Aboriginal Heritage Assessment

Table of Contents

1. Introduction ... page 2
2. The Study ... page 4
3. Aboriginal Heritage Values ... page 6
4. Context ... page 8
5. Archaeological Potential ... page 13
6. Classification of archaeological finds ... page 18
7. Fieldwork ... page 20
8. Discussion ... page 21
9. Impact Assessment ... page 23
10. Recommendations ... page 24
11. Certification ... page 24
12. References ... page 25
13. Glossary ... page 27
14. Appendix ... page 30

- Figure 1 Regional Location
- Figure 2 Topographical View
- Figure 3 Concept Plan
- Figure 4 Aboriginal Australia
- Figure 5 Previously Recorded Objects
- Figure 6 Probable Aboriginal Occupation
- Aboriginal Community Comments
1. Introduction

1.1 Background
This report has been prepared at the request of Coeplan Consultants Pty Ltd, NSW, to assess possible impact a proposed subdivision for residential development may have on Aboriginal Cultural Heritage over land off Hall Street, Radford Street and Main Road, Heddon Greta. Figure 1 shows the Regional location.

The land is identified as Lot 262, DP 1066601, Lot 1 DP 311804 and Lot 72 DP 1069287 and is shown as Figure 2 and forms Stage 3 of a previously approved Heddon Leigh Rural/Residential Estate and the potential residential and commercial/industrial development of Lot 72. The overall study area has Main Road 195 as its Eastern boundary and the disused South Maitland Railway line as the Western boundary.

Topographical map reference: 3625000 Easting and 637400 Northing

The proposal is to develop:
The residue portion of Lot 262 DP 1066601, being Stage 3 Heddon Leigh Estate for 50 residential lots and associated infrastructure, and part of Lot 72 DP 1069287 for a mixed residential, rural/residential and service commercial/industrial uses. The majority of Lot 72 will be the subject of rezoning and necessitate an amendment to the current Cessnock Local Environmental Plan, 1989.

There is no detailed survey or engineering proposal of the proposed development at this stage as it is envisaged that the feasibility studies which this study forms a part will determine the layout and final proposal. However the initial concept plan is shown as Figure 3.

This report not only deals with the subject land, but also brings together the previous work over the entire area and is examined as whole in a total landscape context.

1.2 Legislative Context
There are three pieces of NSW legislation, which provide the legislative context for Aboriginal heritage management in the state. They are:

- National Parks and Wildlife Act 1974 (NPW Act) provides statutory protection for all Aboriginal objects and Aboriginal places in NSW.

The NPW Act requires that reasonable precautions are taken and due diligence is exercised to determine whether an action would, or would be likely to, impact on an Aboriginal object or Aboriginal place. Without being able to demonstrate due diligence a person risks prosecution if Aboriginal
objects or Aboriginal Places are impacted upon and a Heritage Impact Permit has not been issued.

It is also an offence under Section 86 of the NPW Act to disturb or excavate land for the purpose of discovering an Aboriginal object, or disturb or move an Aboriginal object on any land, without first obtaining a permit under Section 87 of the NPW Act.

Under Section 91 of the NPW Act, it is a requirement to notify the Director-General of the NPWS of the location of an Aboriginal object. Failure to do this within reasonable time is an offence under the Act.

The NPW Act also provides for stop-work orders under Section 91AA if an action is likely to significantly affect an Aboriginal object or Aboriginal place. The order may require that an action is to cease or that no action is carried out in the vicinity of the Aboriginal object or Aboriginal place for a period of up to 40 days.

Under the Act:

An Aboriginal object is any deposit, object or material evidence (not being a handicraft made for sale) relating to Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains (as defined within the meaning of the NPW Act).

Aboriginal objects are confined to physical evidence and may also be referred to as ‘Aboriginal sites’, ‘relics’ or ‘cultural material’. Aboriginal objects can include pre-contact features such as scarred trees, middens and artefact scatters, as well as physical evidence of post-contact use of the area such as Aboriginal built fencing or stockyards, fringe camps).

An “Aboriginal place” is a place which has been declared so by the Minister administering the NPW Act because he or she believes that the place is or was of special significance to Aboriginal culture. It may or may not contain Aboriginal objects.

It should be noted that the NPW Act does not provide protection for spiritual areas or natural resource areas that have no physical evidence of Aboriginal occupation or use, unless they have been declared an ‘Aboriginal place’.

- Environmental Planning & Assessment Act 1979 (EP&A Act) establishes the requirement for formal assessment of Aboriginal heritage values in land use planning and development approval.

Part 4 also requires that in reaching a decision to grant development consent, a consent authority is to take into consideration the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality. This
requires the consent authority to consider the impact on all Aboriginal heritage values, including natural resource uses or landscape features of spiritual importance, as well as the impact on Aboriginal objects and Aboriginal places.

- *Heritage Act 1977* provides statutory protection for items listed on the State Heritage Register and allows for the making of Interim Heritage Orders to protect items until an assessment of their heritage values can be undertaken.

Aboriginal heritage is primarily protected under the NPW Act but may be subject to the provisions of the Heritage Act if the item is listed on the State Heritage Register or subject to an Interim Heritage Order (IHO).

Development proposals that require specified approvals from State agencies are referred to as integrated development approvals (IDA). The IDA process has been established to coordinate approvals according to these three pieces of state legislation (where required). The IDA process requires applicants to provide agencies with sufficient information to allow them to provide general terms of approval, prior to the grant of any development consent.

The NPWS is an approval body in the IDA process when a *development will impact on an Aboriginal object or Aboriginal place*, thereby requiring a Heritage Impact Permit pursuant to Section 90 of the NPW Act.

The Heritage Council is one of the State government agencies included in the IDA process in relation to its responsibilities for heritage items under Section 58 of the Heritage Act.

The *Native Title Act 1993* (Commonwealth) provides the framework for recognising native title rights that may exist on certain types of land.

The Commonwealth’s *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* may also be relevant if an item of Aboriginal heritage significance to an Aboriginal community is under threat of injury or desecration and state-based processes are unable to protect it.

The Commonwealth Government’s heritage and environmental assessment legislation may also be relevant to some proposals, particularly where there are heritage values of national significance present.

**1.3 When is an Aboriginal Heritage Impact Assessment required?**

The NPWS Guidelines state it is unlikely that an Aboriginal Heritage Impact assessment would be required where:
• the proposed development is on land previously subject to intensive ground disturbance and the development will impact only on the area subject to the previous disturbance;
• the impact of the proposed activity is unlikely to cause any additional damage to Aboriginal objects than that which has already occurred; and
• the proposed development is in an area that has been identified in strategic planning, rezoning or other assessment studies as having low Aboriginal heritage potential.

2 The Study

2.1 Aboriginal Community Involvement
Under section 90 of the NPW Act (2001), developers and consent authorities need to undertake due diligence when they assess the impacts of a development proposal on Aboriginal heritage. The NPWS has developed draft Aboriginal Heritage Impact Assessment Guidelines to consider the full range of Aboriginal heritage values, rather than focusing only on pre-contact archaeological sites and objects. This is a response to emerging landscape-based understandings of Aboriginal heritage, and requires formal Aboriginal involvement as well as consultation in the assessment process.

The NPWS acknowledges that it is primarily Aboriginal people who should determine the significance of their heritage. The NPWS recognises that Aboriginal heritage includes traditional, historical and contemporary associations of Aboriginal people with the environment as well as physical items within the environment. In assessment processes, the NPWS requires the applicant to demonstrate that Aboriginal people have been involved (or have had reasonable opportunity to be involved) in the identification, assessment and management decisions relating to their heritage.

The project lies within the boundaries of the Mindaribba Local Aboriginal Land Council (LALC). A Traditional Owners group Lower Wannaruah Tribal Council (TO) also has a cultural interest in the area. These two associations have a close affiliation and working co-operation in understanding and assessing cultural heritage. These two organisations participated in formulating this assessment.

