Mount Darragh Road Subdivision
Lots 5 DP750207 & 1 DP130034
Archaeological Report

Report to Cobandrah Pty Ltd

Yuin / Djirringanj Country

Final – November 2024

Lantern Heritage

shining a light on people and place

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Project Name
Lot 5 DP750207 and Lot 1 DP130034 Mount Darragh Road Subdivision

Project Reference Number
128-297B

Local Government Area
Bega Valley Council
Djiringanj Country
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Cover Image
View north east to Pambula River

Version	Date	Reviewer(s)	Notes
1	25/09/2024	M. Lever	Post internal & client initial review
2	02/10/2024	M. Lever	Post second client review
3	8/10/2024	M. Lever	Post third client review
4	18/11/2024	B. Atkins	Finalise report

EXECUTIVE SUMMARY

Background

Lantern Heritage has been engaged by Cobandrah Pty Ltd (the proponent) to carry out archaeological assessment associated with a planning proposal to enable a proposed subdivision of Lot 5 DP750207 and 1 DP130034 at Mount Darragh Road, Lochiel into six (6) rural-residential lots (the proposal). This report includes background research and field investigations and provides an assessment of scientific/archaeological values associated with the study area. This report has been prepared in accordance with the Heritage NSW Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a) and forms an appendix to the Aboriginal Cultural Heritage Assessment Report (ACHAR), which details the overall assessment of cultural significance and potential impacts to Aboriginal cultural values in the study area. This report has been compiled in accordance with the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS, 2013a).

Study Area

The study area is Lot 5 DP750207 and 1 DP130034 within the Bega Valley Shire Council (BVSC) Local Government Area (LGA) and in the lands of the Eden Local Aboriginal Land Council (LALC) (Figure 1). It is part of the property situated at 299/300 Mount Darragh Road, Lochiel, encompassing an area of approximately 12.9ha located 7.5km southwest of the town of Pambula. The study area is located approximately 210m to the west of Mount Darragh Road from the Robinson Road intersection and is bounded to the north by the Pambula River. The study area consists of flat to moderately sloping cleared grazing land with minimal remnant native vegetation.

Previous investigations

A desktop assessment of archaeological investigations undertaken within the immediate vicinity of the study area has shown that there are no Aboriginal sites currently listed on the Aboriginal Heritage Information Management System (AHIMS) recorded in or near the study area. Furthermore, no Aboriginal places have been declared in or near the study area. A total of seven (7) AHIMS sites are located within a 6km radius of the study area. Of these, the closest Aboriginal site consists of an open camp site (AHIMS #62-6-0237) located approximately 2.8km southeast of the current study area.

A desktop assessment indicates that no previous archaeological studies have been conducted within the study area.

Constraints on the proposal

Those parts of the study area within 150metres (m) of the Pambula River are subject to Section 5.7 of the BVSC Development Control Plan (DCP) 2013 (amended 2015). Under Section 5.7 of the BVSC DCP 2013, sites with Onsite Sewage Management (unsewered sites such as the study area), will not be approved for subdivision development if they are within 150m of a nominated waterway. Table 5.3 of the BVSC DCP 2013 lists the Pambula River as a nominated waterway. The parts of the study area within 150m of the Pambula River will therefore not be subject to impacts.

Field survey results

Three survey units (Section 4.8.2) were identified and rated for archaeological potential:

- Survey Unit 1 - Pambula River and meanders (approximately2.3ha) – low archaeological potential.
- Survey Unit 2 - elevated floodplain terrace (approximately 2ha)- moderate to high archaeological potential.
- Survey Unit 3 – mild to moderate toe slope (approximately 7.75ha) – low archaeological potential.

Survey Unit 2 is determined here as Mount Darragh Road Potential Archaeological Deposit (PAD) PAD 02 AHIMS # 62-6-0903 with centroid at GDA 94 MGA 55 Easting: 750782 – Northing 5908071. Mount Darragh PAD 02 AHIMS # 62-6-0903 is wholly within 150m of the Pambula River.

Significance Assessment

Assessment of the scientific significance of Mount Darragh Road PAD 02 AHIMS # 62-6-0903 would require archaeological testing to establish the nature and significance of any deposits within it.

No archaeological potential was identified inside the study area outside Mount Darragh Road PAD 02 AHIMS # 62-6-0903.

Impact Assessment

No impacts have been identified to Aboriginal heritage values within the study area.

Mount Darragh Road PAD 02 AHIMS # 62-6-0903 is wholly within the area protected from development by Section 5.7 of the BVSC (DCP) 2013 and will therefore not be subject to impacts arising from the proposal. No other archaeological objects or areas of archaeological potential were identified in the study area.

Conclusions

The study area has been researched and surveyed with the following findings:

- **Low archaeological potential:** The vast majority of the study area is of low archaeological potential and requires no further formal archaeological assessment. The portions of the study area with low archaeological potential are:
    - Survey Unit 1 - Pambula River and meanders
    - Survey Unit 3 - mild to moderate toe slope
- **Moderate to High archaeological potential:** One part of the study area conforms to archaeological understandings of landscape with moderate to high archaeological potential. This is:
    - Survey Unit 2 - elevated floodplain terrace (Mount Darragh Road PAD 02 AHIMS # 62-6-0903)

Recommendations.

1. An ACHAR must be completed to incorporate and formalise the results of this AR.
2. The ACHAR must provide further recommendations based on combined assessment of scientific values identified in this report, Aboriginal community evaluation of this report, and any cultural information gathered through the consultation process.

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1 PROJECT OVERVIEW

1.1 Introduction

Lantern Heritage has been engaged by Cobandrah Pty Ltd (the proponent) to carry out archaeological assessment associated with a planning proposal to enable a proposed multi-stage rural-residential subdivision of Lot 5 DP750207 and 1 DP130034 into six (6) lots (the proposal) (Figure 3 and Figure 4). This report includes background research and field investigations and provides an assessment of scientific/archaeological values associated with the study area (Figure 1). This report has been prepared in accordance with the Heritage NSW Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a) and forms an appendix to the Aboriginal Cultural Heritage Assessment Report (ACHAR), which details the overall assessment of cultural significance and potential impacts to Aboriginal cultural values in the study area. This report has been compiled in accordance with the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS, 2013a).

1.2 Study Area

The study area is within the Bega Valley Shire Council (BVSC) Local Government Area (LGA) and in the lands of the Eden Local Aboriginal Land Council (LALC) (Figure 1). It is part of the property situated at 299/300 Mount Darragh Road, Lochiel, encompassing an area of approximately 12.9ha located 7.5km southwest of the town of Pambula. The study area is located approximately 210m to the west of Mount Darragh Road from the Robinson Road intersection and is bounded to the north by Pambula River within an area that has already undergone significant rural-residential development. The study area consists of flat to moderately sloping cleared grazing land with minimal remnant native vegetation.

1.3 Legislative Framework

Aboriginal cultural heritage in NSW is regulated by the Environment and Heritage Division within the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW), under the overriding ethos (non-statutory) of the International Council on Monuments and Sites (ICOMOS) *Burra Charter*.

1.3.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's environment and heritage legislation. The EPBC Act provides protection for items of national environmental significance, including Australia's World Heritage properties, items on the National Heritage List (NHL) and items on the Commonwealth Heritage List (CHL). Any action that will have, or is likely to have, a significant impact on the National Heritage values of a National Heritage place, requires a referral to the Australian Government under the EPBC Act.

1.3.2 National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974* (as amended) (NPW Act), jointly administered by Heritage NSW and Department of Climate Change, Energy, the Environment and Water (DCCEEW) is the primary legislation for the protection of Aboriginal cultural heritage in New South Wales. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm and associated penalties for harming Aboriginal objects or Aboriginal Places without an Aboriginal Heritage Impact Permit (AHIP), or in contravention of the conditions of an AHIP. Summaries of those offences and their associated penalties are provided below in Table 1.

Table 1: Offences and penalties for harming or desecrating Aboriginal objects and declared Aboriginal Places (DECCW 2010a)

Offence	Maximum Penalty: Individual	Maximum Penalty: Corporation
A person must not harm or desecrate an Aboriginal object that the person knows is an Aboriginal object.	2,500 penalty units ($275,000) or imprisonment for 1 year 5,000 penalty units ($550,000) or imprisonment for 2 years or both (in circumstances of aggravation)	10,000 penalty units ($1,100,000)
A person must not harm or desecrate an Aboriginal object (strict liability offence).	500 penalty units ($55,000) 1,000 penalty units ($110,000) (in circumstances of aggravation)	2,000 penalty units ($220,000)
A person must not harm or desecrate an Aboriginal Place (strict liability offence).	5,000 penalty units ($550,000) or imprisonment for 2 years or both	10,000 penalty units ($1,100,000)
Failure to notify Heritage NSW of the location of an Aboriginal object (existing offence and penalty)	100 penalty units ($11,000). For continuing offences, a further maximum penalty of 10 penalty units ($1,100) applies for each day the offence continues.	200 penalty units ($22,000). For continuing offences, a further maximum penalty of 20 penalty units ($2,200) applies for each day the offence continues
Contravention of any condition of an Aboriginal Heritage Impact Permit	1,000 penalty units ($110,000) or imprisonment for 6 months, or both, and in the case of a continuing offence a further penalty of 100 penalty units ($11,000) for each day the offence continues	2,000 penalty units ($220,000) and in the case of a continuing offence a further penalty of 200 penalty units ($22,000) for each day the offence continues

1.3.3 Environmental Planning and Assessment Act 1979 (NSW)

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) provide the overarching structure for planning in NSW. The two most commonly used policies that support the EP&A Act and the EP&A Regulation are State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).

SEPPs deal with matters of State or regional environmental planning significance. These policies are made by the Governor on the recommendation of the Minister for the Environment. SEPPs may be exhibited for public comment in draft form before being published as a legal document to allow the public the opportunity to provide feedback.

LEPs are administered by LGA. An LEP is a planning instrument that councils prepare under the EP&A Act, in consultation with their community and approved by the Minister for the Environment (or their delegate). Each local government area has a LEP that guides development and planning decisions as well as providing protection for natural resources. All local councils are required to identify items of local heritage significance in a heritage schedule to their LEP. Items listed on the heritage schedule of an LEP are also listed on the State Heritage Inventory (SHI).

LEPs are normally supported by a Development Control Plan (DCP), which provides detailed planning and design guidelines. The DCP identifies additional development controls and standards for addressing local development issues.

The study area is subject to the BVSC LEP 2013 and DCP 2013 (amended 2015).

The study area is not sewered and is partially within 150m of the Pambula River, a nominated waterway listed in Table 5.3 of the BVSC DCP 2013. Those parts of the study area within 150m of

the Pambula River are subject to the following constraints of the BVSC DCP 2013 relating to Onsite Sewage Management (OSM).

- Council will not support the following types of subdivision proposals with OSM:
    - *Where the proposed land application area/s are within 100m of an environmentally sensitive area; or*
    - *Where the proposed land application area/s are within 150m of a nominated waterway (see Table 5.3*)

Those parts of the study area within 150m of the Pambula River and subject to constraints under Section 5.7 of the BVSC DCP 2013 are shown in Figure 2 below.

