



**Aboriginal Cultural Heritage
Assessment:**

Picton East Rezoning;

**1735 Remembrance Drive and 108-
118 Menangle Street, Picton, NSW**

For Michael Brown Planning Strategies

FINAL

May 2015

AHMS

ARCHAEOLOGICAL & HERITAGE
MANAGEMENT SOLUTIONS



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PROPONENT	Michael Brown Planning Strategies
PROJECT NAME	Picton East Rezoning
REAL PROPERTY DESCRIPTION	1735 Remembrance Drive (Lot 106 DP 1111043), 108-118 Menangle Street (Lot 2 DP 229679 and Lot 9 DP 233840), Picton, NSW
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GLOSSARY

Aboriginal Cultural Heritage Assessment (ACHA)	A document developed to assess the archaeological and cultural values of an area, generally required as part of an Environmental Assessment (EA).
Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010	Guidelines developed by Office of Environment and Heritage (OEH) to guide formal Aboriginal community consultation undertaken as part of an Aboriginal Cultural Heritage Assessment (ACHA).
Aboriginal Heritage Impact Permit (AHIP)	The statutory instrument that the Director General of the Office of Environment and Heritage (OEH) issues under Section 90 of the <i>National Parks and Wildlife Act 1974</i> to allow the investigation (when not in accordance with certain guidelines), impact and/or destruction of Aboriginal objects.
Aboriginal object	A statutory term defined under the <i>National Parks and Wildlife Act 1974</i> as, 'any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'.
Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a)	Guidelines developed by OEH to inform the structure, practice and content of any archaeological investigations undertaken as part of an Aboriginal Cultural Heritage Assessment (ACHA).
Department of Environment, Climate Change and Water (DECCW)	Now known as the Office of Environment and Heritage (OEH), Department of Premier and Cabinet.
Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010b)	Guidelines developed by OEH, outlining the first stage of a two stage process in determining whether Aboriginal objects and/or areas of archaeological interest are present within a subject area. The findings of a due diligence assessment may lead to the development of an Aboriginal Cultural Heritage Assessment.
<i>Environmental Planning and Assessment Act 1979</i>	Statutory instrument that provides planning controls and requirements for environmental assessment in the development approval process. The Act is administered by the DPI.
Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)	Guidelines developed by OEH to inform the structure and content of an Aboriginal Cultural Heritage Assessment (ACHA).
Isolated find	An isolated find is usually considered a single artefact or stone tool, but can relate to any product of prehistoric Aboriginal societies. The term "object" is used in the ACHA, to reflect the definitions of Aboriginal stone tools or other products in the <i>National Parks and Wildlife Act 1974</i> .
<i>National Parks and Wildlife Act 1974</i>	The primary piece of legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of this Act outlines the protection afforded to and offences relating to disturbance of Aboriginal objects. The Act is administered by OEH.
Office of Environment and Heritage (OEH)	The OEH is responsible for managing the Aboriginal Heritage (and other) provisions of the <i>National Parks and Wildlife Act 1974</i> .
Potential Archaeological Deposit (PAD)	An area assessed as having the potential to contain Aboriginal objects. PADs are commonly identified on the basis of landform types, surface expressions of Aboriginal objects, surrounding archaeological material, disturbance, and a range of other factors. While not defined in the <i>National Parks and Wildlife Act 1974</i> , PADs are generally considered to retain Aboriginal objects and are therefore protected and managed in accordance with that Act.
Proponent	A corporate entity, Government agency or an individual in the private sector which proposes to undertake a development project.

ABBREVIATIONS

ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AHMS	Archaeological and Heritage Management Solutions
BP	Before present (AD 1950)
CHL	Commonwealth Heritage List
DECCW	Department of Environment, Climate Change and Water (now OEH)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERS	Eastern Regional Sequence
ka	Abbreviation for thousands of years ago (e.g. 1 ka equals 1,000 years ago)
LALC	Local Aboriginal Land Council
LGA	Local Government Area
LTO	Land Titles Office
NHL	National Heritage List
NPW Act	<i>National Parks and Wildlife Act 1974</i>
OEH	Office of Environment and Heritage (formerly DECCW)
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal party
RNE	Register of the National Estate
SHR	State Heritage Register
SHI	State Heritage Inventory
WHL	World Heritage List

SUMMARY

Background

Archaeological and Heritage Management Solutions Pty Ltd (AHMS) has been commissioned by Michael Brown Planning Strategies (on behalf of the proponent) (**Table 1**) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for land situated at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679), and 116-118 Menangle Street (Lot 9 DP 233840), Picton, NSW (the subject area) (**Figure 1**).

This report is the Aboriginal Cultural Heritage Assessment, and was undertaken in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011). It is accompanied by an Archaeological Technical Report (Appendix B), which was undertaken in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales* (DECCW 2010a).

Consultation with the Aboriginal communities within the region has been undertaken in accordance with procedures set out in the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010c). The Registered Aboriginal Parties for the project are: Cubbitch Barta Native Title Claimants Aboriginal Corporation, Tharawal Local Aboriginal Land Council, and Peter Falk Consultancy.

Throughout the course of the investigation the boundaries of the subject land have been subject to change. The final boundary is shown in Figure 1. The hatched area in this figure was included after the field survey and consequently has not been subject to archaeological investigation. It is proposed for zoning RE1 Public Reserve.

Aboriginal Archaeology

One previously recorded Aboriginal site is situated within the subject area within the hatched area shown on Figure 1. This site is designated a ceremonial/dreaming site called Carbundi/Vault Hill (52-2-1378) and is within the area proposed for rezoning as public reserve.

There are no previously recorded sites in the unhatched area shown on Figure 1 which is the area proposed for future development. However areas of archaeological potential were identified within this area and will require further investigation in future stages of the development process.

Ground surface survey was undertaken as part of this investigation in the unhatched area in Figure 1 (i.e the area currently proposed for mixed future development and environmental conservation). Ground visibility across the subject area varied from high (100%: areas of erosion/high exposure) to low (0%: areas demonstrating dense grass cover). No Aboriginal cultural heritage was identified. Visibility during the survey was overall very limited. Some visibility was observed in natural grass clearings, along cattle tracks, eroded creek banks and in areas of disturbance (such vehicle tracks/driveways).

The poor ground surface visibility was generally ineffective in identifying the nature, extent and significance of Aboriginal cultural heritage across the activity area. The results of the survey did not modify any of the predictions made in the predictive modelling developed as part of the desktop assessment.

A number of conclusions regarding likely archaeological patterning were made drawing on the results of the survey:

- Ground surface visibility across the activity area was generally very low and was therefore ineffective at determining the nature, extent and density of potential surface Aboriginal cultural heritage within areas of dense vegetation cover;
- Although native vegetation was examined, none retained evidence of cultural scarring;
- Areas of prior cut and fill disturbance initially identified during the desktop assessment were examined during the survey. Disturbance within these areas was considerable and has most likely resulted in the complete removal of any archaeological deposits (if present);
- Although no Aboriginal cultural heritage was identified, the survey did identify landforms with the potential for sub-surface Aboriginal cultural heritage to be present.

Potential Archaeological Impact

As a result of the investigation, we have developed and mapped the predictions made regarding archaeological potential. The purpose of the predictive model is to:

- Provide the proponent, landowners, Wollondilly Shire Council and the Registered Aboriginal Parties with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis; and
- Help inform early planning and design work.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying 'archaeological sensitivity'. For the purposes of the model, the term 'archaeological sensitivity' is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

The model traits for the subject area are (**Figure 2**):

- Low spurs/crest/terrace landforms situated within 100m of a waterway/drainage line: very high archaeological potential;
- Land within 50m of a waterway/drainage line: high archaeological potential;
- Land within 100m of a waterway/drainage line: moderate archaeological potential;
- Land within 200m of a waterway/drainage line: low archaeological potential;
- All other areas = very low sensitivity; and
- Cut and fill disturbance = very low - nil sensitivity.

Recommendations

- Based on the findings of this study, there are no Aboriginal heritage issues that indicate that the re-zoning of the subject site from rural to residential should not proceed although note the recommendation below relating to site 52-2-1378.
- Prior to any proposed impact, further assessment and characterisation should be undertaken to investigate areas of archaeological potential identified in Figure 2. Should any Aboriginal objects/sites as defined by the National Parks and Wildlife Act 1974 be identified, appropriate assessments and permits under this Act would be required prior to their disturbance.
- Site 52-2-1378 is located within land proposed to be zoned RE1 public reserve. It is recommended that the boundaries of this site be identified and mapped to ensure it is protected during future planning for the reserve.

Recommendations received from the Registered Aboriginal Parties in response to the review of the draft ACHA are as follows:

- Further assessment of the subject area is required.

1 INTRODUCTION

1.1 Background

Archaeological and Heritage Management Solutions Pty Ltd (AHMS) has been commissioned by Michael Brown Planning Strategies (the proponent) (**Table 1**) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for land situated at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679), and 116-118 Menangle Street (Lot 9 DP 233840), Picton, NSW (the subject area) (**Figure 1**).

In accordance with NSW Office of Environment and Heritage (OEH) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011), an ACHA consists of two documents - a Cultural Heritage Assessment and an Archaeological Technical Report - which together provide cultural and scientific assessment of the subject area.

This document forms the Aboriginal Cultural Heritage Assessment, which explores the broader cultural values of the subject area. It is accompanied by the Archaeological Technical Report (**Appendix B**), which explores the environmental and archaeological values of the subject area.

Table 1 Proponent details.

Proponent representative	Archaeological advisor
Michael Brown Planning Strategies	Archaeological and Heritage Management Solutions Pty Ltd
PO Box 295 Camden NSW 2570	2/729 Elizabeth Street Waterloo NSW 2017
Contact person: Michael Brown T. 02 4648 0877 E: michael@michaelbrown.com.au	Contact person: Fenella Atkinson T. 02 9555 4000 E: fatkinson@ahms.com.au

1.2 Project Framework and Purpose of the ACHA

Wollondilly Shire Council has requested that a Gateway Determination, under section 56 of the *Environmental Planning and Assessment Act 1979*, be undertaken in respect to a planning proposal to rezone part of the subject area from RU2 Rural Landscape to R2 Low Density Residential. To address matters in the Gateway Determination, as advised by the Department of Planning, a number of specialist studies are required, including Aboriginal Heritage.