This study aims to integrate archaeological and Aboriginal significance and management recommendations for sites, features or the landscape.

2.2 Study objectives
The study was commissioned to:

- determine whether any Aboriginal archaeological sites or objects were present in the study area likely to constrain development
- assess the significance of such sites
- evaluate potential impacts of likely development on any such sites or significance
provide management recommendations to mitigate potential impacts

The objectives are:

1. To identify and map areas of Aboriginal Archaeological potential and sensitivity, for archaeological values
2. Identify Aboriginal conservation/management options for the study area, taking into account the local and regional context.

The tasks are defined as:

3. Consultation with the Aboriginal community
4. Refinement of predictive models of Aboriginal use of the landscape and the distribution of evidence
5. Definition and matching of landsurface disturbance in terms of its potential for revealing or concealing archaeological material
6. To identify and map any areas of cultural significance

The study will take a landscaped approach to determine any potential Aboriginal archaeological evidence. This will require the identification of the range of landscape units, which are likely to contain Aboriginal archaeological evidence, rather than only attempting to identify individual sites across the study area. This will ensure that their landscape context is assessed for significance. The landscape approach as well as previous archaeological work in the area will determine a predictive model of Aboriginal occupation of the study area.

2.3 Methodology
Various models have been proposed by archaeologists to explain Aboriginal occupation and use of the landscape environments in NSW.

Present archaeological evidence indicates that Aboriginal archaeological sites are most likely to occur along coastal and estuarine precincts. Sites within the hinterland are less common and generally less intensive.

The predictive or contextual model for the archaeological assessment of the site forms the basis for developing a picture of Aboriginal occupation. The predictive model takes into account the landform, geology, vegetation, previous archaeological data as well as the historical context of the area.

The assessment of the data enables a prediction of what form of Aboriginal occupation was likely to have existed on the study area and would show the potential for finding Aboriginal Sites. A field survey is then able to evaluate
the prediction and to extrapolate reasons as to why the survey did or did not match the prediction.

The study methodology was based on data research, field survey of the site and report compilation.

Data research included:
- maps and plans
- previous archaeological reports in the area and region
- historic and scientific literature
- NPWS Aboriginal sites data register
- consultation with Aboriginal community and other local people
- consultation with government officers

The Survey included
- design of survey strategy and prediction based on archaeological and landscape context
- field inspection of study site
- assessment of findings and potential impact

2.4 Study Personnel

The research and report was compiled by Len Roberts BA (Arch.), Grad. Dip. Comp., Dip Sp. Ed., consulting archaeologist, who also holds a certificate in Archaeological fieldwork from Tel Aviv University, Israel. Len has worked on archaeological projects in Australia and overseas.

The Initial field survey was carried out by this archaeologist in conjunction with Stephen Talbot and Leanne Miller. The subsequent survey which forms the basis of this report was carried out in conjunction with Kelly Griffith, Guy Patten and Dean Miller sites officers for the Local Aboriginal Land Council and Traditional Owners, who have extensive experience in archaeological fieldwork. They assisted in formulating the survey plan. The fieldwork was carried out over 1 day on July 19, 2005.

3 Aboriginal Heritage Values

Aboriginal heritage is dynamic. It includes tangible and intangible expressions of culture that link generations of Aboriginal people over time. For Aboriginal people, relationships with country, people, beliefs, knowledge, law, language, symbols, ways of living, sea, land and objects all arise from their spiritual and cultural practices and associations. (Modified from p4 Australian Heritage Commission Ask First)

Aboriginal heritage includes landscapes and places that are important to Aboriginal people as part of their customary law, developing traditions, history and current practices. Aboriginal heritage landscapes, areas and places have associated heritage values which include spirituality, law,
knowledge, practices, traditional resources or other beliefs and attachments. Aboriginal people have occupied the NSW landscape for at least 50,000 years. The evidence and important cultural meanings relating to this occupation are present throughout the landscape, as well as in documents and in the memories, stories and associations of Aboriginal people. Therefore, any activity, which impacts on the landscape, may impact on Aboriginal heritage.

An area may contain evidence and associations that demonstrate one or any combination of the following Aboriginal heritage values. (This section is drawn from Australian Heritage Commission Protecting Local Heritage Places: A guide for communities and the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter) and its associated Guidelines).

- **Social value** (sometimes termed Aboriginal value) refers to the spiritual, traditional, historical or contemporary associations and attachments which the place or area has for the present-day Aboriginal community. Places of social significance have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods or events. Communities can experience a sense of loss should a place of social significance be damaged or destroyed. These aspects of heritage significance can only be determined through consultative processes with one or more Aboriginal communities.

- **Historic value** refers to the associations of a place with a person, event, phase or activity of importance to the history of an Aboriginal community. Historic places may or may not have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). Gaining a sufficient understanding of this aspect of significance will often require the collection of oral histories and archival or documentary research, as well as field documentation. These places may have ‘shared’ historic values with other (non-Aboriginal) communities. Places of post-contact Aboriginal history have generally been poorly recognised in investigations of Aboriginal heritage, and the Aboriginal involvement and contribution to important regional historical themes is often missing from accepted historical narratives.

- **Scientific value** refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information. In the past, a consideration of scientific (archaeological) value was the focus of most approvals assessment processes for Aboriginal heritage, and this will still be an important component of most assessment processes. The intent of
these Guidelines is to ensure that these values are incorporated within a broader consideration of Aboriginal heritage significance.

- **Aesthetic value** refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, and the smell and sounds associated with the place and its use.

These aspects of the heritage significance of a place or object are commonly inter-related. Because all assessments of heritage values occur within a social and historical context, all potential heritage values will have a social or Aboriginal community heritage component.

### 3.1 Cultural Landscapes

The way perceptions, beliefs, stories, experiences and practices give shape, form and meaning to the landscape is termed a cultural landscape.

The NPWS and the Land Rights Act recognises that, for Aboriginal people, the significance of individual features is derived from their inter-relatedness within the cultural landscape. This means that features cannot be assessed in isolation, and that any assessment must consider the feature and its associations in a holistic manner. This may require a range of assessment methods and will always require the close involvement and participation of Aboriginal people.

### 4 Context

#### 4.1 Regional Ethnohistory

**SOCIAL**

The survival of prehistoric people stranded on islands has been studied by Jones who has come to the conclusion that "in hunter-gatherer conditions, the limiting viable population may be somewhere in the range of four hundred to six hundred depending on local circumstances and the vagaries of chance."

This estimated minimum viable population of about five hundred was also the average size of a so-called tribe in Australia. The term tribe, which was adopted from 19th century Europe, has often been used to describe the organisation of Aboriginal society in Australia. Several anthropologists feel that ‘tribe’ does not accurately reflect the interaction and make-up of Aboriginal Australia, preferring the term ‘band’ to be the most appropriate term to describe the basic social and economic unit of Aboriginal society. It is described as a small-scale population, comprising between 2 to 6 extended family units, who together occupied and exploited a specific area.
The band was by no means a social or cultural isolate but, rather, interacted with other bands in a variety of ways. Typically these interactions involved visits, marriage, ceremonies and trade. As a result of these interactions, clusters of bands were formed; wherein there was a sense of collective identity, often expressed in terms of common and distinctive language.

LOCATION
It is believed that the Coastline of Eastern Australia has been much the same as it is today for the past 5000 years. The current coastline developed after rising of the seas drowned large tracts of land, but at the same time stabilisation of the sea level extended estuaries and tidal reaches, the zones of the shore most productive of fish and shellfish that were accessible to Aborigines. Lagoons formed at the mouths of rivers held back by Sandy barriers, which previously had been swept away by the constantly rising sea. And the drowning of river valleys led to the development of many food rich small bays and inlets.