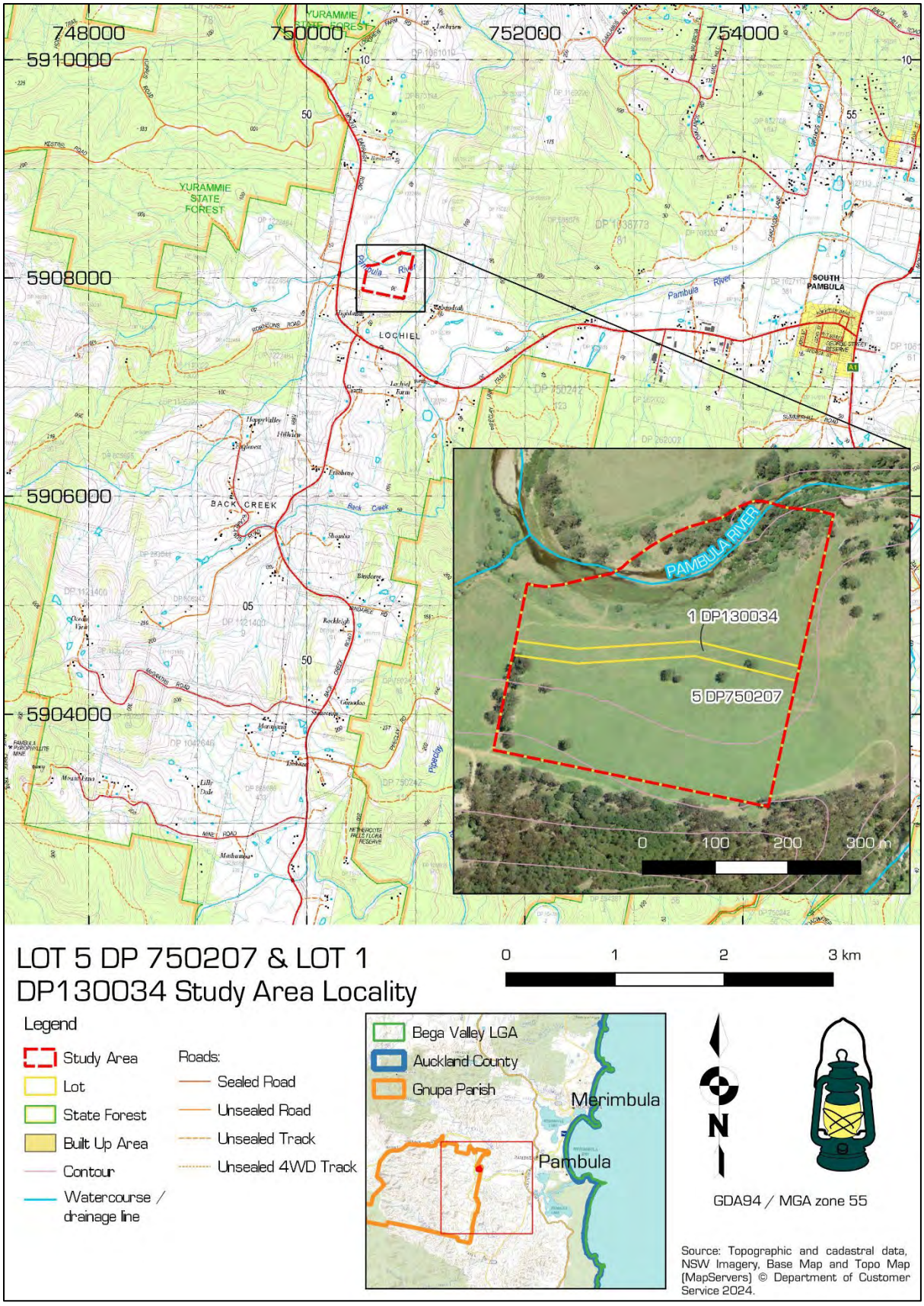

Figure 1: Topographic map showing the study area (source: Topographic and Cadastral Data, NSW Imagery Base Map and Topo Map [MapServers]).

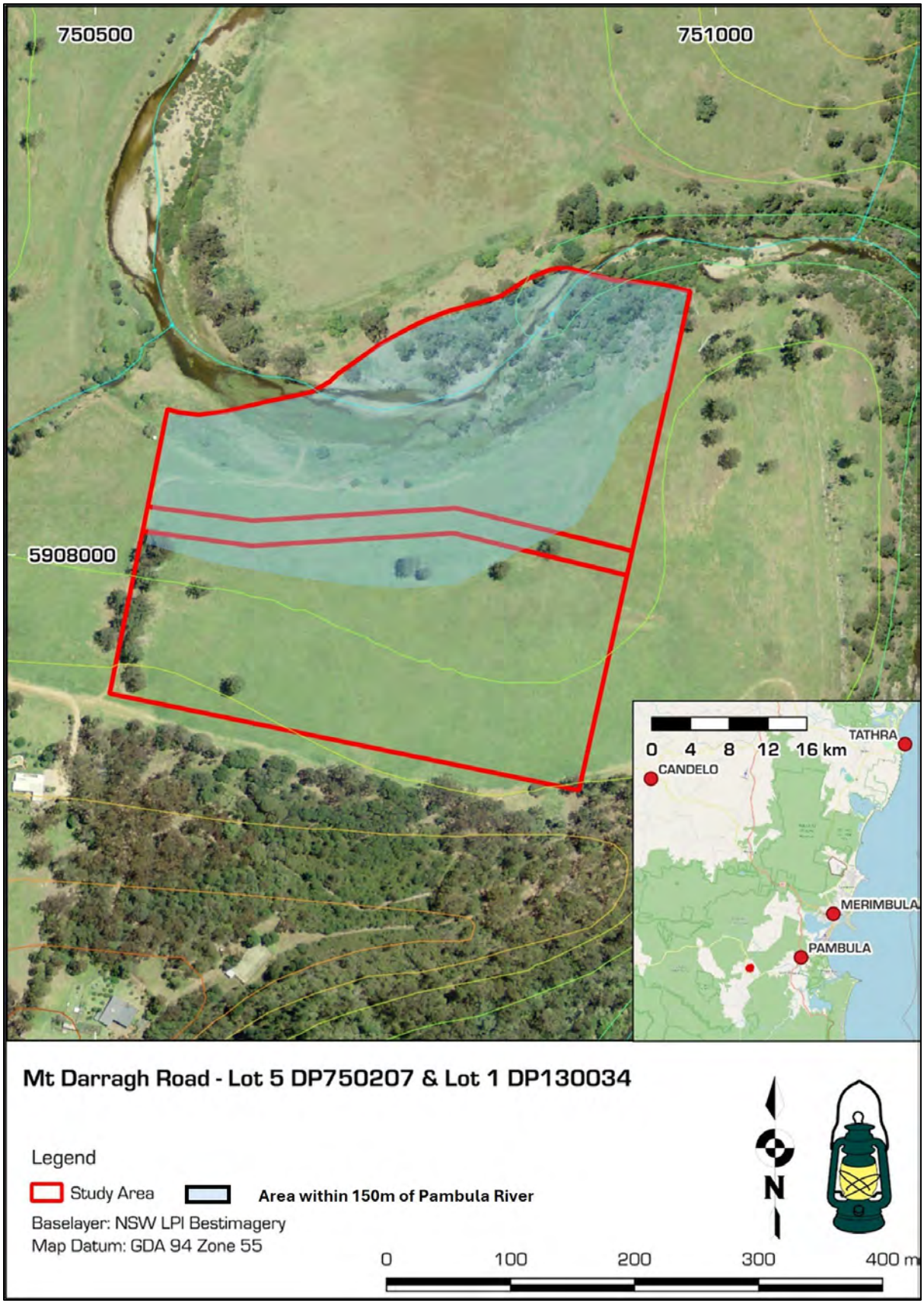

Figure 2: Aerial map of the study area showing parts within 150m of Pambula River (source: NSW LPI Bestimagery)

2 DEVELOPMENT PROPOSAL

Client-provided design of the proposal is below in Figures 3 and 4. It is the current proposed subdivision of Lot 5 DP750207 and 1 DP130034 at Mount Darragh Road.

Figure 3: The study area in regional context (client provided)

Figure 4: the proposed subdivision (client provided)

3 LANDSCAPE CONTEXT

The study area is located approximately 7.5km southwest of the town of Pambula in the local government area of the Bega Valley Shire. It comprises a total area of 12.9ha of flat to moderately sloped grazing land largely cleared of native vegetation. This section will outline the environmental information available for the area and contrast that to the results of recent local archaeological and geotechnical investigations.

3.1 Geology, Geomorphology and Soils

Lots 5 DP750207 and 1 DP130034 consists of cleared, gently undulating grazing land bounded to the north by the Pambula River. The Pambula River is a west-east flowing, perennial watercourse that flows into the Tasman Sea no more than 9km east of the study area. The underlying geology across the majority of the study area consists of three distinct geological units (Figure 5).

Along the northernmost portion of the study area, the underlying geology consists of Abercrombie Formation sandstones. These were laid down in deep marine conditions between 459 to 479 million years ago (mya). They are characterised by brown and buff to grey, thin- to thick-bedded, fine- to coarse-grained mica-quartz sandstone, interbedded with laminated siltstone and mudstone. Sporadic chert-rich units are present.

In the central portion of the study area the underlying geology consists of alluvial floodplain deposits comprised of silt, very fine-to-medium grained lithic to quartz-rich sand and clay, with a small pocket of Cenozoic era alluvial sediments comprised of alluvial deposits, dominantly friable to unconsolidated sand and gravel that includes some lacustrine deposits and sub-basaltic sediments.

Along the southern boundary the geology consists predominantly of recent alluvial sediments comprising alluvial deposits of sand & gravel; friable to unconsolidated or cemented to sandstone or conglomerate including some lacustrine deposits & sub-basaltic sediments.

The underlying geology surrounding the study area is dominated by Devonian Boyd Volcanic Complex igneous silicic to intermediate volcanic rocks. They are characterised by felsic volcanics, basalt, quartz porphyry, and minor sedimentary rocks that were formed between 419 million years ago (mya) and 359mya.

The soil landform within the study area consists of three separate landscapes (https://www.environment.nsw.gov.au/eSpade2Webapp/) (Figure 6). They comprise, from north to south;

Bega River Soils:

Quaternary alluvium of well-drained to poorly drained siliceous sands. Topsoils (A horizon) comprise several metres of loose, coarse sand and gravel.

Towamba River Soils:

Quaternary alluvium consisting of well-drained alluvial soils. Topsoils (A horizon) consist of brownish-black and dark brown silty loams and sandy clay loams with a shallow depth of approximately 30cm over thick (over 100cm) horizons of sandy and gravelly facies

Quondolo Soils:

Soils comprise moderately deep, well-drained Yellow Earths on crests, and moderately deep, moderately well-drained grey-brown Soloths on slopes on Quondolo Formation sands and gravels. Topsoils (A horizon) consist of very shallow (up to 15cm) deposits of brownish-black sandy loams that overly yellow-orange sandy clay loams.

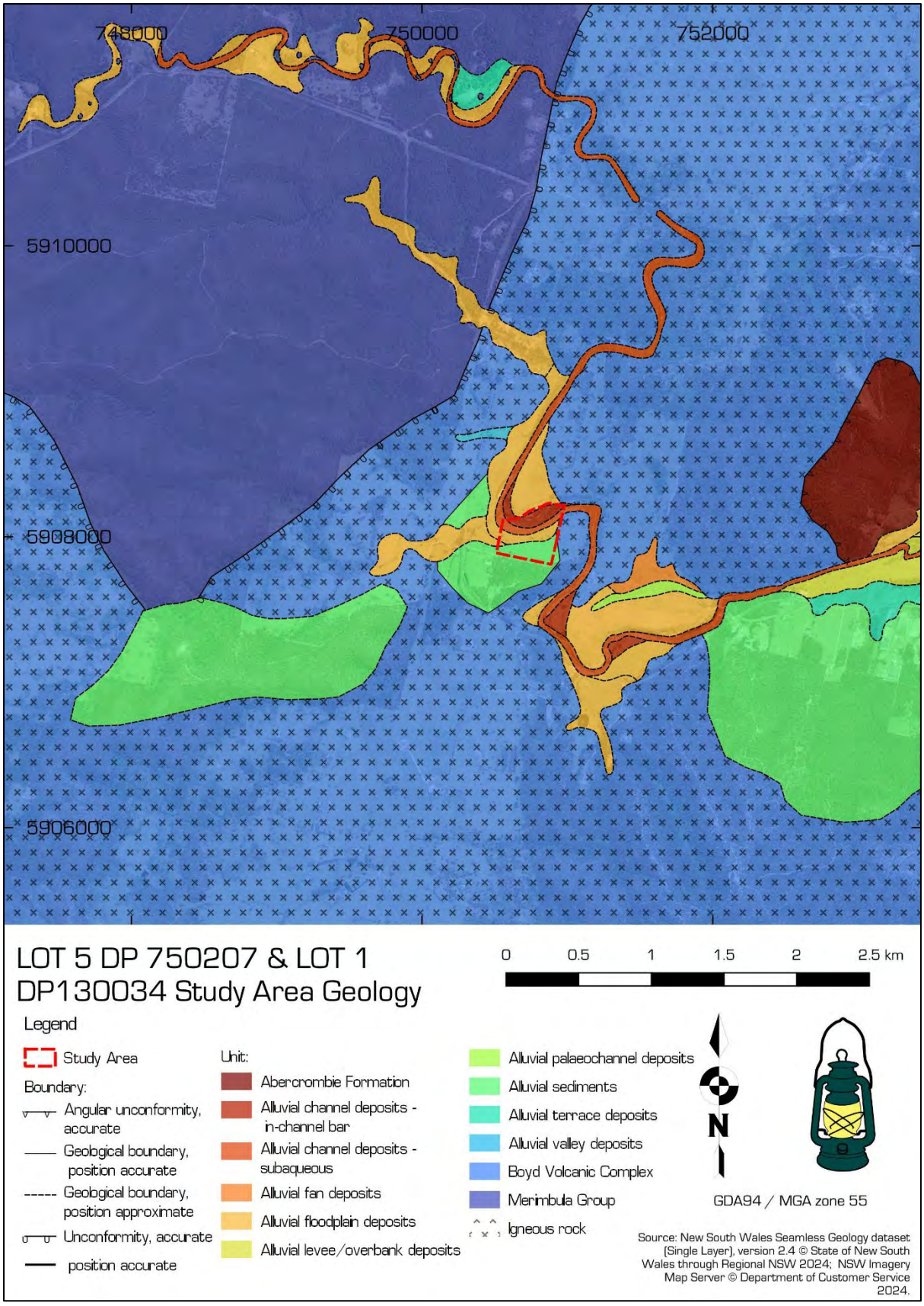

Figure 5: Underlying Geology of the Mount Darragh Road Study Area (source NSW Seamless Dataset; NSW Imagery Map Server).

