSP) and in 2014 was rezoned for residential development under Shoalhaven Local Environment Plan 2014 (SLEP2014).

SLEP 2014 provides the legal framework for planning decisions made by Council and other parties. Part 6 of SLEP 2014 sets out the conditions that must be met before the MVRN URA will be eligible for development approval, one of these conditions being the preparation of a development control plan (DCP).

Shoalhaven City Council (SCC) considers that the pre-conditions of Part 6 of the SLEP 2014 have or can be met, therefore, the preparation of a DCP is to be commenced. Council is prioritising the release of certain greenfield sites including this site (which is listed as second only to MVRS). Council has agreed that the owners through Allen Price and Scarratts Pty Limited will engage consultants for the preparation of supporting studies for the DCP.

The subject land measures 266.1 hectares. This area does not include roads that are zoned with an urban zone that lie within the zone boundary.

The site is bordered by Moss Vale Rd to the south, Princes Highway to the east, rural lands to the north-east, with Cambewarra Range Nature Reserve to the northwest. Abernethy's Lane crosses the subject land from east to west with Bells lane crossing the site from north to south.

The site ranges in elevation from RL20m AHD in the south-east to RL70m in the north-west corner and RL50m in the south near Moss Vale Rd. The site is traversed by Abernethy's Creek and a smaller tributary which both run from west to east.

The site comprises a mix of large rural landholdings and smaller rural lifestyle allotments all with rural dwellings. Generally, each lot contains a single dwelling with a number of farm buildings or outbuildings.

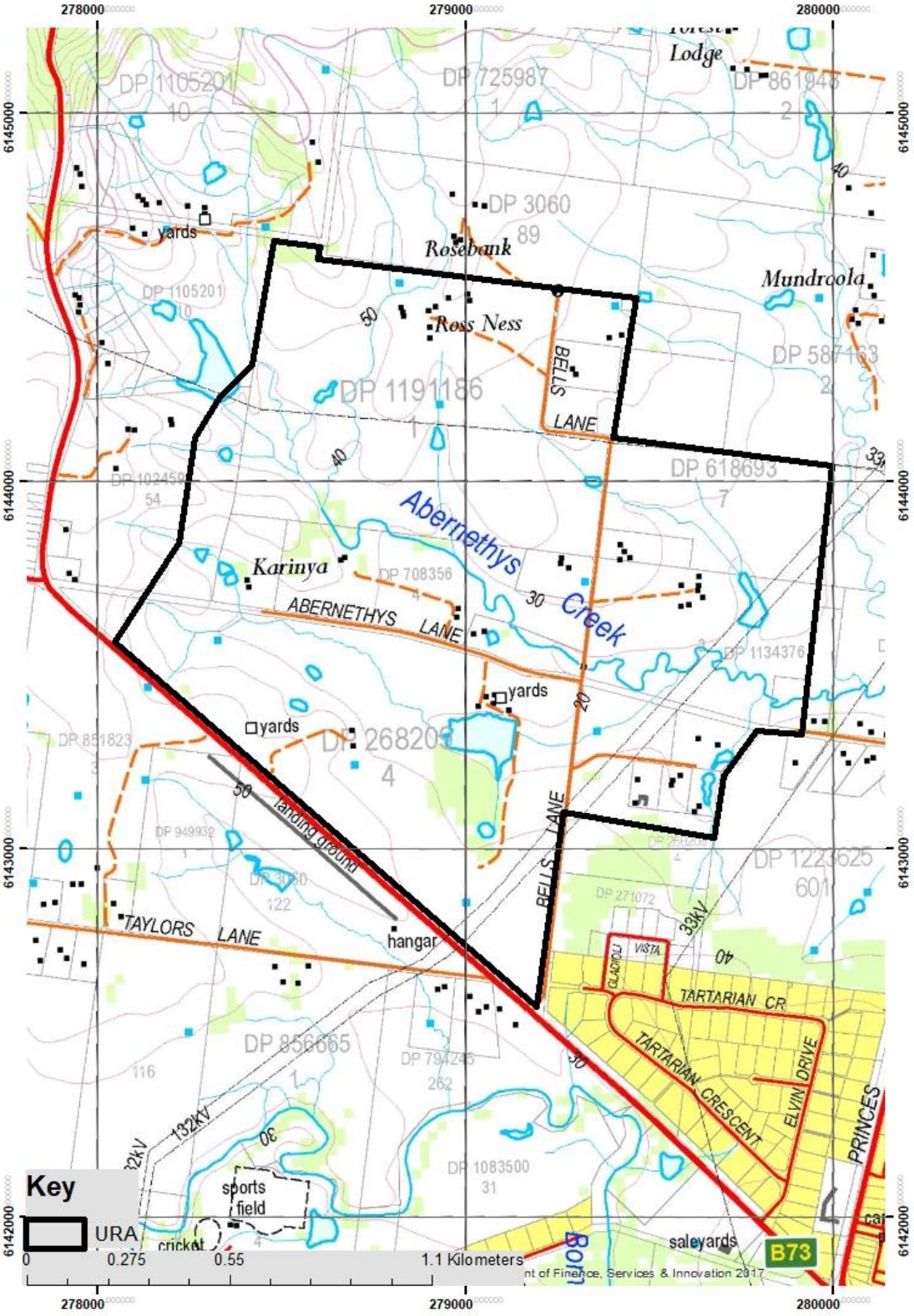

Figure 1 The location of the Moss Vale Road North (MVRN) Urban Release Area (URA).

2. AHIMS DATABASE SEARCH AND LANDSCAPE ASSESSMENT

2.1 AHIMS Site Search Results

NSW OEH Aboriginal Heritage Information Management System (AHIMS) have been undertaken in respect of this assessment:

Search #308510: Search date: 23/10/18. The search covered an area encompassed by Eastings: 277000 – 282000 and Northings: 6140000 – 6046000, with a buffer of 50 metres (Appendix 1). Some 68 Aboriginal object sites are listed on AHIMS for the area, one of is in the site as described below (Figure 2).

The AHIMS register only includes sites which have been reported to the NSW OEH. Generally, sites are only recorded during targeted surveys undertaken in either development or research contexts. Accordingly, this search cannot be considered to be an actual or exhaustive inventory of Aboriginal objects situated within the local area or indeed within the activity area itself. It is also the case that datums and grid references for AHIMS sites are sometimes incorrect. It is always necessary to review original site recording data in order to check locational and site information.

Searches have been conducted of the NSW State Heritage Inventory and the Australian Heritage Database. No Aboriginal heritage sites are listed on these as being in the subject area.

It is noted that for the purposes of Due Diligence, the AHIMS search results may be relied on for 12 months.

AHIMS Site 52-5-0421 – This site has an incorrect grid refence and plots slightly to the east of the location as described per the site card. The site is described as four artefacts between Abernethy's Lane and Bell's Lane northwest and immediately adjacent to the 132 kV powerlines. There is no report to accompany the site card. The artefacts in this site were not relocated during the current assessment.

