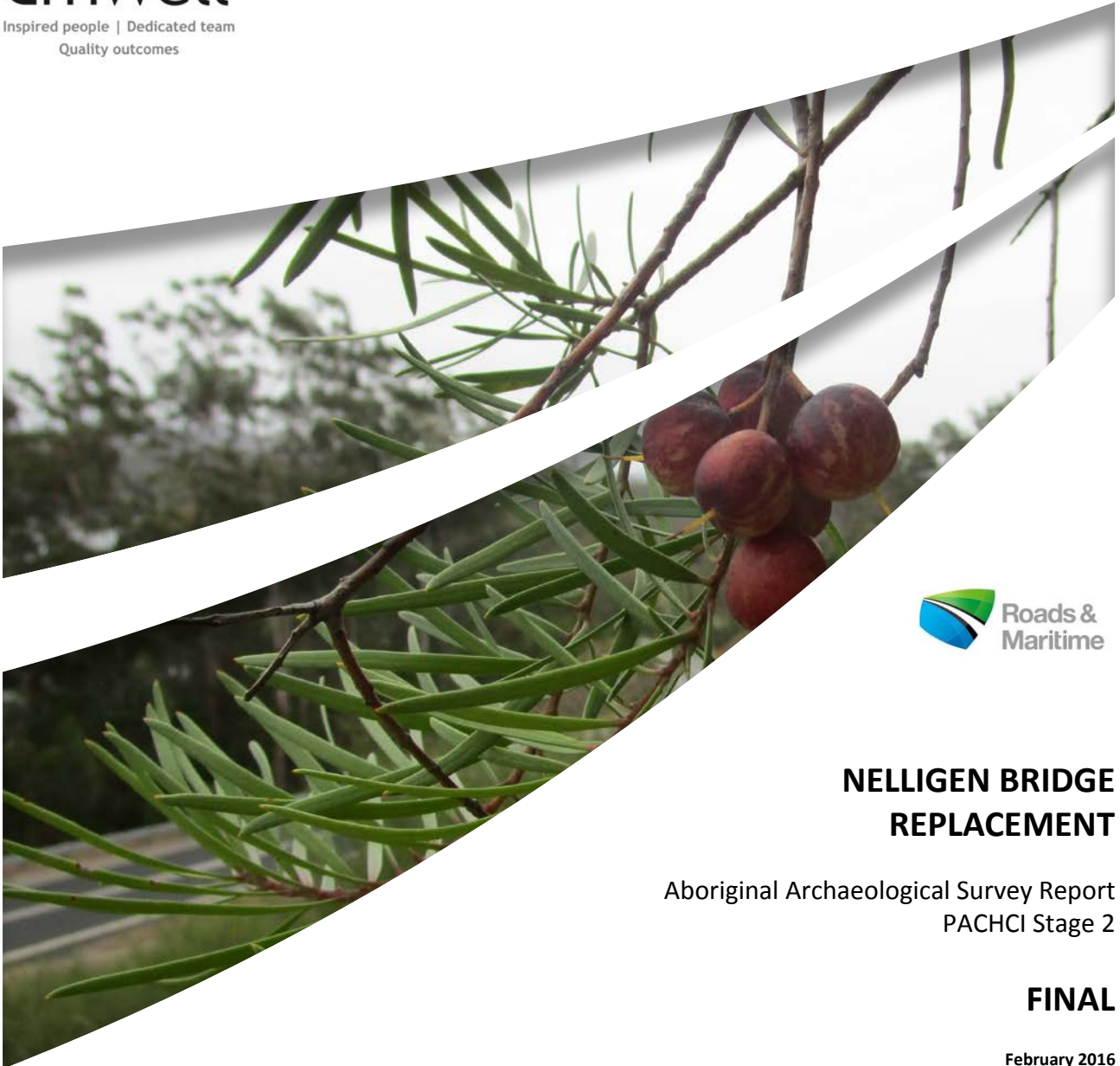


APPENDIX 4

Aboriginal Archaeological Survey Report



Inspired people | Dedicated team
Quality outcomes



NELLIGEN BRIDGE REPLACEMENT

Aboriginal Archaeological Survey Report
PACHCI Stage 2

FINAL

February 2016



NELLIGEN BRIDGE REPLACEMENT

Aboriginal Archaeological Survey Report
PACHCI Stage 2

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
NSW Roads and Maritime Services

Project Director: Jan Wilson
Project Manager: Kym McNamara
Report No. 8081/R01/V3
Date: February 2016



Canberra

PO Box 6135
56 Bluebell Street
O'Connor ACT 2602

Ph. 02 6262 9484

www.umwelt.com.au



Quality
ISO 9001

This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Acknowledgement

The Roads and Maritime Services and Umwelt would like to acknowledge the Traditional Custodians of the Nelligen area – the Yuin peoples – and pay respect to their cultural heritage, beliefs and continuing relationship with the land.

We would also like to acknowledge and pay respect to the post-contact experiences of Aboriginal people who have attachment to the Nelligen area.

We pay respect to the elders, both past and present, for they hold the memories, traditions, culture and hopes of Aboriginal people in the area.

Executive Summary



Introduction

The Kings Highway crossing of the Clyde River, Nelligen Bridge is located on the South Coast of New South Wales, about eight kilometres north-west of Batemans Bay. During routine inspections, Roads and Maritime Services identified deterioration of the supporting concrete pillars under Nelligen Bridge. The strength of the bridge has been assessed and is still able to safely carry normal traffic loads. However, the pillars will weaken over time and the bridge will require significant repairs or replacement.

A range of early investigations and consultation about options to repair or replace the bridge have been completed. The outcome of this work is a new bridge should be built to the north of the existing bridge (refer to **Figure 1.1** for the Locality Plan). The approaches to the bridge would also be realigned. After the new bridge is built the existing bridge would be demolished.

Umwelt Australia Pty Limited (Umwelt) has been engaged by Roads and Maritime as part of the *Roads and Maritime Services procedure for Aboriginal Cultural Heritage Consultation and Investigation* (Roads and Maritime 2011 - PACHCI) Stage 2 process, which includes this Aboriginal archaeological survey report. This report is required to inform the concept design and environmental assessment (EA) for the Nelligen Bridge Replacement Project.

Description of Proposed Development

Roads and Maritime proposes to construct:

- A new Kings Highway crossing of the Clyde River at Nelligen to the north of the existing bridge

- Realign the approaches to the bridge and
- Demolish the existing bridge.

The extent of the required investigation area is from 900 metres east of the existing bridge to 950 metres west of the existing bridge as measured along the Kings Highway.

The work would involve:

- Construction within the Clyde River
- Excavation of cut embankments
- Construction of fill embankments on both sides of the Clyde River
- Temporary stockpile sites
- Temporary compound sites
- Temporary sediment basins
- Operational water quality treatments
- Relocation of utilities
- Clearing of vegetation
- Landscaping/revegetation on completion of the road work.

The exact location of temporary stockpile, compound sites and sediment basins is not known at this stage however potential locations have been identified within the study area and have been inspected accordingly.

Aboriginal Consultation

Consultation with Aboriginal stakeholders is an integral part of identifying and assessing the significance of Aboriginal objects and/or places, and determining and carrying out appropriate strategies to mitigate the impact upon Aboriginal heritage.

Jeffery Nelson (Roads and Maritime), Tim Webster (Roads and Maritime) and Kym McNamara (Umwelt) undertook the following Aboriginal consultation as part of the project.

National Native Title Register Search

A search of the NNTTs National Native Title Register to identify any registered native title claimants or native title holders for the study area was conducted on 26 August 2015. The geographic parameters for the search was set to the Eurobodalla LGA (refer to **Appendix 1**). The search returned no relevant entries in the following databases:

- Schedule of Applications (unregistered claimant applications)
- Register of Native Title Claims
- National Native Title Register
- Register of Indigenous Land Use Agreements

Register of Aboriginal Owners Search

A search of the Register of Aboriginal Owners was conducted on 17 November 2015 by Tim Webster (Roads and Maritime). The results returned on 3 December 2015 outlined the study area did not appear to have Registered Aboriginal Owners pursuant to Division 3 of the *Aboriginal Land Rights ACT 1983* (NSW).

Batemans Bay Local Aboriginal Land Council

The study area lies within the boundaries of the BBLALC area. BBLALC was identified as the sole key Aboriginal stakeholder for the project as part of the PACHCI Stage 2 process. Initial contact was made by Tim Webster on 24 September 2015 to organise availability for the field survey. Les Simon from BBLALC participated in the field survey for the project. He provided further information on significance of the study area on the 8 January 2016.

Predictive Model

The following is predicted:

- Low density and complexity artefact assemblages may occur within the subsurface context on the ridge and ridge slopes
- PADs are most likely to be recorded on spur slopes
- Isolated finds would most likely be found on the slopes throughout the study area
- Stone artefacts are most likely to be flakes manufactured from silcrete and volcanic material but may include; cores (including bipolar), broken flakes, flaked pieces, hammerstones, blades and broken blades; produced from quartz, chert, quartzite, sandstone or porphyry
- Middens could be found in close proximity of the Clyde River on slopes and flats
- Burial sites could occur in the foreshore of the Clyde River
- Previous disturbance and development in the study area is most likely to have disturbed the top layers of the natural ground surface and resulted in erosion but deposits below this disturbance/erosion are likely to contain sites retaining some archaeological integrity.

Summary of Results

- Ground surface visibility was relatively low throughout the project except for within the riverbank landform
- The level of exposure throughout the study area was low except within the riverbank landform
- Roads and Maritime Nelligen PAD1 was identified within the ridge slope landform on the eastern side of the Clyde River to the east of the Kings Highway. The PAD is about 10 by 20 metres in area
- Two trees identified by the Aboriginal stakeholder as having the potential to be burial markers were identified north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area
- No sites were identified through the survey

- Aboriginal resources were found throughout the study area
- No fauna was observed throughout the survey
- No suitable raw material sources were identified during the survey.

Summary of Significance

The Aboriginal significance of Roads and Maritime Nelligen PAD1 has been assessed by the key stakeholder as moderate.

The archaeological significance of Roads and Maritime Nelligen PAD1 has been assessed as moderate on a local level and low on a regional level. Overall, Roads and Maritime Nelligen PAD1 is assessed as having low to moderate archaeological significance.

Management and Mitigation measures

There are a range of management strategies which are available in relation to the study area and include varying levels of mitigation of identified or potential harm. The selection of management strategies is guided by the Aboriginal significance/sensitivity and archaeological significance of the study area. These management strategies have been developed from an archaeological perspective.

Strategy 1 Conservation of PAD and Possible Burial Marker Trees

This management strategy would involve the conservation of Roads and Maritime Nelligen PAD1.

The project would not be able to proceed with PAD conservation. The PAD has been identified as being of low to moderate archaeological significance and consequently, it is not archaeologically valid to propose a full conservation outcome for the PAD within the study area.

This management strategy would also involve the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres¹.

The project would be able to proceed with the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres.

¹ Located north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area.

Strategy 2 Testing of PAD and Conservation of Possible Burial Marker Trees

Strategy 2 would involve carrying out testing to clarify the nature, extent and significance of the PAD identified within the study area. Depending on the results further management strategies and/or procedures may need to be outlined for the project to proceed, or, the project may be able to proceed without the need for any further investigation.

This management strategy would also involve the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres².

The project would be able to proceed with the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres.

This is the preferred strategy as it recognises the significance of the PAD to the BBLALC and allows for the Roads and Maritime to proceed with the project in an informed manner.

Strategy 3 Impact PAD Without Further Investigation and Conservation of Possible Burial Marker Trees

Strategy 3 would involve Roads and Maritime proceeding with the project without conducting further investigation within the PAD.

This strategy is not considered to be appropriate due to:

- The moderate Aboriginal culturally significance attributed to the PAD
- The low to moderate archaeological significance attributed to the PAD

This management strategy would also involve the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres³.

The project would be able to proceed with the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres.

² Located north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area.

³ Located north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area.

Recommendations

The management recommendations outlined below have been prepared with regard to:

- Respect and consideration of the views of the key Aboriginal stakeholder
- The archaeological context of the Nelligen region
- **The findings of the survey**
- The moderate cultural significance assessment of the PAD by the Aboriginal stakeholder
- The overall low to moderate archaeological assessment of the PAD
- The overall research potential of the PAD
- Two trees identified by the Aboriginal stakeholder as having the potential to be burial markers
- Current cultural heritage legislation
- Providing clear guidance about appropriate management and protection of cultural heritage values.

The following is recommended:

- Roads and Maritime conduct test excavations of Roads and Maritime Nelligen PAD1
- The test excavations be conducted in line with the test excavation methodology presented in the Test Excavation methodology and supporting information for the Nelligen Bridge Replacement, Nelligen, NSW which was prepared in compliance with the requirements of the Department of Environment, Climate Change and Water (DECCW) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b).
- Roads and Maritime ensure the two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres is protected during construction work to ensure they are not adversely impacted.