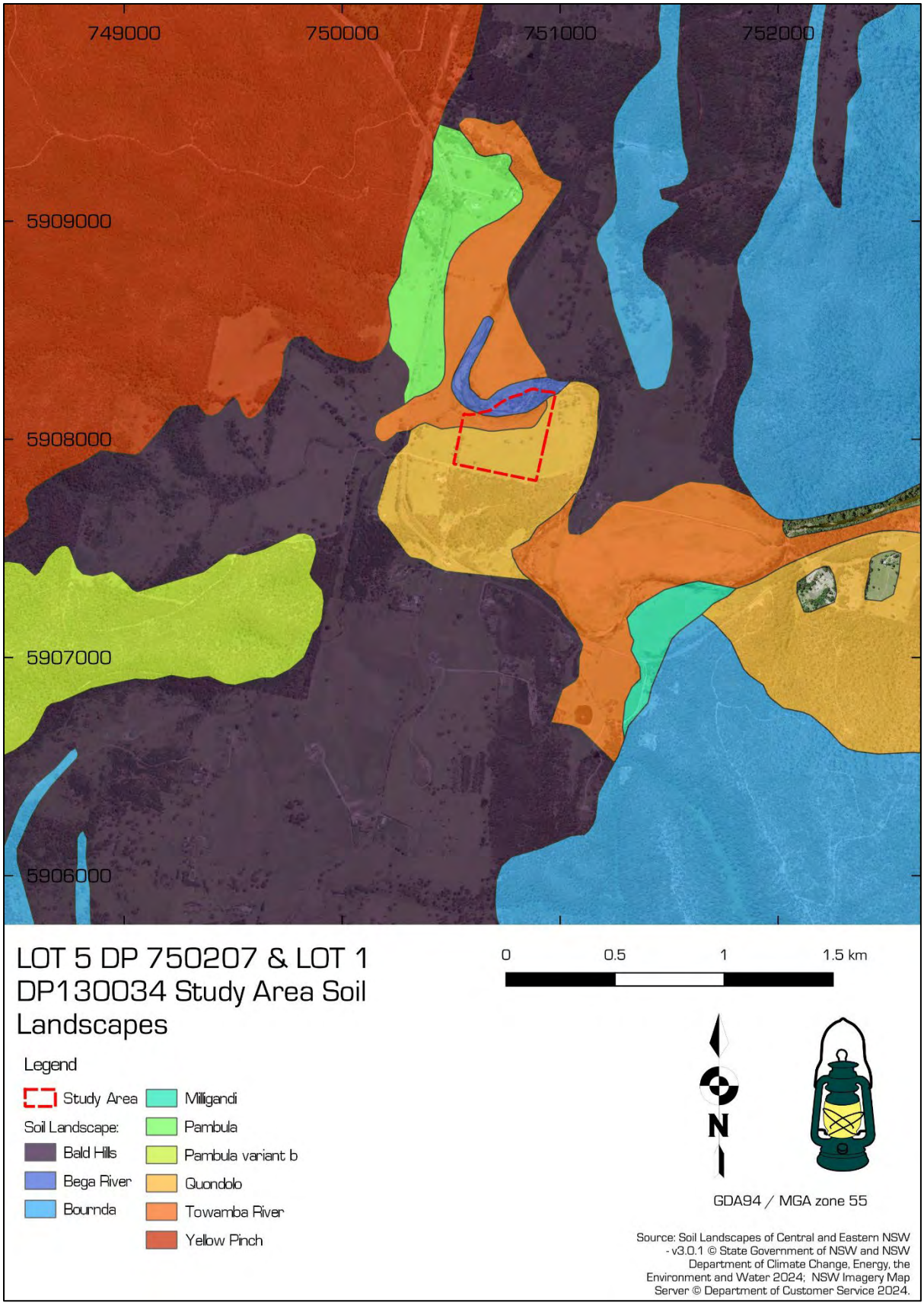

Figure 6: Soil Landscapes of the Mount Darragh Road Study Area (source: Soil Landscapes of Central and Eastern NSW; NSW Imagery Map Server).

3.2 Vegetation

The study area is predominately cleared grazing land with some potential remnant arboreal vegetation to the west. Although the original vegetation structure is unknown, it is likely to have encompassed tall open-forest (wet sclerophyll forest) to closed scrub, with tall open-forest of *Casuarina cunninghamiana* (river oak) commonly lining the riverbanks (e-Spade 2024).

3.3 Land-use history

In locations where potential disturbance to ground surfaces is not readily evident, this section would normally investigate the historical uses to which the study area has been put and would extrapolate from this information the degree of potential ground disturbance and damage to the archaeological record. Such historical sections would characteristically include consideration of all activities dating from first European settlement. In the case of the current study area, the study area and its surrounds appear to have been exclusively used for dairy and beef cattle and sheep grazing on cultivated pastures historically cleared of native vegetation.

3.3.1 Summary of potential soil disturbance through historical land use

Aerial imagery available from the New South Wales Historical Imagery Viewer and Geoscience Australia Historical Aerial Photography indicates that there has been minimal ground disturbance as a result of previous pastoral activities in the study area. Rather, the main cause of soil disturbance within the study area is likely associated primarily with historic land clearing and livestock grazing (see Figures 7-10) with no significant changes occurring to the landscape between 1966 (the earliest satellite imagery available) and 2021 (Figures 11-15).

Vegetation clearance and subsequent use of the study area and its immediate surrounds for pastoral activities is likely to have accelerated the rate of soil erosion, resulting in changes to the landscape and increasing the possibility of exposing previously buried Aboriginal material culture to the surface. Additionally, as the study area has been used historically for livestock grazing of sheep and cattle, there is a high probability that livestock trample, compaction and exposure of the ground surface has resulted in the acceleration of soil loss within the study area.

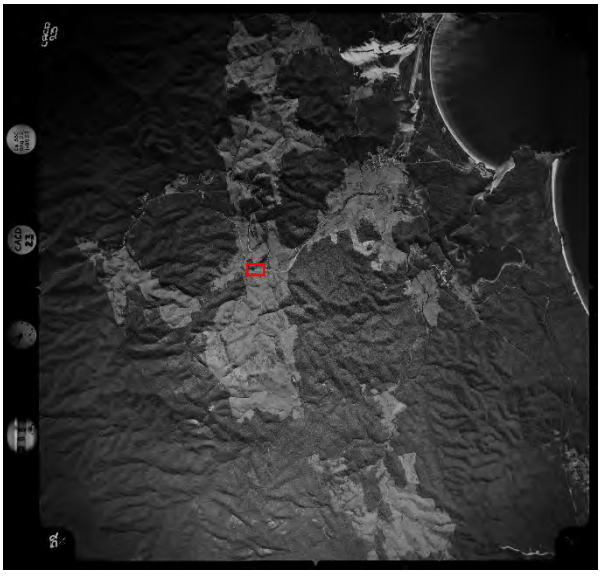

Figure 7: Study area in 1966. Geoscience Australia

Figure 8: Study area in 1989. NSW Historical Image Viewer

Figure 9: Study area in 1994. NSW Historical Image Viewer

Figure 10: Study area in 1998. NSW Historical Image Viewer

Figure 11: Study Area in 2006. Google Earth

Figure 12: Study Area in 2013. Google Earth

Figure 13: Study area in 2015. Google Earth

Figure 14: Study area in 2019. Google Earth.

Figure 15: Study Area in 2021. Google Earth

4 ARCHAEOLOGICAL CONTEXT

4.1 Review of Heritage Registers

4.1.1 AHIMS search results

An extensive search of the Aboriginal Heritage Information System (AHIMS) was carried out on 2 July 2024 (Client #906242 – Appendix 1 – AHIMS Search). The search was conducted using GDA 94 Zone 55. Eastings 745309-755309, and Northings 5902975-5912975 This constituted a square search area of 10km per side, centred on the study area.

A total of seven (7) AHIMS sites are listed as present within the AHIMS search area. All AHIMS sites in the study area are shown in Figure 16 and Figure 17. Table 2 provides an overview of AHIMS listed sites categorised according to type and sorted according to representative frequency.

Table 2: AHIMS site types in the search area

Site Type	Number of Sites	%
Fish Trap	2	28.5
Artefact(s)	3	43
Artefact(s) - Open Camp Site	2	28.5
Total	7	100

4.1.2 AHIMS sites within 6km of the study area

A search of the NSW State Heritage Register revealed that no Aboriginal places have been declared in or near the study area. A total of seven (7) Aboriginal heritage sites are located within a 6km radius of the study area. Of these, the closest Aboriginal site recorded within the vicinity of the study area consists of an open camp site (AHIMS #62-6-0237), located approximately 3.2km southeast of the current study area. Of the remaining six (6) Aboriginal heritage sites identified within an approximate 6km radius of the study area, two (2) sites are classified as fish traps (AHIMS #62-6-0881; AHIMS #62-6-0579), three (3) sites are classified as artefact sites (AHIMS #62-6-0751; AHIMS #62-6-0752; AHIMS #62-6-0753), and a one (1) site is classified as Open Camp Sites (AHIMS #62-6-0167).

It is worth noting that although the Bega area has been long occupied by non-Aboriginal people, no Aboriginal sites were registered in the 7km surrounds of the study area prior to 1987, and the majority of sites (n=4, 57%) were recorded after 2012. This recency indicates the extent to which local identification of sites results from the increased level of modern and compliance-based archaeological assessment, and that the previous lack of identified sites does not reflect low archaeological potential.

The following section provides a detailed description of these sites.

AHIMS #62-6-0237

AHIMS #62-6-0237 is classified as an open camp site located approximately 2.8km southeast of the study area at a property referred to as "The Pinch", approximately 19km NNW of the township of Bega. The site was identified and recorded by Stone in July 1993 as part of the Archaeological Survey of the Proposed Optical Fibre Cable Route from Bega to Galba. The site consists of a low density scatter of at least one stone anvil, one quartz core, and six quartz flakes and flaked pieces situated within an exposure adjacent to a farm track.

AHIMS #62-6-0167

AHIMS #62-6-0167 is classified as an open camp site located approximately 4.8km southeast of the study area Nethercote Falls within the Nullica State Forest. The site was identified and recorded by Smith in April 1987 as part of a routine archaeological investigation for the Forestry Commission. The site consists of a low-density scatter of at least twelve artefacts comprising silcrete, chert, quartz, and indurated mudstone cores shaped into utilised flakes, and waste flakes situated on a small saddle at the headwaters of a minor gully that drains into the Yowaka River.

AHIMS #62-6-0881

AHIMS #62-6-0881 is classified as a fish trap site located approximately 5.2km southeast of the study area within the Yowaka River. The site was identified and recorded by Nutley in March 2023 as part of a study on environmental factors that influence the survival of inundated Aboriginal sites in Australia (Nutley, 2005, Surviving Inundation An examination of environmental factors influencing the survival of inundated Indigenous sites in Australia within defined hydrodynamic and geological settings). The site consists of the partial remains of a stone fish trap featuring large stones approximately 0.8m large, with the central section missing as a result of flood waters passing through the region.

AHIMS #62-6-0579

AHIMS #62-6-0579 is classified as a fish trap site located approximately 5.2km southeast of the study area within the Yowaka River. The site was identified and recorded by Moore in October 2005. The site consists of the partial remains of a stone fish trap approximately 25m in length.

AHIMS #62-6-0571

AHIMS #62-6-0571 is classified as an artefact site located approximately 4.2km northeast of the study are along the Pambula River. The site was identified and recorded by Adams in August 2012 as part of a due diligence assessment. The site consists of a low-density artefact scatter of at least 10 flakes, cores, and stone tools of quartzite, quartz, chert, and basalt with a potential archaeological deposit located directly west of a tributary of Pambula River on a steep creek terrace.