Wollondilly Shire Council has requested that an Aboriginal Heritage Assessment of known and potential heritage values be produced and include details of appropriate strategies and recommendations for the management of heritage values for the subject area. Council also requires that the following tasks/methodology be undertaken:

- Assess Aboriginal heritage values relevant to the site with reference to the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011) and incorporate two stages as follows:
 - a) The preparation of Aboriginal archaeological assessment - identification and assessment of Aboriginal objects and making recommendations for their management; and

- b) The preparation of a cultural heritage assessment - involving consultation with Aboriginal stakeholders (groups and individuals) in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a), which can include the assessment of historical, oral history and broader values.
- The outcomes of the two stages shall be combined into mapping of high, moderate and low Aboriginal cultural value; and
- Recommendations to manage Aboriginal heritage values across the subject area will be developed.

As such, this report describes the results of archaeological investigation and cultural heritage assessment undertaken to identify the extent and significance of any physical remains of past Aboriginal occupation within the subject area; in accordance with the objectives and task/methodologies outlined by the Wollondilly Shire Council.

It has also been developed in accordance with the following relevant OEH guidelines:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a);
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b).

1.3 Subject Area

For the purposes of this report, the 'subject area' refers to parts of 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) and 116-118 Menangle Street (Lot 9 DP 233840), Picton, NSW, as shown on **Figure 1**. It is situated within the Wollondilly Local Government Area (Parish: Picton; County: Camden).

The subject area encompasses properties located immediately east of the Picton Town Centre encompassing land between the two major roads leading into Picton, namely Remembrance Drive and Menangle Street. The properties comprise a total area of 208,000 m² and are subject to Wollondilly Shire Council zones: RU2 Rural Landscape and RE1 Public Recreation.

1.4 Limitations

This report is based on existing publicly available environmental and archaeological information and reports about the subject area, in addition to the results of the archaeological survey undertaken as part of the current assessment. The background research did not include any independent verification of the results and interpretations of externally sourced existing reports (except where the fieldwork indicated inconsistencies).

The report includes predictions regarding the potential for sub-surface archaeological materials to exist within certain landforms/landscapes in the subject area. The predictions are based on evidence from surface indications, environmental contexts, and thorough assessment of significant ground disturbance activities undertaken throughout the past. Although an area may be assessed as having low potential to contain unknown Aboriginal cultural heritage, there always remains the possibility that undetected artefacts may exist in any given area.

Information from AHIMS was provided to AHMS by OEH. Information in the assessment reflects the scope and the accuracy of the AHIMS site data, which in some instances is limited.

1.5 Investigator and Contributors

This report was written by Stacey Kennedy, (B. Arch Hons, La Trobe) (Senior Archaeologist), with the assistance of Alistair Hobbs. Alan Williams (Manager NSW - Aboriginal Heritage) reviewed and edited a final draft of the report.

The archaeological survey was conducted by Stacey Kennedy and Michelle Lau. Registered Aboriginal Party representatives from Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC), Peter Falk Consultancy (PFC) and Tharawal Local Aboriginal Land Council (TLALC) also participated in the survey.

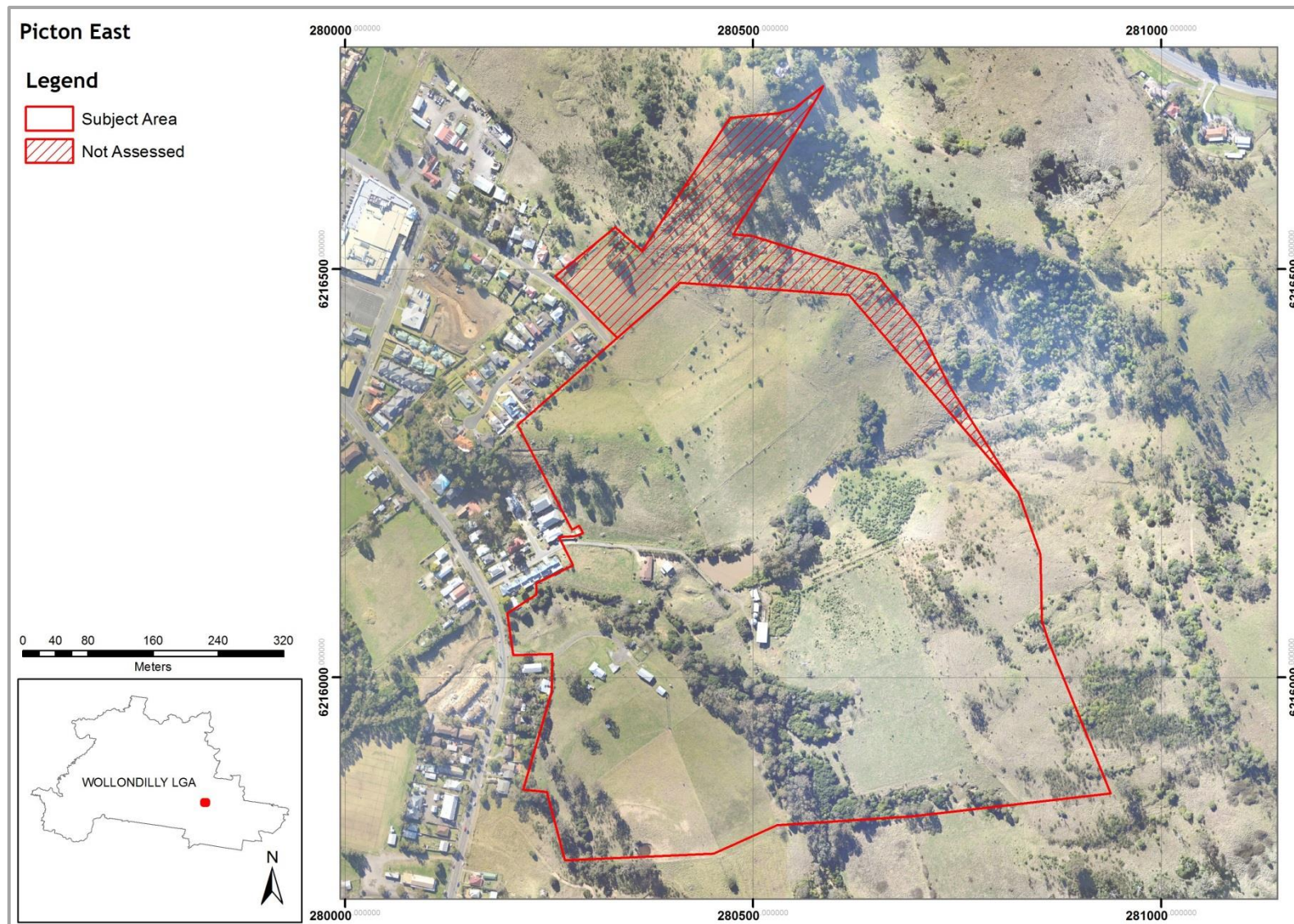


Figure 1 Location and extent of subject area.

2 STATUTORY CONTEXT

2.1 Commonwealth Legislation

2.1.1 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* was enacted at a Federal level to preserve and protect areas (particularly sacred sites) and objects of particular significance to Aboriginal Australians from damage or desecration. Steps necessary for the protection of a threatened place are outlined in a gazetted Ministerial Declaration (Sections 9 and 10). This can include the preclusion of development.

As well as providing protection to areas, it can also protect objects by Declaration, in particular Aboriginal skeletal remains (Section 12). Although this is a Federal Act, it can be invoked on a State level if the State is unwilling or unable to provide protection for such sites or objects.

No Aboriginal sites or places within the subject area are currently subject to a Declaration.

2.1.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* provides for the protection of natural and cultural heritage places. The Act establishes (amongst other things) a National Heritage List (NHL) and a Commonwealth Heritage List (CHL). Places on the NHL are of natural or cultural significance at a national level and can be in public or private ownership. The CHL is limited to places owned or occupied by the Commonwealth which are of heritage significance for certain specified reasons.

Places listed on the NHL are considered to be of State and local heritage value, even if State or local various heritage lists do not specifically include them.

The heritage values of places on the NHL or the CHL are protected under the terms of the EPBC Act. The Act requires that the Minister administering the EPBC Act assesses any action which has, will have, or is likely to have, a significant impact on the heritage values of a listed place. The approval (or rejection) follows the referral of the matter by the relevant agency's Minister.

No Aboriginal sites or places within the subject area are currently listed on the NHL or CHL.

2.1.3 Native Title Act 1993

The *Native Title Act 1993* provides recognition and protection for native title. The Act established the National Native Title Tribunal to administer native title claims to rights and interests over lands and waters by Aboriginal people. The Tribunal also administers the future act processes that attract the right to negotiate under the *Native Title Act 1993*.

The Act also provides for Indigenous Land Use Agreements (ILUA). An ILUA is an agreement between a native title group and others about the use and management of land and waters. ILUAs were introduced as a result of amendments to the *Native Title Act in 1998*. They allow people to negotiate flexible, pragmatic agreements to suit their particular circumstances.

An ILUA can be negotiated over areas where native title has, or has not yet, been determined. They can be part of a native title determination, or settled separately from a native title claim. An ILUA can be negotiated and registered whether there is a native title claim over the area or not.

The subject area consists of freehold land, and cannot be subject to an Aboriginal Land Claim under this Act.

2.2 NSW State Legislation

2.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that environmental and heritage impacts are considered by consent authorities prior to granting development approvals. The relevant sections of the EP&A Act are:

- Part 3A: A single assessment and approval system for major development and infrastructure projects [note that Part 3A has now been repealed and replaced with Part 4 (Division 4.1)].
- Part 4: Development that requires consent under consideration of environmental planning instruments.
- Part 5: An assessment process for activities undertaken by Public Authorities and for developments that do not require development consent but an approval under another mechanism.