In recent times the territories of Aboriginal tribes on the East Coast extended inland a considerable distance. Most encompass the drainage basin of one river and stretch from the shoreline up to the top of the coastal escarpment, at least 30 kilometres inland. There is no way of knowing how far back in time this territorial organisation goes, but it may well be quite ancient.

The evidence suggests a comparatively small early population, spread thinly around the Continent and concentrated in the places where food was most abundant: the coast and large inland lakes and rivers. Thousands of Aboriginal middens have been found on the southeastern coast of Australia. The least inhabited parts of mainland Australia were the snowy mountains and the desert centre of the Continent. According to Flood (p.219), “We now know that people were camping at least occasionally on the fringes of the snowy mountains, in treeless country at 730 metres above sea level and in the region North of Uluru, at Puritjarra, around 30 thousand years ago.”

The bands developed into regional groupings or cultural areas of interacting Aboriginal societies possessing broadly similar languages, social organisation and customs, material culture and art styles, ways of life and environment. According to the work by Peterson (1986), there is a general correlation between culture areas and major drainage basins, which has been explained on the grounds that a drainage basin is unified by its river system and bounded by its catchment. Water supply determines plant cover and therefore the availability of food and consequently, Aboriginal population density.

On the coast, according to Flood (p.219), “The most favoured campsite was a foredune close to a rock platform on the north side of a headland. Such a site, offered easy access to shellfish, a landing place for canoes, proximity to drinking water, shelter from prevailing winds, and soft sand for a bed.” Inland, the camps would have been near reliable watercourses and protected from
prevailing winds. If hills were nearby, they may have had winter camps in rockshelters or caves. JW Fawcett (1898, p.152), stated of the Wonaruah “in choosing their site [camp] proximity to freshwater was one essential, some food supply a second, whilst a vantage ground in case of attack from an enemy was a third.”

ENVIRONMENTAL IMPACT
Several researchers have shown that the Australian Aboriginal has had a huge impact on the vegetation through use of fire. There were many reasons for the extensive burning. It was used for signalling and also to make travel easier by clearing undergrowth along the route. Aboriginal tracks were open by regular firing in the early timbered ranges. Throughout the Continent, burning was used as an aid to hunting, animals could be speared as they broke to escape the flames.

Other uses of fire were for longer term hunting strategies. After firing, the Bush would regenerate; new grass would spring up and attract kangaroos and other animals, on which the hunters could prey. Likewise, fire encouraged the regrowth of eucalyptus trees and of edible plant roots. The ashes acted like manure, and sweet, new green shoots would spring up after the first hard rain following the burn.

The term ‘fire-stick farming’ has been applied to this aspect of hunting.

There is an assumption that prior to European settlement the land was heavily forested. However, according to early settlers accounts and the Aboriginal oral history, this was not so. Walsh, (p26), cites extracts from the accounts of early explorers,

“The extracts from letters, diaries and journals of early European settlers, explorers and government officials describe a parklike landscape of grasslands and grassed open forest lands with very few areas of thick forest. The cessation of regular burning following European settlement allowed a growth of thick forest of young trees that, together with an increasing understorey, choked out the grasses.”

These grasslands provided perfect pastures for sheep, but when Aborigines were no longer present to maintain them with a regular fire regime, sour grass and scrub took over, gradually obliterating the open land, with considerable loss to the non-fire stick farmers.

Such regular, light burning was the pattern all over Australia at the time of first European contact. The fires were of low intensity, which meant that they consumed the litter of leaves and branches on the forest floors but did not burn down the trees.

Aborigines never put out their fires. Campfires were left burning, as were signal fires, including those lit in a sequence to indicate the direction of travel of humans or game.
Gould (p.82), “never encountered an occasion when a fire actually invaded an area that was already producing wild food crops”. It seems that, as well as increasing their future food supply; the Aboriginals also protected their present food resources. As Flood (p.252) put it, “Fire is the most versatile and important tool of hunter-gatherers. It is used for warmth, light, cooking, hunting, signalling, track making, and, whether intentionally or not, had the effect of improving the food supplies of prehistoric Australia.”

RESOURCES
The food resources available controlled the Aboriginal population, which in turn were related to water resources; the areas with the highest rainfall were generally richest in food. The number of mouths that could be fed was regulated by the food available at the leanest time of year.

When food was difficult to obtain, the food quest simply required more time and effort rather than new strategies. Thus when times were hard, the people could simply move more often and further afield.

The typical Australian Bands economy is flexible with a wide variety of foods being sought and advantages being taken of seasonal abundance or chance events, such as the stranding of a whale. Aboriginal Australia was not vulnerable to famine through the failure of one crop.

The simplicity and self-sufficiency of Aboriginal society was observed by Captain Cook in 1770, and cited in Beaglehole, 1955 (p.399).

“From what I have said of the natives of New Holland they may appear to some to be the most wretched people on earth, but in reality they are far more happier than we Europeans. They live in a tranquillity which is not disturbed by the inequality of condition: the air and sea of their own accord furnishes them with all things necessary for life, they covet not magnificent houses, household stuff etc., they lie in a warm and fine climate and enjoy a very wholesome air, so that they have very little need of clothing and this may seem to be fully sensible of, for many to whom we gave cloth etc., to, left it carelessly upon the sea beach and in the Woods as a thing they had no matter of use for. In short they seemed to set no value upon any thing we gave them, nor would they ever part with any thing of their own for any one article we could offer them; this in my opinion argues that they think themselves provided with all the necessary’s of life and that they have no superfluities.”

SIGNIFICANCE
An appreciation of the foregoing indicates the pattern of settlement and lifestyle of the Aborigines prior to European contact. In particular, it places the study site in the context of Aboriginal use or occupation.

Aboriginal people were able to exploit, and to survive in, a wide range of environments where European agriculture failed. They tended to congregate in bands of about 500 consisting of family groupings, generally limiting themselves to a river, lake or bay drainage basin, living off the abundant food supply that was easily available. Each family grouping would be about
8 miles (12-15km) apart (Bennett, 1926). They were not nomadic in the clinical sense, however they did move from campsite to campsite on a rotational basis, mainly for reasons of hygiene (Bennett, 1926). Extensive use was made of fire as a hunting tool, modifying the Australian vegetation. There was regular contact with other bands for social and economic purposes. Many of the paths followed would be along watercourses or from one water source to another.

4.2 Site Context

The study area is part of a broad ridgeline and plain that feeds the catchment of Wallis Creek to the east and Wentworth swamp and Creek to the West, which in turn is part of the lower Hunter River Wetland system. Along with the Hexham swamp and Woodberry Swamp, Wentworth Swamp was a significant food resource area for early aboriginal communities and is well-documented in Dulcie Hartley’s book, Men of Their Time. Historical and anecdotal records indicate the significance of Wallis Creek to Aboriginal Communities.

According to Horton (1994), the Band that would be of interest to this survey, would be the family groupings of the Wannaruah. They had various base camps throughout the Hunter valley in all types of landscapes. The camps would have been near reliable watercourses and food sources.

The Wannaruah had extensive relationships to the Northwest with the Geawagal, The Worimi to the East, the Kuringai to the southeast and the Darkinjung to the West. (Figure 4). The pathways to other bands or to food, shelter or ceremonial resources were generally along creeks and associated watercourses or ridgelines.

4.3 Geographical

Cessnock Road, which is the eastern boundary of the study area is and was the main access route from Maitland to Cessnock and was an early historical transport route. The road generally follows the centre of the major ridgeline and generally parallels Wallis Creek until it turns west toward Kurri and Cessnock. The ridge generally varies in width from 1 – 2 km. The highest part of the ridge forms a fairly level plateau (30m +) which forms most of the study area. The ridge is steeper to the east than west. The gradual slope of the ridge to the west lends itself to easy access to Wentworth Swamp. The study area is part of the Wentworth Swamp plain

4.4 Landscape

Archaeological reports that have indicated Aboriginal sites and research literature have tended to show that there is a relationship of finds to landform. The differing landscape creates different land use. For instance swampy or poorly drained land would not be conducive to campsites or burial grounds.
Whereas, caves and rock shelters would give rise to artwork, and practical purposes such as shelter or women’s birthing areas.