AHIMS #62-6-0572

AHIMS #62-6-0572 is classified as an artefact site located approximately 4.2km northeast of the study area along the Pambula River. The site was identified and recorded by Adams in August 2012 as part of a due diligence assessment. The site consists of a high-density artefact scatter of at least 31 stone artefacts comprising flakes and cores of quartzite, quartz, chert, chalcedony, and silcrete with a potential archaeological deposit located at the base of a hill directly east of a creek gully.

AHIMS #62-6-0573

AHIMS #62-6-0573 is classified as an artefact site located approximately 4.1km northeast of the study area along the Pambula River. The site was identified and recorded by Adams in August 2012 as part of a due diligence assessment. The site consists of a low-density artefact scatter of at least 4 stone artefacts comprising flakes of chert and fine-grained silicious material with a potential archaeological deposit located on a creek terrace associated with a small tributary of the Pambula River.

4.1.3 Summary

The AHIMS data above can only provide very limited detailed insight to the nature of Aboriginal life in the search and study area. This is because the survival and distribution of known Aboriginal sites depends on a number of variables that include robusticity of material, size and detectability, scale of previous archaeological investigation, availability of local natural resources and the impacts on all these of European settlement, colonisation and the drastic effect this has had on the Aboriginal cultural landscape. Aboriginal objects formed of more durable materials such as stone may survive relatively well, while items such as culturally modified trees are subject to both natural deterioration and destruction through impacts such as land clearing.

As indicated by the available aerial footage, the study area has undergone extensive land clearing to facilitate historic pastoral activity. It is highly probable that the vegetation clearance for pasture has had a two-fold effect on any Aboriginal heritage sites that may be located within the study area. First, that the clearance of native vegetation, particularly in the case of veteran trees, may have resulted in the removal of Aboriginal scarred trees from the landscape. This may contribute to the site type being underrepresented on the archaeological record. Additionally, vegetation clearance and subsequent use of the land for pastoral purposes has the ability to drastically increase the rate of soil erosion. The increased rate of soil erosion can result in changes to the landscape itself through the distribution of silt and sediments. This, combined with intensive livestock grazing can result in ground disturbance caused by trample and soil compaction, accelerating the rate of soil erosion within the study area and potentially contributing to the disturbance of any Aboriginal material culture that may be present by exposing previously buried artefactual material or the opposite. The general study area does not appear to have been subjected to cultivation. Areas subject to cultivation over a long period of time generally exhibit highly disturbed soil profiles due to repeated ploughing. This in turn impacts the overall integrity of a potential archaeological deposit, through vertical movement as well as horizontal drag from ploughs. The study area appears to have largely been used for livestock and it is probable that widescale soil disturbance has been chiefly restricted to the surface, and that any sub-surface deposits remain relatively intact.

Subject to these limitations, and taken as a whole, the nature of sites in the wider area provides evidence of a past Aboriginal lifestyle that utilised the natural environment as they moved through country stopping in short term habitation. The study area includes floodplain terrace landform conducive to potential longer-term habitation. The low-density artefact scatter sites and open camp sites identified within the wider region are typically located along creek terraces within proximity to tributaries of the Pambula River, indicative of short-term, sporadic settlement along the landscape. In contrast, the construction of fish traps, including those of large boulders would indicate likely local extended habitation, other direct evidence of which has not yet been identified.

4.1.3.1 Aboriginal Places

A search was made for Aboriginal Places on the NSW State Heritage Register and State Heritage Inventory on 2 July 2024 ("Search for NSW heritage | NSW Environment & Heritage," n.d.). No Aboriginal places or places with identified Aboriginal cultural values are listed on either the State Heritage Register or the State Heritage Inventory within the study area. No Aboriginal Places are listed within the immediate vicinity of the study area.

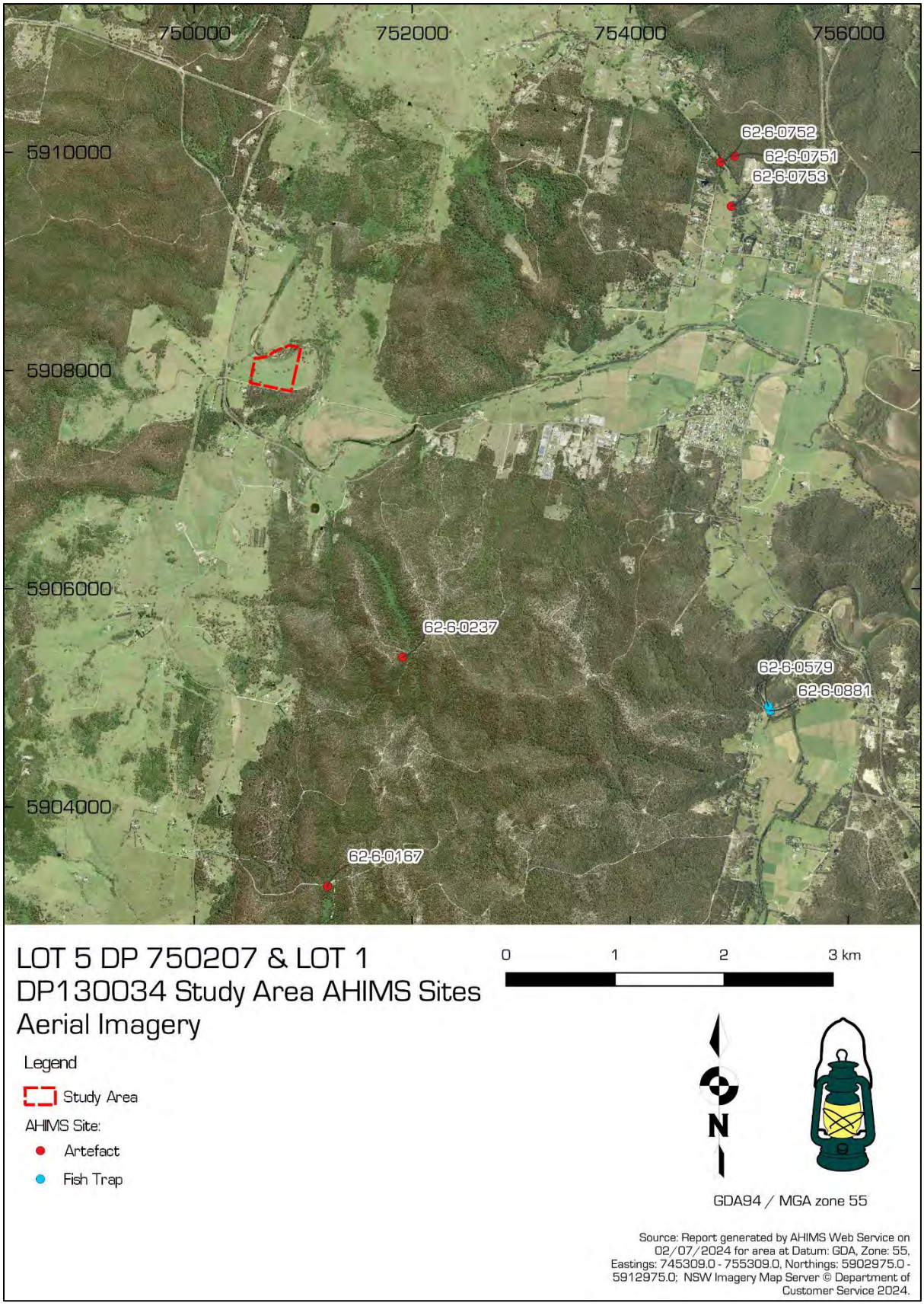

Figure 16: AHIMS sites in the search area (provided by AHIMS 2 July 2024) (source: Report prepared by AHIMS Web Service 02.07.2024; NSW Imagery Map Server).

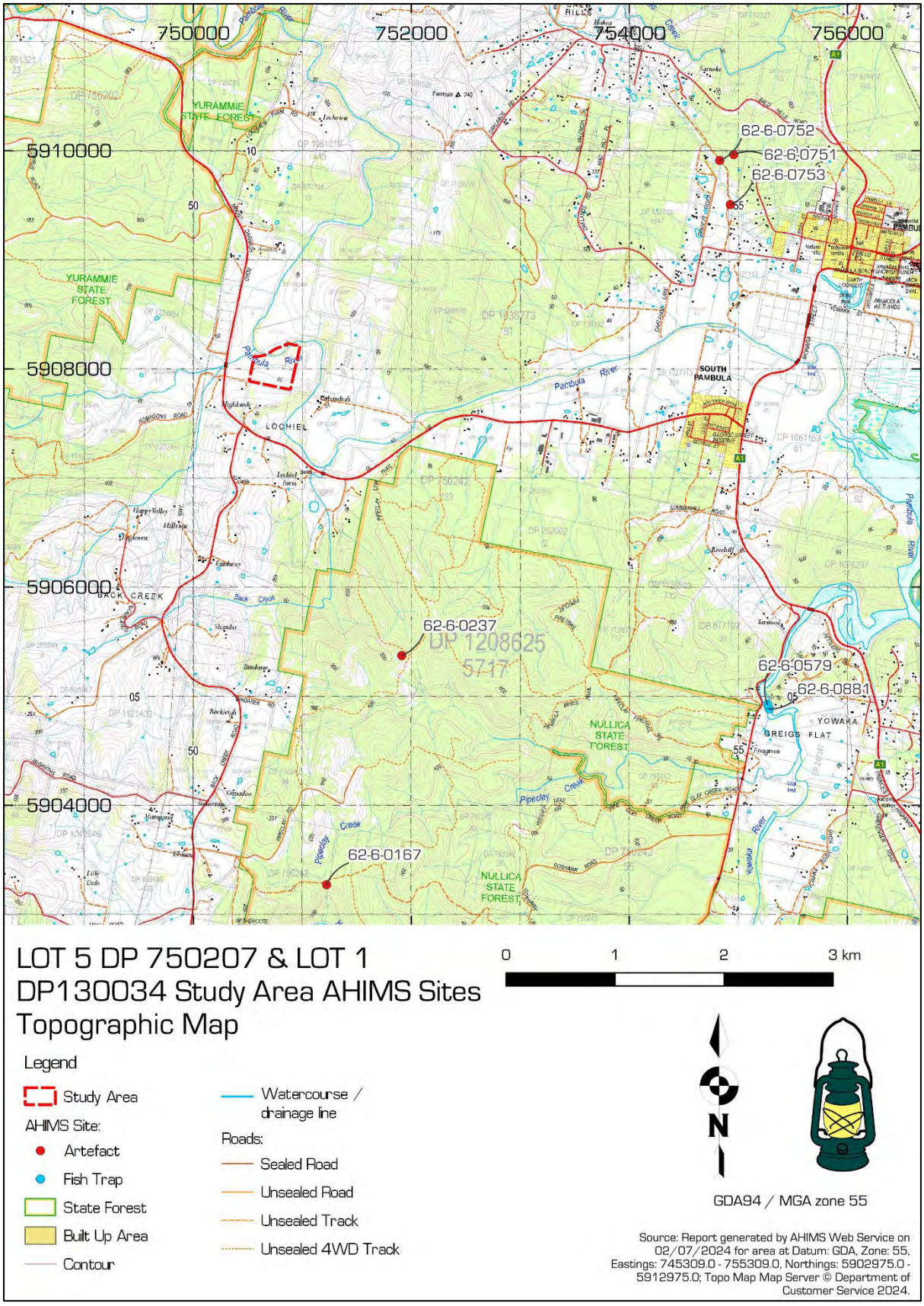

Figure 17: Topographic map of AHIMS sites within 5km of the study area (provided by AHIMS 2 July 2024) (source: Report prepared by AHIMS Web Service 02.07.2024; NSW Imagery Map Server).

4.1.3.2 Aboriginal Places

A search was made for Aboriginal Places on the NSW State Heritage Register and State Heritage Inventory on 2 July 2024 ("Search for NSW heritage | NSW Environment & Heritage," n.d.). No Aboriginal places or places with identified Aboriginal cultural values are listed on either the State Heritage Register or the State Heritage Inventory within the study area. No Aboriginal Places are listed within the immediate vicinity of the study area.

4.2 Material evidence of Aboriginal land use

4.2.1 Aboriginal occupation of Australia and the east coast

Many Aboriginal people propose that their origins are autochthonous – that Aboriginal people did not migrate to Australia from Africa, but that they arose in Australia itself as part of the Dreamtime. The Dreamtime is a non-chronological era, described by Stanner as an 'everywhen', during which Country, landforms, spiritual creatures and humans came into being. Aboriginal occupation of Australia extends back well into the Pleistocene (2.6 million - 11,600BP). Current archaeological theories place the arrival of humans to Sahul, an ancient continent of which Australia formed part, between 47,000 years before present (BP) and 65,000 BP (Clarkson et al., 2017; O'Connell and Allen, 2015, 2004). While archaeological debate continues regarding the earliest arrival in Australia, there is general scientific agreement that all environmental zones across the continent were inhabited by around 35,000 BP (Mulvaney and Kamminga, 1999). Since that time there has been substantial climatic variation, which has influenced the choices that people made regarding the locations in which they lived.