Where Project approval is to be determined under Part 4 (Division 4.1) of the Act, further approvals under the *National Parks and Wildlife Act 1974* which protects Aboriginal cultural heritage in NSW are not required. In those instances, management of Aboriginal heritage follows the applicable Aboriginal assessment guidelines (the *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*, DEC July 2005) and any relevant statement of commitments included in the Project Approval.

2.2.2 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) provides blanket protection for Aboriginal objects (material evidence of indigenous occupation) and Aboriginal places (areas of cultural significance to the Aboriginal community) across NSW. An Aboriginal object is defined as:

... any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

An Aboriginal place is any place declared to be an Aboriginal place by the Minister for the Environment, under Section 84 of the Act.

It is an offence to disturb Aboriginal objects or places without a permit authorised by the Director-General of the Office of Environment and Heritage. In addition, anyone who discovers an Aboriginal object is obliged to report the discovery to OEH.

The operation of the NPW Act is administered by OEH. With regard to the assessment of Aboriginal cultural heritage, OEH has endorsed the following guidelines:

- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010b).
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a).
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010c).
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011).

3 ABORIGINAL COMMUNITY CONSULTATION

3.1 General

Consultation with the Aboriginal communities within the region has been undertaken in accordance with procedures set out in the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the Guidelines), developed by OEH. A complete log of actions and correspondence regarding Aboriginal community consultation is included in **Appendix A**.

The consultation process assists in the preparation of this investigation by allowing Aboriginal communities the opportunity to review and comment on field methodologies and the overall assessment report. This enables knowledge holders within the Aboriginal communities to identify important cultural values or places within the subject area, which may subsequently be affected by proposed future development, and allow for appropriate management measures to take place.

3.2 Pre-Notification Stage

The initial stage of the consultation process consists of the identification of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and places. On 31 October 2013, the following organisations were contacted with a request for information:

- Office of Environment and Heritage;
- Tharawal Local Aboriginal Land Council (LALC);
- Office of the Registrar, *Aboriginal Land Rights Act 1983*;
- National Native Title Tribunal;
- NTSCorp;
- Wollondilly Shire Council; and
- Hawkesbury Nepean Catchment Management Authority.

The responses received are reproduced in **Appendix A**. In summary, the following groups and individuals were identified as possibly having an interest in the subject area:

- Cubbitch Barta Native Title Claimants Aboriginal Corporation;
- Tharawal Local Aboriginal Land Council;
- Peter Falk Consultancy; and
- Gundungarra Tribal Council Aboriginal Corporation.

3.3 Notification and Registration of Interest

On 20 November 2013, a notice was placed in the *The Wollondilly Advertiser*, containing notification of the project, and an invitation to register an interest. Notifications and invitations to register were also sent to the Aboriginal Parties identified in the first stage of consultation, listed above on the (13 November 2013).

Registrations of interest were received from the following Aboriginal Parties:

- Cubbitch Barta Native Title Claimants Aboriginal Corporation;
- Tharawal Local Aboriginal Land Council; and
- Peter Falk Consultancy.

In accordance with Section 4.1.6 of the Guidelines, details of the Registered Aboriginal Parties were provided to OEH and Tharawal LALC on 5 December 2013.

3.4 Presentation of Information and Proposed Methodology

On 5 December 2013, in accordance with Sections 4.2 and 4.3 of the Guidelines, project information and the proposed ACHA methodology were distributed to the RAPs (**Appendix A**). The cover letter and report provided information about the proposal, the proponent, the intended approval approach, assessment approaches and processes, timeframes and the proposed field investigation. In addition, the letter sought information from the RAPs about how they wished to be consulted, how they wished cultural information to be managed and other relevant matters. No meetings were undertaken during this process, although all RAPs were advised that meetings could be arranged if required.

A period of 28 days was provided for comments in accordance with the Guidelines. All responses received are included in **Appendix A**.

3.5 Field Investigation

Field investigation, consisting of archaeological survey, was undertaken by AHMS in conjunction with a representative of each of the RAPs on 4 and 5 February 2014.

All RAPs were consulted throughout the duration of the investigation and participated in field investigations (please see **Appendix B** for details).

3.6 Report Review

The draft Aboriginal Cultural Heritage Assessment and appended Archaeological Technical Report was provided to the Registered Aboriginal Parties for review on 9 September 2014, for the required 28-day review period. A response was received from one of the RAPs, Cubbitch Barta Native Title Claimants Aboriginal Corporation, and is reproduced in **Appendix A**. In summary, the comments were as follows:

- Predictive models derived from the results of work in the northern Cumberland Plain largely do not apply to the region of the subject area.
- Previous archaeological investigations in the region have included a bias towards the recording of rock shelters and grinding grooves, at the expense of artefact scatters, due to the nature of development in the area.
- The statement that burial sites typically do not occur in the region is incorrect, as there is a known burial on Rumker Creek.
- Further assessment of the subject area is recommended.

4 EXISTING ENVIRONMENT

The environmental context of the subject area provides information regarding the past Aboriginal occupation of the land, and the potential for the presence and survival of material traces of that Aboriginal land use. This context is detailed in Section 2 of the Archaeological Technical Report (**Appendix B**) and is summarised below.

The subject area is situated on Picton and Luddenham soil landscapes. Picton is a colluvial landscape characterised by extensively cleared open forest and steep sideslopes usually having a southerly aspect. Local relief is between 90 - 300m with slope gradients >20%. Dominant soil materials include a topsoil of dark brown, hard setting sandy loam and reddish brown sandy clay covering brown stony light clay (Hazelton & Tille 1990: 52)

The geology in the Picton region is made up of Ashfield Shale, Bringelly Shale and Minchinbury Sandstone. This comprises laminite, dark grey shale, calcareous claystone, Razorback Sandstone member, fine to medium grained lithic quartz sandstone and rare coal. This is known as the Wianamatta Group (Hazelton & Tille 1990: 50). Luddenham is an erosional landscape characterised by undulating to rolling low hills with narrow ridges, hillcrests and valleys. Vegetation consists of extensively cleared open forest (Hazelton & Tille 1990: 70).

The subject area largely drains in a westerly direction via minor tributaries to Reeves Creek; which flows southwards to Stonequarry Creek. With regard to the natural vegetation of the landscape, in a broader context, the Cumberland subregion of the Sydney bioregion naturally supports grey box, forest red gum, ironbark woodland with some spotted gum on the shale hills (NPWS 2003).

Dominant tree species include sydney blue gum and blackbutt. Other species include grey ironbark, turpentine, white stringybark, rough-barked apple and broad leaved apple (Hazelton & Tille 1990: 51). Common understorey species include sweet pittosporum, coffee bush, blackthorn, hickory and hairy clerodendrum (Hazelton & Tille 1990: 51,70). Grasses include bordered panic grass, paddock love grass, kangaroo grass and wire grass (Hazelton & Tille 1990: 71).

Significant stands of vegetation are located along the ridgelines of the outlying hills, along the banks of creeks and on some of the steeper slopes of the lower inner hills. There are also a large number of scattered mature trees throughout the site. However, the majority of the subject area has been cleared of vegetation as a result of use for low intensity farming activities over the historical period. Other development known to have occurred is the construction of houses, outbuildings and fences, and creation of driveways and tracks.

5 ETHNOGRAPHIC INFORMATION AND ABORIGINAL HISTORY

5.1 Preamble

This section presents a summary of aspects of traditional Aboriginal life recorded at Contact in documents, maps, plans, images and ethnographic records. By studying these sources, we can reconstruct aspects of traditional Aboriginal lifestyle and economy. Although such accounts are fragmentary and present a biased European view of Aboriginal culture, they provide an important insight about traditional Aboriginal use and occupation of the land. A summary of the archaeological context of the subject area is also included; for further detail see the Archaeological Technical Report (Appendix B).

5.2 Traditional Owners and Contemporary Stakeholders

According to Tindale the subject area was part of the lands of the Tharawal people, with their inland boundary extending as far as Camden (Attenbrow 2002). The Tharawal are thought to have ranged from the south side of Botany Bay, and the Georges River to the Liverpool and Campbelltown areas as far south as Appin and the Cordeaux and Cataract Water Catchments. The neighbouring group, the Gandangara people, occupied the Nattai and Burragorang Valley and the ranges as far west as Bathurst. It is possible that the Nepean River may have formed the eastern boundary of the Gandangara, making Camden near the boundary of the two groups. There is also mention of an Aboriginal tribe at Camden called the Cubbitch Barta (Gur Gur) (Martin 1986: 41). Unfortunately, information that is available is confusing and often contradictory.

5.3 Local Aboriginal History

The ceremonial life of the Tharawal and Gandangara are believed to have been similar to 'Bunan' ceremonies on the south coast (Martin 1986: 42). Gatherings of small and large numbers of people are likely to have taken place for ceremonial reasons or to share seasonally abundant resources (Attenbrow 2002). Occasions for large gatherings may have included predictable seasonal events such as bird migrations, or one off events such as whale beachings. Such interactions between groups are likely to have varied with the seasons and availability of resources, but ultimately resulted in the sharing of resources, technology and knowledge. This is reflected in the relatively homogenous cultural features observed in the Sydney region, such as art motifs, technology and evidence of resource use (McDonald 1992).

One notable difference was the burial customs of the Gandangara. Unlike neighbouring coastal groups in the Sydney Basin the Gandangara marked the location of graves by carving elaborate designs into the trunks of nearby trees. These carvings were made to confuse evil spirits and protect the deceased. Other mythological beliefs of the Gandangara are described in detail by Martin (Martin 1986).

Hinterland groups, such as the Gandangara, were also largely dependent on freshwater and terrestrial animals and plants whereas coastal groups, including the Tharawal exploited marine, estuarine and hinterland resources. Subsequently, animals such as wallabies, kangaroos, possums, flying foxes, water birds, parrots, reptiles, freshwater fish and yabbies played a far greater role in the subsistence of the Gandangara.

The perceived difference in population density between hinterland and coastal areas is thought to be a result of the relative scarcity of resources in the hinterland and the increased work associated with

procuring terrestrial foods through hunting. A recent study of early historical sources on the Cumberland Plain has suggested that there was a minimum population density of 0.5 persons per square kilometre (Attenbrow 2002: 17). This compares with an estimate of 0.75 persons per square kilometre in the coastal zone around Port Jackson (Attenbrow 2002: 17).