Table of Contents

Executive Summary	i
1.0 Introduction	1
1.1 Background	1
1.2 Description of Proposed Development	3
1.3 Project Team	4
2.0 Aboriginal Consultation	5
2.1 National Native Title Register Search	5
2.2 Register of Aboriginal Owners Search	5
2.3 Batemans Bay Local Aboriginal Land Council	5
3.0 Aboriginal Cultural, Ethnographic and Archaeological Context	6
3.1 Ethnography	6
3.1.1 Population	6
3.1.2 Gathering and Hunting	7
3.1.3 Corroboree, Ceremonial, Gatherings and Trade	7
3.1.4 Burials	8
3.1.5 Summary	8
3.2 Site Register Search	8
3.3 Previous Archaeological Research	11
3.4 Summary	18
4.0 Environmental Context	19
4.1 Geology and Soils	19
4.2 Hydrology and Topography	19
4.3 Previous Land Use	20
4.4 Flora and Fauna	21
4.5 Aboriginal Resources	22
4.5.1 Flora	22
4.5.2 Fauna	31
4.6 Implications for the study area	34
5.0 Predictive Model	35
6.0 Sampling Strategy	36
7.0 Methodology	37
8.0 Survey Results	38
8.1 Transect 1	42
8.2 Transect 2	42
8.3 Transect 3	43

8.4	Transect 4	44
8.5	Transect 5	44
8.6	Transect 6	45
8.7	Transect 7	45
8.8	Transect 8	46
8.9	Transect 9	46
8.10	Transect 10	47
8.11	Transect 11	47
8.12	Transect 12	48
8.13	Transect 13	49
8.14	Effective Coverage	49
8.15	Summary of Results	52
9.0	Significance Assessment	54
9.1	Aboriginal Significance/Sensitivity	54
9.2	Archaeological or Scientific Significance	55
9.3	Ranking of Criteria for Evaluating Archaeological Significance	55
9.3.1	Rarity	59
9.3.2	Representativeness	60
9.3.3	Integrity	60
9.3.4	Connectedness	60
9.3.5	Complexity	61
9.3.6	Potential for Archaeological Deposits	61
9.4	Summary of Archaeological Site Significance	61
9.5	Summary of Significance	62
9.6	Archaeological Research Potential	62
10.0	Impact Assessment	63
10.1	Roads and Maritime Nelligen PAD1	63
10.2	Unknown impact	63
11.0	Management and Mitigation measures	64
11.1	Strategy 1 Conservation of PAD and Possible Burial Marker Trees	64
11.2	Strategy 2 Testing of PAD and Conservation of Possible Burial Marker Trees	64
11.3	Strategy 3 Impact PAD Without Further Investigation and Conservation of Possible Burial Marker Trees	65
12.0	Recommendations	66
13.0	References	67

Figures

Figure 1.1	Locality Plan	2
Figure 3.1	Aboriginal Sites/Places Listed on the AHIMS Site Database within 5km of the study area	10
Figure 8.1	Survey Coverage and Results	39
Figure 8.2	Roads and Maritime Nelligen PAD1	53

Tables

Table 3.1	Aboriginal Sites/Places Listed on the AHIMS Site Database within 5km of the study area	9
Table 3.2	Previous archaeological research conducted for the Nelligen region	12
Table 4.1	Aboriginal Resource Plants Most Likely to have occurred within the study area	23
Table 4.2	Aboriginal Faunal Resources Most Likely to Have Occurred within the study area	32
Table 8.1	Summary of Survey Transect Results	40
Table 8.2	Survey Coverage	50
Table 8.3	Landform Summary – sampled areas	51
Table 9.1	Criteria Used in Evaluating Archaeological Significance	56
Table 9.2	Archaeological Significance Assessment Roads and Maritime Nelligen PAD1	62

Appendices

Appendix 1	National Native Title Register Search
Appendix 2	AHIMS Database Search

1.0 Introduction

The Kings Highway crossing of the Clyde River, Nelligen Bridge, is located on the South Coast of New South Wales, about eight kilometres north-west of Batemans Bay. During routine inspections, Roads and Maritime Services identified deterioration of the supporting concrete pillars under Nelligen Bridge. The strength of the bridge has been assessed and is still able to safely carry normal traffic loads. However, the pillars will weaken over time and the bridge will require significant repairs or replacement.

A range of early investigations and consultation about options to repair or replace the bridge have been completed. The outcome of this work is a new bridge should be built to the north of the existing bridge (the Nelligen Bridge Replacement Project) (refer to **Figure 1.1** for the Locality Plan). The approaches to the bridge would also be realigned. After the new bridge is built the existing bridge would be demolished.

Umwelt Australia Pty Limited (Umwelt) has been engaged by Roads and Maritime as part of the *Roads and Maritime Services procedure for Aboriginal Cultural Heritage Consultation and Investigation* (Roads and Maritime 2011 - PACHCI) Stage 2 process, which includes this Aboriginal archaeological survey report. This report is required to inform the concept design and environmental assessment (EA) for the Nelligen Bridge Replacement Project.

1.1 Background

The Nelligen Bridge Preliminary Environmental Investigation (PEI) (URS Australia Pty Ltd) was completed for the project in September 2014. In relation to Aboriginal heritage the PEI identified seven Aboriginal sites had been previously recorded and registered with the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) within one kilometre of the study area. None of these sites are located within the current study area.

However, even though there are no recorded sites within the study area, its location on the banks of an important and significant river which is of known Aboriginal heritage value is recognised. It was acknowledged the proposed impact may involve construction on previously undisturbed land and/or the removal of remnant vegetation, including mature stand/s of trees. Therefore it was accepted there was potential to impact on undiscovered Aboriginal values within the study area.

Aboriginal heritage was assessed in terms of the following options:

- Do nothing
- Maintenance of the existing bridge
- Development to the north of the existing bridge
- Development to the south of the existing bridge

It was recommended an Aboriginal Heritage Assessment be undertaken in accordance the Roads and Maritime' Procedure for Aboriginal Cultural Heritage Consultation and Investigation 2010 (PACHCI) for any of the proposed options except for the do nothing option.

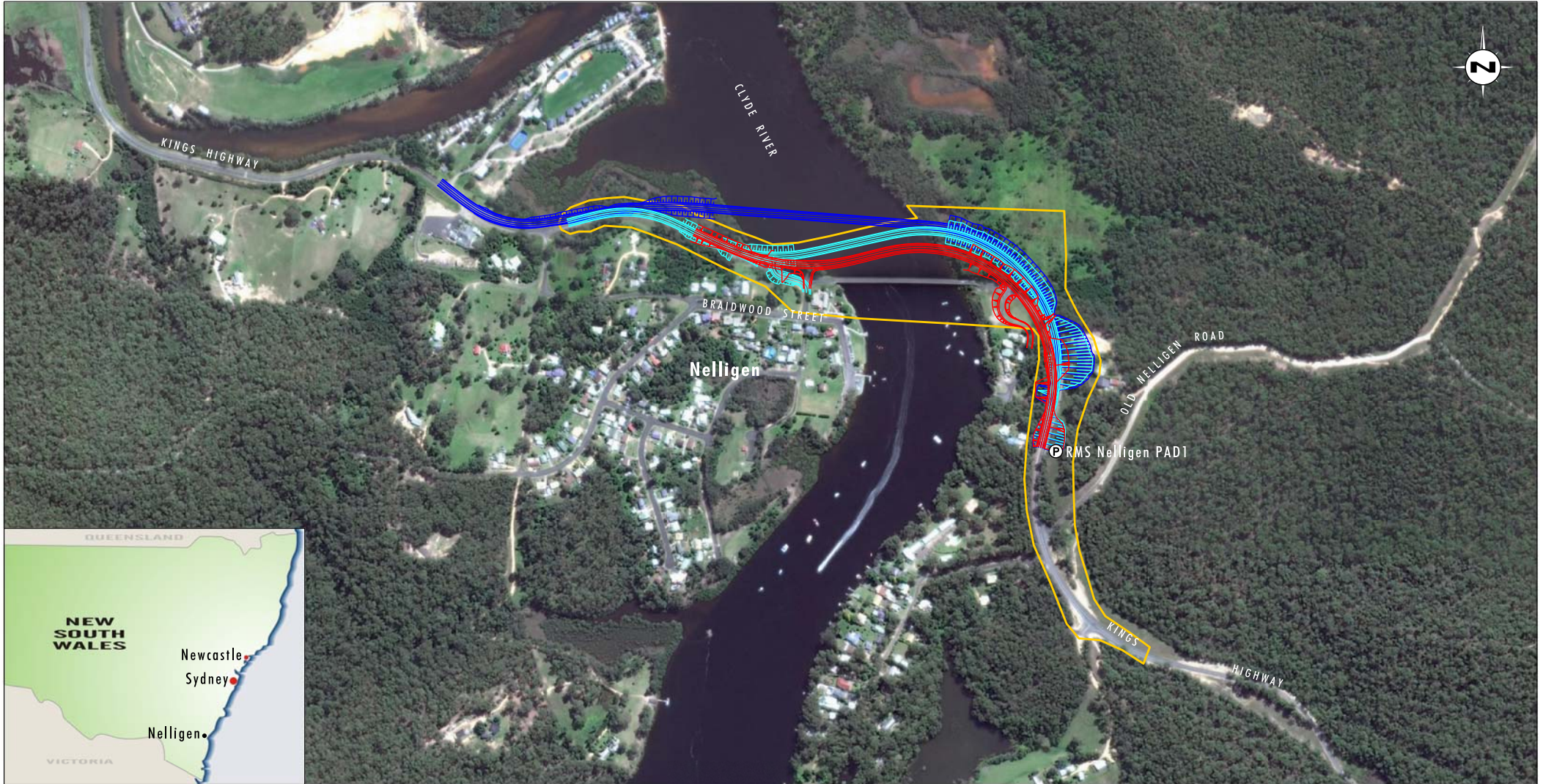
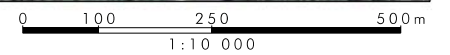


Image Source: Google Earth, DigitalGlobe (2015)
 Data Source: NSW Roads and Maritime (2015)



Legend

- Nelligen Bridge - Aboriginal Cultural Heritage Study Area
- Option 1
- Option 2 (preferred option)
- Option 3
- P PAD Location

FIGURE 1.1
Locality Plan

1.2 Description of Proposed Development

Roads and Maritime proposes to construct:

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The extent of the required investigation area is from 900 metres east of the existing bridge to 950 metres west of the existing bridge as measured along the Kings Highway.

The work would involve:

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- Temporary compound sites
- Temporary sediment basins
- Operational water quality treatments
- Relocation of utilities
- Clearing of vegetation
- Landscaping/revegetation on completion of the road work.

The exact location of temporary stockpile, compound sites and sediment basins is not known at this stage however potential locations have been identified within the study area and have been inspected accordingly.

1.3 Project Team

All Aboriginal consultation for the project was undertaken by Jeffery Nelson (Roads and Maritime Aboriginal Cultural Heritage Adviser, Wollongong), Tim Webster (Roads and Maritime Project Development Manager) and Kym McNamara (Senior Archaeologist, Umwelt). All Aboriginal cultural information detailed in this report has been provided by a representative of the key Aboriginal stakeholder. A summary of Aboriginal consultation is provided in **Section 2.0**.

The study area inspection was conducted by Les Simon from Batemans Bay Local Aboriginal Land Council (BBLALC), Kym McNamara (Umwelt), Timothy Webster (Roads and Maritime), Supriya Mehta (Engineering Undergraduate Cadet, Roads and Maritime) and Jeffery Nelson (Roads and Maritime).

Kym McNamara produced this report with the help of Kirwan Williams (Archaeologist) and Amanda Mulherin (Graduate Environmental Scientist). Jan Wilson (Manager, Cultural Heritage) provided strategic direction and quality review of this report.

2.0 Aboriginal Consultation

Consultation with Aboriginal stakeholders is an integral part of identifying and assessing the significance of Aboriginal objects and/or places, and determining and carrying out appropriate strategies to mitigate the impact upon Aboriginal heritage.

Jeffery Nelson (Roads and Maritime), Tim Webster (Roads and Maritime) and Kym McNamara (Umwelt) undertook the following Aboriginal consultation as part of the project.

2.1 National Native Title Register Search

A search of the NNTTs National Native Title Register to identify any registered native title claimants or native title holders for the study area was conducted on 26 August 2015. The geographic parameters for the search was set to the Eurobodalla LGA (refer to **Appendix 1**). The search returned no relevant entries in the following databases:

- Schedule of Applications (unregistered claimant applications)
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- Register of Indigenous Land Use Agreements

2.2 Register of Aboriginal Owners Search

A search of the Register of Aboriginal Owners was conducted on 17 November 2015 by Tim Webster (Roads and Maritime). The results returned on 3 December 2015 outlined the study area did not appear to have Registered Aboriginal Owners pursuant to Division 3 of the *Aboriginal Land Rights ACT 1983* (NSW).

2.3 Batemans Bay Local Aboriginal Land Council

The study area lies within the boundaries of the BBLALC area. BBLALC was identified as the sole key Aboriginal stakeholder for the project as part of the PACHCI Stage 2 process. Initial contact was made by Tim Webster on 24 September 2015 to organise availability for the field survey. Les Simon from BBLALC participated in the field survey for the project. He provided further information on significance of the study area on the 8 January 2016.

3.0 Aboriginal Cultural, Ethnographic and Archaeological Context

This section of the report provides an Aboriginal cultural, ethnographic and archaeological context for the study area. This is then used to formulate the survey methodology and predictive model for site location, site type and site preservation within the study area (refer to **Sections 5.0** and **7.0**).

3.1 Ethnography

Early historic documents relating to Aboriginal people are referred to as ethnohistoric records. Ethnohistoric records from the South Coast area surrounding Nelligen document various elements of Aboriginal society including population, ceremonial and cultural practices, gatherings, material uses and food sources. The study area lies within the tribal country of the Yuin (Djuin) people which was further divided into thirteen sub-tribal groupings. This country extended from the Shoalhaven River in the north, to the Victorian Border in the south and in the west to the eastern edge of the tablelands. The thirteen Yuin sub-tribal groupings are based on the existence of a mythological ancestor “Bundoola” who is said to have had thirteen wives, each representing a different tribal group (Donaldson 2006:7). According to Tindale (1974) the study area lies with the subtribal boundary of the Walbanga people. The Walbanga is a coastal tribe located between the Wandandian and Thaua tribes.

According to oral tradition among South Coast Aboriginal people there were four Yuin tribes. The geographic divisions correspond with the four language groups within the Yuin language family (Eades 1976:1976 1:17). Howitt suggests at contact in the South Coast region the Yuin were divided into two major social divisions, the Kurial-Yuin (North Yuin) and Guyangal-Yuin (South Yuin). There is also a further suggestion there was an inland/coastal division to distinguish tableland and alpine groups from the coast and coastal hinterland (Howitt 1904:82:3).

Within the Yuin area there are two prominent sacred mountains Didthul (Pigeon House Mountain) and Gulaga (Mt. Dromedary) and two rivers Bhundoo (Clyde) and Wadbilliga (Howitt 1904:82:3).

3.1.1 Population

Boot (2002:119) suggests the Yuin people (before European contact) lived a gatherer-hunter lifestyle in semi-permanent camps throughout the now Eurobodalla Local Government Area (LGA). Boot describes the Yuin as a related group of intermarrying clans.

Yuin Culture, as recorded during the eighteenth and nineteenth centuries, was cohesive regardless of hinterland or coastal context. This is evidenced by not only a common subsistence economy throughout the area but also by region wide social, political and religious systems. This is a result of access to an environment characterised by high levels of biodiversity and abundant resources. The high levels of biodiversity and abundant resources allowed frequent large gatherings of people (Boot 2002: 108).

Although the South Coast region was much affected by the introduction of disease after colonisation, with a 95 per cent suggested mortality rate, a healthy population of as many as 25,000 (or a population density of 1.6 persons/sq kilometre) has been indicated from early 19th century census returns. This population is thought to have been evenly distributed across both coastal and hinterland areas (Boot 2002:1).

It has also been possible due to the 19th century census, to reconstruct the size of groups of people observed in both coastal and hinterland communities with the average size of groups being 27 people.