The landscape survey and classification followed in this report is that formulated by Speight and others in the Australian Soil and Land Survey, Field Handbook, Second Edition.

Landform is basically divided into 2 classifications, the classification covering a larger area is known as Landform Pattern, which can then subdivided into smaller areas known as Landform Elements.

About 40 types of landform pattern are defined and include, for example, floodplain, dunefield and hills. Whereas, about 70 of the smaller landform elements are defined, including cliff, footslopes and valley flat.

According to Speight (p.34), The significant kinds of landform pattern in Australia may be described and differentiated by the following attributes assessed within a circle of about 300m radius:

- Relief
- modal slope
- Stream channel occurrence
- Mode of geomorphological activity
- Component landform elements.

It is important that boundaries of landform patterns are well established so that adjacent dissimilar landform patterns are not included and thereby keep the integrity of the description of the landform pattern in which the observation point is found.

The overall landform pattern of the study area is a plain.

There are several “gullies” and creeklines that originate from the ridgetop and flow to the wetlands to the west. None contain permanent water and do not appear to hold water for any great length of time.

The natural landscape has been altered through clearing, man made dams, roads and ponds and more importantly long term use as a speedway and 4wd track and associated carparking.

**4.5 Soils**
Where an archaeological survey is only a surface investigation, any information relating to subsurface information is important, in that it indicates;
- The possibility of archaeological evidence beneath the surface.
- The possibility of archaeological evidence destroyed through erosion or other natural phenomena.
• The possibility of archaeological evidence preserved through soil/sand deposition.

Site Location: NEAR QUARRY WEST OF HEDDON GRETA

Map Reference: AMG Grid Reference 360000E, 6370000N; Longitude 151.504783, Latitude -32.798940; NEWCASTLE (9232) 1:100,000 sheet

Profile Details: Soil Landscapes of the Newcastle 1:100 000 Sheet Survey, Profile 38, collected by Linda Henderson on November 13, 1990

Physiography: hillslope in low hills under woodland grass u'storey on conglomerate lithology and used for timber/scrub/unused. Slope 3% (measured), elevation 10 m, aspect south west. Surface condition is hard set, profile is mod. well drained, erosion hazard is high, and no salting evident

Soil Type: Soloth (Solod)(GSG), Dy3.41(PPF)

Profile Field Notes: Melaleuca linearfolia in drainage lines.

Soil Description:

Layer 0
Coarse fragments are common (10-20%), charcoal, fine gravel (2-6 mm), gravel (6-20 mm)

Layer 1
00.00 - 00.15 m
A2 Horizon
sandy loam with massive structure(earthy), few (1-10/10x10cm) roots (<1mm), few (1-10/10x10cm) roots (1-2mm), few (1-2/10x10 cm) roots (2-5mm), none roots (>5mm), field pH is 5.5. Coarse fragments are common (10-20%), not identified, fine gravel (2-6 mm), gravel (6-20 mm), and few (2-10%), charcoal, fine gravel (2-6 mm), gravel (6-20 mm), pans are not evident, not evident, not evident, segregations are not evident, not evident, not evident, smooth sharp (<5 mm) boundary to ...

Layer 2
00.15 - 00.55 m
B Horizon
sandy clay with strong pedality(prismatic, 50-100 mm, rough-faced peds), few (1-10/10x10cm) roots (<1mm), few (1-10/10x10cm) roots (1-2mm), few (1-2/10x10 cm) roots (2-5mm), none roots (>5mm), field pH is 5. Coarse fragments are common (10-20%), as parent material, fine gravel (2-6 mm), gravel (6-20 mm), pans are not evident, not evident, not evident, segregations are not evident, not evident, not evident

The soil analysis indicates that the soil composition is unlikely to be conducive to subsurface evidence.

5. Archaeological Potential

In brief it is pertinent to state that within an arbitrarily defined radius of 10km, centred on the study area, a total of over 100 individual objects are currently listed in the NP&WS Sites Register. They are generally located at least 5km from the study area at such places as Thornton, Bolwarra, Kurri and Maitland and are generally associated with swamps or creek/rivers.
The main sites in descending order of frequency were:

Isolated artefacts, artefact scatters and occupation sites.

An examination of the location of the above relics not only places the study area in an overall archaeological context but also indicates the possible archaeological evidence to be found in the study area, if the study area was in an undisturbed state. This is important as it indicates the lifestyle of the aboriginal people in a landscape context. The known relics are located within close proximity of a water source.

The closest recorded objects are 5 isolated artefacts and a stone arrangement found to the west of Heddon Greta. (See Figure 5 for approximate location)

The recorded sites are a result of intensive assessment prior to proposed development. The lack of recorded objects near the study area can be directly linked to the lack of development and consequently a lack of heritage assessment in the area.

5.1 Previous Archaeological Work

Two recorded systematic investigations have been carried out in the immediate vicinity of the study area and a number of archaeological investigations have been carried out in the surrounding region.

The 2 investigations carried out locally were undertaken over previous stages of which the current proposal forms a part.

The first was undertaken by Angela Besant, which covered an extensive area. The landscape and constraints are similar to the current study area. No Aboriginal Objects were identified or potential for subsurface deposits.

The second was undertaken by the Aboriginal community (Steve Talbot et alia) for utility services and was a linear study as well as a small area. The Aboriginal community concluded that the area contained little significance for them, particularly given the extremely disturbed nature of the landscape.

Although, there are very few archaeological reports that can be reviewed regarding the study site, the information does tend to indicate the type of sites that could be expected and reinforces other studies as to where they are likely to be.

Brayshaw in 1986 conducted a Study of Colonial Records of the Aborigines of the Hunter Valley and was able to present an account of the environment and way of life of the Aboriginals at the time of colonial settlement. Her study also indicated areas and landforms of Aboriginal use and occupation.
The assessment by Haglund of the Prehistoric Heritage in the Lake Macquarie Area, in 1986, is a definitive work, which catalogued the known sites at the time and identified possible generic locations for archaeological sites. Dean Jones and Mitchell (1993) conducted a similar assessment of archaeological sites in the Hunter valley. Archaeological investigations by Kuskie (1994), Silcox and Ruig (1995) and Effenberger and Baker (1996) on margins of various wetlands indicate that artefacts could be found on all types of landscapes abutting wetlands but generally at a lower density than on the margins of the wetlands. The above assessments indicated:

- Open campsites would be near water holes.
- Grinding grooves are more likely to be found in rocky outcrops exposed by erosion or in creek beds.
- Scarred trees may be present in any type of landscape, but this would depend on the age and type of tree.
- Artefacts are more likely to be found along creek and drainage lines.
- Stone arrangements and ceremonial artefacts are more likely to be found in significant landscape aspects such as caves and hills.
- Artefacts can be found in any landscape in proximity to an abundant food source.

In addition, the work by Klaver and Heffernan (1991) which was an assessment of sites in the Greater Taree Council area, not only reinforced the possible locations, but also identified landscape attributes for ceremonial sites. Citing an earlier work by Fitzpatrick (1986), they stated, "Ceremonial grounds were said to comprise two rings, one on top of a low ridge and the other in a level place below. The latter was..."established in a roomy place, so that all the gins could camp there close to the ring." This accords with this author's findings at North Arm Cove and Kings Hill, Raymond Terrace.

A number of archaeological investigations have been carried out in the surrounding region.

An overview of the pertinent studies is contained in the Thornton Master Plan, of Maitland City Council to identify issues that require consideration in the context of development planning. Part of that Masterplan included a desktop survey of Aboriginal Heritage potential. Angela Besant, a noted archaeologist, undertook the desktop survey of the area and concluded that all types of landscapes adjacent to wetlands ought to be considered as having potential for archaeological significance. Her work was well researched and gave a definitive overview of probable Aboriginal occupation of the area.