The Picton area contains a number of different environments that continue to support a diverse range of plant and animal species. On river terraces, tall open forest would have supported a wide variety of game. Similarly, wet sclerophyll forest along creeks and gullies would have provided shelter for numerous animal and plant species that could be eaten or used for other purposes, such as providing shelter and medicines. A number of tree species present supplied bark that could be used in the production of twine for nets and baskets. Consumable plants species found in the area include figs, yams, fern roots, cabbage tree palm hearts, *Macrozamia* seeds and certain lilies.

Of these resources, the *Macrozamia* and various types of yams and roots were staple food items, as they were abundant and predictable. Yams, in particular, are likely to have been a staple food item for groups living along the Nepean, as they grow along the alluvial terraces:

“the natives here appear to live chiefly on the roots which they dig from the ground....in considerable quantities, the yams being in greatest plenty on the banks of the River” (Hunter 1968 in Martin, 1986: 45).

Observations made by the early European explorer Barrallier in 1802 provide further insights into food resources and hunting practices in the Camden / Menangle / Picton area. In his journal Barrallier notes that swamps in the Menangle area were important resource zones where *“enormous eels, fishes and various species of shell”* were consumed by Aboriginal people. Rivers were also *“teeming with different species of fishes and shells”* (Barrallier, 1802 in Martin, 1986: 46). Pointed fishing spears and fishing lines were used during fishing. Possums and kangaroos were also staple foods. Whilst spears, clubs and boomerangs were used to hunt possums and other small terrestrial animals, hunting kangaroo required the co-operation of large numbers of people.

“To hunt the kangaroo, they formed a circle....according to the number of natives assembled. They usually stand about 30 paces apart, armed with spears and tomahawks....each one of them holding a handful of lighted bark, at a given signal they set fire to the grass and brush...as the fire progresses they advance forward...narrowing the circle and making as much noise as possible, with deafening shouts. The kangaroo, which are thus shut into that circle and burn their feet... They then try to escape in various directions and the natives throw their spears at the one passing nearest them” (Barrallier, 1802 in Martin, 1986: 46).

5.4 Archaeological Context

The archaeological context of the subject area is outlined in the Archaeological Technical Report (**Appendix B**). Based on this information, a number of conclusions can be made in regards to the potential of the subject area to contain any Aboriginal cultural heritage or Aboriginal objects:

- Regional archaeological records indicate that terraces, lower slopes and areas of minor elevation in association with creeklines have high likelihood of containing extensive and archaeologically significant cultural materials. Cultural materials have been demonstrated to occur >200 m from the edge of a watercourse, but more usually areas within 50-100m contain the greatest density of materials. Reeves Creek, a second order creek, is situated within the middle portion of the subject area, therefore, land within 100 m of this feature is considered to have potential for Aboriginal cultural heritage.
- Where drainage lines have incised down through shale to underlying sandstone geology, associated site types such as rockshelters, grinding grooves and rock art may occur in the

Cumberland sub-bioregion; however this only occurs near to the margins with surrounding sandstone country areas and is not applicable for the current subject area.

- Areas containing remnant native vegetation have potential to retain trees bearing cultural scars; and provide an indication of soil profile integrity. This is most likely to occur along the banks of Reeves Creek and associated drainage lines as aerial imagery indicates that these areas have not suffered from the same amounts of clearance activities as other parts of the subject area.
- Aboriginal objects (primarily in the form of stone artefact deposits) are likely to be found at varying densities across most landforms within the subject area.
- Higher density artefact scatters and sub-surface deposits may be found on crest landforms, and low flat rises within close proximity to fresh water sources.
- Higher density artefact scatters and sub-surface deposits may be found adjacent to original drainage channels, particularly permanent and reliable water sources.
- The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands.
- A review of the underlying geology of the subject area has not identified the presence of suitable raw materials typically used in the manufacture of stone artefacts. As such, quarry sites are not expected to occur.
- Burial sites typically do not occur in the region outside of sandy or rockshelter contexts.¹
- Shell midden (or other faunal) deposits do not occur on the soil landscapes identified for the subject area and are therefore not expected.
- Stone arrangements have not been recorded in Sydney shale country and therefore are not expected to occur within the subject area.

While there is generally accepted to be a low density, almost ubiquitous 'background scatter' of artefacts across the Cumberland Plain, the well-developed artefact distribution modelling for the area clearly demonstrates that major activity areas, where stone tools were either manufactured or maintained, did essentially have nearby freshwater as a precondition for use. On ephemeral first order streams, occupation was often immediately adjacent to the water (0-50m), while on larger permanent 4th order streams the majority of activity leading to the accumulation of stone artefacts was set back from the creek within the area between 50 and 100 metres from water. Activities at sites with evidence of intense or repeated occupation were also focused on areas with particular amenity to use that are generally explicable and predictable - especially on raised, flat, well drained terraces, with a slight tendency for higher density on locations with northerly and north-easterly aspect. Low-lying creek flats and slopes on the other hand have been shown to have significantly lower densities of material evidencing Aboriginal use, regardless of their proximity to water.

¹ Comments received from one of the RAPs (Cubbitch Barta Native Title Claimants Aboriginal Corporation) advise that there is a known burial on Rumker Creek, in the local region (Chalker, pers.comm., 30.9.14, reproduced in Appendix A).

6 PREDICTIVE SENSITIVITY MODEL

As a result of the investigation, we have developed and mapped the predictions made regarding archaeological potential (**Figure 2**). The purpose of the predictive model is to:

- Provide the proponent, landowners, Wollondilly Shire Council and the Registered Aboriginal Parties with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis; and
- Help inform early planning and design work.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying 'archaeological sensitivity'. For the purposes of the model, the term 'archaeological sensitivity' is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

Factors included in Predictive Model

Proximity to water sources:

Proximity to water is one of the key determinants of archaeological potential. In general, sites are larger, more complex and more frequently found in close proximity to water sources. Levels of sensitivity are predicted to increase with higher order drainage lines and more permanent wetlands. Drainage and hydrology patterns have been significantly altered since European settlement in order to retain water in storage dams for agricultural purposes and drain waterlogged areas to open them up for grazing and cultivation.

Low spur/crest landforms:

Previous investigations throughout the Cumberland sub-bioregion have shown that low spur/crest landforms are often associated with a higher density and frequency of archaeological deposits – particularly when they are also located in close proximity to water sources. Low spur/crest landforms were delineated using aerial photography and topographic mapping.

Areas of cut and fill disturbance:

These areas are considered unlikely to contain Aboriginal archaeological deposits because topsoil units (i.e. artefact bearing soil units) have been removed. These areas include roads, dams and the construction of building platforms for houses and sheds. They are considered to have negligible archaeological sensitivity.

The model traits for the subject area are:

- Low spurs/crest/terrace landforms situated within 100m of a waterway/drainage line: very high archaeological potential.
- Land within 50m of a waterway/drainage line: high archaeological potential.
- Land within 100m of a waterway/drainage line: moderate archaeological potential.
- Land within 200m of a waterway/drainage line: low archaeological potential.
- All other areas = very low sensitivity.
- Cut and fill disturbance = very low - nil sensitivity.

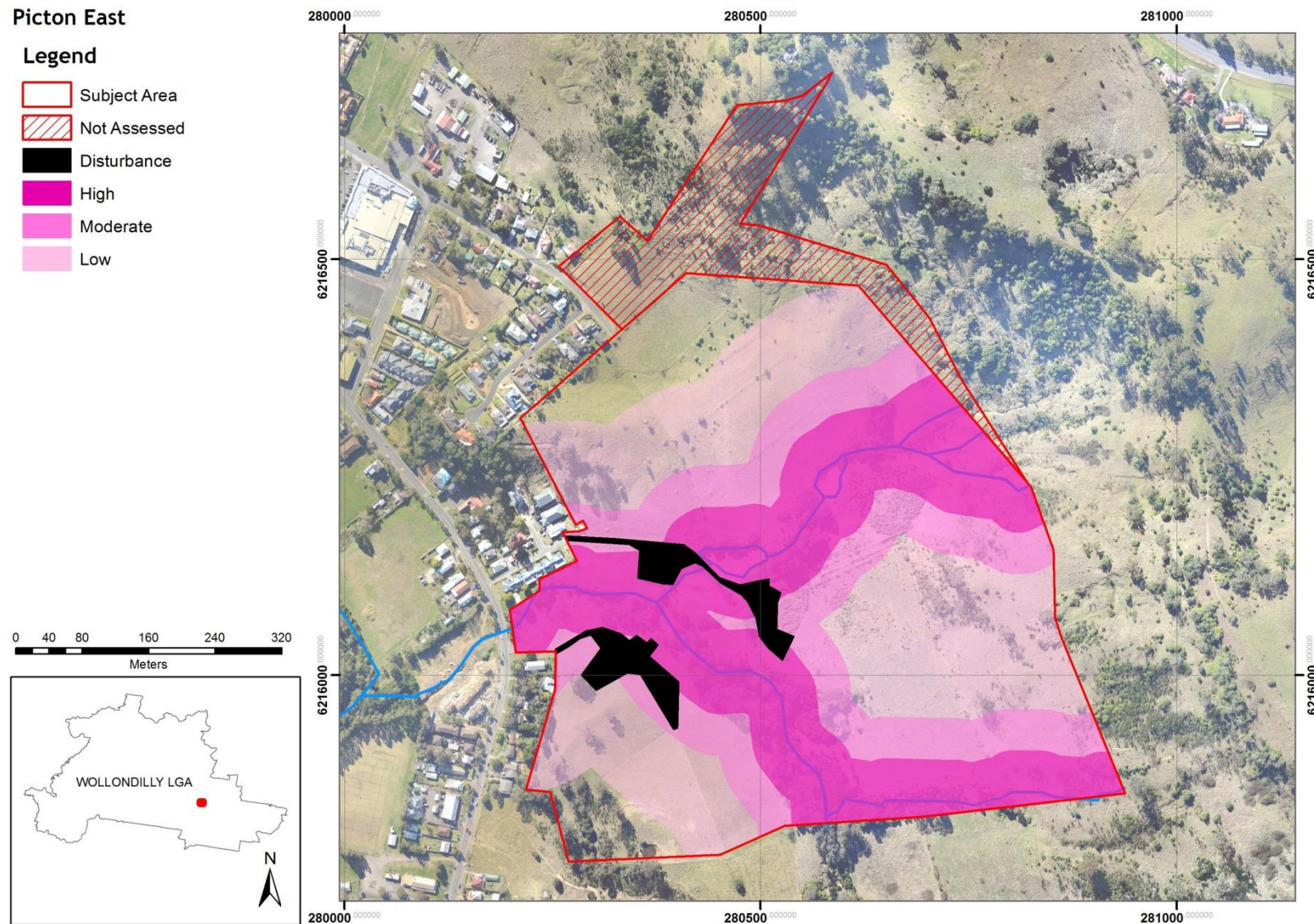


Figure 2 Predictive sensitivity model for the subject area. Note that the areas shaded red are elevated and are of high sensitivity.