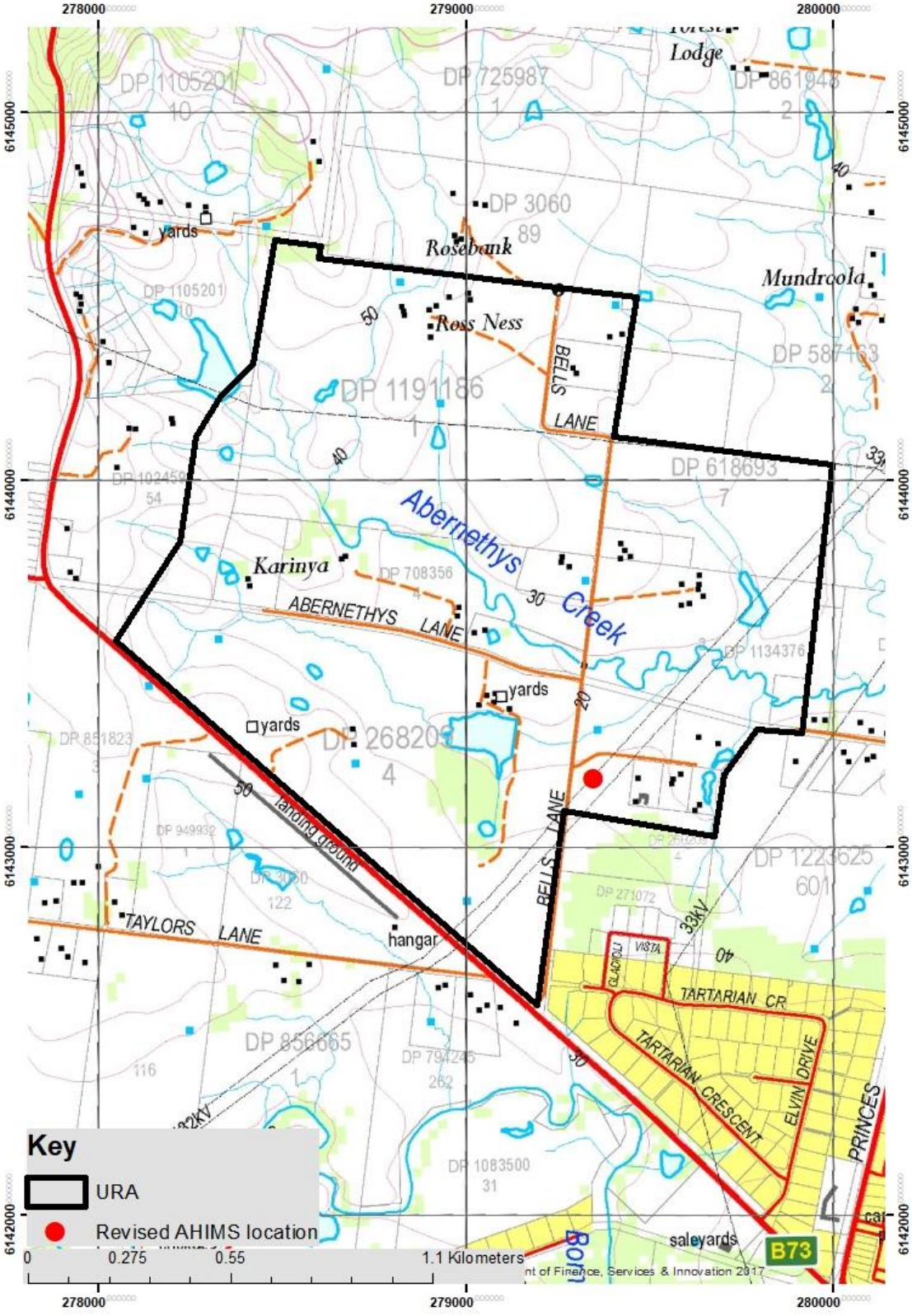

Figure 2 The location of the AHIMS sites in the vicinity of the area.

3. DESKTOP ASSESSMENT AND VISUAL INSPECTION

3.1 Introduction

On the basis of archaeological research, it is known that Aboriginal people have occupied Australia for at least 40,000 years and possibly as long as 65,000 years (Clarkson *et al.* 2017; Mulvaney and Kamminga 1999: 2). By 35,000 years ago 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 6-10ºC 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 risen and more of 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 humankinds' inspiring epics.*

Occupation of the NSW south coast dates from at least 20,000 years ago as evidenced by dated sites at Burrill Lake (Lampert 1971b), 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 Nowra area was occupied and utilised by Aboriginal people from the late Pleistocene onwards.

The study area is situated within an area 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). Navin (1991a:8) cites ethnographic observations that describe the people of the lower Shoalhaven in terms of occupying one district and speaking one dialect as evidence that the tribal boundary with the more northerly Wodi Wodi people was located near Jervis Bay. Dharawal is the language which was spoken over an area ranging from the Shoalhaven north to Port Hacking (Eades 1976).

Boot (1994) has undertaken a study based on original archival sources of ethno historical observations relating to the south coast region. Boot (1994) lists the following faunal and floral species which have been recorded in the ethno historical literature as having been utilised: fish species including bream, trumpeter, whiting, salmon and shark, eel, whales, seals, marine worms, shellfish including oysters and mussels; terrestrial fauna including possum, kangaroo, wombat, birds, goanna, grubs; and plant products including honey, kangaroo apple, native cranberry, honeysuckle, pigface, macrozamia, cabbage tree, fruit and yams. Observations of use of these food sources were made within ten kilometres of the coast (Boot 1994).

The material culture of the local Aboriginal population would have included a range of items related to subsistence, cultural and social activities and shelter. Ethno historical observations along the coast have been made of the following items: gunyahs, canoes, spears, shell-barbed spears, fishing spears, bark/wood shields, waddy/clubs, spear throwers, boomerangs, hatchets, fish-traps, stone heat retainers, kangaroo teeth adornments, pierced nose adornments, bark drawings, possum skin cloaks, shell fish hooks and grass tree resin (Boot 1994). In the archaeological record, few of these items survive. Stone, bone and shell are the materials most frequently represented in archaeological sites.

Information about traditional Aboriginal culture and their recent history in the Nowra 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 25 April that large fires were visible so that "...we suposd (sic) that the gentlemen ashore has a plentifull (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 involvement is not clear (Navin 1990:9). Navin (1990a:9) 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 1990:10). 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) 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 (1990:9) 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 Shoalhaven 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 (1971a; 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).

There are also two natural places - Mount Coolangatta and Moeyan Hill, both of which are situated to the north of Nowra that are identified as places of local Aboriginal importance. Mount Coolangatta is a mythological site (#52-5-0121) 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 (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 2006). Moeyan Hill is the location of a bunan ceremonial ground that was recorded in the late nineteenth century. It is described as being an initiation ground for the tribes of the Shoalhaven River.

3.2 Archaeological investigations

Surveys within the low lying coastal plain east of Nowra have been undertaken by Corkill (1986) Paton (1990) and Kuskie (1995). Assessment of deposits associated with the Shoalhaven Holocene embayment formed part of a predictive model developed by Corkill (1986). While field surveys for that study were limited, the results of survey provide confirmation for sites located on remnant landforms around the margins of the Holocene embayment infill. One such example is AHIMS site #52-0-0204 on the margins of Brundee Swamp, which also corresponds to the location of Holocene estuarine shoreline ridge and dune sands and gravels, as identified by Troedson and Hashimoto (2008). The surveys undertaken by Paton (1990) and Kuskie (1995) did not identify any surficial archaeological evidence for Aboriginal occupation.

A survey of two areas proposed for off-stream storage to the southwest of Nowra was conducted by McConnell (1978). Two rock shelters with artefact scatters, one surface scatter and one isolated find were identified to the west of the Nowra Airport and two artefact scatters were recorded at Bamarang.

During a survey of various pipeline works proposed by Shoalhaven City Council, Attenbrow (1981) recorded three rock shelters between the existing Burrier/Nowra trunk main and Bamarang Dam.

During a survey of a transmission line between Ulladulla and Nowra Lance (1987b) recorded an artefact scatter at Parma Creek as well as four isolated artefacts.

Donlon (1991) reported an Aboriginal burial which was exposed by erosion in Shoalhaven River terraces at Cabbage Tree Flat; the deposits were identified as being alluvium with an age of approximately 2500 years.

A survey was undertaken by Rich (1990) of proposed extensions to the West North Nowra Waste Depot, however no artefacts or other Aboriginal objects were identified during that project.

Navin (1991b) recorded two rock shelters with archaeological deposit on Bomaderry Creek during survey of options for the Nowra-Bomaderry Creek link road.

A total of 72.5 hectares of land on the coastal floodplain north of the Shoalhaven River at Bomaderry were investigated by Navin (1992) in relation to proposed extensions to Shoalhaven Paper Mill. Two isolated finds were recorded in the course of that survey, both of which were located in a disturbed context. The study area was assessed to be of low archaeological sensitivity.

Williams and Barber (1993, 1995) surveyed the Sydney-Melbourne route of the proposed Optus fibre optic cable and as a component of those investigations subsurface testing was undertaken at Tapitallee Creek, North Nowra (Barber and Williams 1995). A total of 37 test pits measuring 0.3 x 0.3 metres were excavated and two artefact locales comprising two artefacts on the north side of the creek and seven artefacts on the south side of the creek were identified. Both locales were situated on elevated alluvial terraces.

Kuskie, Navin and Officer (1995) undertook a survey of the Eastern Gas Pipeline in the Nowra region. Sites identified within the Lower Shoalhaven included a scarred tree, a rockshelter with deposit at Cabbage Tree Creek, an artefact scatter adjacent the Shoalhaven River and another adjacent one of its northern tributaries.