Near Maitland several studies in close proximity to the Hunter River have identified artefact scatter sites.
Brayshaw (1984b) surveyed a 120ha property adjacent to the Hunter River at Bolwarra Heights, three kilometres north of Maitland. The property comprises undulating terrain (Primarily simple slopes) covered by pasture grass. One artefact scatter containing 40 artefacts was recorded. Brayshaw (1995) resurveyed an 86ha part of the property in 1995. Conditions of surface visibility were higher and two new artefact scatters were recorded. Recommendations were presented for sub-surface testing which has subsequently been undertaken by Baker (1996), confirming that sources of the raw material silcrete were present within the property.

Ruig (1995) surveyed 10.54 ha for the proposed Tenambit Wetlands Project. The property comprises Crown Reserve R89147, County of Northumberland, off Metford Road north of Metford. Most of the area comprises swampland or floodplain of low elevation. Surface visibility was extremely low. Three isolated artefacts were located (two “mudstone” flakes and one silcrete flake). Considering the conditions of low visibility and high potential for further sites, a programme of sub-surface testing was recommended.

However, the work most pertinent to the study area is the work by Kuskie which was conducted over land which contained areas of similar landscape adjacent to the current study area. That is, land adjacent to and contiguous with wetlands.

Kuskie (1994a) surveyed Lot 1 DP 559519, Thornton, for a proposed residential development. The 228 ha property is located adjacent to the Thornton urban area, although 85 ha of State Environmental Planning Policy 14 (SEPP 14) Wetland No. 828 was excluded from the assessment. Lot 1 consists of two broad low ridge spurs descending to the adjacent wetlands of Woodberry Swamp. Gradients of the ridge side- slopes and basal slopes are generally low (less than five degrees), except in the vicinity of several gullies. Several minor watercourses and gullies drain into adjacent Woodberry Swamp. Landscape units present include low, broad ridge spurs, simple slopes, basal slopes, alluvial flats and wetlands. The underlying geology of the elevated landscape units consists of siltstone, sandstone and conglomerate of the Permian Mulbring Siltstone Formation. Lot 1 was used for pastoral purposes and therefore dominated by a dense cove of grass.

Despite conditions of low surface visibility, nine artefact scatters and one isolated artefact were located. The sites ranged in size from 2 to 32 artefacts at densities of up to 9.4 artefacts/m². Flaked pieces and flakes were the dominant artefact types and silcrete was the main raw material (83%). Kuskie (1994a: 17) argued the entire landscape of Lot 1 was probably utilised by Aboriginal people of differing extents and that the results of the survey were largely a function of conditions of surface visibility. Because the effectiveness of the survey was severely constrained by a dense cover of grass, a programme of further archaeological assessment was recommended.

Kuskie (1994b: 1) undertook the sub-surface investigations recommended for Lot 1 DP 559519, at Thornton, “in order to adequately assess the extent of the sites previously recorded by him to determine whether the recorded sites contained sub-surface deposits of artefacts to adequately assess the significance of each site and to effectively assess the majority of the study area in which low surface visibility had restricted the effectiveness of the initial survey.”

A trend was identified for artefact density on the simple slopes and basal slopes to be greater than on the ridge crests. It was also demonstrated that higher artefact densities
tended to occur closer to the wetlands. The major exception is between 901-1000m distance, which includes transects 9B and BH9. These transects were located at an occurrence of silcrete gravel, which appears to have been exploited as a source of material for use in manufacturing artefacts. Hence, if these transects are excluded from the data, there is a clear trend for artefact density to increase closer to the wetlands. This supports predictions that the wetlands were a major focus of activity in the locality and that more abundant evidence for occupation and land use is likely to be located around the margins of the wetlands. Comparisons of artefact density with elevation were also undertaken, because it may provide indirect evidence of the relationship between intensity of land use and the wetlands (which are at the lowest elevation). While the study area is all lower than 25m a.s.l, the ridges tend to have the highest elevations, while the simple slopes and basal slopes around the margins of the wetlands are lower. There is a tentative trend towards increased artefact density at lower elevations (Kuskie 1994b).

The foregoing surveys reinforced Hartley’s ethnohistorical research indicating the importance and significance of wetlands to Aboriginal occupation of the area.

The work by Haglund (1986) establishes the potential of the area very well.

A considerable proportion of the sites actually present in the landscape is likely to remain undetected except through deliberate testing of subsurface sediments through archaeological investigation, or through future disturbance through erosion or some development. Accumulated sediment and/or a blanket of vegetation... may hide all of the archaeological site types but open sites are particularly likely to remain hidden...

This is an important consideration, as it is still often the Undetected sites that have been best preserved and retain most scientific potential. They will better retain this potential if discovered through controlled testing. When carrying out detailed surveys, consultants now note and record also the locations deemed most likely to contain archaeological material as PAD’s (potential archaeological deposits).

The surveys showed that archaeological evidence was more likely to occur in undisturbed areas and in areas subject to deposition/erosion.

5.2 Past Land Use
Past Aboriginal activities are not well manifested by archaeological record because many activities did not leave material evidence or because the material evidence was not durable. Many of the implements were organic material, such as wood and bone and readily decayed when exposed to the elements. Even burials, are subject to the acidic condition of the soil.

Durable evidence, such as stone and rock implements, is affected by European landuse. Easily recognisable implements such as stone axes, have found their way into many private collections, well before it became illegal to do so, with no record of the location of the find.  Cultivation, with the
associated stick raking and stone gathering also tended to destroy surface evidence. However cultivation and pastoral landuse also helped preserve the archaeological record. In some cases cultivation would expose evidence in others, cover the evidence. In general, the archaeological record is dependent on the exposure of sites through erosion, weathering, fire, drought and anthropogenic activities.

- **European**

Early settlement occurred along the ridgeline with development of houses and eventually the villages known as Gillieston Heights and Heddon Greta. Several farming properties were established utilising the ridge and the Wallis Creek floodplain below. The integrity of the study area has been disturbed through agriculture, speedway facilities, past mining activities and associated residential use.

- **Aboriginal**

The known archaeological evidence tends to suggest that base camps were located close to freshwater and food sources. The campsites were in favourable climactic conditions, safe, not only from intruders but also for young children. Campsites were therefore not near fast, flowing rivers, dangerous swampy areas or steep cliffs. Many Dreamtime stories were told of mythical creatures to keep children away from dangerous areas. “Catch-a-boy Swamp” at Ellalong, is a classic example. Trails from campsites and to other clans were generally along creek lines or ridgelines.

### 5.3 Probable Scenario of Past Aboriginal Occupation

Having regard to known archaeological record, ethnohistoric records ad the landscape it is possible to suggest a framework of Aboriginal occupation of the study area.

The Hunter River was well known to flood and at times be quite fast flowing. The River was deep and at the time of European occupation sailing vessels could make their way up the river to at least Morpeth beyond Maitland. The Hunter was well vegetated although the hills away from the River were clearer, parklike and more picturesque. The Europeans saw the “Green Hills” of Maitland as ideal pasture grounds for sheep.

The tributaries of the Hunter were much more placid, safer and access to good clean water far easier. Children were also safer playing near tributaries than near the big river.

The nearby swamps were home to abundant wildlife. At sunset and dawn fish, fowl, game plants and fruit would be gathered from these swamps to provide sustenance for a healthy and joyful Aboriginal population. Little time and effort was put into providing the daily essentials, leaving the day free for family times and the enjoyment and comfort of life. The people would set up camp on a sheltered, high place away from mosquitoes and the prevailing
wind. They would stay there until it was time to move on for hygiene reasons or the weather changed and a more sheltered spot was required. There was never an occasion when the food or water supply was scarce.

