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**AN ARCHAEOLOGICAL SURVEY OF AN AREA PROPOSED FOR
REZONING NEAR SEASPRAY STREET, NARRAWALLEE,
SOUTH COAST, N.S.W.**

A report to the Shoalhaven City Council

by

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1. INTRODUCTION

The Shoalhaven City Council is proposing to rezone an area of 13.71 hectares at Narrawallee some 2km east of Milton on the south coast of New South Wales (Figure 1). The purpose of the proposed rezoning is to allow for future urban expansion on undeveloped land west of Seaspray Street currently zoned under Shoalhaven Local Environmental Plan 1985 as 7(d2) Environmental Protection (Special Scenic). As part of its investigation to determine whether or not this land should be rezoned the Shoalhaven City Council have commissioned an archaeological survey of the area. The aims of the archaeological investigation are to:

1. locate and record any archaeological sites in the area proposed for rezoning;
2. liaise with representatives of the local Aboriginal community to ascertain their views on the proposed rezoning;
3. recommend measures to mitigate any potential damage to archaeological sites in the area.

Preparation of this report involved collation of relevant archaeological and environmental information and the use of topographic and geological maps to identify areas likely to contain archaeological sites. Fieldwork was undertaken in early February 1998 by archaeologist Tim Stone in the company of Barry Carriage, Sites Officer with the Ulladulla Local Aboriginal Land Council. Discussions were also held with planner Alan Stasiukynas of the Shoalhaven City Council.

2. ENVIRONMENTAL SETTING

The area proposed for rezoning is located between two north-south trending ridgelines approximately 1km west of Narrawallee Beach. Its western boundary is downslope from a vehicle track which runs along the westernmost ridgeline while its eastern boundary is bordered by cleared housing allotments and construction sites. Within this area the boundaries are marked by dozer tracks which follow the perimeter. The two ridgelines are separated by a minor, ephemeral watercourse which flows north into the estuary of Narrawallee Creek about 1km away.