Of direct relevance to the south coast is the fact that the archaeological record of human occupation and their use of the coastline as we know it today mainly relates to the mid to late Holocene (6,000BP to present) as the local ancient coastline has long been sunken beneath sea water often far offshore. The potential for sites of Pleistocene age sites (Boot, 2002) and even early Holocene sites (11,600-9,000BP) needs to be understood within the context of a very different geography that Aboriginal people once inhabited.

Sea levels dropped considerably during the Last Glacial Maximum (LGM) (around 21,000 BP) at which time the sea level was on average 130m lower than present. At this time the Australian coast was often tens of kilometres offshore from current watermarks, with the current coastal zone being inland terrain. Sea levels did not reach their current levels until the mid-Holocene (around 6-8,000 BP). The oldest archaeologically dated evidence for Aboriginal habitation in the south coast region dates to the LGM, in locations that would have formed part of the coastal hinterland (Boot, 2002; Flood, 1980; Lampert, 1971).

4.2.2 Building a Predictive Model

The purpose of the following analysis of literature is to assist in building a predictive model of archaeological potential in the study area.

Predictive modelling in archaeology cannot reconstruct the lifeways of Aboriginal people. At best it can identify with some confidence those sorts of locations in which artefactual deposits are likely to be present. Locations where intensive Aboriginal activities such as ritual ceremony may have repeatedly taken place will generally be archaeologically undetectable and will therefore not be fed into the iterative construction of models.

Archaeological predictive modelling therefore is constrained to statistical observation of correlations between natural landscape features on the one hand, and the relative frequency of Aboriginal archaeological finds on the other.

As will be seen below, there is relatively little archaeological reporting available for the study area and its immediate surrounds to inform a location-specific predictive model. There are nevertheless several archaeological keystone studies that are pertinent to much of the east coast, which provide some basic diagnostic relevant to the current study area. These studies have benefitted from their location in areas where high levels of development have resulted in intensive archaeological assessment programs over time, thus providing dense statistical data for analysis. Canning (2003) observed that some 80% of all Aboriginal archaeological sites recorded in the Greater Melbourne

Area were situated within 200m of permanent water, preferentially on terrace. White & McDonald (2010) found similar results to Canning during their large-scale assessments at Rouse Hill, Sydney. White & McDonald refined their model to identify that the density of archaeological deposits was greater in proximity to major waterways and lower near minor waterways, with an overriding skew to waterside terraces. Owen and Cowie (2017) added to White and McDonald's model, extending results further across the Cumberland Plain, but in essence for our purposes confirming the elevated potential for archaeological sites to occur on terraces near permanent water.

From an inductive and functional perspective these results are hardly surprising in indicating that Aboriginal people in the past preferred to camp near water, on elevated land that would provide safety from flood, which would remain accessible in the event of elevated waters, and which would be out of reach of waterside insects. The alluvial soils in such locations, laid down in multiple flood events, would also serve to cap and preserve artefacts, often in deep stratigraphic layers. Alluvial deposits of softer deeper soil types such as sands and silts were often more amenable to camping.

These observations are likely of overriding consequence in considering the archaeological potential of the study area, which contains both permanent water and floodplain terrace.

4.2.3 Regional archaeological investigations

Regional studies of the NSW south coast have primarily focused on the littoral and coastal zones with little focus on Aboriginal activity and subsistence strategies in the hinterland. This has subsequently manufactured a strong bias towards a marine focused subsistence model. Nonetheless, there have been three regional studies of the hinterland of the NSW south coast that inform the current study area. These studies consist of a PhD thesis (Boot 2002), a masters thesis (Dearling 2002), with one additional study consisting of an unpublished honours thesis (Attenbrow 1976) that constitutes the first in depth study of subsistence patterns in the hinterland of the NSW south coast.

4.2.3.1 Sullivan 1976

This was a regional study conducted as part of a wider CSIRO study of major river systems of the NSW South and Far south coast. The study primarily focused on coastal sites and consequently, Aboriginal midden sites. Several sites within the hinterland were noted, with a number of optimal habitation locations within the hinterland also referenced however these sites were largely ignored within the study, and no meaningful data was collected from areas beyond the coastal region. Sullivan concluded, based on the results of her research, that the coastal region rather than hinterland experienced the greatest intensity of resource exploitation.

4.2.3.2 Attenbrow 1976

Due to a paucity of supporting archaeological investigations within the hinterland of the south coast, Attenbrow's 1976 honours thesis constitutes an ethno-historical and ethnographic study with limited archaeological evidence, rather than a traditional archaeological investigation focusing on subsistence economy for Aboriginal along the far south coast. Notably, this study concentrated on the Towamba and Bega Valleys, where the study area is situated. The use of ethno-historical approaches can be viewed as problematic, as the behaviours ethnographically documented were being recorded after Aboriginal society had already experienced significant upheaval and stressor responses that almost certainly led to changes from previous life ways. Nonetheless, Attenbrow's study constitutes one of the first in-depth studies in the Bega Valley that did not follow the established pattern of studying marine and coastal based subsistence patterns.

Attenbrow argued that that Aboriginal subsistence in the Towamba and Bega Valley was heavily influenced by geographical and seasonal distribution of food resources, as well as by topography, vegetation, and climate, and hypothesised that people were exploiting resources from both the coast and inland throughout the year, with a stronger emphasis on exploitation of coastal resources during the summer, spring, and autumn months. Attenbrow proposed that during the winter periods, Aboriginal groups would shift inland to rely on terrestrial food sources, with plant-based resources making up a larger component of their diet in the winter than in the summer. Attenbrow concluded

that both the coast and the hinterland were exploited to varying degrees, contradicting the strong marine bias that previous studies of the coast had advocated.

4.2.3.3 Knight 1996

This is a summary report of the site distribution patterns encountered from the Batemans Bay Forest Archaeology Project, a large-scale archaeological investigation of the south coast that encompassed a total area of 1020km^2. It included State Forests, National Parks and private land. A total of 2,207 Aboriginal heritage sites were recorded consisting of 1142 open camp sites, 678 isolated finds, 349 midden sites, 24 rock shelter sites (including 10 rock shelters that also exhibited rock art), 11 grinding groove sites, and three scarred tree sites. Through this study, Knight established that the hinterland was as extensively exploited as the coastal zone. Knight observed that site distribution patterns indicated that all environmental zones were utilised by the Aboriginal groups who inhabited the region, that large artefact scatters were frequently located at ridge junctions and associated with watercourses, and that while the frequency of larger artefact sites generally decreased in valley locations, proximity to permanent water was closely associated with larger site sizes.

4.2.3.4 Dearling 2002

Like Attenbrow, Dearling (2002) recognised the overemphasis of previous research on the NSW south coast on coastal and littoral areas, instead opted to focus on the hinterland of the Bega Valley Region of NSW. Dearling theorised that exploitation of marine resources and intensive occupation of coastal zones represented only one component of the whole Aboriginal economy, and that the Aboriginal groups that inhabited the Bega Valley area had a much more diverse subsistence economy than mainstream previous research had indicated.

Dearling undertook extensive surface surveys using a sampling methodology that considered the environmental zones, geology, forest type, and possible resource availability at Yankees Gap, Bemboka Peak, Tantawanglo Creek, Nelsons Creek Fire Trail, and the Bega Valley. Environmental boundaries were identified and assessed to test Byrne's 1983 theory that environmental zones could be used as a predictor of site density and distribution, whereby resource rich zones would heavily exploited and inhabited while comparatively poorer resource zones were largely avoided.

Focus was placed on ecotones – areas where two biological communities meet, and heightened biological variation is present.

Of secondary interest to Dearling's study was the presence of three Aboriginal access routes within his study area. Once identified, these traveling routes highlighted their importance to the exploitation of the Bega Valley Region by Aboriginal populations through the association of large, complex sites recorded along these routes.

Dearling's study concluded that Aboriginal inhabitants of the Bega Valley region exploited all areas of the study area, and proposed that the following habitation model within the Bega Valley consisted of:

- Areas that were less extensively exploited than others. Low levels of exploitation (as seen by the low level of archaeological finds) are likely a product of a poor resource base. Such is the case at Bemboka Peak, Nelsons Creek, and Mumbulla Mountain.
- Access routes that provided ease of movement between different areas/ecotones in a rugged environment were focal points of habitation.
- Areas close to an ecotone boundary will generally have a more complex assemblage than those further from the boundary. Habitation areas close to major stream will show a similar level of complexity.
- Preferred habitation locations that offered large, comfortable, and relatively dry camping areas, rather than access to water.

4.2.3.5 Boot 2002

Boot (2002) includes significant levels of archaeological survey through large numbers of university volunteers, test excavation and radiocarbon dating. Boot sought to test a number of long-standing and often contradictory regional hypotheses regarding relationships of past Aboriginal populations to varying regional landforms, particularly the contrast between coastal and hinterland areas. This is particularly relevant to the current study area, which is located in the hinterland of NSW approximately 10km inland from the coast. Even though, as mentioned above, hypotheses prior to Boot (2002) were often contradictory, it is worth listing some of them here to stimulate thought on potential factors behind regional archaeology:

- The coast and hinterland were inhabited by different groups of Aboriginal people, with coastal peoples able to sustain higher population density and therefore produce a larger archaeological record, due to the preferential resources available to them at the coast. Only limited trade and interaction took place between coastal and hinterland peoples.
- There existed one group of regional Aboriginal people who predominantly resided at the coast, only moving to the hinterland when the coast became seasonally undesirable.
- Major hinterland river valleys were inhabited year-round, while elevated hinterland areas were only visited during the warmest parts of the year.
- The hinterlands only constituted travel routes and ranging territory during transit between the coast and tablelands, with hinterlands only occupied relatively recently, potentially due to resource competition at the coast.
- Evidence of population shift between the coast and hinterland did not reflect seasonal variation, rather reflected short-term climatic and environmental change and the effects of these on resource abundance.

Boot (2002) concluded that most of these hypotheses could not be supported by the data he had gathered. Boot concluded that:

- No ethnographic and little archaeological evidence could be found to support a seasonal migratory model.
- High hinterland archaeological site densities including one with a date of 19,000BP, were evidence against the model of hinterlands as only recently and sparsely populated.
- Evidence exists from the presence of a common regional stone tool typology, that hinterland dwellers were the same group as those at the coast.
- Fluctuations in site density through time likely relate to as-yet unexplained factors that may include climatic, environmental and cultural shifts.

As a result of this, Boot provides a four-part explanatory and predictive model for the region:

1. Pleistocene occupation – Coastal sites are likely inundated. Hinterland sites will mainly be found in large well protected rock shelters near present or former watercourses.
2. Holocene occupation – No preferred regional habitation sites, with evidence for occupation at the coast and throughout the hinterland, particularly in flat open river valley woodlands, broad ridges and elevated areas near swamps and water.
3. Resource exploitation – Due to the wealth of local resources, groups were able to support themselves by ranging within short distances from habitation, rendering unnecessary the wide transportation of resources including stone.
4. Change in site occupation intensity – Although there is a demonstrable trend for increased hinterland occupation by the late Holocene, the factors behind this and the available archaeological evidence would not suggest that this resulted from an intensive uniform inland shift, rather from increased and relatively short-term utilisation of a wide range of landforms, at the same time as an ongoing utilisation of coastal resources.

Boot (2002) makes considerable use of ethnographic evidence to emphasise the potential centrality of cultural and religious factors in influencing habitation locations, thus underlining his proposition that Holocene archaeological sites may be found at any point in the landscape.

4.2.4 Archaeological investigations in the surrounds of Lot 5 DP750207 and 1 DP130034 (299-300 Mount Darragh Road)

This section presents brief analysis of archaeological investigations that have taken place within several kilometres of the study area, and on similar geomorphological settings. There is a paucity of investigations that have been conducted within the general vicinity of the current study area in comparison to the coastal zone. This is primarily due to the concentration of development occurring along the coastal zone, which has resulted in a relative abundance of information available for coastal areas along the south coast of NSW. As indicated in the abovementioned regional studies, the lack of information available within the vicinity of the study area should not be used to inform the archaeological potential for the hinterland.