7 IMPACT ASSESSMENT AND MANAGEMENT STRATEGIES

7.1 General

The following section details the potential archaeological impact of the proposed development, and the relevant legislative requirements to address this impact. Options to avoid, minimise and/or mitigate impact are outlined.

7.2 Summary of the Proposed Development

The proponent proposes to rezone part of the subject area from RU2 Rural Landscape to R2 Low Density Residential for the purposes of future residential development. Future development of the subject area is likely to include: the sub-division of land, construction of infrastructure and utilities, the development and construction of community facilities and the establishment of parks and conservation open spaces.

As the proposed activity is currently limited to rezoning and planning, development plans and final development footprint plans (i.e. placement of dwellings, roads, utilities, fencing and sheds etc.) were not available at the time of report preparation.

Therefore, this investigation is designed to assist the proponent, local council and planners in identifying and assessing Aboriginal heritage constraints and opportunities and the potential impacts of the proposed development on any known or potential Aboriginal cultural heritage.

7.3 Potential Impact

The findings of this assessment have revealed no significant archaeological or Aboriginal heritage constraints to the proposed re-zoning. However, extensive areas with potential to contain such sites were identified, and remain poorly defined at this stage. Therefore recommendations are made below to investigate these areas as a priority. It is considered that at the very least no ground disturbance should be permitted prior to such investigations, which will then inform any future management of the subject area.

In addition the revised boundary for the subject land now includes part of Vault hill and a known Aboriginal site and although this is proposed in lands to be zoned REI public reserve it is important to define and describe the values of the site so that it can be protected during future planning of the reserve.

7.4 Summary of Statutory Context

Aboriginal objects in NSW are protected by the *National Parks and Wildlife Act 1974*. An Aboriginal object is defined as:

... any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Anyone who discovers an Aboriginal object is obliged to report the discovery to OEH.

It is an offence to harm an Aboriginal object. However, there are a number of defences and exemptions to this offence, one of which is that harm was carried out under an Aboriginal Heritage Impact Permit (AHIP).

An AHIP may be issued by OEH, on behalf of the Director-General, under s90 of the *National Parks and Wildlife Act 1974*. An AHIP application must be accompanied by an Aboriginal Cultural Heritage Assessment, prepared in accordance with the OEH guidelines Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011).

7.5 Recommendations

The following recommendations are based on:

- The requirements of the *National Parks and Wildlife Act 1974*.
- The results of the archaeological investigation and assessment documented in this report.
- The views and recommendations of the Registered Aboriginal Parties.

The specific recommendations are as follows:

- Based on the findings of this study, there are no Aboriginal heritage issues that indicate that the re-zoning of the subject site from rural to residential should not proceed although note the recommendation below relating to site 52-2-1378.
- Prior to any proposed impact, further assessment and characterisation should be undertaken to investigate areas of archaeological potential identified in **Figure 2**. Should any Aboriginal objects/sites as defined by the *National Parks and Wildlife Act 1974* be identified, appropriate assessments and permits under this Act would be required prior to their disturbance.
- Site 52-2-1378 is located within land proposed to be zoned RE1 public reserve. It is recommended that the boundaries of this site be identified and mapped to ensure it is protected during future planning for the reserve.

The recommendation received from the Registered Aboriginal Parties is as follows:

- Further assessment of the subject area is required.

8 REFERENCES

- AMBS (2000) *Mungerie Town Centre: Archaeological salvage excavations near Kellyville Cumberland Plain, NSW*. Unpublished Report to Department of Urban Affairs and Planning.
- Attenbrow, V. (2002) *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*. UNSW Press, Sydney.
- Attenbrow, V. (2004) *What's Changing: Population Size or Land-Use Patterns? The Archaeology of Upper Mangrove Creek, Sydney Basin*. Terra Australis 21. Canberra: Pandanus Books.
- Attenbrow, V.J (2010) *Sydney's Aboriginal Past. Investigating the Archaeological and Historical Records*. (2nd edition – soft cover). UNSW Press: Sydney.
- Baker, N (1998) *Mungerie Park Town Centre: Archaeology Survey for Aboriginal Sites*. Unpublished Report by Australian Museum Business Services to the Department of Urban Affairs and Planning, Sydney.
- Brown, O (2010) Aboriginal Cultural Heritage Management and Mapping Aspects of Cultural Boundaries, Sub-bioregions and Site Distribution in the Sydney Basin. *Archaeological Heritage* 2: 9-16.
- DECCW (2010a) *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. DECCW: Sydney.
- DECCW (2010b) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. DECCW: Sydney.
- DECCW (2010c) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, DECCW: Sydney.
- Dibden, J (2002) *Proposed Subdivision at Appin, NSW - Lot D DP 162904, Lot 12 DP 752012, Lot 1 DP 598534, Lot 1 DP 819972, Lot 2 DP 819972, Lot 2 DP 598534 and Lot 100 DP 55516 Wollondilly LGA Cultural Heritage Assessment*. An unpublished report to McRoss Developments Pty Ltd.
- Haglund, L (1980) *Report on Archaeological Survey in the City of Blacktown*. Unpublished Report to NPWS.
- Hazelton P.A & Tille P.J (1990) *Soil Landscapes of the Wollongong-Port Hacking 1:100 000 Sheet*. Conservation Service of NSW, Sydney.
- Holdaway, S.J., P. Fanning and E. Rhodes (2008) Challenging intensification: Human-environment interactions in the Holocene geoarchaeological record from western New South Wales, Australia. *Geomorphology* 101: 524–532.
- Jo McDonald Cultural Heritage Management P/L (JMcDCHM) (2005) *Archaeological Salvage Excavation of Eight Archaeological Landscapes in the Second Ponds Creek Valley Rouse Hill Development Area, NSW*. Unpublished Report prepared for Rouse Hill Infrastructures and Landcom.
- Kohen, J (1984) *An archaeological reappraisal of the Jamison's Creek site complex*. Emu Plains. Unpublished report to the NSW National Parks and Wildlife Service, Sydney.
- Kohen, J (1986) *Prehistoric Settlement in the Western Cumberland Plain: Resources, Environment and Technology*. Unpublished PhD thesis, School of Behavioural Sciences, Macquarie University.

Kohen, J (1993) *The Darug and Their Neighbours: The Traditional Owners of the Sydney Region*. Darug Link in association with Blacktown & District Historical Society: Sydney.

Martin, S. (1986) *Macarthur Region Aboriginal Heritage Study*. Report to JRC Planning Services

McDonald, J (1999) *Archaeological Survey Proposed "Nangarin Estate" Agricultural/Rural Residential Subdivision, At Picton, NSW*. Unpublished report to Vinnigombe & Associates on behalf of Bradman Corporation.

McDonald, J (2008) *Dreamtime Superhighway: an analysis of Sydney Basin rock art and prehistoric information exchange*, ANU E Press, Canberra.

Nanson, G.C., Young, R.W., Stockton, E.D (1987). Chronology and palaeoenvironment of the Cranebrook Terrace, near Sydney, containing artefacts more than 40,000 years old. *Archaeology in Oceania* 22: 72-78.

NSW National Parks and Wildlife Service (2003) *The Bioregions of New South Wales: their biodiversity, conservation and history*. NSW National Parks and Wildlife Service, Hurstville.

OEH (2011) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. Office of Environment and Heritage, Department of Premier and Cabinet: Sydney.

Ridges, M (2010) *Aboriginal Sites Decision Support Tool (ASDST): State-Wide Product Outline and Technical Summary*. Department of Environment, Climate Change and Water: Sydney.

Smith, L. J (1989) *Archaeological site survey and analyses of sites on the northern Cumberland Plain*. Unpublished Report to NSW National Parks and Wildlife Service.

Smith, M.A., Williams, A.N., Turney, C.S.M., Cupper, M.L (2008) Human-Environment Interactions of the Australian Drylands: Time-Series Analysis of Archaeological Records. *The Holocene*, 18(3): 397-409.

White, E. and McDonald J (2010) Lithic artefact distribution in the Rouse Hill Development Area, Cumberland Plain, New South Wales. *Australian Archaeology*. 70: 29-38.

Williams, A.N. (2013) A new population curve for prehistoric Australia. *Proceedings of the Royal Society B*, 280: 20130486.