An area of just over 100 hectares on Cabbage Tree Lane was surveyed by Kuskie (1996) for a proposed rural-residential subdivision. Two isolated finds were recorded during that survey.

A survey for the proposed Albatross Aviation Technology Park was undertaken by Kuskie (1998a). No Aboriginal objects were identified during that survey and the area in question was assessed to be of low archaeological sensitivity on the basis that it had low biodiversity values including an absence of potable water.

Kuskie (1998b) also undertook a survey of some 36 hectares at Berry. One isolated find was recorded during that survey, although it was noted that visibility was low due to vegetation ground cover and that levels of prior disturbance were relatively high.

Similarly, a survey of the Princes Highway Bypass at Berry encountered low levels of visibility and did not result in the identification of any Aboriginal objects (ERM 1998).

Paton (1999) undertook a predictive study of three sewage pump stations at Berry. The results of that study concluded that there was very limited potential for intact archaeological evidence within the urban area.

Survey of a proposed cabin development on the northern side of Moeyan Hill was undertaken by Navin Officer Heritage Consultants (2000); one small low density artefact scatter was recorded during that study.

In 2001 Boot undertook a review of previous archaeological work in the Bomaderry Creek area. Boot noted that the area contained a variety of resources for Aboriginal people and a range of site types including artefact scatters, rock shelters with deposit, art sites and grinding grooves.

Survey of a proposed extension to the Shoalhaven Starches environmental farm was undertaken by Kuskie (2002). The survey incorporated sampling of all environmental contexts. No Aboriginal objects were identified and the area was assessed to of low potential based on low Aboriginal utilisation of the study area and disturbance from impacts during the historical period (Kuskie 2002).

Navin Officer Heritage Consultants (2005) undertook a survey of a proposed gas power facility and associated pipeline and transmission easements at Bamarang, southwest of Nowra. One small artefact scatter

with subsurface potential (BG1), an isolated artefact (BG2) and a tree with foot-hold scars that are possibly of Aboriginal origin (BG3) were recorded during that project.

Clarke and Kuskie (2006) undertook a study of 1650 hectares of conservation reserves within a 228 square kilometre area of the Lower Shoalhaven, around Nowra and Bomaderry. The study involved a review of known archaeological sites in the area including development of a spatial model based on environmental variables and ground-truthing field survey. The investigations conducted by Clarke and Kuskie (2006) identified two main resource zones within the Shoalhaven: primary and secondary. Primary resource zones were identified as terrain units in close proximity to the Shoalhaven and Crookhaven Rivers, while secondary resource zones were identified as terrain units in close proximity to the higher order creeks. The remainder of the area was identified as corresponding to land used for hunting, gathering and transitory movement. Such use was described as "sporadic and very short in duration" (Clarke and Kuskie 2006: ii).

The primary resource zones were acknowledged as areas in which an array of activities were likely to take place ranging from congregations of large groups of people through to transitory movement. It is suggested that "Occupation is likely to have been regular and potentially longer in duration in the primary zones" (Clarke and Kuskie 2006: ii). Within the secondary resource zones there was an identified high probability of "nuclear/extended family base camps, camping by small hunting and/or gathering parties" (Clarke and Kuskie 2006: ii) as well as the associated hunting, gathering and transitory movement. The pattern of such occupation was described as "likely to have been sporadic and relatively short in duration" (Clarke and Kuskie 2006: ii).

Clarke and Kuskie (2006) noted that grinding grooves and rock shelters are relatively common sites. It was observed that rock shelters are most likely to occur in moderate to steep drainage depressions or on spur crests and that larger shelters located in proximity to an array of resources are likely to have been used as base camps. A variety of art forms including paintings, drawings, stencils and pecked engravings may occur within any shelter that has suitable art surfaces. With regard to grinding groove sites it was noted that suitable outcrops of relatively homogenous sandstone are common within the Shoalhaven.

Navin Officer Heritage Consultants (2007) undertook a survey of 122.7 hectares of land on the Princes Highway, five kilometres south of Nowra, for a proposed correctional centre. No Aboriginal objects or areas of archaeological potential were identified within the proposal area.

Kelleher Nightingale Consulting (2007, 2008) undertook an assessment of Aboriginal heritage along Bomaderry Creek for the proposed North Nowra Link Road. A total of 28 sites were identified including eight previous recordings. The majority of identified sites (N=19) were rock shelters with associated artefacts and/or archaeological deposits; four of the shelters also contained art. Artefact scatters and areas of midden were also recorded. A previously recorded grinding groove site could not be relocated.

In summary, 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 Nowra region. The potential for such sites to occur in various environmental contexts is however enormously 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.

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 camps 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.

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.

Clarke and Kuskie (2006) have since provided the following predictions regarding site location in the coastal lowlands and hills:

- larger and more complex sites, formed as the result of regular and/or relatively long stays, are likely to occur in primary resource zones in close proximity to the Shoalhaven and Crookhaven Rivers;
- secondary resource zones, i.e. terrain units close to higher order creeks, are likely to contain evidence of sporadic and relatively short term stays;
- all other areas are likely to have been utilised for sporadic and very short activities associated with transitory movement and hunting/gathering;
- grinding grooves and rock shelter sites are both relatively common, although it is noted that the prevalence of rock shelters may be a reflection of research interests rather than an actual predominance of this particular site type;

- rock shelter sites are most likely to occur in moderate to steep drainage depressions or on spur crests;
- grinding grooves may occur wherever suitable outcrops of relatively homogenous sandstone are found;
- sites such as burials, mythological/traditional places, stone arrangements, scarred trees and stone procurement areas have a low to very low potential to "occur or to be readily identified" (Clarke and Kuskie 2006: iii).

3.3 Assessment

A field assessment of the area was undertaken on Wednesday 29 November. Sixteen Survey Units were defined (Figure 3). The assessment is summarised below.

Table 1 Description of Survey Units.

SU	Landform	Environmental context	Slope	Aspect	Geology	Abundance of Rock	Soil	Deposit Potential	Geomoph -ology	Agents	Prior Impacts	Disturbance Levels	Predicted Artefact Density
SU1	Simple slope	Low biodiversity; grassed paddock, fireweed, very sparse trees	Very gently inclined	SE	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, building construction, road	Moderate.	Negligible /very low
SU2	Minor crest	Low biodiversity; grassed paddock, fireweed, very sparse eucalypts	Very gently inclined	Open	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, building construction, road and vehicle track	Moderate	Very low / low
SU3	Drainage depression (incised)	Very low biodiversity; grasses, weeds, fireweed, very sparse eucalypts	Gently inclined	S	Alluvial deposit	No visible rock	Silty loam and alluvium	Negligible	Highly eroded	Precipitation, fluvial, wind	Water erosion, dam and vehicle track	Very High	Negligible
SU4	Simple slope	Very low biodiversity; grasses, weeds, fireweed, lantana, very sparse eucalypts	Gently inclined	S	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, building construction, silage pits and vehicle track	Moderate	Negligible /very low
SU5	Drainage depression (incised)	Very low biodiversity; grasses, weeds, fireweed, very sparse eucalypts	Gently inclined	S	Alluvial deposit	Pebbles and cobbles exposed in deep scours	Silty loam and alluvium	Negligible	Highly eroded	Precipitation, fluvial, wind	Water erosion and vehicle track	Very High	Negligible
SU6	Simple slope	Very low biodiversity; grasses, weeds, fireweed, lantana, very sparse eucalypts	Gently inclined	S	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing	Moderate	Negligible /very low
SU7	Simple slope	Low biodiversity; grasses, weeds, eucalypts	Moderate to steeply inclined	S	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing	Moderate	Negligible