4.2.4.1 Hiscock 1982

Hiscock (1982) analysed surface and sub-surface materials collected from sites recorded on the coastal plain of the far south coast of NSW along Mumbulla Creek. Hiscock noted that the lack of data regarding technologies in the region, particularly within the hinterland of the NSW south coast, impeded the ability to test the popular marine-centric subsistence model. Ten sites consisting of small, low density artefact scatters were recorded along a 6-7km length of Mumbulla Creek, six of which were collected and subject to analysis. These sites were identified on high ground, 10-15m above the creek, within 100m of the river. Of the collected materials, 80% constituted local quartz, 12% was volcanic, with the remaining 8% constating of silcrete or quartzite. Hiscock estimated that imported materials (rhyolite and quartzite) were likely transported over a distance of 25-30km to the study area and were likely brought in as already knapped and comparatively large flakes, indicating complex movements of people and stone materials on the coastal plain.

4.2.4.2 Byrne & Smith 1987

The scope of works involved the investigation of selected locations in the Eden area to assess the impact of planned roads on archaeological sites, using a sampling methodology that consisted of spot-checking locations along the planned road lines. A total of 22 Aboriginal heritage sites were recorded consisting of 19 open artefact scatters, one midden site, one stone arrangement, and one quarry site. Of the 20 recorded lithic sites (open artefact scatters and quarry sites), a total of ten sites were situated in saddles on ridgelines, five were situated on ridge summits, and five were situated on creek banks and flats. The five sites identified on creek banks and flats were all identified within 50m of Sheep Station Creek, representing a pattern of Aboriginal land use that concentrated on the resources of the creek and the adjacent flats and swamps. Of the materials present within these sites, quartz was present in all sites, with only eight sites comprising materials other than quartz within the assemblage consisting almost entirely of unretouched material. It is likely that the high-quality quartz material present within these scatter sites was sourced locally from the cobbles and pebbles from the creek line. These findings are consistent with previous investigations conducted in the Wandella-Dampier Forests that yielded low-density scatter sites comprised of local material sourced from creek beds.

4.2.4.3 Stone 1993

This archaeological survey was conducted as part of the proposed optical fibre cable that extended along a 10km corridor from Bega to Cobargo, and from Cobargo to Galba. The scope of works within this report is similar to the landscape context within the current study area, which falls within the hinterland of south coast NSW. The survey methodology utilised comprised a vehicle and pedestrian survey, with potential archaeological site locations targeted and inspected on foot. A total of three previously unrecorded sites were located during the survey consisting of open camp sites comprising stone artefact scatters. Two of these sites were identified on ridgelines, with the third site identified on the flat adjacent to the creek and comprised predominately of quartz material. These findings are consistent with previous archaeological investigations conducted within the region.

4.3 Summary of previous archaeological studies

Regional studies of subsistence patterns in the south coast region of NSW have primarily focused on the littoral and coastal zones with little focus on Aboriginal activity and subsistence strategies in the hinterland. These have subsequently manufactured a strong bias towards a marine focused subsistence model. The relatively few regional studies of the hinterland indicate however, that Aboriginal people utilised nearly all environments along the NSW south coast, and that the hinterland was exploited as intensively as the coastal regions. Archaeological investigations have identified a strong association for open camp sites and artefact scatter sites located along broad ridgelines and also at large, open, and well-drained camping grounds with access to water.

Local archaeological investigations have largely concentrated on the south coast and far south coastal zones of NSW primarily driven by the concentration of development occurring along the coastal zones. Local archaeological investigations conducted within the vicinity of the study area have identified open camp sites represented by stone artefacts as the dominant site type within the hinterland. These investigations have recorded site types and locations consistent with the hypotheses posited within the abovementioned regional studies, demonstrating a strong association for camp sites located along high broad ridgelines and river terraces. Where artefact scatters were present along valleys and on the banks of creek lines, sites were typically identified within 100m of the creek line along flats adjacent to the banks of the watercourses,

4.4 Predictive Model

The predictive model below (Table 3) is not a determinative statement of archaeological values to be found in the study area. Rather, based on the information collated above, it provides a set of hypotheses to be tested through direct investigation of the study area.

4.5 Predictive statements for the study area

Table 3: Summary of predictive model for the study area

Site Features	Predicted Potential	Sensitivity Within Activity Area
Stone artefacts	Moderate-High	Study area is located in close proximity to a perennial watercourse and includes parts on elevated, relatively level and well-drained ground suitable for camping. The underlying geology consists of basalt, rhyolite, and mudstone which are suitable materials for exploitation and stone tool manufacturing. Soils include deep alluvial deposits.
Potential archaeological deposit (PAD)	Moderate-High	Study area includes level terrace bounded to the north by Pambula River, with the potential for sediment deposits to aggrade. Soil depths are estimated to be greater than 150cm (eSpade 2024)
Midden	Low	Study area is located in the hinterland approximately 9.5km west of the coastline away from estuaries.
Culturally modified tree - Standing	Low	Study area has been largely cleared of native vegetation with few remnant trees remaining within the study area. Potential remnant trees are concentrated to the west and may be planted windbreak.
Ceremonial/Dreaming	Unknown	Any landform.
Burial	Low	Possible, but unlikely to occur given likely compact soils.
Stone arrangements	Low	Unlikely to occur, but presence cannot be completely discounted.
Fish Traps	Low	Possible within original courses of permanent waterways.

4.6 Field methods

Survey was carried out as follows:

Prior to field survey, the landowner provided Michael Lever (Lantern Heritage senior archaeologist) with a guided tour of the study area. This served as a vehicular reconnaissance / traverse which informed subsequent pedestrian survey in identifying general lack of soil exposure, existing disturbance, providing preliminary understanding of landforms, and informing the development of survey units as based on landform units.

Survey was carried out on 10 September 2024 by Lantern employees Michael Lever and Glenn Merrick (archaeological assistant), and Francis Clulow of the Eden Local Aboriginal Land Council. The South Coast People Native Title Claimants were invited to participate but could not attend. Representative samples of all landforms in the study area were inspected on foot. Avenza GIS software was used to log survey units, locations of photographs and points of interest on handheld devices. A photographic and backup written record were taken. All mature trees were inspected for Aboriginal scarring, exposed ground surfaces were inspected for Aboriginal objects, and landforms were assessed for areas of subsurface Potential Archaeological Deposit (PAD). Given lack of ground exposure, participants proceeded spaced approximately 20m apart, other than in locations where access, vegetation or landform necessitated single file.

4.7 Limitations

Soils in the study area were effectively wholly obscured by thick vegetation, primarily pastoral grasses, but also wetland reeds, rushes and ferns in low lying areas. Evidence was only noted of potentially light grazing, resulting in consistent grass cover without the patches of soil exposure characteristically produced through stock trampling. This constrained assessment of archaeological potential to the evaluation of landform sensitivity based on factors such as proximity to water, level and raised ground near water, and landforms where more aggrading (accumulative) soil formation processes were apparent.

4.8 Survey

4.8.1 Survey

The study area forms part of the southern lower slopes and floodplain of the Pambula River Valley, and in the northern extreme, the Pambula River and its meanders. Land rises to the south, east and west around the study area creating a localised shallow valley in this location. Very few trees are present, other than a potential past windbreak of native species along the western study area perimeter.

4.8.2 Survey units

The purpose of dividing survey and the study area into discrete survey units is to allow differential analysis of landforms relative to archaeological potential and proposed impacts, to sort observations into categories that can then be used to further predict archaeological potential, and also to guide management and mitigation measures for proposed impacts. In this case, the proposal is subdivision with only conceptual design available at time of survey. It was not considered appropriate to construct survey methodology or to shape survey units based on an assessment of conceptual impact designs that may not eventuate. As a result, survey units were defined by combined attributes of landform and any existing disturbance. The survey units implemented are shown below in Figure 18.

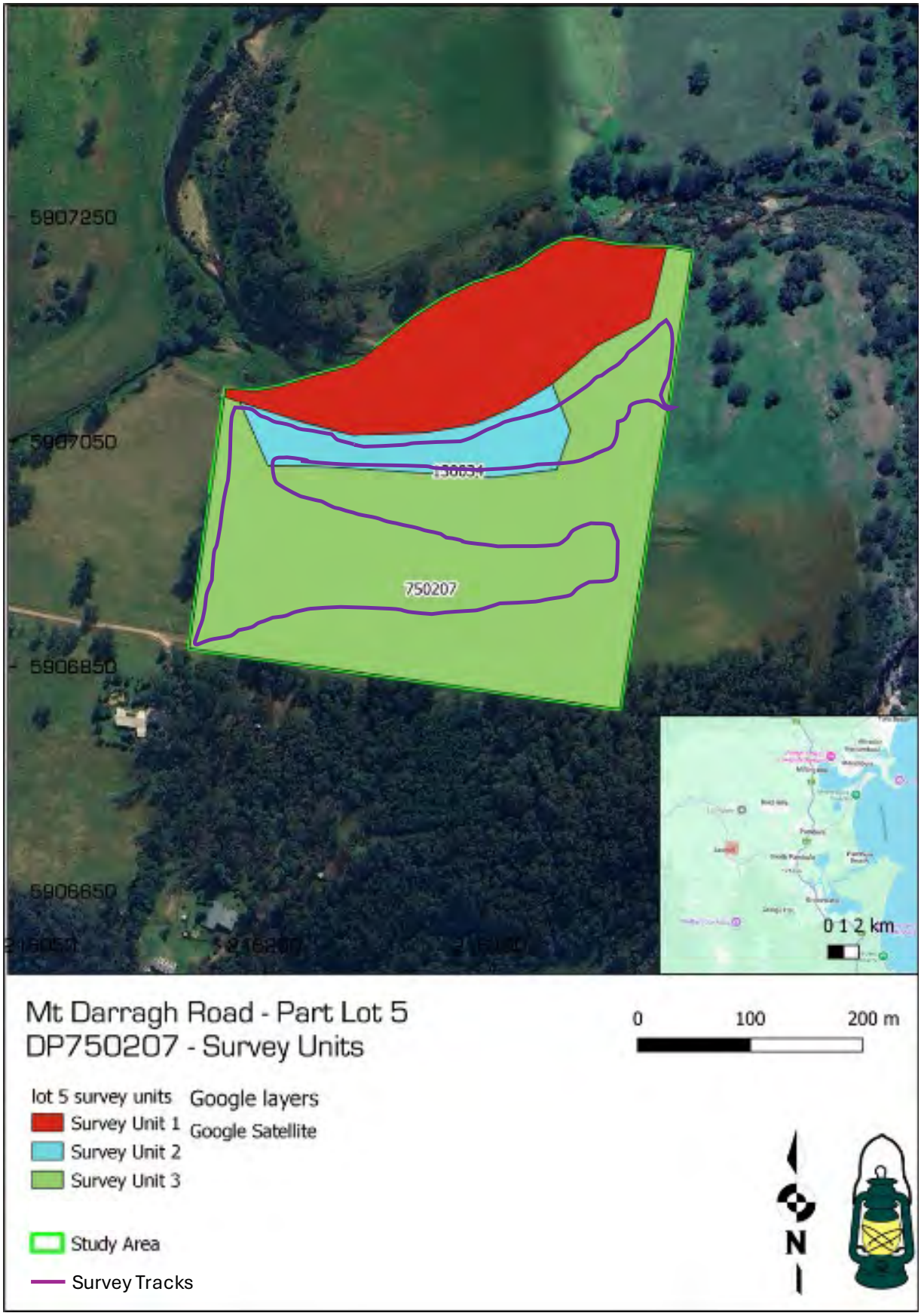

Figure 18: Survey Units and tracks recorded on Avenza GIS (source: Google Layers).

Survey Unit 1 – Pambula River and meanders (~2.3ha)

At some point after the establishment of cadastral boundaries, the Pambula River changed its course by up to 100m southwards. Now its waters and active wetlands form the northern part of the study area. Survey Unit 1 is not currently usable land. It comprises the flow of the Pambula River, and adjacent marshland, separated from the rest of the study area by often sharp erosional banks and breaks. This part of the study area has been excised from the proposed development. Nevertheless, inspection of soils within it informed on the likely substrate of the study areas as being deep cemented river alluvium with abundant inclusions of small river pebbles that could potentially have provided material for stone tool manufacture (Plate 1Plate 1: South bank of Pambula River showing depth of alluvial soil exposure. View south-east
). No significant soil disturbances were observed in Survey Unit 1.

Based on identified natural disturbance to soils, and its low lying and inundated nature, Survey Area 1 is assessed as of low archaeological potential.

Survey Unit 2 – elevated floodplain terrace (~2ha), Mt Darragh Rd PAD 02

Survey Unit 2 is completely treeless and comprises a level terrace elevated approximately 3-4m above the course of the Pambula River. To its south, land steps up southwards by approximately 1m, in a line indicated by several native trees, prior to proceeding upwards into Survey Unit 3 in gentle to moderate slope to the south, and more steeply to the east (Plate 2, Plate 3, Plate 4) Survey Unit 2 is approximately within 200m of the south banks of the previous alignment of the Pambula River and likely represents a relic aggraded (alluvial accumulation) elevated floodplain landform.