The ridgeline from Maitland to Heddon Greta was an ideal occupation area, perched above the floodplains and between Wentworth Swamp to the west and Wallis Creek to the east it gave good vantage to monitor the movement of game and unwanted visitors. It was only a short stroll down a gentle slope to Wentworth swamp with its abundance of fauna. It was also only a short, but more difficult walk to Wallis Creek and its flats and then a gentle walk to either the mountains in the south or the Hunter River in the North. The various landform elements of the ridge leant itself to great areas for shelter. The rather large and flattened ridgetop with 3 particular high points of around 40 metres made a great congregation area for the gathering of clans from all over. Fires could be lit on the 3 high points and the smoke seen for many, many kilometres would announce the forthcoming gathering.

Figure 6 indicates probable Aboriginal occupation of the area.

5.4 Implications
It would appear that the Wannaruah has occupied the land in the study area due to the its proximity to the wetlands to the east and west. There is no anecdotal or oral evidence confirming this supposition. Given the disturbed nature and integrity of the site the only likely evidence to be observed through a field survey would be isolated artefacts.

Based on the research, literature review, landscape and previous archaeological reports, the possible archaeological sites to be found on the subject site include:

Isolated finds, campsites and ceremonial features. Burial sites do not appear to be a possibility. The cleared nature of the area is not conducive to the finding of scarred or carved trees.

However as the complete study area has been disturbed through past anthropogenic activities including ploughing over the past 150 years, above and sub surface evidence appears to be extremely unlikely.

6 Assessment Criteria of Aboriginal Archaeological Finds
Various criteria have been developed to apply to archaeological finds. Those used by Navin and Officer (1999), form the basis for assessment.

- **Isolated finds**
  An isolated find is a single stone artefact, not located within a rock shelter, and which occurs without any associated evidence of Aboriginal occupation within a radius of 60 metres. Isolated finds may be indicative of:
Random loss or deliberate discard of a single artefact, the remnant of a now dispersed and disturbed artefact scatter. An otherwise obscured or subsurface artefact scatter. Except in the case of the latter, isolated finds are considered to be constituent components of the background scatter present within any particular landform.

- **Background scatter**
  Background scatter is a concept used by archaeologists to refer to artefacts that cannot be usefully related to a place or focus of past activity (except for the net accumulation of single artefact losses). Background scatters are a temporarily unrelated accumulation of artefacts across a large area and will vary in density according to the type and frequency of past occupation within that landscape. A background scatter can be defined as artefactual material where association between artefacts can only be described using large scale and inclusive temporal and spatial categories of past occupation.

  Archaeologists often make a distinction between an isolated find and a site because an isolated find cannot reliably be related to a place or focus of past activity.

- **Sites**
  A site is defined as any material evidence of past Aboriginal activity, which remains within a context or place that can be reliably related to that activity.

  Sites include:

  1. Occupation sites (shell middens, rockshelters and open campsites)
  2. Aboriginal Reserves and Missions
  3. Rock paintings
  4. Rock engravings
  5. Grinding grooves
  6. quarries
  7. Ceremonial grounds
  8. Stone arrangements
  9. Carved and scarred trees
  10. Burials
  11. Natural sacred sites

  (For a description of the above see glossary in the appendix to this report)

Frequently encountered site types within southeastern Australia include open artefact scatters, coastal and freshwater middens, rock shelter sites including occupation deposit and/or rock art. Grinding groove sites and scarred trees. For the purposes of this section, only the methodologies used in the identification of these site types are outlined.

Most Aboriginal sites on the NSW Coast are identified by the presence of three main categories of artefacts: stone or shell artefacts situated on or in a sedimentary matrix, marks located on or in rock surfaces, and scars on trees. Artefacts situated within or on, a sedimentary matrix in an open context are classed as a site when two or more occur no more than 60
metres away from any other constituent artefact. The 60-metre specification relates back to the definition of an isolated find (Peter above).

Any location containing one or more marks of Aboriginal origin on rock surfaces is classed as a site. Marks typically consist of grinding features such as grinding grooves for hatchet heads, and rock art such as engravings, drawings or paintings. The boundaries of these sites are defined according to the spatial extent of tile marks, or the extent of the overhang, depending on which is most applicable to the spatial and temporal integrity or the site.

- **Scarred Trees**
  Trees with scars of Aboriginal origin form the other major type of artefactual evidence. Each tree is normally considered to be a separate site. The identification of a scar as Aboriginal in origin is dependent on a set of interrelated interpretive criteria. The credibility of alternative causal explanations such as natural traumas and other types of human scarring must be tested for each scar. (See appendix for diagnostic criteria for assessing scarred trees)

### 7.0 Field Survey

#### 7.1 Strategy
The aim of the field survey was to verify or refute the findings of the desktop survey and predictive modelling, which indicated poor archaeological potential.

#### 7.2 Method
It was decided to circumnavigate the property along the boundary to gain an overall picture of the site and then systematically walk the area paying particular attention to the drainage lines. As the entire study area was a plain it was decided to treat the area as a single unit.

#### 7.3 Survey Effectiveness
The effectiveness of archaeological field survey is to a large degree related to the degree of ground surface visibility and obtrusiveness.

Visibility according to Schiffer (1978), can be defined as "the extent to which an observer can detect the presence of archaeological material at or below a given place." Areas with little or no vegetation, minimal soil deposition, or rapid rates of erosion, tend to be considered to have high visibility as archaeological evidence will not be covered by leaf litter, vegetation or soil deposits. Areas with soil build up, minimal erosion, pasture and vegetation cover will tend to have minimal visibility.

Schiffer also coined the term obtrusiveness for the ease with which the materials produced by a people are readily apparent. A society that produces monuments or tools out of durable materials and/or is generally sedentary is more likely to have archaeological evidence surviving the passage of time than a society whose tools are non-durable and/or tends to be nomadic. Obtrusiveness is the chance of archaeological evidence
surviving over time either through durability or the concentration of artefact scatter within a given landscape.

Past Aboriginal activities are not well represented by surviving material evidence. This is partly because many activities did not leave material evidence eg. Tools were reused, but it is also because very little cultural material survives. Wooden or bone tools in particular are easily destroyed by fire or rot overtime due to the generally acidic nature of the soil or attack by insects and fungi. An exception to this is shellfish, which are very durable. Easily recognised stone implements have been gathered overtime before it was illegal to do so. Other stone tools that are not easily recognisable are often discarded or buried by natural or anthropogenic processes.

The survival of material that is durable is also affected by recent land use. Cultivation and other anthropogenic activities have destroyed many archaeological sites. However, cultivation can also help expose sites that would otherwise be covered.

7.4 Site Overview

- **Surface conditions**
  The landscape context of the development area comprises gently undulating rises on shallow windblown sand deposits that blanket Permian sediments in the East Maitland Hills region. Slopes are 2-10% and elevation is up to 30m. The soils are moderately deep >85cm Yellow Podzolic Soils and Red Podzolic soils with some imperfectly drained Siliceous sands. The underlying geology is the Branxton Formation consisting of sandstone siltstone and conglomerate. The windblown sand deposit is Quaternary in age (Nlatthei 1995).

  The vegetation on the site prior to clearing would have comprised low woodland, with heath understorey. Very few trees are across the site. Current vegetation is a mixture of introduced grasses, shrubs and regrowth scrub.

  The site now lies on the urban fringe of Heddon Greta, with Hall St and existing residential areas to the south east and rural residential to the north.

- **Landscape/survey Units**
  The site can be generally classified as plain and is associated with a ridgeline and wetlands. Because of the uniform landscape classification it was decided to treat the area as a single survey unit.

- **Coverage Data**
The effective survey coverage can be described as less than 50% and although visibility and obtrusiveness was limited, the landscape and general observations were sufficient to indicate potential which was rated as extremely low.