SU	Landform	Environmental context	Slope	Aspect	Geology	Abundance of Rock	Soil	Deposit Potential	Geomoph -ology	Agents	Prior Impacts	Disturbance Levels	Predicted Artefact Density
SU8	Drainage depression (dendritic)	Very low biodiversity; grasses, weeds, fireweed, sparse eucalypts	Moderately inclined	E	Alluvial deposit	No visible rock	Silty loam and alluvium	Negligible	Highly eroded	Precipitation, fluvial, wind	Water erosion and dams	High	Negligible
SU9	Crest	Low biodiversity; grasses, weeds, eucalypts	Gently to moderately inclined	E	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing and building construction	Moderate	Negligible /very low
SU9a (Sub zone)	Crest	Low biodiversity; grasses, weeds, eucalypts	Level to gently inclined	Open	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing	Low	Not known
SU10	Drainage depression (incised)	Very low biodiversity; grasses, weeds, blackberry, fireweed, lantana, very sparse eucalypts	Gently inclined	SE	Alluvial deposit	No visible rock	Silty loam	Negligible	Highly eroded	Precipitation, fluvial, wind	Water erosion, dam and animal tracks	Very High	Negligible
SU11	Simple slope	Low biodiversity; grasses, weeds, eucalypts	Moderately inclined	NW-NE	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, electricity transmission, building construction, road, dams	Moderate	Negligible /very low AHIMS site # 52-5-0421
SU11 b (Sub zone)	Simple slope - level area	Low biodiversity; grasses, weeds, eucalypts	Level	Open	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Electricity transmission, clearing	Low /moderate	Possibly moderate
SU12	Flat - undulating	Low biodiversity; grasses, weeds, shrubs, trees, eucalypts	Level to gently undulating	Open	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, horse track and yards etc, building construction, roads, vehicle tracks, dams	Variable, from low to high	Low/ moderate

SU	Landform	Environmental context	Slope	Aspect	Geology	Abundance of Rock	Soil	Deposit Potential	Geomoph -ology	Agents	Prior Impacts	Disturbance Levels	Predicted Artefact Density
SU13	Crest	Low biodiversity; grasses, weeds, shrubs, trees, eucalypts	Level to gently inclined	Open	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, electricity transmission, horse track and yards	Low / moderate	Negligible
SU14	Terrace flat	Low biodiversity; grasses, weeds, shrubs, trees, eucalypts	Level	Open	Alluvial deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, building construction, roads, vehicle tracks	Low / moderate	Moderate
SU15	Simple slope	Low biodiversity; grasses, weeds, shrubs, trees, eucalypts	Gently inclined	S	Alluvial plain deposit	No visible rock	Silty loam	Yes	Eroded	Precipitation, wind	Ploughing, grazing, horse yards and equestrian infrastructure	Low / moderate	Low / moderate
SU16	Drainage depression - meandering	Very low biodiversity; grasses, weeds, shrubs, trees, eucalypts	Very gently inclined	Open	Alluvial deposit	No visible rock	Silty loam	Negligible	Highly eroded	Precipitation, fluvial, wind	Water erosion, fords, fencing	Low / moderate	Negligible, but possibly moderate on certain stream bank areas of the landform

Survey Unit 1 is a south-easterly facing simple slope located in the north-eastern section of the study area (Plate 1). The landform is almost totally made up of fenced pasture given over to grazing but is also crossed by Bells Lane. A farm vehicle track and various farm buildings are also present. The Survey Unit is a broad open landform of low gradient which appears to have a significant history of farming, particularly grazing but also quite probably cropping. It is a generally amorphous landform, with negligible/very low archaeological potential.

Plate 1 Survey Unit 1 looking north.

Survey Unit 2 is an east-west aligned minor crest (Plate 2). The landform encompasses areas of fenced grazing pasture to the west, with an increasing amount of built infrastructure towards the eastern extent. There are buildings comprised of houses and sheds, as well as other development associated with equestrian activities. Bells Lane passes through the landform. This Survey Unit is a broad open landform of low gradient which appears to have a significant history of farming. It is an amorphous landform with very low/low archaeological potential at its western end, but becoming more archaeologically sensitive towards the east, where it nears Abernethy's Creek. However, this area coincides generally with the region of more intensive development.

Plate 2 Survey Unit 2 looking eastwards from western end.

Survey Unit 3 is a gently sloping drainage depression which becomes deeply incised within the study area and as it nears Abernethy's Creek (Plate 3). The landform is significantly eroded. It is an ephemeral stream that would not have held water for long periods following precipitation. Instead, from an archaeological perspective, greater focus in the immediate surrounds would have been on the more permanent water source represented by Abernethy's Creek. Given this, and because the landform is significantly eroded, the Survey Unit is assessed to be of negligible archaeological sensitivity.

Plate 3 Survey Unit 3 looking north.

Survey Unit 4 is a gently inclined undulating simple slope located towards the centre of the northern section of the study area (Plate 4). The landform is made up of fenced pasture used for grazing, with a house and various farm buildings situated at the northern end. A farm vehicle track and silage pit are also present. The Survey Unit is a broad open landform of low gradient which appears to have a significant history of farming, particularly grazing but also cropping. It is generally amorphous, with negligible/very low archaeological potential.

Plate 4 Survey Unit 4 looking north.

Survey Unit 5 is a gently inclined drainage depression which becomes deeply incised within the study area. The landform is highly eroded. It is an ephemeral stream that would not have held water for long following precipitation. Instead, from an Aboriginal land use perspective, greater focus in the immediate surrounds would have been placed on the more permanent water source represented by Abernethy's Creek. Given this, and because the landform is significantly eroded, the Survey Unit is assessed to be of negligible archaeological sensitivity. Plate 5 below shows a heavily scoured section of the drainage depression in an area above Abernethy's Creek.

Plate 5 Survey Unit 5 looking north, showing scouring erosion of the landform.

Survey Unit 6 is an undulating simple slope located towards the north western section of the study area (Plate 6). The landform is comprised of fenced pasture given over to grazing. The Survey Unit is a broad open landform of low gradient which appears to have a long history of farming, particularly grazing but also cropping. It is a generally amorphous landform and is assessed to possess negligible/very low archaeological potential.

Plate 6 Survey Unit 6, looking north, with the steeper incline of Survey Unit 7 beyond.

Survey Unit 7 is a moderately steep simple slope located at the north western section of the study area. The landform is part pasture, with some woodland area along the northern boundary of the study area. Given the gradient of the landform it is assessed to have negligible archaeological potential.

Survey Unit 8 is a moderately sloping drainage depression which is dentritic, having three branches that extend south-easterly from the western boundary of the study area to join the higher order flow of Abernethy's Creek. The landform is highly eroded and generally deeply incised, and with a large dam having been constructed on the middle branch of the Survey Unit (Plate 7). The landform is comprised of ephemeral drainage depressions that would not have held water for long periods following precipitation. Instead, from an archaeological viewpoint, greater focus in the immediate surrounds would have been placed on the more permanent water source represented by Abernethy's Creek. Given this, and the gradient, and because the landform is significantly eroded, the Survey Unit is assessed to be of negligible archaeological sensitivity.

Plate 7 Survey Unit 8 looking west.

Survey Unit 9 is a gently to moderately sloping crest that falls away in an easterly direction from the western boundary of the study area (Plate 8). The landform encompasses areas of fenced grazing pasture as well as wooded areas and some built infrastructure in the form of housing, driveways and gardens. The Survey Unit is gently undulating and mostly assessed to possess negligible/very low archaeological potential. However, in one localised area immediately adjacent to Abernethy's Creek the

landform rises abruptly from that waterway to a levelled elevated area. Presently this point is in woodland. The archaeological sensitivity of this discrete locale is not easy to determine but could possibly be higher than the remainder of the Survey Unit.

Plate 8 Survey Unit 9 looking northeast.

Survey Unit 10 is a gently sloping drainage depression that commences within the study area and becomes deeply incised close to its point of origin. The landform is extensively eroded (Plate 9). Because it is an ephemeral stream that is significantly eroded, the Survey Unit is assessed to be of negligible archaeological sensitivity.

Plate 9 Survey Unit 10 looking south, showing areas of extensive erosion.

Survey Unit 11 is a north facing simple slope of moderate gradient located along the southern section of the study area (Plates 10 and 11). The landform encompasses areas of fenced pasture, woodland, dams, an electricity easement, and some houses. Bells Lane and another minor sealed road also pass through it. Previously recorded AHIMS site # 52-5-0421, comprised of four stone artefacts, is located in this survey unit in the electricity easement corridor. The Survey Unit is a broad and generally amorphous open landform, areas of which have had moderate prior impacts. Generally, it is assessed to have negligible/very low archaeological potential. However, in one levelled area immediately adjacent to a minor drainage depression within Survey Unit 11 (SU11b) the archaeological sensitivity could possibly be moderate.

Plate 10 Survey Unit 11 looking north.

Plate 11. Survey Unit 11 looking northeast to AHIMS site # 52-5-0421.

Survey Unit 12 is a gently undulating flat, much of which is located to the south of Abernethy's Lane (Plate 12). The landform encompasses areas that have been impacted by ploughing, grazing, a horse track, horse yards and building construction, as well as roads, vehicle tracks and dams. As such, the Survey Unit has sustained variable levels of prior impacts, from low to high. The landform is generally removed from Abernethy's Creek and is assessed to possess low/moderate archaeological potential.