There are, however considerable differences between the size of men's groups with figures given as 18 on the coast and four in the hinterland. Boot asserts fishing with spears on the coast would have greater return with numerous individuals whereas the act of hunting in the hinterland environment would have been more successful in smaller groups (Boot 2002: 112)

Large groups of people were observed congregating for ceremonial purposes in the hinterland during spring when starch foods provided by plants such as *Macrozamia* sp. were abundant (Boot 2002: 113)

3.1.2 Gathering and Hunting

Ethnographic records reference a wide range of material culture items utilised among the Yuin people. Those most frequently recorded were common in both coastal and hinterland contexts such as bark canoes, single barbed fishing spears, waddies, spear throwers, digging sticks and boomerangs. Among lithic materials the most commonly recorded items included hafted edge-ground hatchet heads. Other commonly recorded items included fish traps, bark shelters/huts, shields, clubs, clap sticks, possum skin rugs and cloaks, possum-fur belts, netted bags, plant fibre string and fibre baskets, body paint, grass tree resin cement and bone or teeth adornments (Boot 2002: 116)

Ethnohistoric literature suggests for the Yuin people fish and possums were particularly important food resources on the coast and these were available all year. Major hinterland resources were marsupials, plants and fish which were also available all year. While these may not have been staples, their availability guaranteed the possibility of occupation of both coastal and hinterland environments all year round. Ethnographic sources suggest seasonally exploited resources would have included marine mammals with observations of feasts occurring when the occasional whale was stranded (Boot 2002: 120)

Plant foods were rarely recorded by European observers, Yuin women (and sometimes men) would use digging sticks (sharpened) to dig for yams, roots and to catch smaller game. Europeans did observe the processing of the seed of *Macrozamia* sp. (particularly in the hinterland) from which large quantities of paste were carried wrapped in fronds of the cabbage tree palm (*Livistona* sp.) (Boot 2002: 123).

3.1.3 Corroboree, Ceremonial, Gatherings and Trade

The main Yuin ceremonial and religious events were a range of initiation ceremonies known collectively as Kuringal. Other gatherings included ritual combat and exchange. These have been recorded as being held in a number of different locations throughout the region. Depictions of events recorded near Nelligen and Ulladulla in 1875 portrayed a line of male and female dancers directed by two individuals. The ceremonial areas for Kuringal ceremonies sometimes contained raised earth rings while other ceremonies were conducted without them. The Kuringal ceremonies would promote strong tribal affiliations. Links between Yuin people would be further strengthened during the bartering exchanges of goods such as fish hooks, fishing spears, bark canoes and increase rites which occurred after ceremonies (Howitt 1904: 513, 518-519).

Evidence suggests the South Coast, hinterland, and nearby tablelands and alpine regions shared a social organisation where descent was patrilineal and marriage was exogamous, that is marriages within the moiety were not allowed. Other social practises include polygamous marriage by exchange of sisters, strict avoidance of mothers-in-law, local group leadership by senior men and use of ritual fights to resolve disputes and punish wrong-doers (Howitt 1904: 83, 133, 261-266, 314; Peterson 1976: 52-53; Berndt and Berndt 1974: 44).

3.1.4 Burials

There is limited information about burial customs and burial locations of the Yuin people. In addition to traditional burial places, a reserve cemetery and a burial/massacre site south-west of Kings Chair has been recorded (Boot 2002: 125). Burial practices are shared throughout the South Coast region and include burial in sheets of bark at the location of the birth place of the deceased. Most recorded burial sites occur in sand dunes or on foreshores. Burials have been marked with mounds, earth rings, fences or carved trees. The body was usually buried with the face pointing east and may have been accompanied by fishing tools, animal bones, shell ochre, spears and throwing sticks (Boot 2002:341)

3.1.5 Summary

The ethnographic information suggests the Yuin:

- Led a semi-nomadic, gatherer, hunter lifestyle
- Lived in semi-permanent camps
- Had similar cultural beliefs, shared political and social structure, and common economic strategies in both coastal and hinterland communities
- Utilised huts, canoes, fish traps, single barbed fishing spears, shields, clubs, spear throwers, clap sticks, boomerangs, hatchets, body paint, possum skin cloaks, possum fur belts, grass tree resin cement, netted bags, plant fibre string and fibre baskets in both coastal and hinterland communities
- Were able to inhabit coastal and hinterland areas all year round due to high level biodiversity and abundant resources
- Lived in average sized groups near the coast and in the hinterland however hunting parties were different sizes depending on environment
- Ceremony, corroboree and trade were an important part of traditional life
- Traded and bartered for objects such as fish hooks, fishing spears, bark canoes, utensils and weapons
- There is evidence of Aboriginal people being wrapped in bark and buried in dunes or on foreshores usually facing east and in the area where they were born
- Burials have been marked with mounds, earth rings, fences or carved trees

3.2 Site Register Search

A search was conducted of the OEH Aboriginal Heritage Information Management System (AHIMS) database on 21 August 2015 for any sites that had been previously recorded within the study area or within five km of the study area. The AHIMS database listed a total of 48 sites within five km of the study area but none within the study area itself. **Table 3.1** summarises the site types listed on the AHIMS Database. The full database search has been included as **Appendix 2**. The distribution of previously recorded sites is shown in **Figure 3.1**.

Table 3.1 Aboriginal Sites/Places Listed on the AHIMS Site Database within 5km of the study area

Site Type	No.
Artefact scatter	34
Isolated find	5
Potential archaeological deposit (PAD)	5
Midden/artefact scatter	3
Midden	1
Total	48

Distribution of the sites across the landscape has been biased by the lack of archaeological survey and assessment across large portions of the AHIMS search area. It could also be a reflection of the fact works were conducted before it was legally required that Aboriginal cultural and archaeological assessment be undertaken. Therefore, while the presence of sites indicates Aboriginal use of an area, it does not follow that the lack of sites means Aboriginal people did not use an area.

Those sites that are listed on the register within five km of the study area have been identified as a result of surveys conducted for: housing subdivisions; proposed quarries; new transmission lines; academic research; and as a component of a Eurobodalla based heritage study (refer to **Section 3.3**).

The most common site type is artefact scatters. They are all low density artefact scatters with less than 56 artefacts and are most commonly found on ridge crests and ridge slopes.

The five PADs recorded on AHIMS Site Database were all recorded on spur slopes and have been subject to subsurface testing since the initial recording:

- One PAD was determined not to be a site (#58-4-1073)
- one PAD (#58-4-1069) was determined to be a part of a pre-recorded site (#58-4-0955)
- PAD (#58-4-1070) was determined to be an artefact scatter and was re-registered as (#58-4-1109)
- PAD (#58-4-1071) was determined to be an isolated find and was re-registered as (#58-4-1110)
- PAD (#58-4-1072) was determined to be an isolated find and was re-registered as (#58-4-1111)

The five isolated finds were all recorded on slopes and include the two sites that were previously recorded as PAD.

The three midden/artefact scatter sites include only three artefacts each and shell species such as *Anadara* (saltwater bivalves) and *Saccostrea cucullata* (natural rock oyster). These sites were recorded on slopes and a creek flat. There is also one midden site recorded about two km south-east of the current study area.

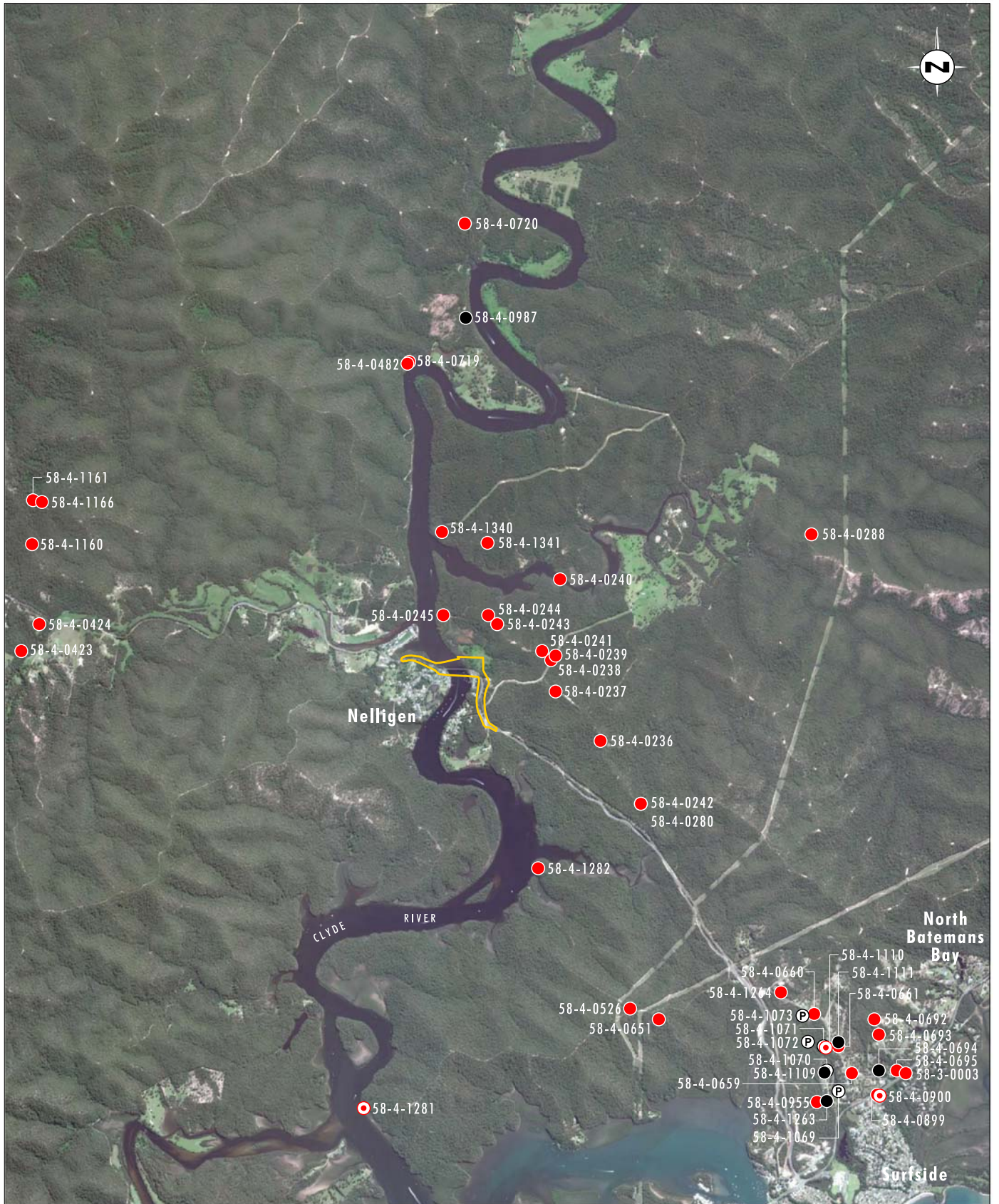


Image Source: Google Earth, DigitalGlobe (2015)
 Data Source: OEH (2015)

0 1.0 2.0 3.0 km
 1:60 000

Legend

- Nelligen Bridge - Aboriginal Cultural Heritage Study Area
- Artefact Scatter
- Isolated Find
- Midden
- Potential Archaeological Deposit

FIGURE 3.1

Aboriginal Sites/Places Listed on the AHIMS Site Database within 5km of the Study Area

3.3 Previous Archaeological Research

As stated in **Section 3.2** the majority of the archaeological survey and assessments conducted within the Nelligen Region have been for housing subdivisions, proposed quarries, new transmission lines, academic research and as a component of a Eurobodalla based heritage study.

Previous archaeological research conducted for the Nelligen region is summarised in **Table 3.2**. Please note not all reports are available through OEH so relevant information has been summarised from other reports and available site cards. It should also be noted relevant information is not always recorded.

Table 3.2 Previous archaeological research conducted for the Nelligen region

Year	Author	Study Area	Site/PAD	Landform	Artefact Type	Raw Material	Distance and Direction From Current Study Area	Distance to water (metres)
Unknown	Nicholson	Unknown	One artefact scatter	Ridge Crest	26 artefacts	Unknown	4.2 km south-east	500
Unknown	Arncliffe	Unknown	One artefact scatter	Silt bank on edge of Clyde River	8 artefacts- Flakes, broken flakes, flaked pieces	Quartz, silcrete, fine-grained volcanic	3.5 km north	5
Unknown	McKeown	Unknown	Two Artefact scatters	Ridge top	21 artefacts- Flakes and cores	Silcrete, fine-grained volcanic	2.6 to 4.3 km east	500 - 1000
Unknown	D. Wood	Unknown	One artefact scatter and midden	Creek flat	3 artefacts- 1 core and two silcrete flaked pieces	Silcrete, fine-grained volcanic and shell of Anadara and Saccostrea sp.	6.6 km south-east	50
Unknown	V. Wood	Unknown	One artefact scatter	Hill slope	56 artefacts, 45 chips, 6 flaked pieces, 4 cores and 1 flake	Quartz, fine-grained volcanic and silcrete	6.6 km south-east	50

Year	Author	Study Area	Site/PAD	Landform	Artefact Type	Raw Material	Distance and Direction From Current Study Area	Distance to water (metres)
Unknown	Hall	Unknown	One artefact scatter	Ridge Top	5 artefacts- 3 flaked pieces and 2 cores	Quartz, fine-grained volcanic and silcrete	6.7 km south-east	50 - 100
Unknown	State Forests of NSW	Unknown	Three artefact scatters	Ridge crest	Flakes	Unknown	4.9 km north-west	1000 - 1200
1988	Hackwell	Archaeological survey of a housing subdivision at Nelligen, South Coast, NSW	Two artefact scatters	Ridge	Unknown	Silcrete, fine-grained volcanic	About 4.6 km west	100 -200
1989	Kuskie	Archaeological investigations of the Nelligen Run, Potato Point & Dwyer's Creek Quarries on the South Coast of NSW	10 artefact scatters	Upper ridge slope, ridge crest, creek terrace, saddle, basal slope, simple slope,	33 artefacts- Flakes, broken flakes, flaked pieces, cores and blades	Quartz, silcrete, fine-grained volcanic, porphyry	About 600 metres north to 2.5 km south-east	0 - 220

Year	Author	Study Area	Site/PAD	Landform	Artefact Type	Raw Material	Distance and Direction From Current Study Area	Distance to water (metres)
1992	Paton	An Archaeological investigation of the proposed Ulladulla to Moruya 132Kv Transmission Line	One artefact scatter	Northern slope of ridge	4 artefacts- 3 flakes and 1 core	Quartz and silcrete	4.5 km south-east	300 - 350
1992	Williams	Report on the archaeological survey of a proposed subdivision of Lots 22, 23, 24, DP1068, Clyde Road, Batemans Bay.	Four artefact scatters	Ridge Top	22 artefacts and some shell	Unknown	5.9 km south-east	100 - 150
1995	Kuskie	An Archaeological Assessment of Lot 8 DP 837396 at North Batemans Bay, South Coast NSW	Three artefact scatters, one isolated find	Ridge crest, ridge, basal slope simple slope	19 artefacts- Flakes, broken flakes, flaked pieces, cores and a hammerstone	Quartz, silcrete, fine-grained volcanic, porphyry	6.7 km south-east	15 - 300