11. Discussion

While it is probable that aborigines utilised the resources of the study area it is unlikely that their activities would have left much lasting evidence of their visit other than perhaps the odd isolated artefact particularly as there has been significant disturbance to the top soil. Archaeological evidence was not discovered through field survey. However, undetected sites and artefacts might remain in the study area as subsurface artefacts. Although it is highly probable that no artefactual material will be found, even if present, it is important, in order to demonstrate due diligence, that preliminary earthworks are carefully observed to ensure that if objects are unearthed, that any opportunity there may be to add to the archaeological record is not accidentally destroyed.

It is highly likely that the area west of the study area closer to Wentworth Swamp was more intensively occupied than that of the study area. Reasons for this would generally be the steeper slopes of the eastern side making access to and from the study area more difficult and probably of greater danger for children. Whereas, the western side had easier access to the swamp, and there would be a greater abundance of resource at the swamp rather than the creek.

Baker in undertaking excavation work at the Hunter Economic Zone discovered the importance of aeolian sands for archaeological potential and it has been generally accepted that aeolian sands are an indicator of archaeological potential. However with respect to the study area although the soil data sheet suggests probability of wind blown sands (aeolian) the depth of deposits, as well as previous monitoring of development in the earlier stages of the development, suggests that there is no archaeological potential. There did not appear to be any significant or extensive areas of windblown sand in the study area.

The area of land alongside the road that forms the village of Heddon Greta would be of similar use and significance.

12. Significance Assessment

It is important to stress that the significance of a cultural landscape is not dependent on archaeological evidence being significant in itself but the interrelatedness of the individual objects to the cultural landscape as a whole. The finding of an artefact in a particular spot of the landscape does not necessarily make that spot or the object significant. What is significant is the understanding as to how and why the object is located where it is. The object may be a result of a washdown from a campsite location above.
Through understanding the cultural landscape in an holistic manner one may be able to appreciate the associations that may exist between Aboriginal objects and other features within the landscape.

From the above discussion and from the field survey, it could be argued that the lack of recorded sites is due to the fact that the existing landsurface exposures no longer contain, over most of their area, a detectable incidence of artefacts. Reasons for the low detection in summary would be:

- level of land disturbance
- poor visibility and obtrusiveness

Although no objects or potential objects were identified in the study area the significance of the study area as a component of the landscape in an Aboriginal cultural heritage context needs to be assessed.

The historical and archaeological record across the Hunter documents the potential of Wallis Creek as a potential Archaeological Deposit (PAD). The study area forms an integral part of the ridgeline that is but one element of the Wallis Creek / Wentworth Swamp Landscape and cannot be assessed in isolation.

Based on the work by Kuskie and others, the wetlands and its margins should provide the opportunity for future scientific investigation. The Aboriginal Community attributes cultural significance to Wallis Creek and Wentworth Swamp.

Given the importance and significance of Wallis Creek and Wentworth Swamp it is important to examine the proposal in context of Wallis creek and Wentworth swamp to ensure that the development does not impact on those significant areas.

Although in proximity to Wallis Creek and Wentworth Swamp, development of the study area will not knowingly impact on those areas.

8.2 Management/conservation/excavation requirements for the study area

Further archaeological work is not warranted or recommended for the study area as no objects were located or potential indicated.

9.0 Impact Assessment

In assessing the development in accordance with the guidelines, if there is no impact on Aboriginal places or objects then referral to NPWS is not required for a permit under section 90 of the NPWS Act.
However, if the proposal does impact upon cultural heritage then it is an integrated development and consent under section 90 of the NPWS act may be required for the proposal to proceed.

The question that needs to be answered by any survey is:

**Will the proposal impact on any Aboriginal heritage or potential Aboriginal heritage?**

As no Aboriginal objects or places were located or potential areas of archaeological deposit identified in the study area then there is no impact on Aboriginal objects or places.

*The proposed development is on land previously subject to intensive ground disturbance and it is apparent that any development over the entire area would be confined to that disturbance.*
13. Recommendations

These recommendations are made in consultation with the Local Aboriginal Land Council and under the legal requirements of the NPWS Act 1974

- That, as there is no impact on aboriginal places or objects, there is no impediment to the proposed development for Aboriginal Cultural reasons.

- That the proponent inform all workers to be diligent when undertaking land preparation and if however, in the process of land preparation, artefacts are found, then work must cease and the LALC and NPWS to be informed. To remove or destroy artefacts without a permit is an offence under section 90 of the NPWS Act, 1974.

14. Certification

This report was prepared in accordance with the brief given by Coeplan Consultants Pty Ltd to assess of the impact of the proposed development on Aboriginal heritage and was undertaken to demonstrate due diligence.

To the best of our knowledge the report accurately reflects the archaeological survey, findings and results, as well as the input and recommendations of Mindaribba Local Aboriginal Land Council and Traditional Owners. A letter from the Land council and Traditional Owners accompanies this report indicating their input and recommendations.

Signed
(Archaeologist)
12. References

*(Books and Journals)*

Beaglehole, J.C. (1955) (ed.)
*The Journals of captain James Cook on his Voyage of Discovery.*
London,
Hakluyt Society.

Bennett, F. C. Ed. (1981)
*The Story of the Aboriginal People of the Central Coast.* Brisbane Water Historical Society.

*Aborigines of the Hunter Valley, A Study of Colonial Records,*
Bicentennial Publication No.4, 1986, Scone & Upper Hunter Historical Society Scone, N.S.W.

*Archaeologists and Aborigines Working Together.* University of New England Press.

Flood, J (1995)
*Archaeology of the Dreamtime.* Angus and Robertson


*Field Methods in Archaeology.* Mayfield Publishing Company

Horton, D (1994)
*Encyclopaedia of Aboriginal Australia.* Aboriginal Studies Press

NPWS (1997)
*Aboriginal Cultural Heritage. Standards and Guidelines Kit.* NPWS

Petersen, N (1986)
*Australian Territorial Organisation,* Oceania Monograph, Sydney.
University of Sydney Press.

Schiffer, M.B. et al(1978)
Speight, J. (1990)

*Landform.* Contained in *Australian Soil and Land Survey Field Handbook.*


**(Archaeological and Scientific Reports)**

Baker, N (1997)

Archaeological Test Excavations at Landcom Project 12163.001,

*Boolarra Heights, Hunter Valley, NSW*


Archaeological Test Excavations Hunter Economic Zone (as yet unpublished)

Besant, A (2002)


*Archaeology report. Part lot 7 DP 1047409 off Hall and Heddon Streets Heddon Greta NSW.* Report to CoePlan Consultants Pty Ltd.


*Landcom Project 12163.001, Bolwarra Heights, Hunter Valley, NSW*

Central Mapping Authority

*Berestfield Topographical Map. 1:25000 2nd Edition 9232-3-N*

Dean-Jones, P & Mitchell, P. B. 1993

*Hunter Valley Aboriginal Sites Assessment Project Unpublished Report to NP&WS (NSW).*

Geo-Maps Company, Sydney

*Newcastle and the Hunter Region Relief Map 1:350000*

Haglund, L. 1986
Assessment of the Prehistoric Heritage in the Lake Macquarie Area. Report to Lake Macquarie City Council.

Greater Taree Aboriginal Heritage Study. Report to Greater Taree City Council

Kuskie, P (1994)  
Archaeological Assessment of land rezoning proposal lot 1 DP 559519, Thornton

Navin & Officer (1999)  
North Wallarah Peninsula Project Site. Aboriginal Cultural Assessment. Report to AGC Woodward-Clyde Pty Ltd.


13. Glossary

Aboriginal Site

I. Occupation Sites

Evidence of human occupation, which includes food remains, stone tools, baked clay, fire-blackened and fire-cracked stones and charcoal, is found in a range of sites known collectively as occupation sites

- **Shell middens.** These sites are found on the coastline and along the edges of rivers and lakes. It is a deposit composed of the remains of edible shellfish and also usually contains fish and animal bones, stone tools and campfire charcoal.