Plate 12 Survey Unit 12 looking south-east.

Survey Unit 13 is a level to gently inclined crest located along the southern boundary of the study area (Plate 13). The landform encompasses areas impacted by ploughing, grazing, an electricity transmission corridor, and a horse track and yards. Because of its remoteness to water the Survey Unit is assessed to possess negligible archaeological potential.

Plate 13 Survey Unit 13 looking north-west.

Survey Unit 14 is a level terrace flat adjacent to the southern side of Abernethy's Creek. (Plate 14). The landform encompasses areas of ploughing, grazing, building construction, road and vehicle track impacts. Because of its level nature, its proximity to the reasonably reliably water source represented by Abernethy's Creek, as well as its slight elevation from that feature, the entire Survey Unit is assessed to have a moderate degree of archaeological potential.

Plate 14 Survey Unit 14, the elevated area left of the creek, looking south-east.

Survey Unit 15 is a south facing simple slope adjacent to the northern side of Abernethy's Creek (Photo 15). The landform encompasses areas of ploughing, grazing, horse yard and equestrian infrastructure prior impacts. Because of its gentle incline and proximity to the reasonably reliably water source represented by Abernethy's Creek, as well as its slight elevation above that feature, the Survey Unit is assessed to have a low to moderate level of archaeological potential. The areas of archaeological sensitivity do not include the areas occupied by equestrian infrastructure.

Survey Unit 16 is the drainage depression of Abernethy's Creek (Plate 15). The landform is comprised of a generally broad low terrace, and within that a meandering active stream flow channel. Because of the ongoing removal and deposition of material due to fluvial action, the majority of the Survey Unit is assessed to have negligible archaeological potential. However, fringing the broader stream channel there are some minor stream bank areas, that if they predate European settlement, may have a moderate degree of archaeological sensitivity. To establish the location of these potentially sensitive areas, archaeological test excavations including a geomorphological analysis would be required.

Plate 15 Survey Unit 16, looking northeast, showing the low terrace and active stream flow.

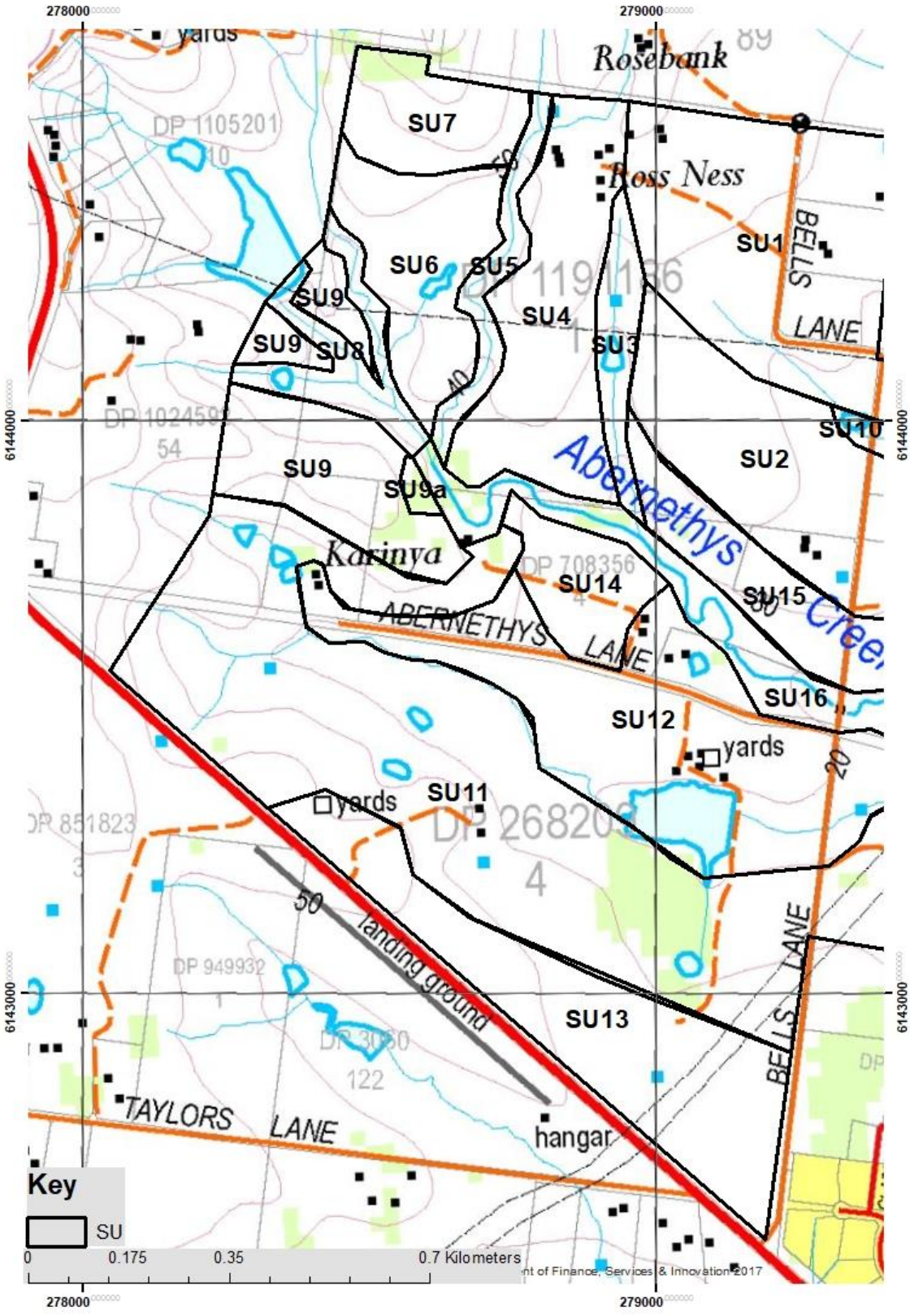

Figure 3 Survey Units; west side of project area.