Year	Author	Study Area	Site/PAD	Landform	Artefact Type	Raw Material	Distance and Direction From Current Study Area	Distance to water (metres)
2002	Saunders	Lot 1 DP 1015889 and Lot 2 DP 865527, Kings Highway, North Batemans Bay, NSW. Archaeological Survey.	One artefact scatter, one artefact scatter and midden, three isolated finds	Basal slope, basal spur slope, mid spur slope	36 artefacts- Flakes, flaked pieces, cores and blades	Quartz, fine-grained volcanic, silcrete and chert	About 6.5 km south-east	50 - 120
2002	Boot	Didthul, Bhundoo, Gulaga and Wadbilliga: An Archaeological Study of the Aboriginals of the New South Wales South Coast Hinterland.	Two artefact scatters and one isolated find	Slope, low terrace and saddle on north-west/south-east ridge	10 artefacts- Flaked pieces, core, flakes, broken flakes, clay hearths	Porphyry, rhyolite, silcrete	About 3.4 to 5 km north	20 -250

Year	Author	Study Area	Site/PAD	Landform	Artefact Type	Raw Material	Distance and Direction From Current Study Area	Distance to water (metres)
2004	Saunders/McGregor	Lot 10 DP1015889 & Lot 2 DP865527, Kings Highway, North Batemans Bay: Archaeological Investigation of Six PAD's	Five PAD	lower spur slope, basal spur slope, mid spur slope	8 artefacts including flakes and a hammerstone	Quartz, fine-grained volcanic and silcrete	About 6.6 to 5.2 km south-east	50 - 120
2009	Carriage	Clyde River National PARK: Aboriginal Sites Inspection	One Midden and one midden and artefact scatter	Unknown	Unknown	Unknown	4.9 to 2.4 km to the south	Unknown (near the Clyde River – uncertain distance to fresh water)

Year	Author	Study Area	Site/PAD	Landform	Artefact Type	Raw Material	Distance and Direction From Current Study Area	Distance to water (metres)
2014	Dibden	Lot 6 DP 263081 Windywoppa Road, Benandarah, via Batemans Bay NSW. Aboriginal Cultural Heritage Assessment Report	Two artefact scatters	Spur crest	38 artefacts- Cores, flakes and broken flakes	Silcrete, quartzite, sandstone, chert, quartz and fine-grained volcanic	1.5 km to the north	Unknown (near the Clyde River – uncertain distance to fresh water)

3.4 Summary

A summary is provided below of the archaeological context for the study area.

- The majority of the sites recorded locally are low density artefact scatters
- Isolated finds and PADs are the next most common site type recorded within five km of the study area
- Middens with low density artefact scatters and a midden have also been recorded within five km of the study area
- Sites are more commonly recorded in association with ridges, ridge crests and ridge slopes
- Sites are also recorded on creek flats, creek terraces, spurs, saddles and slopes
- The most common artefact type is flake; but broken flakes, flaked pieces, chips⁴, hammerstones, cores (including blade, bipolar and fragments), flaked pieces, manuports and a broken blade have been recorded
- Raw materials recorded include quartz, silcrete, chert, volcanic, quartzite, fine grained volcanic, acid volcanic, porphyry, rhyolite and sandstone
- There is not a single dominant raw material however quartz, volcanic and silcrete are most commonly used.

⁴ Although this term is not commonly or widely used today it has been used commonly during site recordings in this area.

4.0 Environmental Context

The decisions people make regarding where they live, the range of resources they use and other aspects of daily life may all be influenced by the environment in which they live. The likelihood of sites being preserved and visible is also affected by environmental factors such as vegetation, past land use and disturbance. A review of the environmental context of the study area is therefore integral to developing a model with which to predict the likelihood of Aboriginal archaeological sites being present and preserved within the study area.

4.1 Geology and Soils

The Eurobodalla Shire occurs primarily within two sub-regions (Bateman and South East Corner Coastal Ranges) as identified in the *“Interim Biogeographic Regionalisation for Australia (IBRA) (version 7)”*. Both of these sub-regions contain Palaeozoic (Ordovician and Silurian) metamorphic rocks with intrusions of granite and acid volcanics, particularly in the South East Corner Coastal Ranges. The western margin of Bateman and surrounding areas of South East Corner Coastal Ranges is folded Devonian sandstone, siltstone, and shales with limited areas of Tertiary basalt and quartz sands. The main valley floors and estuaries contain Quaternary alluvium in Bateman and Quaternary coastal sediments with small areas of alluvium in South East Corner Coastal Ranges (Morgan, 2001) (NPWS 2003).

Soils of the South East Corner Coastal Ranges include acid brown earths and acid red duplex soils, while the soils of Bateman are brown friable earths. The soils are mostly texture contrast soils, which are coarser in the South East Corner Coastal Ranges. Subsoils are red and yellow clays with thin topsoil on metamorphic rocks and coarser deeper grained profiles on granite. In Bateman, red brown structured loams occur on basalt. In South East Corner Coastal Ranges, deep coarse sands occur in granite derived alluvium in the flats with peaty sands in lagoons and swamps. In both subregions, deep siliceous sands occur in Tertiary sands and coastal dunes (Morgan, 2001) (NPWS 2003).

4.2 Hydrology and Topography

The South East Corner Bioregion (which contains both Bateman and South East Corner Coastal Ranges subregions) covers the eastern fall of the Great Dividing Ranges to the coast, with the north-south Great Escarpment forming the most prominent feature of it. The topography runs from the plateau above the escarpment across steep hills and gorges towards the coast, where undulating low hills dominate. Differing rates of erosion affect the local topography, forming basins in some areas and outcrops and rounded tors in others. The altitude reaches 750 metres above sea level in South East Corner Coastal Ranges, and is generally less than 250 metres above sea level in Bateman (Morgan, 2001) (NPWS 2003).

Most streams have their headwaters at the escarpment, with the resulting erosion heavily influencing the topography of the coastal side ranges. Some streams have their headwaters on the plateau, running parallel to the coast until they reach a gorge where they cross the escarpment. More detailed patterns of stream direction relate to smaller joints and faults in the bedrock. Both dendritic and rectangular drainage patterns are present. The streams are generally short and active. Streams in the deep gorges often contain rapids and waterfalls carrying large volumes of sand to the valley floors and estuaries (Morgan, 2001) (NPWS 2003).

The study area spans the Clyde River at Nelligen and includes part of the river channel, floodplain and the terraces of the Clyde River, as well as part of the adjoining hills, ridges and moderate slopes of the Clyde Valley and Budawang Range (NSW Government 2002). The portion of the study area located in the Clyde River could have been subject to one in 100 year flood events however it is possible the landform could retain evidence of Aboriginal occupation that has been buried by flood events and not been destroyed by flood events or river channel migration

The Clyde River is estuarine at Nelligen and would have provided abundant resources for Aboriginal people camping in the area. There is a minor creek to the east of the Clyde River and north of the Kings Highway which would have supplied freshwater for Aboriginal people.

It is noted elevated alluvial deposits/ridges and floodplains along major waterways have been recorded as favoured by Aboriginal people for burials because it was easier to dig in sand than clay (Hope and Littleton 1995a, 1995b).

4.3 Previous Land Use

The Eurobodalla Shire's main population and commercial centres occur at Batemans Bay, Moruya, and Narooma. The remainder of the Shire is predominantly National Parks, state forests, and community lands, with a little less than a quarter being private rural land (RMCG 2014).

European contact in the area occurred in the early 1800s, with permanent settlement becoming widespread by the 1830s and 1840s marking the advent of the cattle and sheep pastoral industry in the region. After a slow start, the pastoral industry was surpassed by the dairy industry, which continues in many areas, particularly around the Bega plains, to this day. In addition to this, pig farming and maize and sorghum production also form important agricultural industries in the area (NPWS 2003). In recent times, there has been an increase in private forestry, rural lifestyle landholders and horticultural uses in the area (RMCG 2014).

Around the same time as the start of pastoral activity, fishing industries were set up along the coast, and the 1830s also saw the development of a significant whaling industry in Twofold Bay near Eden, which continued until the 1920s (NPWS 2003).

Mining for gold, silver, and arsenic occurred in the wooded areas between Batemans Bay and Eden from 1852. This mining, particularly for gold, occurred up until very recently, and formed the basis for many of the towns in the region. Forestry occurred since the 1800s to support the development of the surrounding industries (NPWS 2003). Today forestry predominantly occurs on public land and is considered to be a primary land use in the Eurobodalla Shire (RMCG, 2014).

Nelligen was first charted in 1821 by Lieutenant Robert Johnston, with mapping continuing throughout the mid 1820s. In 1829 Robert Huddle laid out 640 acres of land at 'Nellican Creek' for an absentee landowner, and soon after other early settlers became attracted by the good timber and boat access to the area (Giovannelli 2011).

The need for access between the coast and Southern Tablelands for transporting goods was highlighted as early as 1835, however work did not begin on a road until 1853. At this time, a workman's camp was started at Nelligen, with the town formally being established in December of 1854. In 1856 The Clyde Mountain Road between Braidwood and Nelligen was opened (Giovannelli 2011).

Up until this point, timber felling was the primary production occurring at Nelligen, however with the opening of the Clyde Mountain Road, regular steamship services started and supplies to and from Braidwood and the surrounding areas were loaded at Nelligen for transport to Sydney and beyond. The population swelled. A ferry service across the Clyde was started in 1878 allowing a shorter route to Batemans Bay for travellers (Giovanelli 2011).

By the 1870s the goldfields began to wane, despite a small local rush in 1894, and Nelligen's trade and growth dropped and businesses started to close. After this, commerce changed and now centred on sawmilling, oystering, and wattlebark processing. Dairy farming in the region also began to increase, with the Clyde River Dairy Farmer Co-operative cheese factory built in 1905. By 1915 Nelligen's principal local production was timber, butter, cheese, maize, pigs, poultry, wattlebark, and gold. Steamship transport steadily began to wane as Bateman's Bay increasingly became the commercial hub of the region (Giovanelli 2011).

By 1954 the ferry was carrying some 7,500 vehicles per year across the Clyde at Nelligen. This number increased to over 30,000 by 1963, causing extensive queues at peak seasons and signalling the need for a bridge. The ensuing Nelligen Bridge was opened in December 1964 (Giovanelli 2011).

4.4 Flora and Fauna

The vegetation in the Eurobodalla Shire reflects the diversity in topography, rainfall, and temperature.

Coastal heathlands occur on shallow soils with high salt spray and frequent fire and are dominated by *Hakea* spp., *Melaleuca* spp., coastal rosemary (*Westringia fruticosa*), and dwarfed red bloodwood (*Corymbia gummifera*). Coastal dunes are similar to others along the NSW coast with an inland forest of various *Banksia* spp., bangalay (*E. botryoides*) and blackbutt (*E. pilularis*).

Mangrove estuarine forest occurs along the Clyde River in many locations. Mangrove estuarine forest is dominated by River Mangrove (*Aegiceras corniculatus*) and Grey Mangrove (*Avicennia marina*).

Further inland, vegetation is markedly altitudinal. Dwarfed red bloodwood and spotted gum (*Eucalyptus maculata*) forest occupy lower elevations, with yellow stringybark (*E. muellerana*), grey ironbark (*E. paniculata*), and woollybutt (*E. longifolia*) associations with brown barrel (*E. fastigata*), blue-leaved stringybark (*E. agglomerata*), messmate (*E. obliqua*) and monkey gum (*E. cypellocarpa*) occurring between 200 and 900 metres above sea level. Above this, narrow-leaved peppermint (*E. radiata*) and snow gum (*E. pauciflora*) dominate.

Latitudinal differences also occur with Sydney peppermint (*E. piperita*), large-fruited red mahogany (*E. pellita*), Sydney blue gum (*E. saligna*) and spotted gum being found in the northern part of the region. Blue box (*E. bauerana*), bangalay (*E. botryoides*), coastal grey box (*E. bosistoana*) and woollybutt are found further to the south. Granite areas commonly support forest red gum (*E. tereticornis*) and blue gum (*E. globulus*), while black ash (*E. sieberi*) can be found in almost all forest environments.

Further south, in the South East Corner Coastal Ranges, the vegetation of the steep slopes differs greatly, with white box (*E. albens*), black cypress pine (*Callitris endlicheri*), and scattered kurrajong (*Brachychiton populneum*) occurring. The tops of these slopes also support rare Acacia dry scrub communities dominated by *Acacia silvestris* and *Eriostemon trachyphyllus*. Estuaries support small areas of stunted mangrove (*Avicennia marina*) and salt marsh, with a fringe of swamp oak (*Casuarina glauca*).

Small patches of temperate rainforest with sassafras (*Doryphora sassafras*) and lilly pilly (*Acmena smithii*) occur along major streams and in sheltered locations. River oak (*Casuarina cunninghamiana*) is also present along most streams.

The area supports 15 endangered ecological communities, 11 threatened fauna species, and 98 threatened flora species. Key threats to these and all remaining native vegetation include loss and degradation of remnant vegetation, invasive plants and animals, loss and degradation of habitat, climate variability, and urban development (RMCG, 2014).

Given the diversity in vegetation and landforms, fauna in the Eurobodalla is also quite diverse. Of note, there are at least 16 frog species, 18 reptile species, 199 bird species, 24 mammal species, and 16 bat species (Crowley, 2005).

Within the study area, the vegetation consists of estuarine and wetland communities such as estuarine saltmarsh, floodplain swamp forest, estuarine fringe forest, estuarine mangrove forest, and seagrass meadows; forest communities such as southeast lowland grassy woodland, south coast river flat forest, and Batemans Bay cycad forest; and shrubland (Data provided by Roads and Maritime in Data Package 20140130).

This includes two *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) listed threatened ecological communities: 'Subtropical and Temperate Coastal Saltmarsh' (vulnerable) and 'Lowland Grassy Woodland in the South East Corner Bioregion' (critically endangered). Both of these communities are also listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act) as endangered (Data provided by Roads and Maritime in Data Package 20140130).

A number of migratory bird species have also been recorded within and near the study area. White-bellied sea-eagle (*Haliaeetus leucogaster*) was the only record within the study area, however eastern great egret (*Ardea modesta*), black-faced monarch (*Monarcha melanopsis*), and satin flycatcher (*Myiagra cyanoleuca*) have been recorded within five km of the study area (Data provided by Roads and Maritime in Data Package 20140130).