Williams, A.N., Mitchell, P., Wright, R.V.S., Toms, P. (2012) A Terminal Pleistocene Open Site on the Hawkesbury River, Pitt Town, NSW. *Australian Archaeology*, 74: 85-97

Appendix A Aboriginal Community Consultation

Consultation Log

Organisation	Representative	Date	Comments	AHMS Contact
National Native Title Tribunal	-	30.10.13	Request for details of Aboriginal individuals or groups who may have an interest in the subject area.	Stacey Kennedy
Office of the Registrar, Aboriginal Land Rights Act 1983	-			
OEH EPRG - Metropolitan	Miranda Morton			
NTSCorp	George Tonna			
Tharawal LALC	-			
Wollondilly Shire Council	-			
Hawkesbury Nepean CMA	Margaret Bottrell			
Office of the Registrar, Aboriginal Land Rights Act 1983	Tabatha Dantoine	1.11.13	Advised that no claim was active over the subject area.	Stacey Kennedy
Wollondilly Shire Council	Kitty Carter	4.11.13	Advised that the Tharawal LALC and Cubbitch Barta Native Title Group may have an interest in the project	Stacey Kennedy
OEH EPRG Metropolitan Branch	Susan Harrison	5.11.13	Provided a letter detailing a number of Aboriginal stakeholder groups.	Stacey Kennedy
NTSCorp	George Tonna	6.11.13	Advised that AHMS' information had been passed onto the relevant stakeholders who may contact us if interested.	Stacey Kennedy
Hawkesbury Nepean CMA	Margaret Bottrell	8.11.13	Advised that the CMA has no interest in this project and will pass our letters on to the member of their Advisory Committee for their information: if they comment on this it is as an individual person and not a representative of the Hawkesbury Nepean Catchment Management Authority.	Stacey Kennedy
National Native Title Tribunal	Sylvia Jagtman	8.11.13	Advised that the Register of Native Title Claims has an active claim #nC1997/007 relating to Gundungurra Tribal Council Aboriginal Council #6 affecting Wollondilly Shire LGA	Stacey Kennedy
Tharawal LALC	-	12.11.13	Stacey emailed reminder about request for potential stakeholder details.	Stacey Kennedy
Tharawal LALC	Ivan Simon	12.11.13	Advised that the Tharawal is a legitimate stakeholder under specific legislation and also provided a contact number for the Cubbitch Barta Native Title Claimants. Also specified that Tharawal would like to register interest in the project	Stacey Kennedy

ARCHAEOLOGICAL & HERITAGE MANAGEMENT SOLUTIONS

Organisation	Representative	Date	Comments	AHMS Contact
Tharawal LALC	Ivan Simon	13.11.13	Letter sent via mail inviting potential stakeholder if they would like to register interest in the project	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker			
Gundungarra Tribal Land Council Aboriginal Corporation	Elsie & Pamela Stockwell			
Peter Falk Consultancy	Peter Falk			
Tharawal LALC	Ivan Simon	13.11.13	Registered an interest to be involved in the project	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	13.11.13	Registered an interest to be involved in the project	Stacey Kennedy
Wollondilly Shire Council	Grant Rokobauer	15.11.13	Advised that Cubbitch Barta Native Title Claimants Aboriginal Corporation and Tharawal Local Aboriginal Land Council may have an interest in the project	Stacey Kennedy
-	-	20.11.13	Placed an advertisement in The Wollondilly Advertiser containing project information and invitation to register an interest.	Stacey Kennedy
Peter Falk Consultancy	Peter Falk	22.11.13	Registered an interest to be involved in the project	Stacey Kennedy
Tharawal LALC	Ivan Simon	5.12.13	Project information and proposed ACHA methodology sent for review and comment	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker			
Peter Falk Consultancy	Peter Falk			
Office of Environment and Heritage	-	5.12.13	Provided list of RAPs for the project.	Stacey Kennedy
Tharawal LALC	Ivan Simon	13.1.14	Stacey requested details for survey.	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker			
Peter Falk Consultancy	Peter Falk			
Tharawal LALC	Ivan Simon			
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	13.1.14	Re-sent methodology.	Stacey Kennedy
Peter Falk Consultancy	Peter Falk	13.1.14	Peter requested survey details.	Stacey Kennedy

ARCHAEOLOGICAL & HERITAGE MANAGEMENT SOLUTIONS

Organisation	Representative	Date	Comments	AHMS Contact
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	22.1.14	Amendment to survey dates.	Stacey Kennedy
Tharawal LALC	Ivan Simon			
Peter Falk Consultancy	Peter Falk			
Peter Falk Consultancy	Peter Falk	29.1.14	Peter emailed to ask about survey details.	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	29.1.14	Sent through survey details and contract.	Stacey Kennedy
Tharawal LALC	Ivan Simon			
Peter Falk Consultancy	Peter Falk			
Tharawal LALC	Ivan Simon	31.1.14	Sent through survey details and contract.	Stacey Kennedy
Tharawal LALC	Ivan Simon	31.1.14	Ivan sent details of site officer.	Stacey Kennedy
Tharawal LALC	Ivan Simon	3.2.14	Ivan emailed signed contract for the survey.	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Jacara Clarke Glenda Chalker	4-5.2.14	Survey of the study area.	Stacey Kennedy Michelle Lau
Tharawal LALC	Robert Hunter			
Peter Falk Consultancy	Peter Falk			
Peter Falk Consultancy	Peter Falk	5.2.14	Peter submitted invoice.	Stacey Kennedy
Peter Falk Consultancy	Peter Falk	5.3.14	Note that invoice will be settled next week.	Stacey Kennedy
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	9.9.14	Emailed draft Aboriginal Cultural Heritage Report and Archaeological Technical Report to RAPs, with request for review by 7 October.	Fenella Atkinson
Peter Falk Consultancy	Peter Falk			
Tharawal LALC	-			
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	9.9.14	Glenda requested a hard copy of the report.	Fenella Atkinson
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	10.9.14	Posted hard copy of the report to Glenda	Fenella Atkinson, Caitlin Douglas
Cubbitch Barta Native Title Claimants	Glenda Chalker	30.9.14	Fenella emailed reminder that comments on the draft ACHA due on 7	Fenella Atkinson

ARCHAEOLOGICAL & HERITAGE MANAGEMENT SOLUTIONS

Organisation	Representative	Date	Comments	AHMS Contact
Aboriginal Corporation			October.	
Peter Falk Consultancy	Peter Falk			
Tharawal LALC	-			
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	30.9.14	Glenda emailed to advise that she would be posting her comments the next day.	Fenella Atkinson
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	2.10.14	Glenda provided a response to the draft ACHA. She noted that predictive models from the northern Cumberland Plain mostly do not apply to the region of the study area; and that the statement that burial sites typically do not occur in the region is incorrect. Glenda recommended further assessment of the study area.	Fenella Atkinson

Stakeholder Identification - Agency Responses

Hawkesbury-Nepean Catchment Management Authority

From: Margaret Bottrell [mailto:Margaret.Bottrell@cma.nsw.gov.au]
Sent: Friday, 1 November 2013 7:37 AM
To: Stacey Kennedy
Subject: Request for information on Aboriginal stakeholders

To Stacey Kennedy,

Under the act that we work under I am not allowed to pass on the information that you requested in your letter dated 31 October 2013 **Re: Request for information on Aboriginal stakeholders for an Aboriginal Cultural Heritage Assessment of 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East, NSW.**

The Hawkesbury Nepean CMA has no interest in this project, and will pass your letters on to the members of our Advisory Committee for their information. If they comment on this, it is an individual person and not a representative of the Hawkesbury Nepean Catchment Management Authority.

Regards,

Margaret Bottrell Senior Strategic Land Services Officer (Aboriginal Communities)
Hawkesbury-Nepean Catchment Management Authority
NSW Government Office Block Level 4, 2-6 Station Street Penrith
PO Box 4515 Penrith Westfields NSW 2750
T: 02 472 53049 F: 02 4725 3088
E: margaret.bottrell@cma.nsw.gov.au
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National Native Title Tribunal



8 November 2013

Stacey Kennedy
Senior Archaeologist
AHMS
2/729 Elizabeth Street
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Our Ref: 5833/13 & 5836/13
Your Ref: 130913-1

Dear Ms Kennedy

Native Title Search Results for Picton within the Wollondilly Shire Local Government Area

Thank you for your search requests of 30 and 31 October 2013 in relation to the above area.

Search Results

The results provided are based on the information you supplied and are derived from a search of the following Tribunal databases:

Register Type	NNTT Reference Numbers
Schedule of Applications (unregistered claimant applications)	Nil.
Register of Native Title Claims	NC1997/007
National Native Title Register	Nil.
Register of Indigenous Land Use Agreements	Nil.

I have included a Register Extract, map attachment and NTT Registers fact sheet to help guide your understanding of the search result.

Please note that there may be a delay between a native title determination application being lodged in the Federal Court and its transfer to the Tribunal. As a result, some native title determination applications recently filed in the Federal Court may not appear on the Tribunal's databases.

The search results are based on analysis against external boundaries of applications only. Native title applications commonly contain exclusions clauses which remove areas from within the external boundary. To determine whether the areas described are in fact subject to claim, you

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need to refer to "Area covered by claim" section of the relevant Register Extract or Application Summary and any maps attached.

Search results and the existence of native title

Please note that the enclosed information from the Register of Native Title Claims and/or the Schedule of Applications is not confirmation of the existence of native title in this area. This cannot be confirmed until the Federal Court makes a determination that native title does or does not exist in relation to the area. Such determinations are registered on the National Native Title Register.

Tribunal accepts no liability for reliance placed on enclosed information

The enclosed information has been provided in good faith. Use of this information is at your sole risk. The National Native Title Tribunal makes no representative, either express or implied, as to the accuracy or suitability of the information enclosed for any particular purpose and accepts no liability for use of the information or reliance placed on it.

If you have any further queries, please feel free to contact me via the details listed below.

Yours sincerely



Sylvia Jagtman | SENIOR CASE MANAGEMENT ASSISTANT

National Native Title Tribunal | Sydney Office, Operations East

Telephone (02) 9227 4013 | Facsimile (02) 9227 4030 | Email sylvia.jagtman@nntt.gov.au

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Extract from the Register of Native Title Claims

Application Information

Application Reference: Federal Court number: NSD6060/1998
 NNTT number: NC1997/007

Application name: Gundungurra Tribal Council Aboriginal Corporation #6

Registration History: Registered from 29/04/1997

Register Extract (pursuant to s. 186 of the *Native Title Act 1993*)

Application filed with: National Native Title Tribunal

Date application filed: 29/04/1997

Date claim entered on Register: 29/04/1997

Applicants: Ms Elsie Stockwell, Ms Pamela Stockwell

Address for service: Eddy Neumann Lawyers
 Level 1
 255 Castlereagh Street
 SYDNEY NSW 2000
 Phone: (02) 9264 9933
 Fax: (02) 9264 9966

Additional Information:

Not Applicable

DESCRIPTION OF THE AREA COVERED BY THE CLAIM:

(a) Commencing at 150.52997 east longitude and 34.591636 south latitude, approximately 15.5 kilometres east south east of Moss Vale, the application traverses clockwise starting in a south-westerly direction, passing through points 2 to 36,765 of the following geographic coordinates. They are in decimal degrees and referenced to Australian Geodetic Datum 1984 (AGD84). These coordinates are based on the position of spatial reference data sourced by Land Information Centre, Department of Information Management and Technology, New South Wales as of 18 May 1999.