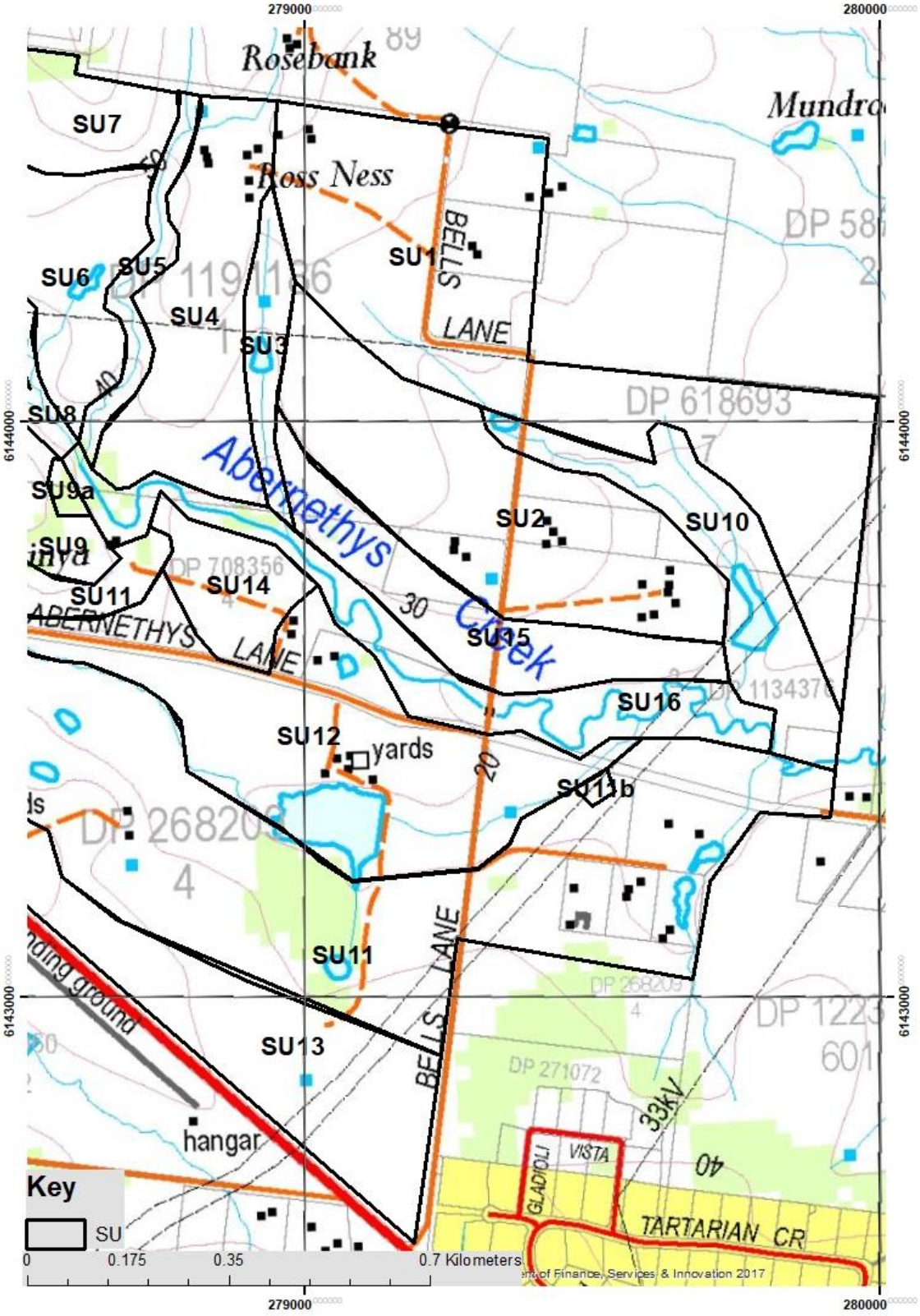

Figure 4 Survey Units; east side of project area.

4. LEGISLATION

The National Parks and Wildlife Act 1974 (NPW Act) is the primary legislation for the protection of some aspects of Aboriginal cultural heritage in NSW. One of the objectives of the NPW Act is:

> *… the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including but not limited to: (i) places, objects and features of significance to Aboriginal people … (s.2A(1)(b))*

Part 6 of the NPW Act is administered by the NSW Office of Environment and Heritage (NSW OEH) and provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. Harm is defined to mean destroying, defacing or damaging an Aboriginal object or declared Aboriginal place, or moving an object from the land.

Section 86 of the NPW Act, *Harming or desecrating Aboriginal objects and Aboriginal places,* sets out the penalties for harming an Aboriginal object. For an individual, the penalty for harming an object the person knows is an Aboriginal object, is imprisonment for up to 2 years and a significant fine (>$200,000).

Anyone proposing to carry out an activity that may harm an Aboriginal object or declared Aboriginal place must investigate, assess and report on harm that may be caused by the activity they propose. An Aboriginal Heritage Impact Permit (AHIP) may be required if harm to Aboriginal objects and declared Aboriginal places is proposed. When this is the case, an Aboriginal Cultural Heritage Assessment Report (ACHAR) is required to support the AHIP application.

Further archaeological investigations such as test excavations can be undertaken to provide a more informed assessment. Such work can be done within the provisions of the NSW DECCW (2010b) Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (the Code of Practice). Test Excavation undertaken in accordance with the Code of Practice allows harm to Aboriginal objects to occur (during excavation) without the need for an AHIP.

At this early stage in the planning process it is premature to make recommendations in respect of the existing legislation. However, if at any time harm to Aboriginal objects is proposed, an AHIP would be required.

5. CONCLUSIONS AND RECOMMENDATIONS

The archaeological sensitivity of the area has been assessed to be generally low. However, certain landforms have been assessed to have some archaeological potential.

The following recommendations are made:

5. One previously recorded Aboriginal object site is present in the project area.

6. The project area is assessed to be of relatively low heritage sensitivity. However, during this Due Diligence Assessment, several Survey Units have been found to have a certain archaeological potential.

7. Given the identification of an AHIMS site and four potentially sensitive landforms in the study area, a full Aboriginal Cultural Heritage Assessment (ACHA) should be undertaken in respect of all proposed impacts (inclusive of corridor enhancement works) when the designs for each subdivision are finalised and at DA stage. This work does not need to be conducted prior to the finalisation of the Master Plan for the URA as a whole. The ACHA would need to be undertaken by an archaeologist in accordance with the NSW OEH (2011) *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* and the NSW DECCW (2010b) *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code of Practice).

   This ACHA work should include Aboriginal consultation in accordance with the relevant OEH guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (NSW DECCW 2010c) given the potential for the need for an Aboriginal Heritage Impact Permit (AHIP).

   During the ACHA, test excavation may be required to clarify the nature of landforms in certain areas. Test excavation would entail test pits conducted by an archaeologist in accordance with the Code of Practice as discussed in Section 4. Test excavation would only need to be undertaken in the four Survey Units described in Section 3 as archaeologically sensitive: SU11, SU14, SU15 and SU16.

8. It is considered unlikely that there would be Aboriginal heritage constraints relating to the proposed activities. However, an AHIP would be required if impacts are proposed for any areas containing Aboriginal objects (see Section 4).

6. REFERENCES

Attenbrow, V. 1981 Northern Shoalhaven Water Supply Water Trunk Mains and Reservoir Sites. Report to Shoalhaven City Council.

Barber, M and Williams, D. 1993 Optus Sydney Melbourne Fibre Optic Cable Archaeological Survey.

Bayley, W. A. 1975 Shoalhaven. History of the Shire of Shoalhaven NSW. Second Edition, Shoalhaven Shire Council, Nowra.

Boot, P. 1994 Recent Research into the Prehistory of the Hinterland of the South Coast of New South Wales. In Sullivan, M, Brockwell, S. and Webb, A. (eds) *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference*. NARU: Darwin.

Boot, P. 2002 Didthul, Gulaga and Wadbilliga: An archaeological study of the Aboriginals of the New South Wales South Coast hinterland. Unpublished PhD thesis: The Australian National University.

Brooks, A.P. and Brierley, G.J. 1997 Geomorphic responses of the lower Bega River to catchment disturbance, 1851-1926. *Geomorphology* 18: 291-304.

Bureau of Meteorology. 2017. *NOWRA RAN AIR STATION AWS*. [ONLINE] Available at: http://www.bom.gov.au/climate/averages/tables/cw_068072_All.shtml. [Accessed 8 August 2017].

Cane, S. 1987 An Archaeological and Anthropological Investigation of the Armament Depot Complex in Jervis Bay, NSW. Anutech Heritage Resource Services. Report to the Department of Housing and Construction.

Cane, S. 1988 An Assessment of the Impact of Defence Proposals on Aboriginal Sites in Jervis Bay, NSW. Anutech Pty Ltd. Report to Sinclair Knight & Partners Pty Ltd.

Clarke, E. and Kuskie, P. 2006 *Aboriginal Heritage and Cultural Mapping Project: Lower Shoalhaven River Valley – Stage 4A: Archaeological Predictive Modelling and Aboriginal Community Consultation.* Unpublished report to DEC (NSW) National Parks and Wildlife Service, South Coast Region.

Clarkson *et al* 2017 Human occupation of Nrthern Australia by 65,000 years ago, *Nature* 547: 306–310.

Corkill, T. 1986 Gaining Ground: A predictive model for Holocene infill areas on the south coast of New South Wales. Unpublished B.A.(Hons) thesis, Dept. Anthropology, University of Sydney.

Dibden, J 2013 Gerringong to Bomaderry Princess Highway Upgrade Foxground and Berry Bypass Geotechnical Testing Program Salvage Excavation Report.

Donlan, D. 1991 The Shoalhaven River Skull: Report on study of Aboriginal skull found along the banks of the Shoalhaven River, NSW. Report to NSW NPWS.

Eades, D. 1976 *The Dharawal and Dhurga Languages of the New South Wales South Coast*. Canberra: Australian Institute of Aboriginal Studies.

Egloff, B. J., K. Navin and K. Officer 1995 Jervis Bay National Park and Botanic Gardens as Aboriginal Land. Report to the Federal Minister for Aboriginal Affairs.

ERM 1998 Berry Bypass

Flood, J. 1980 *The Moth Hunters. Aboriginal Prehistory of the Alps*. Canberra: Australian Institute of Aboriginal Studies.

Kuskie, P.J. 1998a *An Archaeological Assessment of Lot 3 DP 596879, George Street, Berry, South Coast of New South Wales*. Unpublished report to Cowman Stoddart Pty Ltd.

Kuskie, P.J. 1998 *An Aboriginal Archaeological Assessment of the Proposed Albatross Aviation Technology Park, Nowra, New South Wales*. Unpublished report to Shoalhaven City Council.