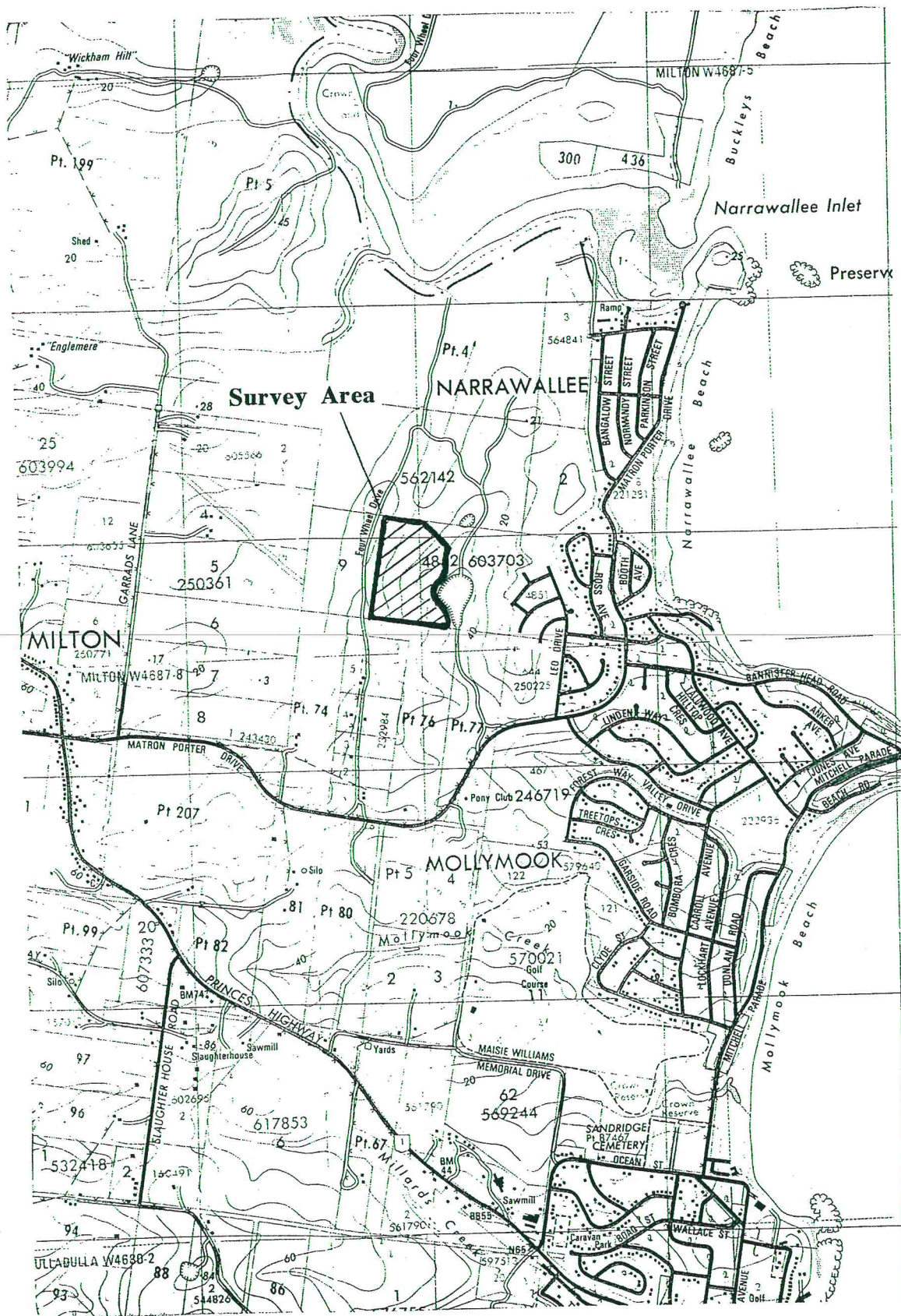


Figure 1. Location of area at Narrawallee proposed for rezoning (hatched).
Milton 1:25,000 topographic map sheet.

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Geologically, the area proposed for rezoning comprises Permian age sedimentary rocks of the Conjola Formation. The dominant rock types of this formation are sandstone and conglomerate. These are exposed as loose rubble along the edge of the easternmost ridgeline but elsewhere in the subject area rock outcrop is lacking. The slopes on either side of the watercourse are moderately steep and concave in shape. The soils developed on these slopes are grey, humic and sandy.

The vegetation of the area proposed for rezoning is open sclerophyll forest dominated by ironbark and gum species and a few old growth Eucalyptus trees. The understorey is a mixture of ferns and shrubs with ferns being prevalent on the lower slopes adjoining the ephemeral watercourse. The land adjoining this area comprises cleared farmland to the south and west and new suburbia to the east.

3. PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

3.1 Regional Studies

Previous archaeological studies on the south coast of New South Wales have demonstrated Aboriginal occupation of the region dating back to the height of the last glacial period some 20,000 years ago (Lampert, 1971; Bowdler, 1976). During this period sea level was much lower than it is today and consequently the shoreline was up to 16km to the east of the present coast. Present sea levels stabilised some 6-7,000 years ago and most coastal sites date from this period. Coastal sites older than 7,000 years would have been submerged by rising sea levels associated with the melting of the glaciers and ice-caps.

The two most frequently encountered site types along the NSW south coast are shell middens and open campsites represented by scatters of stone artefacts. Rockshelter sites are also a feature of the regional archaeological record. Lampert (1971) divided these occupation sites into three basic groups:

1. Specialised foreshore sites focussing on the exploitation of coastal resources such as fish, shellfish and marine birds (e.g. Durras North, Wollumboola and Wattamolla) where specialised fishing equipment was used (e.g. spears tipped with bone points and shell fish hooks).
2. Specialised estuarine sites focussing on the exploitation of inland resources (e.g. Bomaderry Creek in the Shoalhaven estuary).
3. Sites besides creeks or estuaries near the seashore where a range of inland and coastal resources were used (e.g. Burrill Lake, Currarong and Curracurrang).

Poiner (1976) argued that Aboriginal occupation of the South Coast usually focussed upon the resource-rich and dependable coastline with occasional hunting and gathering forays into the forested hinterland when coastal resources were in short supply. Byrne (1984) interpreted the abundance of small open campsites along ridgelines in the hinterland as reflecting patterns of movement through the generally rugged terrain rather than the result of long-term settlement. Others believe that the hinterland was occupied more intensively than this and that populations exploiting the inland forests actually increased over the past 5,000 years (e.g. Hughes and Lampert, 1982).

Recent excavations of rockshelter deposits by Boot (1993) in the headwaters of the Clyde River have demonstrated Aboriginal occupation of the coastal hinterland dating back 12,000 years. From the lowest occupation level of the Bulee Brook 2 shelter he obtained a radiocarbon age of $12,040 \pm 630$ years BP (ANU 8433) and from nearby Bobs Cave an age of $10,850 \pm 300$ BP (ANU 8313). Prior to this the oldest date for Aboriginal occupation of the coastal ranges had been a date of 3770 ± 150 (ANU 743) obtained by Flood (1980) from the Sassafras 1 shelter. Boot concluded that during the Pleistocene Aboriginal occupation of the coastal hinterland was probably sparse but by about 4,000 years ago it had become quite dense.