Based on landform, predictive statements, observed deep alluvial soils and the absence of direct evidence of extensive soil disturbance, Survey Unit 2 is of moderate to high archaeological potential, and has been deemed Mt Darragh Rd PAD 02 AHIMS # 62-6-0903.

Survey Unit 3 – mild to moderate toe slope (7.75ha)

Survey Unit 3 consists of a mild to moderate slope trending upwards to the south and east, and less markedly to the west. It is almost wholly devoid of trees other than an alignment of mature native trees, predominantly Grey Box, along the western perimeter of the study area. No significant soil disturbances were observed in Survey Unit 3. The entirety of the study area, showing the relationship of survey units to each other, and the steeper gradients of Survey Unit 3 are shown in Plate 4 and Plate 5. The degree of slope in Survey Unit 3 is seen in Plate 6, taken within the western tree line, looking downhill and north to the level ground of Mt Darragh Rd PAD 02 AHIMS # 62-6-0903 and then the Pambula River.

Based on sloped landform, distance to water (more than 250m at closest), and proximity to the likely preferentially utilised Mt Darragh Rd PAD 02 AHIMS # 62-6-0903, Survey Unit 3 is deemed as of low archaeological potential.

Plate 1: South bank of Pambula River showing depth of alluvial soil exposure. View south-east

Plate 2: View south-east from Survey Unit 2 Mt Darragh Rd PAD 02, showing level terrace in foreground, step up to sloping ground of Survey Unit 3 at isolated trees in background

Plate 3: Overview to west showing Pambula River and meander (SU1) to right, level terrace (SU2 Mt Darragh Rd PAD 02 AHIMS # 62-6-0903) to mid-right, and increasing slopes of SU3 to foreground and left

Plate 4: Extension of Plate 3, overlapping at person in Hi-Vis, showing extent of SU2 Mt Darragh Rd PAD 02 AHIMS #62-6-0903

Plate 5: Overview of whole study area, view west from raised ground outside study area, showing extent of SU2 Mt Darragh Rd PAD 02 AHIMS #62-6-0903 to right, increasing slopes of SU3 to centre and left. Tree line shown in next image is at centre rear

Plate 6: Survey Unit 3, view through preserved tree line, looking downhill and north to the river terrace of Survey Unit 2.

4.9 Survey coverage

The study area was assessed as three distinct landforms / Survey Units: Pambula River and meanders, elevated floodplain terrace and mild to moderate toe slope.

Statistical analysis of survey rate of cover is required under the Code of Practice and is provided below in Table 4. It should be noted that the Code of Practice requires that percentages such as for soil visibility be rounded down to the nearest 10%. In the current case, as is frequent, soil visibility was below 10% due to abundant pasture. Survey completion is therefore shown as 0%. This does not imply that survey has not been satisfactorily completed, merely that survey findings have been made based on assessment of landform rather than direct observation of soil - and therefore it may be more likely that sub-surface archaeological testing will be required to verify survey findings.

Table 4: Survey coverage and archaeological visibility across the Study Area

Survey unit	Landform	Survey Unit Area (m2)	Visibility %	Exposure %	Effective Coverage Area (m2)	Effective Coverage %
SU1	Pambula River and meanders	23,000	0	0	0	0
SU2	Elevated floodplain terrace	20,000	0	0	0	0
SU3	Mild to moderate toe slope	77,740	0	0	0	0

4.10 Summary of field survey

No Aboriginal objects, middens, burials or culturally modified trees were identified through survey. One location of PAD was identified during survey. This is:

- **Mount Darragh Road PAD 02 AHIMS # 62-6-0903 at GDA 94 MGA 55 Easting: 750743 Northing 5908023**

Mapping of Mount Darragh Road PAD 02 AHIMS # 62-6-0903 is provided below in Figure 19.

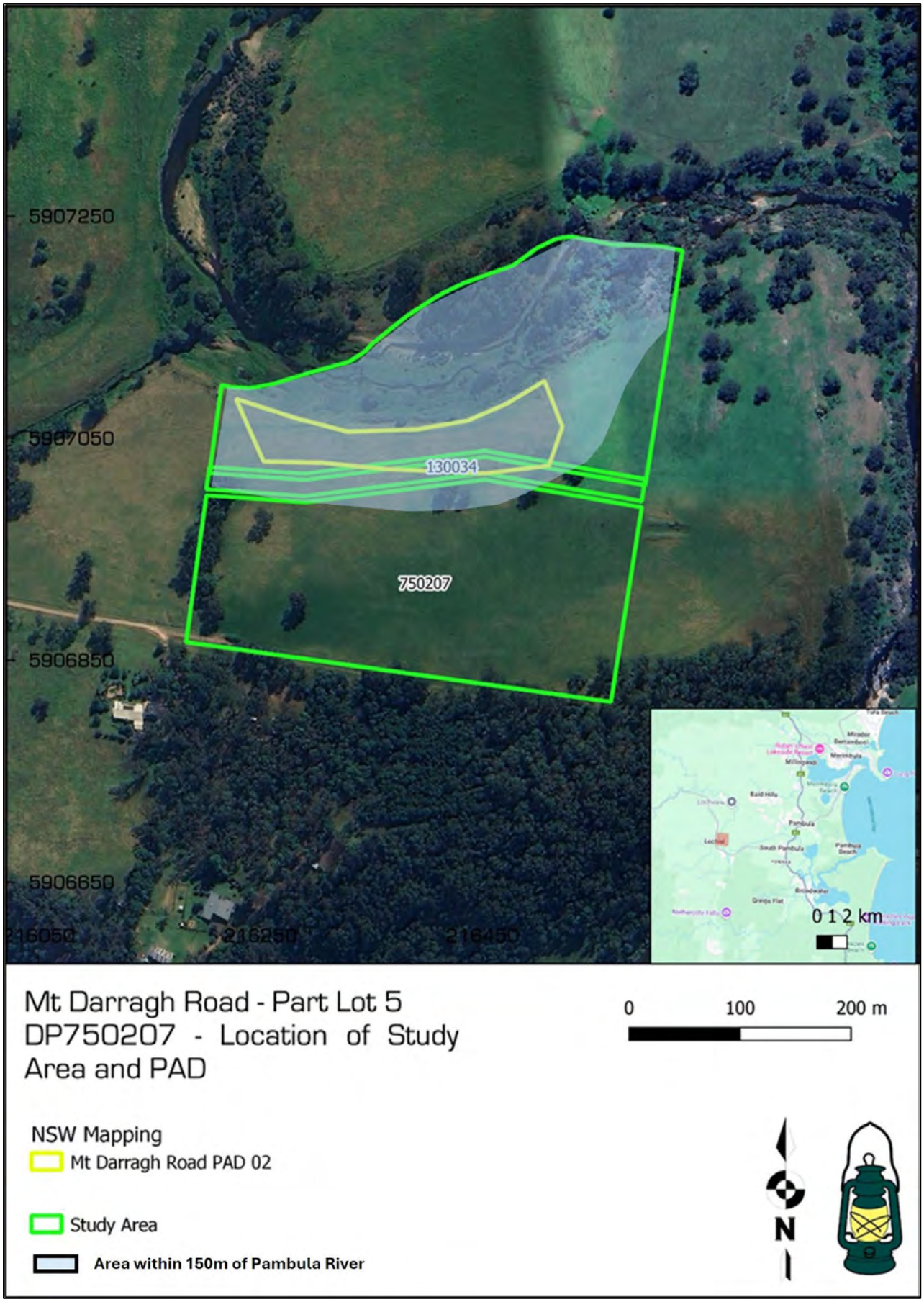

Figure 19: Mt Darragh Rd PAD 02 AHIMS # 62-6-0903 (source: NSW Imagery Map Server).

5 ANALYSIS AND DISCUSSION

As is evident from the paucity of local comparative archaeological literature, there is little information from which to derive a localised model of past Aboriginal habitation. In its stead, we have relied on generic archaeological and anthropological understandings of Aboriginal lifeways as they have been documented in relation to varied landforms. Many of these understandings appear common across the Australian eastern seaboard. These include a general preference by Aboriginal people for habitation within 200m of water – whether permanent or not, and for habitation on raised level areas near water. In inland and hilly areas, the most frequent site types in such locations are stone artefact deposits, particularly in locations where soil depth acts to preserve these. These conditions of proximity to water, level and raised ground, deep sediments and locally available stone resources are all met at Mount Darragh Road PAD 02 AHIMS # 62-6-0903.

6 SCIENTIFIC VALUES AND SIGNIFICANCE ASSESSMENT

This report is primarily concerned with assessing the archaeology of the study area and the associated scientific significance of Aboriginal objects and sites that are present. As such the following section discusses Mount Darragh Road PAD 02 AHIMS # 62-6-0903 in terms of its scientific values only. A full assessment of all values, in accordance with the processes outlined in the Burra Charter (AICOMOS 2013a), is provided in the Aboriginal Cultural Heritage Assessment Report (ACHAR) that this report is appended to.

Within the Burra Charter Practice Note on *Understanding and Assessing Cultural Significance* (AICOMOS 2013b: 3-4) Scientific Value is defined as follows:

> *Scientific value refers to the information content of a place and its ability to reveal more about an aspect of the past through examination or investigation of the place, including the use of archaeological techniques. The relative scientific value of a place is likely to depend on the importance of the information or data involved, on its rarity, quality or representativeness, and its potential to contribute further important information about the place itself or a type or class of place or to address important research questions. To establish potential, it may be necessary to carry out some form of testing or sampling. For example in the case of an archaeological site, this could be established by a test excavation.*

The scientific values of Mount Darragh Road PAD 02 AHIMS # 62-6-0903 within the study area cannot currently be appropriately assessed due to lack of soil exposure during survey. Assessment of these values would require further investigation.

7 IMPACT ASSESSMENT

The precise nature and integrity of Mount Darragh Road PAD 02 AHIMS # 62-6-0903 has not been determined. The proposal is for rural-residential subdivision into two lots.

Current design (Figure 20) shows that although the proposed subdivision includes Mount Darragh Road PAD 02 AHIMS # 62-6-0903, nevertheless the entirety of Mount Darragh Road PAD 02 AHIMS # 62-6-0903 is contained within lands protected from development by the provisions of BVSC DCP Section 5.7. No impacts are therefore foreseen to Mount Darragh Road PAD 02 AHIMS # 62-6-0903 as a result of the proposal.

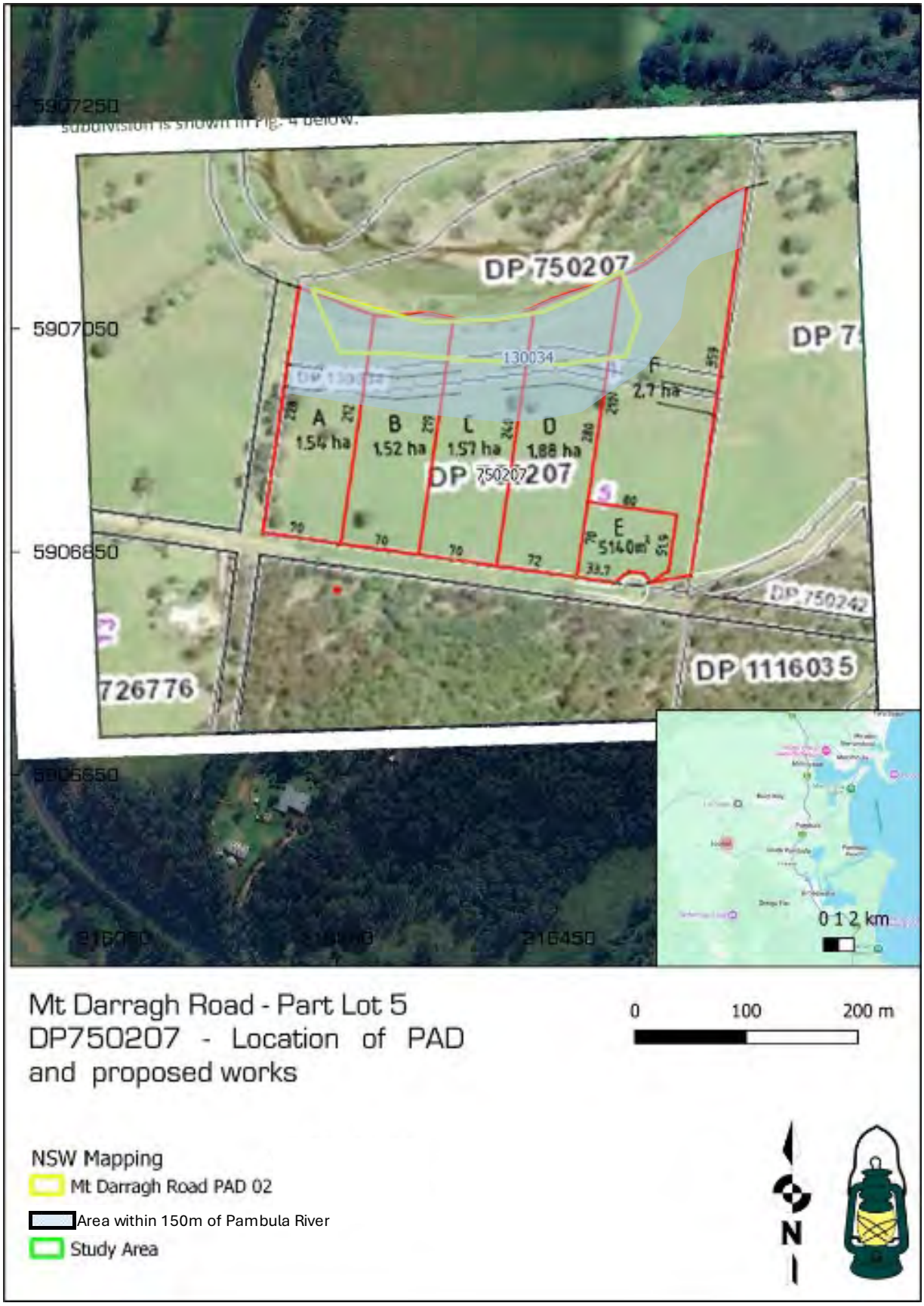

Figure 20: Current design (11/09/2024) Relative to Mount Darragh Road PAD 02 AHIMS # 62-6-0903 (source: NSW Imagery Map Server).