Kuskie, P.J. 2002 *An Aboriginal Heritage Assessment of Proposed Extensions to the Shoalhaven Starches Environmental Farm at Nowra, South Coast of New South Wales.* Unpublished report to Cowman Stoddart Pty Limited.

Kuskie, P., Navin, K. and Officer, K. 1995 *Eastern Gas Pipeline Aboriginal Archaeological Assessment: Route Changes, Revision 9.3, Welcome Reef Dam Area, NSW.* Unpublished report to the Eastern Gas Pipeline Project.

Lampert, R. 1971a Burrill Lake and Currarong. Coastal Sites in Southern NSW. Archaeology and Physical Anthropology in Oceania 9: 226-235.

Lampert, R. 1971b Coastal Aborigines of Southeastern Australia. In D.J. Mulvaney and J. Golson (Eds) Aboriginal Man and Environment in Australia pp 114-132. Australian National University Press, Canberra.

Lampert, R. and F. Sanders 1973 Plants and Men on the Beecroft Peninsula, New South Wales. Mankind 9:96-108.

Lance, A. 1987 An Archaeological Survey of the Jervis Bay Quarry, South Coast New South Wales. Anutech Heritage Resource Services. Report to Longworth and McKenzie, Sydney.

Mulvaney, J. and J. Kamminga 1999 Prehistory of Australia. Allen and Unwin: St Leonards.

Navin, K. 1990 Proposed Currambene Creek Crossing Feasibility Study. Archaeological Component. Report to Shoalhaven City Council.

Navin, K. 1991a Archaeological Investigation of Proposed Currambene Creek Crossing and Associated Road Routes from Woollamia to Callala Beach, Jervis Bay, NSW. Report to Mitchell McCotter & Associates Pty Ltd.

Navin, K 1991b An Archaeological Assessment of Alternative Bypass routes for the Princes Highway at Tomerong, NSW. Report to Roslyn Muston & Associates.

Navin, K. 1992 An Archaeological Survey of Proposed Development Areas – Goodlands Road and Woollamia Road, Woollamia, NSW. Navin Officer Archaeological Resource Management, Report to Spencer J. Buchanan & Associates Pty Ltd.

Navin Officer Heritage Consultants 2000 Moeyan Hill

Navin Officer Heritage Consultants 2005 Gas Power Facility and Associated Infrastructure at Bamarang, Nowra, NSW Environmental Assessment: Aboriginal Cultural Heritage, Report to GHD.

Navin Officer Heritage Consultants 2007 South Coast Correctional Centre, Nowra: cultural heritage assessment, Report to BBC Consulting.

New South Wales Department of Environment, Climate Change and Water 2010a *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.*

New South Wales Department of Environment, Climate Change and Water 2010b *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales 2010.*

New South Wales Department of Environment, Climate Change and Water 2010c *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.*

NSW Roads and Maritime Services (RMS) 2012 *Foxground and Berry bypass. Princess Highway Upgrade. Vol. 2 – Appendix J*. Technical Paper: Aboriginal heritage.

Ossa, P. Marshall, B. & C. Webb 1995 New Guinea 2 Cave: A Pleistocene site on the Snowy River, Victoria. *Archaeology in Oceania* 30 (1): 22: pp. 22-35.

Sloss C. R., Jones B. G., Murray-Wallace C. V. & McClennon C.E. 2005. Holocene sea level uctuations and the sedimentary evolution of a barrier estuary: Lake Illawarra, New South Wales, Australia. *Journal of Coastal Research* **21(5)**, 943–959.

Tindale, N. B. 1974 Aboriginal Tribes of Australia. Australian National University Press, Canberra.

Troedson A.L. & Hashimoto T.R. 2008. *Coastal Quaternary Geology — north and south coast of NSW*. Geological Survey of New South Wales, Bulletin 34.

Williams, D. and M. Barber 1995a Further Archaeological Investigations of the Proposed Route of the Optus Communications Fibre Optic Cable Between Dandenong and the NSW/Victorian Border. Report to Purdon Associates.

Williams, D. and M. Barber 1995b Subsurface Investigations for Optus Communications Fibre Optic Cable Route at Tapitallee Creek, Nowra, NSW. Report to Purdon Associates Pty Ltd.

Woodroffe, C.D. Buman, M., Kawase, K. and Umitsu, M. 2000 Estuarine infill and formation of deltaic plains, Shoalhaven River. Wetlands (Australia) 18 (2): 72-84.

APPENDIX 1 – AHIMS DATABASE SEARCH

Office of Environment & Heritage

NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Moss Vale Rd

Client Service ID : 308510

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-5-0084	Nowra;	AGD	56	279687	6139923	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	2048,98511,10 2506
	Contact	Recorders		Unknown Author				Permits		
52-5-0262	Bomaderry Ck 5;Bomaderry Creek Nowra;	AGD	56	279420	6141260	Closed site	Valid	Artefact : 5	Shelter with Deposit	2254,98511,10 2506,103143
	Contact	Recorders		Karry Navin,Mr.Kelvin Officer,Mr.Edward Clarke				Permits		
52-5-0263	Bomaderry Ck 4;Bomaderry Creek Nowra;	AGD	56	279350	6141400	Closed site	Valid	Artefact : -	Shelter with Deposit	2254,98511,10 2506,103143
	Contact	Recorders		Karry Navin,Mr.Kelvin Officer				Permits		
52-5-0287	Abernethys Creek 1;	AGD	56	280360	6142800	Open site	Valid	Artefact : -	Open Camp Site	102301,10250 6
	Contact	Recorders		Mr.Kelvin Officer				Permits	3791	
52-5-0035	Nowra (Bomaderry)	AGD	56	280053	6139930	Closed site	Valid	Artefact : -	Shelter with Deposit	531,98511,102 506
	Contact	Recorders		Leslie Maynard				Permits		
52-5-0036	Bomaderry;	AGD	56	279800	6139900	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	98511,102506
	Contact	Recorders		Mr.P Bindon				Permits		
52-5-0302	Tapitallee Ck 1;	AGD	56	278000	6141630	Open site	Valid	Artefact : 4	Open Camp Site	102506
	Contact	Recorders		Mr.Doug Williams,Mr.David Johnston,Mr.Sam Wickman,Mr.Matthew Barber				Permits		
52-5-0303	Tapitallee Ck 2;	AGD	56	278020	6141840	Open site	Valid	Artefact : 1	Open Camp Site	102506
	Contact	Recorders		Mr.Doug Williams,Stuart Huys,Mr.Matthew Barber				Permits		
52-5-0307	EGP 3-28;Cram Rd Shoalhaven,Eastern Gas Pipline;	AGD	56	277210	6140560	Open site	Valid	Artefact : -	Open Camp Site	102506
	Contact	Recorders		Karry Navin,Mr.Kelvin Officer				Permits		
52-5-0421	NO.LC1	AGD	56	279350	6143000	Open site	Valid	Artefact : 4		102301,10250 6
	Contact	Recorders		Mr.Sam Wickman				Permits		
52-5-0422	NO.LC2	AGD	56	279970	6143690	Open site	Valid	Artefact : 7		102301,10250 6
	Contact	Recorders		Mr.Sam Wickman				Permits		
52-5-0423	NO.LC3	AGD	56	280030	6143860	Open site	Valid	Artefact : 1		102301,10250 6
	Contact	Recorders		Mr.Sam Wickman				Permits		
52-5-0424	NO.LC4	AGD	56	280950	6144840	Open site	Valid	Artefact : 10		102301,10250 6
	Contact	Recorders		Mr.Sam Wickman				Permits		
52-5-0372	Duke 7	AGD	56	277800	6140630	Open site	Valid	Artefact : -	Open Camp Site	102506
	Contact	Recorders		S Huys				Permits		

Report generated by AHIMS Web Service on 23/10/2017 for Julie Dibden for the following area at Datum :GDA, Zone : 56, Eastings : 277000 - 282000, Northings : 6140000 - 6146000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 68

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Moss Vale Rd
Client Service ID : 308510