3.2 Local Studies

One of the oldest and most significant archaeological sites known on the NSW south coast is the Burrill Lake Rockshelter located at Bungalow Park some 9km south of Narrawallee. The floor of this sandstone shelter was first excavated in the 1930's and in 1967 it was re-excavated by Lampert (1971). The excavations uncovered a cultural sequence showing changes in stone tool technology dating back 20,000 years. Between 20,000 years Before Present and 5,300 years BP the stone industries were characterised by horsehoof cores, pebble tools and large scrapers and flakes. Around 5,300 years BP much smaller tools appeared including backed blades, eloeuras and thumbnail scrapers. The uppermost layers dating from around 1,660 years BP contained shells and the remains of fish, birds and mammals.

Boot (1993) investigated a small rockshelter on the southern side of a sandstone ridge on the western side of Burrill Lake known as Burrill Shelter 2. His excavation of the floor of the rockshelter revealed a midden deposit containing discrete narrow bands of ash, shell, fish bone and fish scales. Mammal bone, hair and scats were also recovered but few stone artefacts. Charcoal from the midden deposit was dated to around 360 years BP. Charcoal from the occupation layers beneath the midden returned a much earlier age of around 3,280 years BP.

White (1987) surveyed around the shores and hinterland of Burrill Lake locating a total of 63 sites and five isolated artefacts. Of these sites, 55 were shell middens with most dominated by shells of the Sydney Cockle *Anadara trapezia*. The other eight were open campsites. Most of the sites recorded by White were located along the southern and western shores of Burrill Lake with the only sites on the eastern shore being located around Kings Point and the Burrill Lake township.

The first archaeological site (NPWS Site no. 58-1-31) recorded in the vicinity of Milton was the site of a carved tree described by Etheridge (1918:88). This site was also associated with a bora ground. The tree was apparently carved by Aboriginal people in the 1850's. David Bell attempted to relocate the site in 1980 but was unsuccessful and a subsequent effort by Stone (1995) also failed. Most of the trees in the area had been cleared and the landscape completely altered.

Only a small number of archaeological sites have been recorded along the urbanised coastal strip between Narrawallee and Ulladulla. These include a silcrete quarry at Bannisters Point (NPWS Site no. 58-1-78) and a shell midden in dune sands beneath Warden Head (58-1-190). South of Ulladulla two more shell middens were recorded by White (1987) on the headland at Blackburn Point. One of these sites had a rich association of flaked stone artefacts.

Near the mouth of Burrill Inlet shell middens with associations of stone artefacts have been recorded by Marjorie Sullivan in dune blowouts behind Burrill Beach (58-1-49) and on the rocky headland at Dolphin Point (58-1-48). White (1987) has also recorded shell middens around Dolphin Point including one in a small infilled rockshelter behind a beach and rock platform.

According to the NSW National Parks and Wildlife Service Site Register no Aboriginal sites have been recorded previously in the parcel of land proposed for rezoning. However, Stone (1995) located one locally significant site 750m north of the subject area on an elevated sandstone bench overlooking Narrawallee Inlet. This site comprised a rich assemblage of stone artefacts exposed along a vehicle track. This is the closest known site to the area proposed for rezoning.

4. FIELD METHODOLOGY

4.1 Survey Strategy

The aim of the survey strategy was to provide as much coverage of the relatively small survey area (137,100 square metres) as possible. The survey was accomplished by the two team members on foot. Beginning in the southeastern corner of the survey area the team followed the 5m wide dozer tracks around the perimeter of the area. The pair walked only metres apart along these tracks examining the ground surface and nearby Eucalypt trees for any archaeological traces.

The next stage of the survey involved walking along transects parallel with the ridgelines through the forested core of the survey area. Within this area the team attempted to survey transects approximately 40m apart. This distance was considered optimal under the forested conditions as each surveyor could view about 20 metres and thus could identify any likely site locations which warranted closer inspection. Particular attention was paid to the banks of the ephemeral watercourse.

Ground surface visibility was highest along the dozer tracks around the perimeter but because of patchy regrowth this varied between 20 and 90%. It was also relatively high along the low walls of the watercourse. Elsewhere in the survey area, however, visibility was very poor because of leaf litter, bark and the general forest conditions. Occasionally an upturned tree provided some glimpses of the ground surface as did the odd area of ground with a patchy plant cover. Overall, average conditions of ground surface visibility across the survey area were estimated at 2%.

4.2 Coverage Analysis

Witter (Witter and Hughes, 1983) discusses the concept of *actual* area surveyed for any study given that conditions of ground surface visibility and sedimentation etc. will vary from area to area. This is a useful measurement to allow cultural resource managers to assess surveys from adjacent areas and it also allows some meaningful calculation of the actual sample size surveyed.