There is one record of koala (*Phascolarctos cinereus*) within the study area (EPBC and TSC vulnerable species) and six nearby records of greater glider (*Petauroides volans*) (TSC endangered population). There is no threatened flora within the study area, however there are three records of chef's cap correa (*Correa baeuerlenii*) (EPBC and TSC vulnerable species) nearby (Data provided by Roads and Maritime in Data Package 20140130).

4.5 Aboriginal Resources

4.5.1 Flora

Table 4.1 provides a list of plants that are likely to have occurred within the broader Eurobodalla region and would have been used for food, medicinal or technological purposes by Aboriginal people before European Settlement.

Table 4.1 Aboriginal Resource Plants Most Likely to have occurred within the study area

Common Name and Scientific Name	Purpose	Reference
Apple berries <i>Billardiera</i> spp.	Food: The ripe fruits were eaten raw; the unripe fruits were roasted then eaten.	Low 1991: 124 Isaacs 1987: 218
Australian blackthorn <i>Bursaria spinosa</i>	Food: Nectar is sucked out of flowers.	Isaacs 1987: 219
Australian bugle <i>Ajuga australis</i>	Medicinal: Bruised and soaked leaves used in some areas to bathe sores and boils.	Hiddins 2003: 14 Isaacs 1987: 231
Banksias <i>Banksia</i> spp.	Food: Nectar from the blossoms provided sugary food, and was sucked from the flower.	Low 1991: 141 Isaacs 1987: 218
Blackwood <i>Acacia melanoxylon</i>	Technology: Bark.	Boot 2002:118
Blady grass <i>Imperata cylindrica</i>	Medicinal: Sharp, unfolded leaves used to cause sneezing by tickling the nose. Technology: The leaves were used to thatch huts and weave dillies.	Low 1991: 114 Isaacs 1987: 237
Blushing bindweed <i>Convolvulus angustissimus</i>	Food: Roots eaten cooked and kneaded to make dough. Medicinal: Decoction used to treat diarrhoea, indigestion, and stomach pain.	Isaacs 1987: 220, 234
Bottlebrush <i>Callistemon</i> spp.	Food: Flowers sucked for nectar.	Isaacs 1987: 219
Bracken <i>Pteridium esculentum</i>	Food: The rhizomes were roasted and eaten, sometimes as a paste. Black skin peeled off and eaten with meat. Medicinal: The sap from the stems of young ferns was used to treat insect bites.	Low 1991: 115 Isaacs 1987: 228

Common Name and Scientific Name	Purpose	Reference
Bulbine lily <i>Bulbine bulbosa</i>	Food: The bland starchy tubers were harvested.	Low 1991: 103 Isaacs 1987: 219
Bulrush <i>Typha</i> spp.	Food: Rhizomes roasted and steamed. After skin removed, the fibres were chewed until the starch was gone. Yong shoots were pulled and eaten raw. Technology: Leftover fibres from the rhizomes were spun into a tough string.	Low 1991: 54 Isaacs 1987: 229
Cabbage tree palm <i>Livistona australis</i>	Food: Vegetable food, young shoots and leaves eaten raw.	Isaacs 1987: 225
Caustic Weed <i>Chamaesyce drummondii</i>	Medicinal: Whole plant boiled and liquid applied for scabies or pains in the chest. Sometimes the latex used to treat sore eyes, and the juice for venereal infection and genital sores.	Isaacs 1987: 236
Chocolate lilies <i>Dichopogon stictus</i> ; <i>D. fimbriatus</i>	Food: The juicy, slightly bitter tubers were eaten.	Low 1991: 105 Isaacs 1987: 218
Common fringed lily <i>Thysanotus tuberosus</i>	Food: The crisp, juicy, almost flavourless tubers and the base of stems were eaten.	Low 1991: 106 Isaacs 1987: 229
Cranberry heath <i>Astroloma humifusum</i>	Food: Apple tasting fruits were eaten.	Low 1991: 132 Isaacs 1987: 218
Cycads CYCADACEAE and ZAMIACEAE (families)	Food: Seeds were leached of their toxins by being soaked in water for days or weeks. The starchy kernels were cracked or crushed, sometimes cooked first, the fragments ground to paste, and then cooked. Surplus seeds could be preserved by being ground and fermented in water.	Low 1991: 138-139 Isaacs 1987: 220
Devil's twines <i>Cassutha</i> spp.	Food: The small fruits are edible, and used as snack foods. Technology: The stems were sometimes used as twine.	Low 1991: 125 Isaacs 1987: 219

Common Name and Scientific Name	Purpose	Reference
Early Nancy <i>Wurmbea</i> spp.	Food: The tiny rounded tubers of some species were eaten; however most seem unpalatable, including the common <i>W. dioica</i> .	Low 1991: 101 Isaacs 1987: 218
Eucalyptus <i>Eucalyptus</i> spp.	Food: Some species roots tapped for water. Medicinal: Leaves burnt and smoke used to treat fevers.	Isaacs 1987: 223, 235
Fig <i>Ficus coronata</i> ; <i>F. obliqua</i> ; <i>F. rubiginosa</i>	Food: The fruit was eaten raw. Technology: The rough leaves were used as sandpaper.	Hiddins 2003: 105 Isaacs 1987: 224
Flax lilies <i>Dianella</i> spp.	Food: Berries eaten (except <i>D. tasmanica</i>). Edible species include <i>D. caerulea</i> , <i>D. longifolia</i> , <i>D. revoluta</i> , <i>D. pavopennacea</i> and <i>D. bambusifolia</i> . Roots are also edible. Technology: Tough leaves of flax lilies used to weave dillies and baskets.	Low 1991: 113 Isaacs 1987: 220
Geebung <i>Persoonia</i> spp.	Food: Fruits were eaten raw. Fruits ripen on the ground and are best when soft. The skin is discarded and the soft pulp around the seed is consumed. Medicinal: An infusion of the bark and leaves was used to relieve sore throats and colds. A concoction of inner bark and water used to relieve sore eyes. Technology: Fishing lines made from the bark of <i>E. Agglomerate</i> . They were strengthened by soaking the bark in water.	Low 1991: 134 Hiddins 2003: 77 Isaacs 1987: 226
Golden stars <i>Hypoxis pratensis</i> ; <i>H. hygrometrica</i> ; <i>H. nervosa</i>	Food: The roasted tubers of these species were eaten. The other species are irritants and inedible.	Low 1991: 103 Isaacs 1987: 224
Grasstrees <i>Xanthorrhoea</i> spp.	Food: The starch, nectar, shoots, and leaf bases are all edible and all eaten raw. The flower heads were also sometimes soaked in coolamons to make sweet drinks. Technology: The gum served as glue; flower stalks were made into firesticks and spear handles; the resin was used as a fire starter; and the dead trunks served as fire wood, burning hot even when wet.	Low 1991: 140 Hiddins 2003: 80 Isaacs 1987: 229

Common Name and Scientific Name	Purpose	Reference
Grevillea <i>Grevillea spp.</i>	Food: Nectar sucked from flowers.	Isaacs 1987: 224
Ground orchids ORCHIDACEAE (family)	Food: Starchy tubers eaten either roasted or raw. Epiphytic tree orchids such as <i>Dendrobium speciosum</i> have thickened stems, which were chewed or sucked for their starch.	Low 1991: 108 Isaacs 1987: 224, 226
Grey Box <i>Eucalyptus bosistoana</i>	Technology: Bark.	Boot 2002:118
Headache vine <i>Clematis glycinoides</i>	Medicinal: The odour used to treat headaches.	Isaacs 1987: 234
Hovea <i>Hovea spp.</i>	Food: Young pods eaten.	Isaacs 1987: 224
Indigo <i>Indigofera spp.</i>	Medicinal: Roots hammered and placed in fresh or salt water as a fish poison.	Isaacs 1987: 237
Kangaroo apples <i>Solanum spp.</i>	Food: The soft sickly sweet berries were eaten either roasted or raw.	Low 1991: 133 Isaacs 1987: 228
Kangaroo grass <i>Themeda triandra</i>	Food: Seeds ground and baked.	Isaacs 1987: 229
Kurrajong <i>Brachychiton populneus</i>	Technology: Bark.	Boot 2002:118
Lance beard heath <i>Leucopogon lanceolatus</i>	Food: Fruits were eaten.	Low 1991: 130

Common Name and Scientific Name	Purpose	Reference
Lawyer vine <i>Smilax australis</i>	Medicinal: Extract used to treat sore eyes.	Isaacs 1987: 239
Lillypilly <i>Syzygium smithii</i>	Food: The fruits were widely eaten.	Isaacs 1987: 217
Long-leaf mat-rush <i>Lomandra longifolia</i>	Food: The white inner leaf bases and seeds were eaten raw. Technology: The tough leaves were split into strips and woven into dillies and mats.	Low 1991: 118 Isaacs 1987: 225
Messmate <i>Eucalyptus obliqua</i> .	Technology: Bark.	Boot 2002:118
Milkmaids <i>Burchardia umbellata</i>	Food: The crisp juicy tubers eaten	Low 1991: 101
Mistletoes Loranthaceae and Visaceae (families)	Food: The fruits of many species were eaten as a snack. Mainly Amyema and Lysiana species.	Low 1991: 126 Isaacs 1987: 218
Mountain she-oak <i>Allocasuarina verticillata</i>	Food: Leaves and young cones chewed raw when thirsty	Isaacs 1987: 217
Nardoo <i>Marsilea drummondii</i>	Food: In some areas, the seeds would be collected and ground into flour.	Hiddins 2003: 2
Native cherry <i>Exocarpos cupressiformis</i>	Food: The fruits were eaten. Technology: wood.	Low 1991: 137 Isaacs 1987: 223
Native grape <i>Cissus hypoglauca</i>	Food: The grapes eaten raw. Vines used as a water source.	Hiddins 2003: 138 Isaacs 1987: 220

Common Name and Scientific Name	Purpose	Reference
Native plantain <i>Plantago</i> spp.	Medicinal: After heavy rains the seeds swell into balls of jelly (mucilage) which was used as a cure for constipation	Low 1991: 97
Native sarsaparilla <i>Smilax glycyphylla</i>	Medicinal: Leaf infusion used as general tonic and remedy and to treat coughs and chest troubles. Also a good source of vitamin C.	Isaacs 1987: 239
Pale-fruit ballart <i>Exocarpos strictus</i>	Food: The fruits were eaten.	Low 1991: 137
Pale grass lily <i>Caesia calliantha</i> ; <i>C. parviflora</i>	Food: The roots of both species were eaten.	Low 1991: 102
Paperbark <i>Melaleuca</i> spp.	Medicinal: Leaf oils used in treatment of colds. The flexible bark used as bandages.	Isaacs 1987: 237
Pigface <i>Carpobrotus</i> spp.	Food: The fruits were eaten and the salty leaves were sometimes used in place of salt with meat. Medicinal: Juice used to treat sandfly bites, and a poultice of crushed leaves used on burns and scalds.	Low 1991: 30 Hiddins 2003: 16
Pink-flowered native raspberry <i>Rubus parvifolius</i>	Food: The fruits were eaten. Medicinal: Decoction of young leaves used to treat 'bad' belly.	Low 1991: 127 Isaacs 1987: 228, 238
Prickly broom heath <i>Monotoca scoparia</i>	Food: Fruits were eaten.	Low 1991: 129
Red ash <i>Alphitonia excelsa</i>	Medicinal: Young leaf tips chewed for upset stomach and decoction of bark and wood used for muscle pains and toothaches.	Isaacs 1987: 231

Common Name and Scientific Name	Purpose	Reference
Rounded noon-flower <i>Disphyma crassifolium</i> <i>subsp. clavellatum</i>	Food: Fleshy leaves eaten raw or baked.	Isaacs 1987: 220
Sallee <i>Eucalyptus stellulata.</i>	Technology: wood.	Boot 2002:118
Saw-sedge <i>Gahnia aspera</i>	Food: The seeds were pounded and ground to form flour that was used to make damper.	Hiddins 2003: 11
Sedge Carex sp.	Food: The flower stems were eaten.	Boot 2002:118
Sour currant-bush <i>Leptomeria acida</i>	Food: The fruits were eaten.	Low 1991: 135
Stinging nettle <i>Urtica incisa</i>	Medicinal: Leaves used to cause a nettle rash in areas suffering from rheumatism. For sprains, an infusion was used to bathe affected part. Boiled leaves also used as a poultice.	Isaacs 1987: 240
Stringybark <i>Eucalyptus muellerana.</i>	Technology: Bark and wood.	Boot 2002:118
Tall spike rush <i>Eleocharis sphacelata</i>	Food: The starch in the young underground stems eaten.	Low 1991: 53 Isaacs 1987: 220
Tree fern <i>Cyathea spp. and</i> <i>Dicksonia spp.</i>	Food: The upper trunk contains a core of white starch which was eaten raw or roasted. The croziers were also eaten.	Low 1991: 86 Isaacs 1987: 220
Twining fringed lily <i>Thysanotus patersonii</i>	Food: The watery tubers eaten.	Low 1991: 107

Common Name and Scientific Name	Purpose	Reference
Vanilla lilies <i>Arthropodium minus</i> ; <i>A. milleflorum</i>	Food: The juicy, sweetish or bitter tubers eaten.	Low 1991: 102 Isaacs 1987: 218
Water ribbons <i>Triglochin</i> spp.	Food: Bland starchy tubers were roasted, pounded and fed to teething babies and the elderly. The raw or roasted tubers were also eaten by adults, and were probably an important staple food throughout much of Australia.	Low 1991: 49
Wattles <i>Acacia</i> spp.	Food: The gum of pale species was eaten and often blended with water or nectar to make drinks. Acacia seeds are exceptionally nutritious and were also eaten. Medicinal: Inner bark soaked or boiled and liquid drunk as a cough medicine.	Low 1991: 152 Isaacs 1987: 217, 231
Wild sorghum <i>Sorghum leiocladum</i>	Food: Seeds ground and baked.	Isaacs 1987: 228
Wombat berry <i>Eustrephus latifolius</i>	Food: The burst berries contain a small amount of crisp white pulp which was eaten. The tubers were also eaten, though less often and not after dry weather.	Low 1991: 122
Yellow wood sorrel <i>Oxalis</i> spp.	Food: Sour, lemony leaves of wood sorrel were sometimes eaten by Aboriginal people. Excellent salad herb. Some tap roots dug as food, resembling a carrot and tasting like coconut.	Low 1991: 99 Isaacs 1987: 226

4.5.2 Fauna

Table 4.2 provides a list of fauna that are likely to have occurred within the broader Eurobodalla region and would have been used for food or technological purposes by Aboriginal people before European Settlement.