(b) Subject to clauses (d) and (e) the area covered by the application excludes any land or waters covered by:

- (i) a scheduled interest;
- (ii) freehold estate;
- (iii) a commercial lease that is neither an agricultural lease nor a pastoral lease;
- (iv) an exclusive agricultural lease or an exclusive pastoral lease;

- (v) a residential lease;
- (vi) a community purposes lease;
- (vii) a lease dissected from a mining lease as referred to in s23B(2)(vii);
- (viii) any lease (other than a mining lease) that confers a right of exclusive use over particular land or waters;

which was validly vested or granted on or before 23 December 1996.

(c) Subject to clauses (d) and (e) the area covered by the application excludes any area covered by the valid construction or establishment of any public work, where the construction or establishment of the public work commenced on or before 23 December 1996.

(d) Where the act specified in (b) and (c) falls within the provisions of

- (i) s23B(9) - Exclusion of acts benefiting Aboriginal peoples or Torres Strait Islanders;
- (ii) s23B (9A) - Establishment of a national or state park;
- (iii) s23B (9B) - Acts where legislation provides for non-extinguishment;
- (iv) s23B (9C) - Exclusion of Crown to Crown grants; and
- (v) s23B (10) - Exclusion by regulation,

the area covered by the act is not excluded from this application.

(e) Where an act referred to in clauses (b) and (c) covers land or waters referred to in:

- s47 - Pastoral leases held by native title claimants;
- s47A - Reserves etc covered by claimant applications; and
- s47B - Vacant crown land covered by claimant applications,

the area covered by the act is not excluded from the application.

- (f) Where an area is covered by a previous non-exclusive possession act (s 23F) the native title claim group does not claim possession, occupation, use and enjoyment to the exclusion of all others.
- (g) The area covered by the application excludes land where native title has been extinguished at common law.
- (h) The area covered by the application excludes areas covered by prior Gundungurra claims filed with the National Native Title Tribunal being NC96/7, NC96/27, NC96/30, NC96/36 and NC97/4.

PERSONS CLAIMING TO HOLD NATIVE TITLE:

The native title claim group comprises all members of the Gundungurra Tribal Council Aboriginal Corporation

REGISTERED NATIVE TITLE RIGHTS AND INTERESTS:

The following Native Title Rights & Interests were entered on the Register on 23/06/2000

1. Subject to (2) - (5) below, the full and free enjoyment of the following native title rights and interests area are claimed in relation to the land and waters the subject of the application:

- a. A right to possess, occupy, use and enjoy the claim area;
- b. A right to make decisions about the use and enjoyment of the claim area;
- c. A right of access to the claimed area;
- d. A right to control the access of others to the claimed area;
- e. The right to control the use and enjoyment of others of resources of the claimed area.
- f. (Right not registered)
- g. (Right not registered)
- h. (Right not registered)

2. With respect of those parts of the area the subject of the application which are, or have been, the subject of a previous non-exclusive possession act within the meaning of s 23F of the Native Title Act 1993, the native title rights and interests area set out in (1) are claimed subject to the rights and interests created in the 'non-exclusive possession act' which are not inconsistent with the rights and interests claimed and, in the case of rights granted which are inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause.

3. With respect to those parts of the area the subject of the application which are, or have been, the subject of:

- a. a category B intermediate period act within the meaning of s232C of the Native Title Act 1993;
- b. a category C intermediate period act within the meaning of s232D of the Native Title Act 1993;
- c. a category D intermediate period act within the meaning of s232E of the Native Title Act 1993;

the native title rights and interests claimed are those set out in (1) above subject to the rights and interests created in the non-exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause.

4. With respect to those parts of the area of the application which are, or have been, the subject of:

- a. a category B past act within the meaning of s230 of the Native Title Act 1993;
- b. a category C past act within the meaning of s231 of the Native Title Act 1993;
- c. a category D past act within the meaning of s232 of the Native Title Act 1993;

the native title rights and interests claimed area those set out in (1) above subject to the rights and interests created in the non-exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any extinguishment or suspension of the native title rights and interests which those inconsistent rights and interests cause.

5. The native title rights and interests identified above do not extend to ownership of any minerals, petroleum or gas which are wholly owned by the Crown.

6. The native title rights and interests identified above do not include a claim for exclusive occupation and use of offshore areas as defined by s253 of the Native Title Act 1993.

REGISTER ATTACHMENTS:

- 1. 1. Plan of Application Area, Attachment C of the Application, 1 page - A4, 29/04/1997

Note: The Register of Native Title Claims may, in accordance with s. 188 of the Native Title Act 1993, contain confidential information that will not appear on the Extract.

NATIVE TITLE APPLICATION

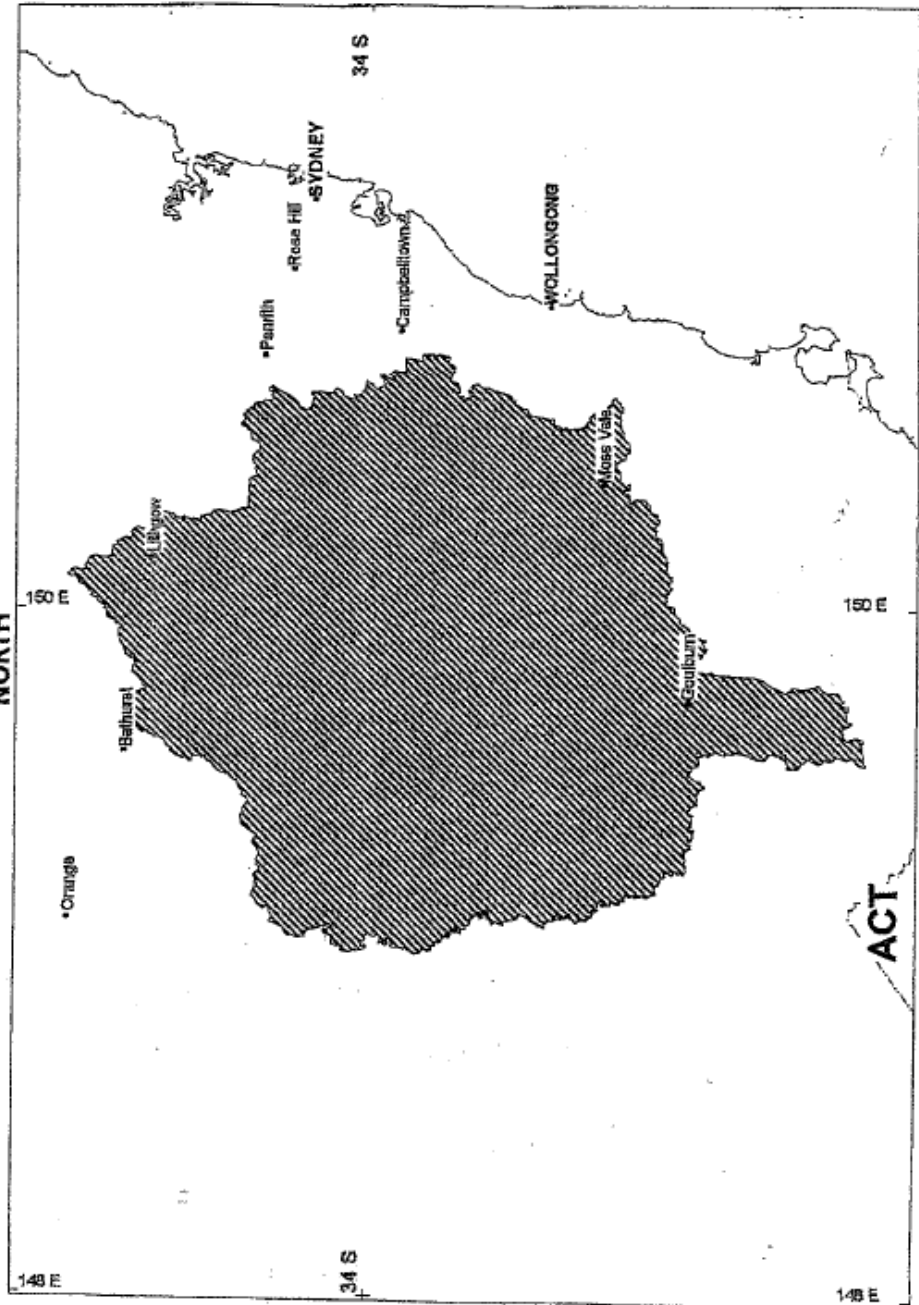
as at 18/05/1999

Map created from data sourced from Land Information Centre, DIM&T, NSW
by Geospatial Information Unit, National Native Title Tribunal

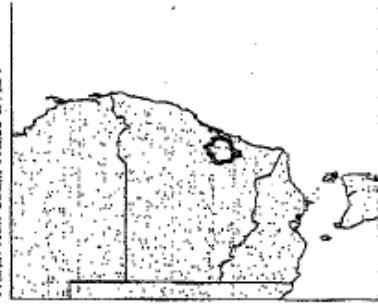
NSD6060/98 (NC97/7)
Plan of Application Area
Attachment C of the Application
Page 1 of 1, A4, 29/04/1997

0 60
KILOMETRES
Latitude and Longitude based on Australian Geostatic Datum 1984

NORTH



Location of NC97/007
Within New South Wales & ACT



Office of Environment and Heritage



Office of
Environment
& Heritage

Our reference: DOC13/79404

Ms Stacey Kennedy
Archaeological and Heritage Management Solutions
2/729 Elizabeth Street
WATERLOO NSW 2017

Dear Ms Kennedy,

Thank you for your letter dated 31/10/2013 to the Office of Environment and Heritage (OEH) regarding obtaining a list of the Aboriginal stakeholders that may have an interest in the project at Remembrance Drive and Menangle Street, Picton (Wollondilly Shire LGA).