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-1797	West Cambewarra Rd.;Bomaderry Creek;	AGD	56	279300	6141700	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	98511,103143
	Contact	Recorders	T Bartlett					Permits		
52-5-0538	BCP 001 Mosquito Shelter	AGD	56	279793	6141045	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0539	BCRP 002 The black caves	AGD	56	279701	6141045	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0540	BCRP 003 The blue metal site	AGD	56	279952	6141083	Open site	Valid	Artefact : -		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0541	BCRP 005 Leaning Cliff-Line Site	GDA	56	279983	6140798	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0542	BCRP 006 Pipeline Shelter	AGD	56	279545	6141313	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0543	BCRP 007 Stone Circle Site	AGD	56	279551	6141181	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0544	BCRP 012 Pitt Street Narang	AGD	56	278907	6141032	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0545	BCRP 013 West Cambewarra	AGD	56	279206	6141669	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0546	BCRP 014 West Cambewarra	AGD	56	279266	6141794	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0547	BCRP 015 West Cambewarra	AGD	56	279472	6141712	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0548	BCRP 016 Scar Tree Site	AGD	56	279111	6140447	Open site	Valid	Modified Tree (Carved or Scarred) : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0549	BCRP 017 Stained Flake	AGD	56	279626	6140197	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-4-0261	BCRP 018 The largest shelter (duplicate of 52-5-0550)	AGD	56	279704	6140277	Closed site	Valid	Artefact : 1		
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0550	BCRP 018 The largest Shelter	AGD	56	279704	6140277	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0551	BCRP 019 Boulder Shelter	AGD	56	280000	6140599	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		

Report generated by AHIMS Web Service on 23/10/2017 for Julie Dibden for the following area at Datum :GDA, Zone : 56, Eastings : 277000 - 282000, Northings : 6140000 - 6146000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 68

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Extensive search - Site list report

Your Ref/PO Number : Moss Vale Rd

Client Service ID : 308510

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-5-0552	BCRP 020 Spotted Gum	AGD	56	279868	6140699	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0553	BCRP 022-30 Metres West of Shelter Cave	AGD	56	279917	6140870	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0554	BCRP 023 Charcoal Oval Art	AGD	56	279757	6140987	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0555	BCRP 024 One Silcrete Flake	AGD	56	279675	6141006	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0556	BCRP 025 Trenched Drip-line	AGD	56	279496	6141091	Open site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0557	BCRP 026 Rock Fall Canyon Shelter	AGD	56	281896	6140560	Closed site	Valid	Artefact : 1		102506
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd					Permits		
52-5-0745	GZB A53 Cloned	GDA	56	281999	6145442	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : -		103718
	Contact	Recorders	Artefact - Cultural Heritage Management ,Artefact - Cultural Heritage Management					Permits	3791	
52-5-0746	GZB A54 Cloned	GDA	56	281535	6145221	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : -		103718
	Contact	Recorders	Artefact - Cultural Heritage Management ,Artefact - Cultural Heritage Management					Permits	3791	
52-5-0747	GZB A55 Cloned	GDA	56	281414	6145161	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : -		103718
	Contact	Recorders	Artefact - Cultural Heritage Management ,Artefact - Cultural Heritage Management					Permits	3791	
52-5-0748	GZB A56	GDA	56	281351	6145060	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Adrian Cressey					Permits	3791	
52-5-0749	GZB A57	GDA	56	281151	6144307	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Adrian Cressey					Permits	3791	
52-5-0750	GZB A58	GDA	56	280949	6143989	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Adrian Cressey					Permits	3791	

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Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Moss Vale Rd

Client Service ID : 308510

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-5-0751	G2B A59	GDA	56	280458	6143469	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Adrian Cressey					Permits	3791	
52-5-0752	G2B A60	GDA	56	280375	6143357	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		103718
	Contact	Recorders	Mr.Adrian Cressey					Permits	3791	
52-5-0753	G2B A61	GDA	56	280248	6142928	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		103718
	Contact	Recorders	Mr.Adrian Cressey					Permits	3791	
52-5-0754	Abernethy's Creek 1	GDA	56	280423	6143083	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Adrian Cressey					Permits		
52-5-0683	PASA 1 (Berry - Bomaderry)	GDA	56	280412	6143352	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103068
	Contact	Recorders	Mr.Kelvin Officer,Mr.Adrian Cressey					Permits	3791,4067	
52-5-0684	PASA 2 (Berry - Bomaderry)	GDA	56	280935	6144000	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103068
	Contact	Recorders	Mr.Kelvin Officer,Mr.Adrian Cressey					Permits	3791	
52-5-0685	PASA 3 (Berry - Bomaderry)	GDA	56	281122	6144251	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103068
	Contact	Recorders	Mr.Kelvin Officer,Mr.Adrian Cressey					Permits	3791	
52-5-0686	PASA 4 (Berry - Bomaderry)	GDA	56	281369	6145115	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103068
	Contact	Recorders	Mr.Kelvin Officer,Mr.Adrian Cressey					Permits	3791	
52-5-0687	PASA 5 (Berry - Bomaderry)	GDA	56	281491	6145155	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103068
	Contact	Recorders	Mr.Kelvin Officer,Mr.Adrian Cressey					Permits	3791	
52-5-0694	EDWARDS AVENUE IF1	GDA	56	281938	6142393	Open site	Valid	Artefact : 1		
	Contact	Recorders	Artefact - Cultural Heritage Management					Permits		

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Extensive search - Site list report

Your Ref/PO Number : Moss Vale Rd

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-5-0709	PASA 46	GDA	56	281969	6145455	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		103068
	Contact	Recorders	Mr.Adrian Cressey,Mr.Adrian Cressey					Permits	3791	
52-5-0711	PASA 51	GDA	56	281714	6145447	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		103068
	Contact	Recorders	Mr.Adrian Cressey,Mr.Adrian Cressey					Permits		
52-5-0712	PASA 52	GDA	56	280341	6143016	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		103068
	Contact	Recorders	Mr.Adrian Cressey,Mr.Adrian Cressey					Permits	3791	
52-5-0386	Big Bend	AGD	56	279770	6140200	Open site	Valid	Art (Pigment or Engraved) : -		98511,102506, 103143
	Contact	Recorders	Terry Barratt					Permits		
52-5-0387	Big Bend 2	AGD	56	280100	6139950	Open site	Valid	Habitation Structure : -		98511,102506
	Contact	Recorders	Terry Barratt					Permits		
52-5-0388	Big Bend 3	AGD	56	280100	6139850	Open site	Valid	Habitation Structure : -		98511,102506
	Contact	Recorders	Terry Barratt					Permits		
52-5-0389	Shelter Cave	AGD	56	279900	6140800	Open site	Valid	Habitation Structure : -		98511,102506, 103143
	Contact	Recorders	Terry Barratt					Permits		
52-5-0390	Bomaderry Site	AGD	56	279350	6141300	Open site	Valid	Artefact : -		2254,98511,10 2506,103143
	Contact	Recorders	Terry Barratt					Permits		
52-5-0453	BC1/E	AGD	56	279930	6141030	Closed site	Valid	Artefact : 6		102506,10314 3
	Contact T Russell	Recorders	Mr.Edward Clarke					Permits		
52-5-0454	BC1/B	AGD	56	279450	6141160	Closed site	Valid	Artefact : 8		102506,10314 3
	Contact T Russell	Recorders	Mr.Edward Clarke					Permits		
52-5-0455	BC1/F	AGD	56	279970	6140860	Closed site	Valid	Artefact : 1		102506
	Contact T Russell	Recorders	Mr.Edward Clarke					Permits		
52-5-0564	G2BA1	GDA	56	280171	6142391	Open site	Destroyed	Artefact : 1		103068
	Contact	Recorders	Mr.Kelvin Officer,Artefact - Cultural Heritage Management ,Mr.Alex Timms					Permits	3791	
52-5-0580	PASA45	GDA	56	280118	6142323	Open site	Not a Site	Potential Archaeological Deposit (PAD) : 1		102506

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Mr.Kelvin Officer,Mr.Adrian Cressey					Permits	3791	
52-5-0838	Abernethys Creek 2	GDA	56	280581	6143181	Open site	Valid	Artefact : -		
	Contact	Recorders	Biosis Pty Ltd - Sydney,Mr.James Cole					Permits	4067	
52-5-0839	MM-AD2	GDA	56	280671	6143226	Open site	Valid	Artefact : -		
	Contact	Recorders	Biosis Pty Ltd - Sydney,Mr.James Cole					Permits	4067	
52-5-0840	MM-AD1	GDA	56	280517	6143246	Open site	Valid	Artefact : -		
	Contact	Recorders	Biosis Pty Ltd - Sydney,Mr.James Cole					Permits	4067	

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