Table 4.2 Aboriginal Faunal Resources Most Likely to Have Occurred within the study area

Common Name and Scientific Name	Purpose	Reference
Eel <i>Alabes dorsalis</i>	Given to wife's father, food source	Howitt 1904: 756-758
Echidna <i>Tachyglossidae</i>	Hunted for its meat	Howitt 1904: 756-758
Emu <i>Dromaius novaehollandiae</i>	Cooked where killed, unless near camp, intestines, liver, gizzard eaten by hunter, rest distributed	Howitt 1904: 756-758
Fish	Part of catch shared	Howitt 1904: 756-758
Freshwater mussel <i>Mytilis edulis</i>	Eaten raw or cooked over hot ashes	Hiddins 2003: 165
Gould's goanna <i>Varanus gouldii</i>	Cooked whole over ashes or hot coals and the intestines searched for eggs	Hiddins 2003: 158
Kangaroo <i>Macropus sp.</i>	Butchered, shared amongst men and cooked before returning to camp	Howitt 1904: 756-758
Koala <i>Phascolarctos cinereus</i>	Cooked where caught or carried home raw, depending on distance, before being distributed	Howitt 1904: 756-758
Lace monitor <i>Varanus varius</i>	Shared by all in camp	Howitt 1904: 756-758

Common Name and Scientific Name	Purpose	Reference
Lerp scale <i>Psylla</i> spp. especially <i>Psylla eucalypti</i> , and <i>Glycaspis</i> spp.	Scraped off the leaves and eaten for a sugary hit. Also used to make drinks by mixing it with water.	Hiddins 2003: 154
Mangrove worm <i>Teredo</i> spp	Chopped from the wood and eaten raw	Issacs 1987:175
Native bee sugarbag <i>Tetragonula carbonaria</i>	Highly prized and never served with anything else the sugarbag was scooped out with the larvae and bees	Hiddins 2003: 155
Possum <i>Trichosurus</i> sp. <i>Pseudocheirus</i> <i>peregrinus</i> sp.	Not butchered but given away whole if more than one caught, if only one, is kept by the hunter. Skin rugs made from dried pelts.	Howitt 1904: 756-758
Shellfish	Shared food source	Howitt 1904: 756-758
Stingrays <i>Dasyatis</i> spp., <i>Himantura</i> spp	Speared and either roasted or skinned and grilled. The barb from the tail was also used as a knife or spear point	Hiddins 2003: 151
Swan <i>Cygnus olor</i>	One kept by the hunters, others distributed. Food source	Howitt 1904: 756-758
Wombat <i>Vombatidae</i>	Intestines removed, animal skewered and taken to camp for distribution	Howitt 1904: 756-758
Yabby <i>Cherax destructor</i>	Eaten cooked	Hiddins 2003: 175

4.6 Implications for the study area

- Portions of the top soil layer within the study area would have been previously disturbed/removed during the developmental history and through associated erosion
- It is likely the ridge slopes and crests could still retain spatial integrity but it is unlikely there is still stratigraphic integrity due to the previous disturbance
- It is likely the alluvial landforms within the study area would still retain spatial integrity but not stratigraphic integrity due to the sandy nature of the deposit
- The portion of the study area located on Clyde River could have been subject to one in 100 year flood events however it is possible the landform could retain evidence of Aboriginal occupation that has been buried by flood events and not been destroyed by flood events or river channel migration
- The study area is located close to the estuarine Clyde River which would have provided a diverse array of floral and faunal resources for Aboriginal people before disturbance
- There is a minor creek to the east of the Clyde River and north of the Kings Highway which would have supplied freshwater for Aboriginal people
- These resources would have enabled Aboriginal people to camp in the area in small groups for a relatively long period of time
- The alluvial landforms near the Clyde River would also have supported larger groups for shorter occupation periods
- It is likely the ridges and associated slopes with the study area would show evidence (low density artefact scatters) of travel by Aboriginal people.

5.0 Predictive Model

This section of the report provides a predictive model for site type, site location and site preservation within the study area. The predictive model is based on the Aboriginal cultural, ethnographic and archaeological context (refer to **Section 3.0**) and the environmental context (refer to **Section 4.0**) of the study area. This information is used to inform the survey methodology and significance assessment process. Please note (for the purpose of this predictive model, survey and assessment) a potential archaeological deposit (PAD) is defined as deposits that have the potential to retain either stratigraphic or spatial integrity. They are not simply areas that can be predicted to have subsurface artefacts (though the term is often used in this manner).

The following is predicted:

- Low density and complexity artefact assemblages may occur within the subsurface context on the ridge and ridge slopes
- PADs are most likely to be recorded on spur slopes
- Isolated finds would most likely be found on the slopes throughout the study area
- Stone artefacts are most likely to be flakes manufactured from silcrete and volcanic material but may include; cores (including bipolar), broken flakes, flaked pieces, hammerstones, blades and broken blades; produced from quartz, chert, quartzite, sandstone or porphyry
- Middens could be found in close proximity of the Clyde River on slopes and flats
- Burial sites could occur in the foreshore of the Clyde River
- Previous disturbance and development of the study area is most likely to have disturbed the top layers of the natural ground surface and resulted in erosion but deposits below this disturbance/erosion could potentially contain sites retaining some archaeological integrity.

6.0 Sampling Strategy

All areas of proposed impact including those designated as possible locations for temporary stockpiles, compound sites and sediment basins have been inspected wherever feasible. A survey has been undertaken of all landforms including:

- Ridge Crest
- Ridge Slope
- Alluvial landform
- Riverbank
- Previously modified areas

The survey coverage has been limited by:

- Workplace Health and Safety (close proximity to existing roads and existing cuts)
- The ability to transverse the landscape due to existing cuts.

For example the southern side of the Kings Highway to the west of the Clyde River within the study area will not be surveyed due to the existing cut, limited road reserve to traverse and high levels of previous disturbance.

7.0 Methodology

The inspection of the study area was conducted on foot. Photographs were taken of the study area with location data recorded using a hand-held GPS and compass. Information recorded during the survey included:

- Landform
- Vegetation
- Aboriginal resources
- Aspect
- Gradient
- Outlook
- Soil description
- Soils aggrading/degrading/stable
- Geology
- Extent of exposures
- Visibility
- Distance to nearest watercourse/permanence of watercourse
- The effects of previous land use and disturbance
- Any sites or PAD within the study area and
- Any information provided by the key Aboriginal stakeholder about the cultural significance or values of the area.

8.0 Survey Results

The inspection was undertaken with a representative from the BBLALC on 7 October 2015 (refer to **Section 1.3**). The inspection was conducted in warm overcast conditions.

The survey results are summarised by transect in **Table 8.1** and in **Sections 8.1 to 8.13**. Refer to **Figure 8.1** for the location of each transect within the study area.

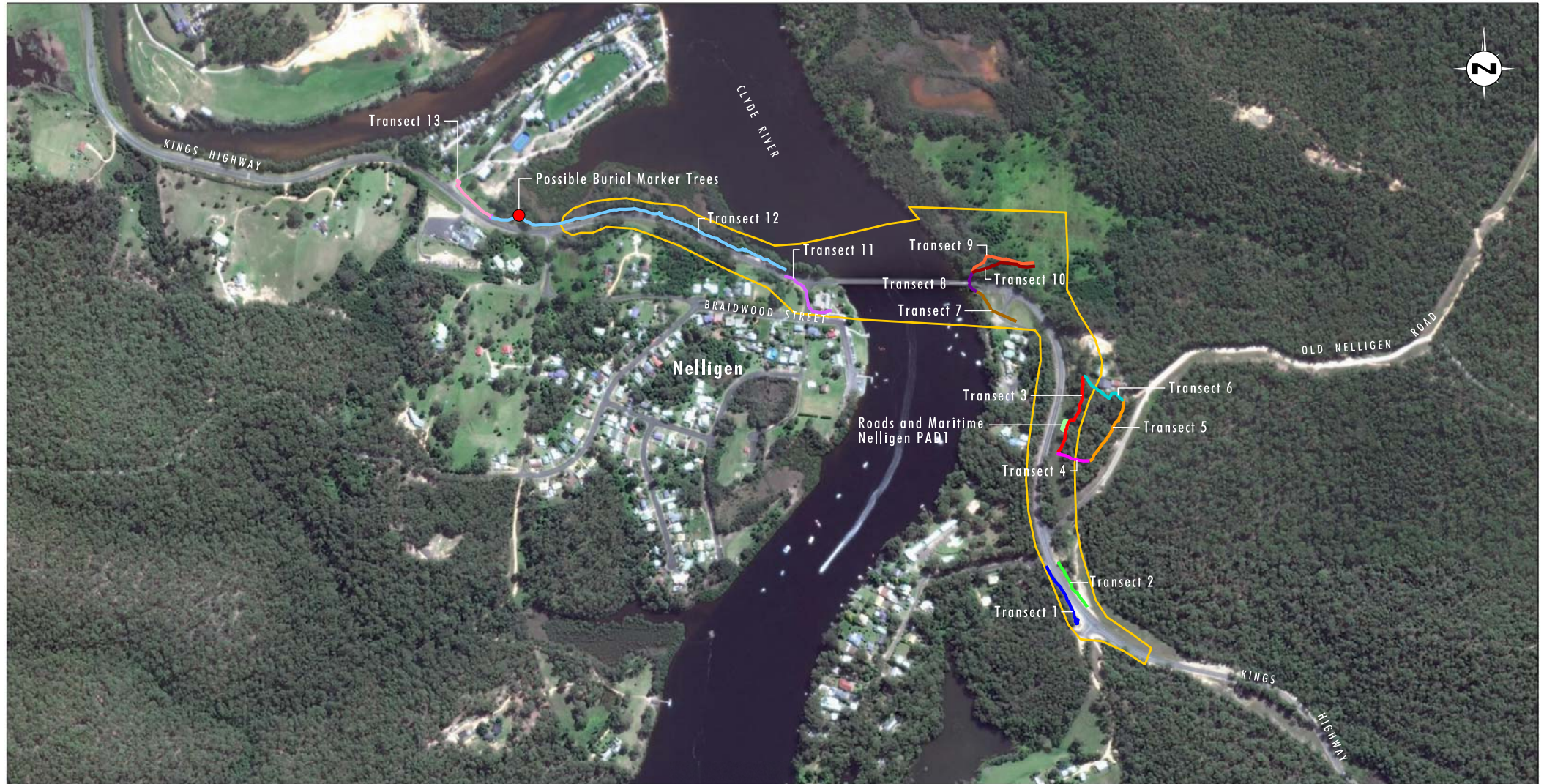


Image Source: Google Earth, DigitalGlobe (2015)
 Data Source: NSW Roads and Maritime (2015)

Legend

- | | | |
|---|-------------|------------------------------|
| Nelligen Bridge - Aboriginal Cultural Heritage Study Area | Transect 5 | Transect 11 |
| Roads and Maritime Nelligen PAD1 | Transect 6 | Transect 12 |
| Transect 1 | Transect 7 | Transect 13 |
| Transect 2 | Transect 8 | Possible Burial Marker Trees |
| Transect 3 | Transect 9 | |
| Transect 4 | Transect 10 | |

0 100 250 500m
 1:10 000

FIGURE 8.1

Survey Coverage and Results

Table 8.1 Summary of Survey Transect Results

Transect	Landform	Aspect	Gradient	Outlook	Soil Description	Geology	Area of Exposure (m2)	Visibility	Hydrology (Distance to Water metres)	Sites/and or PAD
1	Ridge Crest	WSW	Ten degrees	Heavily vegetated	Degrading Light brown sandy loam	Quartz shale	35.27	15%	305	N/A
2	Ridge Crest	NNW	Five degrees	Heavily vegetated Partially cleared	Degrading Light brown sandy loam	Quartz shale	25.31	15%	313	N/A
3	Ridge Slope	W	Three degrees	River 180 degrees	Degrading Yellow red sandy loam	Quartz shale	64.40	10%	143	Roads and Maritime Nelligen PAD1
4	Ridge Crest	W	Three degrees	River 180 degrees	Degrading Yellow red sandy loam	Quartz shale	19.22	1%	142	N/A
5	Ridge Slope	E	Four degrees	Heavily vegetated Track	Degrading Yellow red sandy loam	Quartz shale	132.63	3%	209	N/A
6	Modified	N/A	N/A	N/A	N/A	N/A	0.00	0%	157	N/A
7	Modified	N/A	N/A	N/A	N/A	N/A	0.00	0%	10	N/A
8	Riverbank	W	One degree	River 180 degrees	Degrading Grey sandy loam	Not evident	24.76	75%	6	N/A

Transect	Landform	Aspect	Gradient	Outlook	Soil Description	Geology	Area of Exposure (m2)	Visibility	Hydrology (Distance to Water metres)	Sites/and or PAD
9	Alluvial Landform	SW	Two degrees	River, ridge 270 degrees	Aggrading Creamy grey sandy loam	Quaternary Alluvium	157.36	5%	30	N/A
10	Alluvial Landform	SW	Two degrees	River, ridge 270 degrees	Aggrading Creamy grey sandy loam	Quaternary Alluvium	193.22	5%	30	N/A
11	Modified	N/A	N/A	N/A	N/A	N/A	0.00	0%	24	N/A
12	Alluvial Landform	NE	One degree	Heavily vegetated	Aggrading Creamy grey sandy loam	Quaternary Alluvium	60.04	3%	10	Possible burial marker trees
13	Modified	N/A	N/A	N/A	N/A	N/A	0.00	0%	97	N/A

8.1 Transect 1

Vegetation community:

- Batemans Bay cycad forest

Aboriginal Resources include:

- Native cherry (refer to **Table 4.1**)
- Eucalyptus (refer to **Table 4.1**)
- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction
- Road reserve

Aboriginal Stakeholder Cultural Significance or values:

- Most likely to have been a travel route from the mountains through to the coast
- Due to the previous disturbance the transect area was not considered to be of significance to the Aboriginal stakeholder

8.2 Transect 2

Vegetation community:

- Batemans Bay cycad forest
- Area has also been partially cleared

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction
- Current laydown area

Aboriginal Stakeholder Cultural Significance or values:

- Most likely to have been a travel route from the mountains through to the coast
- Due to the previous disturbance the transect area was not considered to be of significance to the Aboriginal stakeholder

8.3 Transect 3

Vegetation community:

- Batemans Bay cycad forest

Aboriginal Resources include:

- Eucalyptus (refer to **Table 4.1**)
- Geebung (refer to **Table 4.1**)
- Long-leaf mat-rush (refer to **Table 4.1**)
- Although quartz was identified in the area it was not considered to be of suitable knapping quality
- No sites were recorded
- Roads and Maritime Nelligen PAD1 was recorded during this transect.