- **Rock shelters with archaeological deposit.** In rock outcrops such as sandstone and granite, overhangs sometimes form creating useable shelters. Sediments from fires, roof fall, discarded stone tools and food remains form a deposit protected within the shelter and this deposit can be excavated by archaeologists to study patterns of Aboriginal life.

- **Open campsites.** These sites are mostly surface and associated subsurface scatters of stone artefacts, sometimes with fireplaces. They exist throughout the landscape and are the most common site type in rural areas. While found in all environmental locations larger and denser sites tend to be found on riverbanks and lower slopes racing watercourses, as well as ridgelines and other areas that offers movement routes. The study or open sites can assist in understanding patterns of Aboriginal land use.

- **Base camp** This is the name applied to the major or main area of habitation. They tended to be close to a permanent water source and food source. Generally well sheltered. These camps would be rotated for hygiene reasons. They are different to smaller open
campsites, which were mainly camps on transport routes or overnight areas on hunting forays.

2. **Aboriginal Reserves and Missions**
These places are very important to Aboriginal people today. Although Aboriginal people were often moved to reserves by force and were restricted by harsh regulations, the reserves became home to many people, where they and their families were born, lived and died. Historic cemeteries at many reserves are still cared for by the local Aboriginal community.

3. **Rock Paintings**
Aboriginal paintings are found on the ceilings and walls of rockshelters, which occur wherever suitable rock surfaces and outcrops, exist. Figures include humans, kangaroos, emus, echidnas, grid patterns, animal tracks, boomerangs, axes, hand stencils and other motifs. Paintings are made with white, red, yellow and black pigments. The motifs may be drawn, painted or stencilled, and charcoal drawings are common as well.

4. **Rock Engravings**
These occur usually where there is a suitable exposure of fairly flat, soft rock or in rock overhangs. The outlines of motifs were made by hitting the rock surface with a sharp stone to make small holes or pits. Sometimes the pits were jointed to form a groove, by rubbing with a stone. People, animal shapes and tracks are common as well as non-figurative designs such as circles.

5. **Grinding Grooves**
Grooves are located on flat rock exposures close to a stream or rock hole. They vary in size but are generally long (about 30-40cm in length) and elliptical in shape. Stone axes were ground into the softer stone allowing a working edge to be created or sharpened- Deeper grooves may have been used to work spears or other thin implements.

6. **Quarries**
Quarry sites occur wherever there are outcrops of siliceous or igneous rock. Stone material was used in creating stone tools, which in turn were used to work wood and provide people with tools to assist in hunting and gathering activities. Siliceous rock is easily flaked and made useful cutting and scraping tools whereas igneous rock was preferred for edge-ground tools, particularly axes.

7. **Ceremonial grounds**
These sites were used for initiation ceremonies, marriages, tribal meetings and other important functions and are of great significance to Aboriginal people. Bora rings, which are one or more raised earth rings, were used for male initiations.

8. **Stone arrangements**
These range from simple stone mounds to complex circles and pathways. Arrangements are found throughout inland New South Wales as well as the coast, where fish traps were sometimes constructed.

9. **Carved and scarred trees**
Tree bark was used for constructing canoes, shelters, coolamons and shields. Distinctive scars are left from bark removal and can usually be differentiated from natural scars. Carved trees are more distinctive, exhibiting patterns etched into the wood of the tree. They can occur throughout the state although clearing and forestry practices have greatly reduced numbers.
A range of diagnostic criteria has been developed to assist in the identification of Aboriginal scarred trees. The following criteria are based on archaeological work conducted by Simmons (1977) and Beesley (1989). It should be noted that these criteria have never been quantitatively tested or quantified using non-relative criteria such as absolute dating or an analysis of pre-occluded scar morphologies. This is because radiocarbon dating or dendrochronology is mostly inconclusive, and the removal of regrowth exposes trees to further damage.

1. The scar does not normally run to ground level: (scars resulting from fire, fungal attack or lightning nearly always reach ground level). However, ground termination does not necessarily discount an Aboriginal Origin (some ethno-historic examples of canoe scars reach the ground);

1. (A). If a scar extends to the ground, the sides of the original scar must be relatively parallel: (natural scars tend to be triangular in shape);

2. The scar is either approximately parallel sided or concave, and symmetrical: (few natural scars are likely to have these properties except fire scars which may be symmetrical but are wider at the base than their apex. Surveyors marks are typically triangular and often adzed);

3. The scar should be reasonably regular in outline and regrowth: scars of natural origin tend to have irregular outlines and may have uneven regrowth;

4. The ends or the scar should be shaped, either squared off, or pointed (often as a result of regrowth); (a ‘keyhole’ profile with a ‘tail’ is suggestive of branch loss);

5. A scar which contains adze or axe marks on the original scar surface is likely to be the result of human scarring. Their morphology and distribution may lend support to an interpretation of an Aboriginal origin: (marks produced after the scarring event may need to be discounted);

6. The tree must date to the time of Aboriginal bark exploitation within its region: (an age of at least 100 years is prerequisite)

7. The tree must be endemic to the region: (and thus exclude historic plantings).

Field based identification of Aboriginal scars, is based on surface evidence only and will not necessarily provide a definitive classification. In many cases the possibility of a natural origin cannot be ruled out, despite the presence or several diagnostic criteria or the balance or interpretation leaning toward an Aboriginal origin. For this reason interpretations of an Aboriginal origin are qualified by the recorder’s degree of certainty. The following categories are used:

**Definite Aboriginal scar** - This is a scar that conforms to all of the criteria and/or has in addition a feature or characteristic that provides definitive identification, such as diagnostic axe or adze marks or an historical identification. All conceivable natural causes of the scar can be reliably discounted.

**Aboriginal origin is most likely** - This is a scar that conforms to all of the criteria and where a natural origin is considered unlikely and improbable.

**Probable Aboriginal scar** - this is a scar that conforms to all of the criteria and where an Aboriginal origin is considered to be the most likely. Despite this, a natural origin cannot be ruled out.
Possible Aboriginal scar - This is a scar which conforms to all or most of the criteria and where an Aboriginal origin cannot be reliably considered as more likely than alternative natural causes. The characteristics of this scar will also be consistent with a natural cause.

10. Burials
Aborigines feel equally as respectful about prehistoric burials as modern cemeteries. As Aborigines have lived in Australia for over 30,000 years burials are seen as part of a continuing culture and tradition as well as offering valuable archaeological information. The dead were sometimes cremated, sometimes placed in trees or rock ledges and sometimes buried. Burials exist throughout New South Wales and can be accidentally uncovered in construction work or become exposed through erosion. It is important that if a skeleton is found it be reported to the police, to a representative of the National Parks and Wildlife Service and to the relevant Aboriginal community group.

II. Natural sacred sites
Many features of the landscape, such as mountains, rocks, waterholes etc., are regarded as sacred sites by Aborigines. They are places associated with Dreamtime ancestors and usually can only be identified by Aboriginal people. They retain a high significance to Aborigines.

Fire-stick Farming
The process of burning to aid in hunting. Animals could be speared or clubbed as they fled to escape the flames. Other uses of fire were for long term hunting strategies. After firing, the bush would regenerate attracting animals on which the hunters would prey. (Flood, p250)

Flake fragment of stone that was used as a tool for weapons, scrapers etc.

Geographical

AHD (Australian Height Datum) Australian standard measurement from the mean high sea level.

Swamp. An almost level, closed, or almost closed depression with a seasonal or permanent water table at or above the surface, commonly aggraded by overbank stream flow (Speight 1990: 33).

Appendix
Figure 1 Regional Location
Figure 2 Topographical View of Study Area
Figure 4 Aboriginal Areas

Figure 6 Probable Aboriginal Occupation
Aboriginal Community Comments

Letters from the Aboriginal community will be added when received