Witter has calculated actual areas surveyed via the formula: $(D1) \times (s) \times (v) \times (b) = (D2)$ where:

D1 = area in metres square surveyed. In this case approximately 25,600 square metres was intensively surveyed in the survey area given that 6,400 metres in distance was walked and an area of about 4 metres around each survey line closely inspected (i.e. 6,400 metres surveyed and about 4 metres around the transects closely inspected: $6,400 \times 4 = 25,600$).

s = index of sedimentation

0.1 = aggrading surface

0.5 = stable or uncertain

1.0 = degrading surface (**applies in this case**)

v = index of visibility

0.1 = negligible visibility (**applies in this case**)

0.2 = 10% visibility

0.5 = 20% visibility

1.0 = 30% and greater visibility

b = background effects (i.e. the presence of natural quartz)

0.1 = massive amounts of natural quartz

0.5 = small amounts of natural quartz

0.9 = minimal amount of natural quartz (**applies in this case**)

1.0 = no natural quartz

D2 = distance in square metres of effective coverage

Applying the formula the following calculation results:

$$25,600 \times 1.0 \times 0.1 \times 0.9 = 2304 \text{ square metres.}$$

Given that the total survey area constitutes approximately 13.71 hectares (or 137,100 square metres) the area surveyed is roughly an 18.7% sample with an actual coverage of about 1.7%. Such a low figure is largely attributable to the poor ground surface visibility which prevailed over most of the survey area. However, a significant proportion was viewed with the dozer tracks and walls of the watercourse giving clear indications of what lay beneath the ground surface.

5. RESULTS AND DISCUSSION

No archaeological sites were located during the survey. This may be attributable to the generally poor conditions of ground surface visibility encountered during the survey but it is also important to note that site types such as rockshelters, axe-grinding grooves and quarries are definitely not represented in the area proposed for rezoning as suitable rock outcrop is lacking. Furthermore, the likelihood of open campsites being present along the ephemeral watercourse is low because the adjoining slopes are moderately steep and probably unsuitable for camping purposes. Finally, none of the trees examined bore any evidence of Aboriginal scarring.

6. ABORIGINAL CONCERNS

The Aboriginal people of the Ulladulla region of New South Wales are concerned about any developments which might impact upon Aboriginal sites in their area. Barry Carriage, a Sites Officer with the Ulladulla Local Aboriginal Land Council participated in the survey and his views were sought on the proposed rezoning.

The Aboriginal Sites Officer was satisfied at the end of the survey that Aboriginal sites were unlikely to be disturbed by future urban expansion into the area proposed for rezoning. He raised no objections to the proposed rezoning because Aboriginal sites do not appear to be endangered by it.

The views of the Ulladulla LALC on the proposed rezoning are expressed in the letter contained in the Appendix at the back of this report.

7. IMPACT OF REZONING

The impact of future urban expansion on archaeological sites in the area proposed for rezoning will be negligible as no such sites were recorded during the survey. However, the continued growth of Narrawallee may have an indirect effect on sites in the local area through increased human activity. For example, increased vehicle traffic along the track bordering the western side of the area proposed for rezoning may damage the stone artefact scatter site recorded by Stone (1995) as Site 5 on the bench overlooking Narrawallee Inlet. For this reason the Shoalhaven City Council might consider moves to keep vehicle traffic along this track at a minimum.

8. RECOMMENDATIONS

Based on the results of this investigation and consultation with the Ulladulla Local Aboriginal Land Council there can be no objection on archaeological grounds to the proposed rezoning. It is recommended therefore that the proposed rezoning be allowed to proceed without further archaeological investigation.

Copies of this report should be supplied to:

Archaeologist (3 copies)
Cultural Heritage Unit South
Aboriginal Heritage Division
NSW National Parks and Wildlife Service
PO Box 2115
Queanbeyan, NSW. 2620

Ulladulla L.A.L.C.
66 Deering Street
Ulladulla, NSW. 2539

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APPENDIX

Letter from Local Aboriginal Land Council

**ULLADULLA LOCAL ABORIGINAL
LAND COUNCIL**P.O. BOX 520,
ULLADULLA N.S.W. 2539Telephone: (044) 555883
Fax: (044) 540440Tim Stone
9 Page Place
Mawson ACT 2607

Re: rezoning Narrawallee

Dear Tim,

I am writing in regards to survey conducted on the 6/2/98, in the area surveyed as indicated on the map provided no evidence of Aboriginal occupation or use was found, as with all other developments of this nature it is assumed that if anything was to be found at a later date proper notification would be sent to myself and all the necessary agencies.

Yours sincerely

Barry Carriage