Previous land use and disturbance includes:

- Road cut
- Tree clearance
- Electricity easement

Aboriginal Stakeholder Cultural Significance or values:

The ridge slope landform was identified as significant to the Aboriginal stakeholder. Roads and Maritime Nelligen PAD1 was recorded in this area and was identified as having moderate Aboriginal cultural significance by the Aboriginal stakeholder. The PAD area is about 10 by 20 metres. The ridge slope landform is considered moderately significant by the Aboriginal stakeholder because:

- It is located along an identified travel route with an outlook over the Clyde River
- There are known but unrecorded artefact scatters to the east on the ridge crest
- Aboriginal resource plants were recorded in the area.

It is understood the landform has been impacted by the establishment and maintenance of an electricity easement. However, it is considered likely the soil profile would still retain integrity below this disturbance.

8.4 Transect 4

Vegetation community:

- Batemans Bay cycad forest

Aboriginal Resources include:

- Eucalyptus (refer to **Table 4.1**)
- Geebung (refer to **Table 4.1**)
- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction

Aboriginal Stakeholder Cultural Significance or values:

It is located along an identified travel route with an outlook over the Clyde River and is considered a sensitive landform. Information was provided about known but unrecorded artefact scatters to the east on the ridge crest. Aboriginal resource plants were recorded in the area. The area was not considered to be a PAD although it is within the vicinity of Roads and Maritime PAD1 because it is a steeper landform and different outlook. As such it was not identified as PAD from either an Aboriginal or archaeological perspective.

8.5 Transect 5

Vegetation community:

- Batemans Bay cycad forest

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction

Aboriginal Stakeholder Cultural Significance or values:

It is located along an identified travel route and is considered a sensitive landform. The area was not considered to be a PAD although it is within the vicinity of Roads and Maritime PAD1 because of the extensive previous disturbance and different outlook. As such it was not identified as PAD from either an Aboriginal or archaeological perspective.

8.6 Transect 6

Vegetation community:

- The area has been modified and cleared for dwelling construction

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Dwelling construction

Aboriginal Stakeholder Cultural Significance or values:

There is no identified significance or values identified for this transect.

8.7 Transect 7

Vegetation community:

- The area has been modified and cleared
- It is now a recreation area

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Modified recreation area
- Road construction

Aboriginal Stakeholder Cultural Significance or values:

There is no identified significance or values identified for this transect.

8.8 Transect 8

Vegetation community:

- Partially cleared
- Estuarine mangrove forest

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction

Aboriginal Stakeholder Cultural Significance or values:

There is no identified significance or values identified for this transect.

8.9 Transect 9

Vegetation community:

- South coast river flat forest

Aboriginal Resources include:

- Bracken (refer to **Table 4.1**)
- No raw material sources were recorded
- No sites were recorded

Previous land use and disturbance includes:

- Tree clearance
- Agriculture
- Road construction

Aboriginal Stakeholder Cultural Significance or values:

There is no identified significance or values identified for this transect.

8.10 Transect 10

Vegetation community:

- South coast river flat forest

Aboriginal Resources include:

- Bracken (refer to **Table 4.1**)
- No raw material sources were recorded
- No sites were recorded

Previous land use and disturbance includes:

- Tree clearance
- Agriculture
- Road construction

Aboriginal Stakeholder Cultural Significance or values:

There is no identified significance or values identified for this transect.

8.11 Transect 11

Vegetation community:

- This area has been modified and is now a manicured lawn and park area

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction
- Road reserve
- Park area

Aboriginal Stakeholder Cultural Significance or values:

Due to the previous disturbance the transect area was not considered to be of significance to the Aboriginal stakeholder.

8.12 Transect 12

Vegetation community (west to east):

- Floodplain swamp forest
- Estuarine mangrove forest
- Shrubland
- Estuarine fringe forest
- Southeast lowland grassy woodland (including EPBC and TSC lowland grassy woodland)
- Estuarine saltmarsh
- River mangrove

Aboriginal Resources include:

- Mountain she-oak
- River mangrove
- Bulrush
- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction
- Road reserve

Aboriginal Stakeholder Cultural Significance or values:

Two large trees were identified as possible headstones by the BBLALC representative (Easting 240658 Northing 6051511). The Roads and Maritime representatives indicated they were not going to be impacted. The trees and any possible burial locations would be outside the project impact area and would be protected during construction.

8.13 Transect 13

Vegetation community:

- This area has been modified and is now a manicured lawn and roadside drainage

Aboriginal Resources include:

- No raw material sources were recorded
- No sites or PAD recorded

Previous land use and disturbance includes:

- Tree clearance
- Road construction
- Road reserve
- Roadside drainage

Aboriginal Stakeholder Cultural Significance or values:

Due to the previous disturbance the transect area was not considered to be of significance to the Aboriginal stakeholder

8.14 Effective Coverage

There are numerous environmental conditions that affect the detection of sites within the landscape. These have been divided into three categories defined as ground surface visibility, exposure and the background effect. Briefly, these factors relate to the amount of vegetation cover (or in this case buildings and infrastructure) that may conceal artefacts; the amount of erosion uncovering artefacts from subsurface deposits; and the presence of natural rocks and gravel which tend to obscure stone artefacts. Quantification of the extent of the influence of these factors on site detection provides an index of the survey effectiveness and hence the accuracy of the results. Effective survey coverage is determined using the total area of the landform surveyed taking into account the visibility and exposure.

The effective coverage for each transect is shown in **Table 8.2**. The visibility within the riverbank landform was very high but only a very small proportion of this landform was included in this survey. The ridge crest and ridge slope landforms generally had high visibility but low levels of exposure. The extent of the vegetation cover within the alluvial landform areas meant there weren't many areas of exposure and low levels of visibility.

Visibility was higher in those areas of ground surface disturbance associated with existing infrastructure, easements and tracks.

The total effective cover for the survey was estimated to be 0.42 per cent (refer to **Table 8.3**). An overall effective cover result of 0.42 per cent, although low, is considered to be acceptable. The total effective cover was heavily influenced by the high proportion of modified landforms within the study area which meant there were no areas of exposure or visibility recorded within those transects.

Table 8.2 Survey Coverage

Survey Unit	Landform	Survey unit area (sq m)	Exposure %	Area of Exposure (m2)	Visibility %	Effective coverage area (sq m)	Effective coverage %
Transect 1	Ridge Crest	705	5.00	35.27	15	5.29	0.75
Transect 2	Ridge Crest	506	5.00	25.31	15	3.80	0.75
Transect 3	Ridge Slope	1610	4.00	64.40	10	6.44	0.40
Transect 4	Ridge Crest	641	3.00	19.22	1	0.19	0.03
Transect 5	Ridge Slope	1326	10.00	132.63	3	3.98	0.30
Transect 6	Modified	1004	0.00	0.00	0	0.00	0.00
Transect 7	Modified	939	0.00	0.00	0	0.00	0.00
Transect 8	Riverbank	210	11.80	24.76	75	18.57	8.85
Transect 9	Alluvial Landform	1192	13.20	157.36	5	7.87	0.66
Transect 10	Alluvial Landform	1323	14.60	193.22	5	9.66	0.73
Transect 11	Modified	628	0.00	0.00	0	0.00	0.00
Transect 12	Alluvial Landform	3002	2.00	60.04	3	1.80	0.06
Transect 13	Modified	524	0.00	0.00	0	0.00	0.00
Total		13610.53		712.20		57.60	0.42

Table 8.3 Landform Summary – sampled areas

Landform	Landform area (sq m)	Area effectively surveyed (sq m)	% of landform effectively surveyed	Number of sites/PADs	Number of artefacts or features
Ridge Crest	1852.17	9.28	0.50	0	0
Ridge Slope	2936.22	10.42	0.35	1 PAD	0
Riverbank	209.81	18.57	8.85	0	0
Alluvial landform	5517.64	19.33	0.35	0	0
Modified	3094.70	0.00	0.00	0	0
Total	13610.53	57.60	0.42	1 PAD	0

8.15 Summary of Results

- Ground surface visibility was relatively low throughout the project except for within the riverbank landform
- The level of exposure throughout the study area was low except within the riverbank landform
- Roads and Maritime Nelligen PAD1 (refer to **Figure 8.2**) was identified within the ridge slope landform on the eastern side of the Clyde River to the east of the Kings Highway. The PAD is about 10 by 20 metres in area
- Two trees identified by the Aboriginal stakeholder as having the potential to be burial markers were identified north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area
- No sites were identified through the survey
- Aboriginal resources were found throughout the study area
- No fauna was observed throughout the survey
- No suitable raw material sources were identified during the survey.



Image Source: Google Earth, DigitalGlobe (2015)
 Data Source: NSW Roads and Maritime (2015)

0 10 25 50m
 1:1 000

Legend

- Nelligen Bridge - Aboriginal Cultural Heritage Study Area
- Roads and Maritime Nelligen AS1
- Transect 3
- Transect 4
- Transect 5
- Transect 6

FIGURE 8.2

Roads and Maritime Nelligen AS1

9.0 Significance Assessment

This section of the report assesses the Aboriginal and archaeological significance of the study area. Archaeological significance is a scientific value which can be determined by archaeologists based on the characteristics of the landscape and archaeological evidence from the area.

Aboriginal cultural heritage significance can only be determined by members of the Aboriginal community. Even though an area may not have Aboriginal archaeological sites, it may still have cultural significance to Aboriginal communities.

The significance of an archaeological site is derived from its potential to contribute information that will enhance knowledge of past cultural practices. Significance is assessed according to principles outlined in the Burra Charter, which was adapted from the International Council for Monuments and Sites (ICOMOS), Venice Charter. The current Burra Charter (1999) provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and for the assessment of cultural significance in determining appropriate management procedures for cultural heritage. The Burra Charter defines cultural significance as 'aesthetic, historic, scientific or social value for past, present or future generations' (Australia ICOMOS 1999). The NSW NPWS Guidelines (1997) provide a discussion on the assessment of cultural significance for Aboriginal sites. NPWS recommends archaeologists focus on scientific significance, as the aesthetic, historic and educational value of sites (where relevant) is better determined by others.

No sites were found throughout the survey. However the possible significance of the PAD has been assessed.

9.1 Aboriginal Significance/Sensitivity

As stated above, Aboriginal cultural heritage significance can only be assessed by the relevant Aboriginal community groups. For a particular site or area, it is often at a different level than the assessed archaeological significance. The Aboriginal significance of the PAD is derived from their perceived cultural heritage sensitivity. Perceived cultural heritage sensitivity is the value and importance which the Aboriginal community places on a site, area or location. For example, a ceremonial site may be considered to be more culturally sensitive than an open campsite, or, a grinding groove site would probably have a higher cultural heritage value than an isolated find.

The assessment provided by the representative of the BBLALC present during the survey, has identified Roads and Maritime Nelligen PAD1 as being of moderate Aboriginal cultural heritage significance. This level of significance was identified based on the following:

- It is located along an identified travel route with an outlook over the Clyde River
- There are known but unrecorded artefact scatters to the east
- Aboriginal resource plants were recorded in the area.

The survey of the area by the Aboriginal stakeholder also highlighted the cultural heritage sensitivity of Clyde River itself. The river was identified as a valuable resource which would have provided a focus for Aboriginal occupation of the area. Thus, the Aboriginal stakeholder indicated he wanted Roads and Maritime to minimise the impact of the bridge replacement project on the actual river.

9.2 Archaeological or Scientific Significance

The scientific significance of Aboriginal sites/PADs is assessed according to their ability to contribute to the scientific or archaeological understanding of Aboriginal culture. Rarity, representativeness, intactness and integrity, connectedness, potential to provide new information about pre-contact Aboriginal culture in an area, and potential to contribute to a chronology of the local Aboriginal culture, are the criteria used to assess scientific significance. In practice, site integrity is the key to archaeological significance. Sites with high structural and contextual integrity are rare. Where they do occur, they have the potential to provide significantly more information about the past than do the large numbers of disturbed surface scatters of artefacts.

With consideration given to the predictive model and the level of previous archaeological research for the impact area, it is assessed as likely that undiscovered (subsurface) sites of archaeological significance exist in the impact area. Furthermore, the level of disturbance recorded in the impact area indicates if any undiscovered sites exist they would be highly likely to retain spatial integrity (not stratigraphic integrity), and thus would have medium scientific significance.

The archaeological or scientific significance the PADs were assessed according to their likely value to contribute to furthering of the archaeological/scientific understanding of Aboriginal culture (their archaeological research potential) in the local and regional context. Six criteria were assessed to determine archaeological research potential, these were:

- Rarity
- Representativeness
- Integrity
- Connectedness
- Complexity
- Potential for archaeological deposit.

9.3 Ranking of Criteria for Evaluating Archaeological Significance

Table 9.1 indicates how the PADs were evaluated in relation to each of the six criteria to assess its overall archaeological research potential. Following the table, each of the criteria is discussed and justification provided for the assessed levels of significance.

Table 9.1 Criteria Used in Evaluating Archaeological Significance

Criterion	Low (Score of 1)	Moderate (Score of 2)	High (Score of 3)
Rarity⁵	The location of the site within the landscape, its type, integrity contents and/or potential for subsurface artefacts is common within the local and regional context	The location of the site within the landscape, its type, integrity contents and/or potential for subsurface artefacts is common within the regional context but not the local context	The location of the site within the landscape, its type, integrity contents and/or potential for subsurface artefacts is rare within the local and regional context
Representativeness⁶	This site when viewed in relation to its type, contents, integrity and location in the landscape is common within a local and regional context and sites of similar nature (or in better condition) are already set aside for conservation within the region	This site when viewed in relation to its type, contents, integrity and location in the landscape is uncommon within a local context but common in a regional context and sites of similar nature (or in better condition) are already set aside for conservation within the region	This site when viewed in relation to its type, contents, integrity and location in the landscape is uncommon within a local and regional context and sites of similar nature (or in better condition) are not already set aside for conservation within the locality or region
Integrity⁷	Stratigraphic integrity of the site has clearly been destroyed due to major disturbance/loss of topsoil. The level of disturbance is likely to have removed all spatial and chronological information.	The site appears to have been subject to moderate levels of disturbance; however there is a moderate possibility useful spatial information can still be obtained from subsurface investigation of the site, even if it is unlikely any useful chronological evidence survives.	The site appears relatively undisturbed and there is a high possibility that useful spatial information can still be obtained from subsurface investigation of the site, even if it is still unlikely any useful chronological evidence survives. (In cases where both spatial and chronological evidence is likely to survive the site will gain additional significance from high scores for rarity and representativeness).