Table 5: Summary of impact assessment.

Site number	Type of harm	Degree of harm	Consequence of harm	Management
Mount Darragh Road PAD 02 AHIMS # 62-6-0903	Nil	Nil	Nil	None currently required as site is protected from impacts under provisions of BVSC 5.7

8 MANAGEMENT AND MITIGATION MEASURES

In Australia, the principal document that provides guidance for the conservation and management of places of cultural significance is the *Burra Charter* (Australia ICOMOS 2013). The *Burra Charter* is based on the knowledge and experience of Australia ICOMOS members; it "advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained" (Australia ICOMOS 2013: 1).

The proposed works are subdivision activities. Most of the study area is of low archaeological potential and no impacts to Aboriginal archaeological values have been identified within it. One part of the study area comprises Mount Darragh Road PAD 02 AHIMS # 62-6-0903. Under current local government regulations (BVSC DCP 2013: Section 5.7) no impacts are foreseen to Mount Darragh Road PAD 02 AHIMS # 62-6-0903.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study area has been researched and surveyed with the following findings:

- **Low archaeological potential:** The vast majority of the study area is of low archaeological potential and requires no further formal archaeological assessment. The portions of the study area with low archaeological potential are:
    - Survey Unit 1 - Pambula River and meanders
    - Survey Unit 3 - mild to moderate toe slope
- **Moderate to High archaeological potential:** One part of the study area conforms to predictive modelling of landscape with moderate to high archaeological potential. This is:
    - Survey Unit 2 - elevated floodplain terrace (Mount Darragh Road PAD 02 AHIMS # 62-6-0903)

Recommendations

1. An ACHAR must be completed to incorporate and formalise the results of this AR.
2. The ACHAR must provide further recommendations based on combined assessment of scientific values identified in this report, Aboriginal community evaluation of this report, and any cultural information gathered through the consultation process.

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APPENDIX 1 – AHIMS SEARCH

AHIMS Web Services (AWS)

Note: This Excel report shows the sites found in AHIMS on the 02/07/2024. If this date is not the same as the original date of the Search Results letter obtained during the Basic Search, then the search results might be different. The PDF version of this report will always coincide with the Basic Search Results letter.

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Primary contact	Site features	Site types	Recorders	Reports	Permits	Longitude GDA94	Latitude GDA94
62-6-0237	OFC 1;	AGD	55	751800	5905190	Open site	Valid		Artefact : -	Open Camp Site	Doctor Tim Stone	104708		149.83	-36.96
62-6-0881	Yowaka fish trap 2	GDA	55	755286	5904884	Open site	Valid		Fish Trap : -		Comber Consultants Pty Limited,Mr.David Nutley			149.87	-36.97
62-6-0579	Yowaka 2	AGD	55	755157	5904742	Open site	Valid	T Russell	Fish Trap : -		Mr.Graham Moore			149.87	-36.97
62-6-0751	PAM-AS1	GDA	55	754959	5906966	Open site	Valid		Artefact : -		Mr.Shaun Adams			149.86	-36.92
62-6-0752	PAM-AS2	GDA	55	754830	5906913	Open site	Valid		Artefact : -		Mr.Shaun Adams			149.86	-36.92
62-6-0753	PAM-AS3	GDA	55	754928	5906508	Open site	Valid		Artefact : -		Mr.Shaun Adams			149.86	-36.93
62-6-0167	Nethercote Falls	AGD	55	751110	5903090	Open site	Valid		Artefact : -	Open Camp Site	Laura-Jane Smith	618		149.82	-36.98

Report generated by AHIMS Web Service on 02/07/2024 for Michael Lever for the following area at Datum :GDA, Zone : 55, Eastings : 745309.0 - 755309.0, Northings : 5902975.0 - 5912975.0 with a Buffer of 0 meters. Number of Aboriginal sites and Aboriginal objects found is 7

This information is not guaranteed to be free from error/ omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

APPENDIX 2 – SITE CARD

NSW GOVERNMENT

Aboriginal Site Recording Form

Manager, Information Systems
Locked Bag 5020, Parramatta 2124 NSW

AHIMS site ID: 62-6-0903 **Date recorded:** 16-09-2024

Site Location Information

Site name: Mount Darragh Road PAD 02

Easting: 750782 **Northing:** 5908071 **Coordinates must be in GDA94 (MGA)**

Horizontal Accuracy (m): 5

Zone: 55 Non-Differential GPS

Recorder Information

(The person responsible for the completion and submission of this form)

Title	Surname	First name
Dr.	Lever	Michael

Organisation: Lantern Heritage Services

Address: 3 /15 Bega Street Tathra 2550

Phone: 0143564995 **E-mail:** michael@lanternheritage.com.au

Site Context Information

Land Form Pattern: Floodplain **Land Use:** Pastoral/Grazing

Land Form Unit: Terrace **Vegetation:** Cleared

Distance to Water (m): 20 **Primary Report:** Lantern 2024a. ASR to Cobandrah Pty Ltd

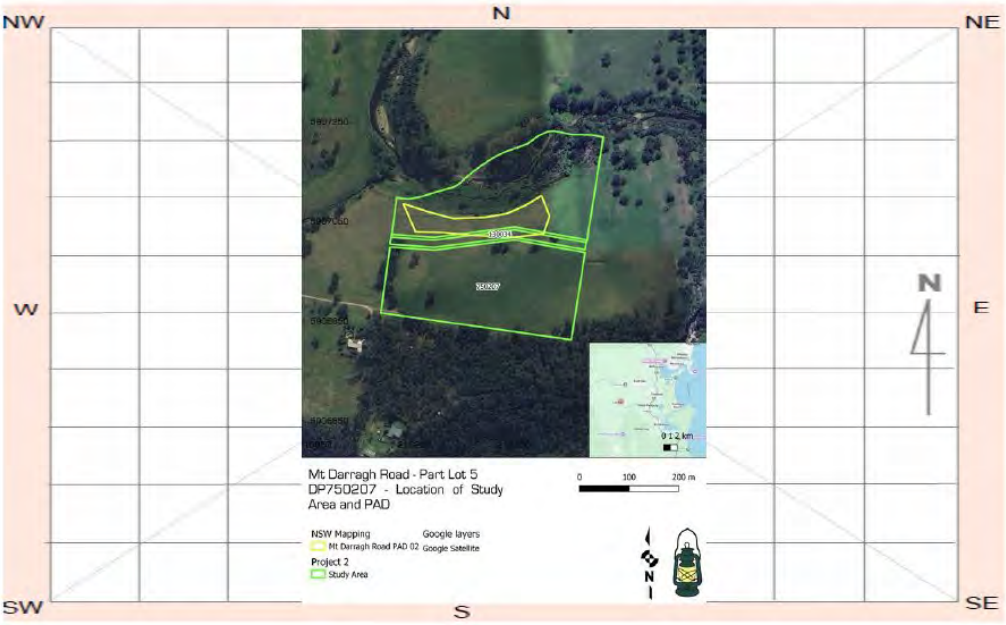
How to get to the site: Turn east from Mt Darragh Rd onto Robinsons Road, access through private gate at end of road. Proceed approximately 170m NE downslope to E-W terrace along and above the Pambula River.

Other site information: Cleared land does not appear to have been historically subject to intensive agriculture

1

Site location map

Site plan



2

Site contents information **open/closed site:** Open **Site condition:** Good

Features:	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scarred Trees: Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
1. Potential Archaeological Deposit		270	70				

Feature condition: Good

Description:

Elevated level floodplain terrace adjacent to Pambula River with evidence of deep alluvial soils in banks.

Features:	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scarred Trees: Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
2.							

Feature condition:

Description:

Features:	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scarred Trees: Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
3.							

Feature condition:

Description:

3

Features:	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scarred Trees: Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
4.							

Feature condition:

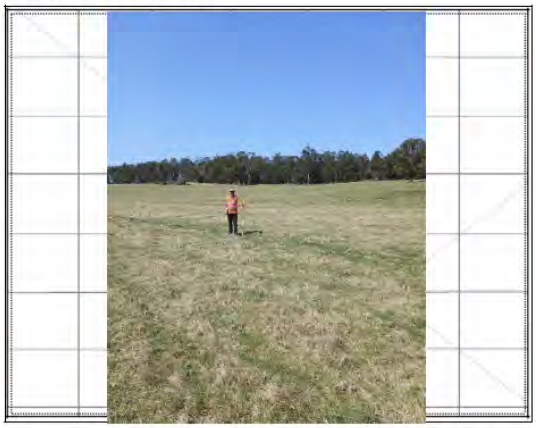
Description:

Features:	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scarred Trees: Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
5.							

Feature condition:

Description:

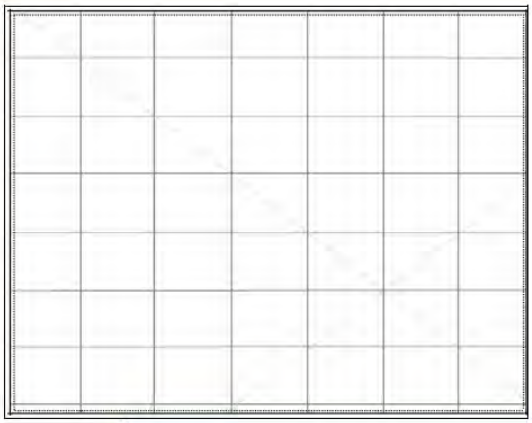
Site photographs



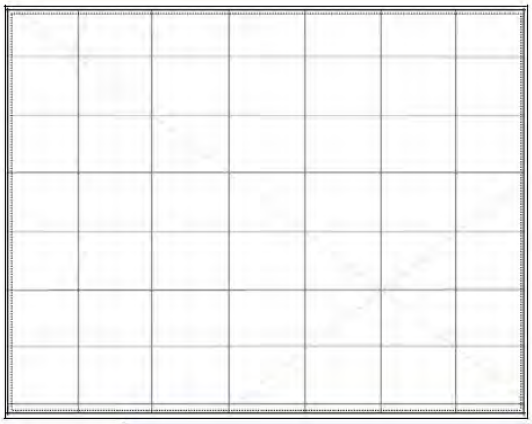
Description: View over Mount Darragh Road PAD 02, south east and away from Pambula River

Description: View west over entire study area. Pambula River to left, Mount Darragh Road PAD 02 in centre

4



Description:



Description:

Site restrictions

Do you want to Restrict this site?:

Restriction type: Gender | General | Location — N/A

Why is this site restricted?:

Further information contact

Title	Surname	First name
Dr.	Lever	Michael

Organisation: Lantern Heritage

Address: 3/15 Bega Street, Tathra, NSW 2550

Phone: 0413564995 **E-mail:** Michael@lanternheritage.com.au

Site interpretation and community statement

Eden LALC representative agreed site was PAD based on landform, soils, and proximity to water

v1.4 June 2022 5