⁵ The PAD has been assessed on its potential only

⁶ The PAD has been assessed on its potential only

⁷ The PAD has been assessed on its potential only

Criterion	Low (Score of 1)	Moderate (Score of 2)	High (Score of 3)
Connectedness⁸	<p>There is no evidence to suggest the site is connected to other sites in the local area or the region through:</p> <ul style="list-style-type: none"> • Their chronology (rarely known) • Their site type (eg connectedness could be argued between an axe quarry, a nearby set of axe grinding grooves and a nearby site exhibiting evidence of axe reduction) • By the use of an unusual raw material, knapping technique/reduction strategy • Similar designs/motifs in the case of art sites and engravings; and • Information provided by Aboriginal oral history. 	<p>There is some evidence to suggest the site is connected to other sites in the local area or the region through:</p> <ul style="list-style-type: none"> • Their chronology (rarely known) • Their site type (eg connectedness could be argued between an axe quarry, a nearby set of axe grinding grooves and a nearby site exhibiting evidence of axe reduction) • By the use of an unusual raw material, knapping technique/reduction strategy • Similar designs/motifs in the case of art sites and engravings and • Information provided by Aboriginal oral history. 	<p>There is good evidence to support the theory the site is connected to other sites in the local area or the region through:</p> <ul style="list-style-type: none"> • Their chronology (rarely known) • Their site type (eg connectedness could be argued between an axe quarry, a nearby set of axe grinding grooves and a nearby site exhibiting evidence of axe reduction) • By the use of an unusual raw material, knapping technique/reduction strategy; • Similar designs/motifs in the case of art sites and engravings and • Information provided by Aboriginal oral history.

⁸ The PAD has been assessed on its potential only

Criterion	Low (Score of 1)	Moderate (Score of 2)	High (Score of 3)
Complexity⁹	<p>The site does not exhibit and is not predicted to contain either of the following in a subsurface context:</p> <ul style="list-style-type: none"> • A complex assemblage of stone artefacts in terms of artefact types and/or raw materials (including use of local and imported raw materials) and/or knapping techniques/reduction strategies and • Features such as hearths or heat treatment pits, activity areas. 	<p>The site exhibits or can be predicted to contain one of the following in a subsurface context:</p> <ul style="list-style-type: none"> • A complex assemblage of stone artefacts in terms of artefact types and/or raw materials and/or knapping techniques/reduction strategies and/or use of local and imported raw materials and • Features such as hearths or heat treatment pits, activity areas. 	<p>The site exhibits or can be predicted to contain both of the following in a subsurface context:</p> <ul style="list-style-type: none"> • A complex assemblage of stone artefacts in terms of artefact types and/or raw materials and/or knapping techniques/reduction strategies and/or use of local and imported raw materials and • Features such as hearths or heat treatment pits, activity areas.
PAD	<p>The site has no or only low potential to contain subsurface archaeological material that has stratigraphic integrity, or is of a nature that suggests its subsurface investigation would help with answering questions of contemporary archaeological interest, or that indicates it should be preserved for its future research potential.</p>	<p>The site has a moderate potential to contain subsurface archaeological material that has stratigraphic integrity or is of a nature that its subsurface investigation would help with answering questions of contemporary archaeological interest or that indicate it should be preserved for its future research potential.</p>	<p>The site has a high potential to contain subsurface archaeological material that has stratigraphic integrity or is of a nature that its subsurface investigation would help with answering questions of contemporary archaeological interest or that indicate it should be preserved for its future research potential.</p>

⁹ The PAD has been assessed on its potential only

Each PAD was afforded a numerical value for each significance criterion so an overall significance assessment could be made. The values for each criterion were scored as follows:

- Low significance was afforded a score of 1
- Moderate significance was afforded a score of 2
- High significance was afforded a score of 3.

Local or regional significance was scored as follows:

- Low significance 6-9
- Moderate significance 10-14
- High significance 15-18.

Overall significance (local plus regional significance) was scored as follows:

- Low significance 6-15
- Low to moderate significance 16-19
- Moderate significance 20-23
- Moderate to high significance 24-27
- High significance 27-36.

If the PAD was assessed to have low local significance (when compared to other PADs (now sites) within a five kilometre radius) for any criterion, then this aspect of the PAD was also deemed be low at the regional level. If, however, the PAD was assessed as having moderate or high archaeological significance on a local scale for any criterion, then it was assessed against other PADs known from the literature in the broader Nelligen/Batemans Bay area.

9.3.1 Rarity

A PAD may be thought of as rare if it is, or has, the potential to be a site type that is uncommon in the local and/or regional context or has the potential to have site contents that are uncommon in the local and/or regional context. Other sites may be composed of common elements, but may be preserved in an unusually informative way or in a landform context that is atypical. Some common site types like artefact scatters, may have increased significance for 'rarity' if most other similar sites in the area have been destroyed by development and if no similar sites are being conserved in the locale/region.

Numerous artefact scatters are recorded on ridge slopes and crests within the vicinity of the study area. Roads and Maritime Nelligen PAD1 has the potential to have a low density of artefacts in a subsurface context like those recorded locally and regionally. Thus, the Roads and Maritime Nelligen PAD1 area is assessed as having low archaeological significance for rarity on a local scale and low archaeological significance for rarity on a regional scale.

9.3.2 Representativeness

One of the objectives of cultural heritage management is to ensure a representative sample of all site types is preserved in the variety of landscapes in which they occur. Like many other natural resources, archaeological sites are a non-renewable resource. Once they are destroyed they cannot be replaced or replicated. As a result, one of the aims of a scientific value assessment is to examine the potential of newly discovered sites to be conserved to act as 'representative' examples of a particular site type.

There are no currently recorded PADs on the ridge slope with the potential to be similar to Roads and Maritime Nelligen PAD1 recorded locally that are being conserved. There are however PADs of a similar nature, on similar landforms recorded regionally that are being conserved. Therefore Roads and Maritime Nelligen PAD1 is assessed as having high archaeological significance for representativeness on a local scale and low archaeological significance on a regional scale.

9.3.3 Integrity

Each archaeological site/PAD represents/has the potential to represent, a number of pieces of evidence spatially organised both by human behaviour and by subsequent environmental and land-use effects. When a site has been subject to relatively few environmental or land-use (post-depositional) processes, it will represent more directly the original human activities which created it. Such undisturbed sites are considered to have archaeological integrity and may have the potential to answer research questions of relevance to both the Aboriginal and archaeological community. Sites with archaeological integrity are necessary to answer questions related to the antiquity of Aboriginal occupation or related to chronological change in the ways people were behaving within the landscape.

In sites which have been heavily disturbed by post-depositional processes such as tree clearance followed by erosion, agricultural activities and infrastructure development and/or bioturbation, aspects of the original activities which formed the sites will be disturbed and site integrity lost. The loss of site integrity limits the ability of the site to provide information about the Aboriginal past.

Roads and Maritime Nelligen PAD1 has had the surface disturbed by tree clearing, easement establishment and maintenance. However it is thought possible below this disturbance there is a stratigraphic profile that retains at least spatial integrity. Thus, Roads and Maritime Nelligen PAD1 is assessed as having moderate archaeological significance for integrity on a local and regional scale.

9.3.4 Connectedness

Connectedness can be considered in a number of ways, at a number of scales. In its broadest sense, 'connectedness' refers to patterns linking sites within an area. Connectedness is often difficult to ascertain as the chronological sequence of use of surface sites is unknown at the survey stage of their assessment. Thus, connectedness must be related to other features of sites (eg the use of similar raw materials and reduction sequences aimed at producing similar implement types) or the nature of features within the sites (eg heat treatment pits and knapping floors containing heat treated artefacts). In some cases, it may be a series of sites within an area relates to a number of different activities which are in fact all components of a single land use system (eg a stone quarry, a camp site at which reduction of that stone takes place, a sandstone outcrop on which that stone is ground).

There are no criteria on which to assess connectedness for the PAD. Roads and Maritime Nelligen PAD1 is assessed as having low archaeological significance for connectedness on a local and regional scale.

9.3.5 Complexity

The complexity of a site is assessed on the basis of its ability to contribute to our understanding of the Aboriginal past. The more complex a site, the more potential it has to be interpreted in an informative way. Complexity can be related to the artefact assemblage located within a site, or predicted in a subsurface context and/or the nature of features (heat treatment pits, hearths, knapping floors) within a site.

It is predicted Roads and Maritime Nelligen PAD1 would have a low density and low complexity subsurface artefact assemblage. Thus, they are assessed as having low significance for complexity on a local scale and low significance for integrity on a regional scale.

9.3.6 Potential for Archaeological Deposits

PADs are places where the subsurface profile is assessed as having a high probability of containing cultural heritage materials in a relatively undisturbed context. They are not simply areas that can be predicted to have subsurface artefacts (though the term is often used in this manner). Factors that need to be considered when assessing PADs include:

- The depth of the 'A' (topsoil) horizon
- Any potential disturbances to the subsurface environment (eg bioturbation, stock trampling, power easement clearance, cultivation, dam construction etc)
- The probability of cultural materials being present as assessed through the environmental setting and/or a surface artefact assemblage
- Any geomorphic agencies likely to have affected the area (eg slopewash, colluvial erosion and deposition, creek migration).

Roads and Maritime Nelligen PAD1 is assessed as having a high likelihood of subsurface artefacts with a moderate likelihood of there being integrity to the deposits below the easement establishment and maintenance disturbance. It predicted there is shallow to moderate depth of deposit within the PAD area. Roads and Maritime Nelligen PAD1 is assessed as having high significance for PAD on a local and low significance on a regional scale.

9.4 Summary of Archaeological Site Significance

Table 9.2 provides a summary of the significance assessment for Roads and Maritime Nelligen PAD1 recorded during the current survey of the impact areas. The scores are based on the ranking criteria provided in **Table 9.1** and the discussions in **Sections 9.3.1 to 9.3.6**.

Table 9.2 Archaeological Significance Assessment Roads and Maritime Nelligen PAD1

Criterion	Roads and Maritime Nelligen PAD1	
	Local	Regional
Rarity	1	1
Representativeness	3	1
Integrity	2	2
Connectedness	1	1
Complexity	1	1
PAD	3	1
Total	11	7

9.5 Summary of Significance

The Aboriginal significance of Roads and Maritime Nelligen PAD1 has been assessed by the key stakeholder as moderate.

The archaeological significance of Roads and Maritime Nelligen PAD1 has been assessed as moderate on a local level and low on a regional level. Overall, Roads and Maritime Nelligen PAD1 is assessed as having low to moderate archaeological significance.

9.6 Archaeological Research Potential

The research potential of a site/PAD is assessed on the basis of the potential for further investigation of the site/PAD to add significantly to our understanding of the past. A number of factors contribute to this assessment, including the complexity/potential complexity of the site/PAD, how well preserved the site/PAD is, how the site/PAD relates to/has the potential to relate to prevailing research themes, and whether the site/PAD is able to/has the potential to be able to provide information that is not otherwise available. As such, this assessment draws heavily from the preceding assessments but does not form part of the initial ranking process.

Based on the results of the significance assessment it is assessed that Roads and Maritime Nelligen PAD1 only has low to moderate research potential. It is however recognised that Roads and Maritime Nelligen PAD1 has moderate Aboriginal significance and the destruction of the PAD without further investigation is not culturally acceptable. The PAD has great teaching potential for the Aboriginal community.

10.0 Impact Assessment

This report is required to inform the concept design and environmental assessment (EA) for the Nelligen Bridge Replacement Project. Therefore the nature of the proposed impact can only be presented in general terms until the final design is agreed. The proposed impact is outlined in **Section 1.2**. The following information will outline the proposed impact (harm) on Roads and Maritime Nelligen PAD1.

10.1 Roads and Maritime Nelligen PAD1

Type of harm:

- Excavation of cut embankments
- Relocation of utilities
- Clearing of vegetation
- Landscaping/revegetation on completion of the road work.

Degree of harm:

- Total removal of PAD

Consequence of harm:

- Total loss of any archaeological material it may contain.

10.2 Unknown impact

Please note the locations of the following impacts are not known:

- Temporary stockpile sites
- Temporary compound sites
- Temporary sediment basins

11.0 Management and Mitigation measures

There are a range of management strategies available in relation to the study area that include varying levels of mitigation of identified or potential harm. The selection of management strategies is guided by the Aboriginal significance/sensitivity and archaeological significance of the study area. These management strategies have been developed from an archaeological perspective.

The key Aboriginal stakeholder will be given an opportunity to comment on the management strategies outlined in this draft report.

11.1 Strategy 1 Conservation of PAD and Possible Burial Marker Trees

This management strategy would involve the conservation of Roads and Maritime Nelligen PAD1.

The project would not be able to proceed with PAD conservation. The PAD has been identified as being of low to moderate archaeological significance and consequently, it is not archaeologically valid to propose a full conservation outcome for the PAD within the study area.

This management strategy would also involve the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres¹⁰.

The project would be able to proceed with the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres.

11.2 Strategy 2 Testing of PAD and Conservation of Possible Burial Marker Trees

Strategy 2 would involve carrying out testing to clarify the nature, extent and significance of the PAD identified within the study area. Depending on the results further management strategies and/or procedures may need to be outlined for the project to proceed, or, the project may be able to proceed without the need for any further investigation.

This management strategy would also involve the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres¹¹.

The project would be able to proceed with the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres.

This is the preferred strategy as it recognises the significance of the PAD to the BBLALC and allows for the Roads and Maritime to proceed with the project in an informed manner.

¹⁰ Located north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area.

¹¹ Located north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area.

11.3 Strategy 3 Impact PAD Without Further Investigation and Conservation of Possible Burial Marker Trees

Strategy 3 would involve Roads and Maritime proceeding with the project without conducting further investigation within the PAD. This strategy is not considered to be appropriate due to:

- The moderate Aboriginal culturally significance attributed to the PAD
- The low to moderate archaeological significance attributed to the PAD.

This management strategy would also involve the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres¹².

The project would be able to proceed with the conservation of two trees identified by the Aboriginal stakeholder as having the potential to be burial markers and a buffer of five metres.

¹²Located north of the Kings Highway and west of Clyde River not within the Roads and Maritime Nelligen PAD1 area.

12.0 Recommendations

The management recommendations outlined below have been prepared with regard to:

- Respect and consideration of the views of the key Aboriginal stakeholder
- The archaeological context of the Nelligen region
- The findings of the survey
- The moderate cultural significance assessment of the area by Aboriginal parties
- The overall low to moderate archaeological assessment of the PAD
- The overall research potential of the PAD
- Two trees identified by the Aboriginal stakeholder as having the potential to be burial markers
- Current cultural heritage legislation
- Providing clear guidance about appropriate management and protection of cultural heritage values

The following is recommended:

- Roads and Maritime conduct test excavations of Roads and Maritime Nelligen PAD1
- The test excavations be conducted in line with the test excavation methodology presented in the Test Excavation methodology and supporting information for the Nelligen Bridge Replacement, Nelligen, NSW which was prepared in compliance with the requirements of the Department of Environment, Climate Change and Water (DECCW) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b).
- Roads and Maritime ensure the two trees identified by the Aboriginal stakeholder as having the potential to be burial markers have a buffer of five metres protected during construction work to ensure they are not adversely impacted.

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