Before making an application for the issue of an Aboriginal Heritage Impact Permit, the applicant must carry out an Aboriginal community consultation process in accordance with the National Parks and Wildlife Regulation 2009 and completed to the stage described in subclause 80C.

Please find attached the list of Aboriginal stakeholders known to OEH that may have an interest in the project. OEH's list of regional stakeholders is a list of groups, organisations or individuals who may hold cultural knowledge relevant to a proposal in a region. Consultation with Aboriginal people should not be confused with employment. Inclusion on the OEH's list is not an automatic right to employment. It is the decision of a proponent on who they choose to engage to deliver services based on a range of considerations including skills, relevant experience, and OHS considerations. To be clear, the proponent is under no obligation to employ Aboriginal people registered for consultation.

Further, receipt of this information does not remove the requirement of a proponent/consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties. Consultation with Aboriginal stakeholders must be in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* which can be found on the Office of Environment and Heritage (OEH) public website by accessing the following link:

<http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf>

OEH notes that the applicant will be seeking an AHIP at the planning proposal stage rather than the development application stage. OEH recommends for this approach early consultation with OEH on the proposed methodology.

Level 6, 10 Valentine Avenue, Parramatta NSW 2150
PO Box 644, Parramatta NSW 2124
Tel: (02) 9995 5477 Fax: (02) 9995 6900
ABN 30 841 387 271
www.environment.nsw.gov.au

Wingecarribee LGA

Tharawal Local Aboriginal Land Council	June Wilks	(02) 46810059	PO Box 20 Buxton NSW 2571
Cubbitch Barta	Glenda Chalker	0427 218 425	55 Nightingale Rd, Pheasants Nest NSW 2574
Peter Falk consultancy	Peter Falk	0401 938 060	Po Box 1018 Mittagong NSW 2575

Office of the Registrar, Aboriginal Land Rights Act 1983 (NSW)



11-13 Mansfield Street
Glebe NSW 2037
PO Box 112, Glebe NSW 2037
T: 02 9562 6327 F: 02 9562 6350

Stacey Kennedy
AHMS
2/279 Elizabeth Street
WATERLOO NSW 2017

1 November 2013

Dear Stacey

Request - Search for Aboriginal Land Claim

I refer to your email dated 31 October 2013 to search the Register of Aboriginal Land Claims database in relation to land described by you as:

Lot: 106 DP 1111043 & Lot: 9 DP 233840

Parish: Picton

County: Camden

I have searched the Register of Aboriginal Land Claims database and the subject land described by you *does not appear* on the Register as being affected by an Aboriginal Land Claim in pursuant to sections 36 or 37 of the *Aboriginal Land Rights Act 1983*.

Regards

Tabatha Dantoine

Administrative Officer

Office of the Registrar, *Aboriginal Land Rights Act 1983 (NSW)*

Please Note: Search Requests should not be made over privately owned land. Crown Land is the only land in NSW that is likely to be affected by an Aboriginal Land Claim under the Aboriginal Land Rights Act. It is not necessary to make a search over privately owned – even if an Aboriginal Land Claim has been made over privately owned land it would be refused as soon as this is known.

Tharawal Local Aboriginal Land Council

From: Ivan Simon [mailto:ceo@tharawal.com.au]
Sent: Tuesday, 12 November 2013 1:27 PM
To: Stacey Kennedy
Subject: FW: Request for information on relevant Aboriginal stakeholders

Stacey

I refer to the attached information forwarded to our organisation. Obviously the Tharawal Local Aboriginal Land Council is a legitimate stakeholder under specific legislation and I have attached documents that you will need to forward to us should any site specific work requires our participation. You should contact Glenda Chalker on email: kgchalker@bigpond.com Glenda represents the Cubbith Barta Native Title Claimants.

Regards,

Ivan Simon

A/CEO

M: 0400 497 735 T: 02 4681 0059 F: 02 4683 1375

PO Box 168 Picton NSW 2571

50 Matthews Lane Picton NSW 2571



Wollondilly Shire Council

From: Kitty Carter [mailto:Kitty.Carter@wollondilly.nsw.gov.au]
Sent: Monday, 4 November 2013 8:35 AM
To: Stacey Kennedy
Subject: Aboriginal groups contact persons

Stacey

Please find contact details as requested below;

Glenda Chalker
Hon. Chairperson
Cubbitch Barta Native Title Claimants Aboriginal Corp.
55 Nightingale Road
PHEASANTS NEST NSW 2574

Tharawal Aboriginal Land Council
Gibbergunyah
50 Matthews Lane
PICTON NSW 2571

or PO Box 168
PICTON NSW 2571 - Phone: 4681 0059 Fax 4683 1375

The most recent contact person at Tharawal is Donna Hipwell .

Regards

Kitty

Kitty Carter | Senior Strategic Planner

Wollondilly Shire Council | PO Box 21 Picton NSW 2571
P (02) 4677 8230 | **E** kitty.carter@wollondilly.nsw.gov.au | **W** www.wollondilly.nsw.gov.au

From: Kitty Carter [mailto:Kitty.Carter@wollondilly.nsw.gov.au]
Sent: Monday, 4 November 2013 10:05 AM
To: Stacey Kennedy
Subject: FW: TRIM: Aboriginal groups contact persons

Stacey

I have received further information this morning that Donna Hipwell has been replaced by Ivan Simon who is now acting CEO, also Rebecca Ede walomi@hotmail.com is the Chair and will be happy to be informed as well.

Regards

Kitty

Kitty Carter | Senior Strategic Planner

Wollondilly Shire Council | PO Box 21 Picton NSW 2571
P (02) 4677 8230 | **E** kitty.carter@wollondilly.nsw.gov.au | **W** www.wollondilly.nsw.gov.au

From: Grant Rokobauer [mailto:Grant.Rokobauer@wollondilly.nsw.gov.au]
Sent: Friday, 15 November 2013 2:22 PM
To: Stacey Kennedy
Subject: TRIM 6895 - Advice regarding Aboriginal Contacts

Dear Stacey

Thank you for your letter of 30 October 2013 requesting information as to Council's contacts with our local Aboriginal community.

We generally refer planning matters to 2 aboriginal groups and their details are provided below:

Cubbitch Barta Native Title Claimants Aboriginal Corp. 55 Nightingale Road PHEASANTS NEST NSW 2574

Tharawal Local Aboriginal Land Council PO Box 168 PICTON NSW 2571

Regards,

Grant Rokobauer | Strategic Planning Team Leader

Wollondilly Shire Council | PO Box 21 Picton NSW 2571

P (02) 4677 1172 | **E** grant.rokobauer@wollondilly.nsw.gov.au | **W** www.wollondilly.nsw.gov.au

Project Notification and Registration of Interest

The Wollondilly Advertiser, 20 November 2013

Notification of Aboriginal Cultural Heritage Assessment and Invitation for Registrations of Interest – 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East, NSW, (Wollondilly LGA).

Michael Brown Planning Strategies is proposing to undertake an Aboriginal Cultural Heritage Assessment in advance of proposed development at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East, NSW. Contact details for the project manager are: Michael Brown: A: PO Box 295, Camden, NSW, 2570; T: (02) 4648 0877; E: michael@michaelbrown.com.au

Registrations in writing are invited from Aboriginal individuals and/or organisations, who may hold cultural knowledge for the area relevant to determining the significance of Aboriginal objects and/or places and who wish to be involved in the community consultation process.

The purpose of the Aboriginal community consultation is to assist the proponent in preparing the ACHA for the project area, and if necessary to assist OEH in considering the assessment and any AHIP application.

Registrations of interest should be provided in writing by no later than 04 December 2013 to Stacey Kennedy at Archaeological and Heritage Management Solutions P/L, by:

Phone: (02) 9555 4000
Fax: (02) 9555 7005
Email: skennedy@ahms.com.au
Post: 2/729 Elizabeth Street, Waterloo, NSW 2017.

Cubbitch Barta Native Title Claimants Aboriginal Corporation

From: Glenda Chalker [<mailto:kgchalker@bigpond.com>]
Sent: Wednesday, 13 November 2013 6:52 PM
To: Stacey Kennedy
Subject: RE: Notification of an ACHA and invitation to register an interest

Dear Stacey,
Cubbitch Barta Native Title Claimants wishes to express an interest in registering as a Primary Aboriginal Stakeholder in the proposed project
Thanking you.
Glenda Chalker

Peter Falk Consultancy

From: Peter Falk [<mailto:kanga26@live.com.au>]
Sent: Friday, 22 November 2013 3:14 PM
To: Stacey Kennedy
Subject: Project No. 130913-1 and 121219-1

Stacey,
I wish to register for both of these projects,
1. I have Aboriginal Cultural knowledge of both of these areas and have lived in the vicinity
2. My organization represents an individual
3. For participation in these projects myself will be the person to contact, I have also lived in this area and have Aboriginal Cultural knowledge of the properties.
4. I have Public Liability Insurance (copy attached) as a Sole trader I am not required to have Workers Comp see Sec 155 Workers comp Act.
5. My daily rates to participate is
If you require any further info do not hesitate to contact me
Regards
Peter
Peter Falk Consultancy
0401938060

Proposed Assessment Methodology



AHMS

ARCHAEOLOGICAL
& HERITAGE
MANAGEMENT
SOLUTIONS

ABN 45 088 058 388
ACN 088 058 388

www.ahms.com.au
info@ahms.com.au

SYDNEY
2/729 Elizabeth St
Waterloo NSW 2017
P 02 9555 4000
F 02 9555 7005

MELBOURNE
2/35 Hope St
Brunswick VIC 3056
P 03 9388 0622

PERTH
13/336 Churchill Ave
Subiaco WA 6008
P 08 9381 5206

5 December 2013

«Organisation»
«AddressBlock»

Re: 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East, NSW. Notification of Aboriginal Cultural Heritage Assessment, Project Information and Invitation to Register an Interest.

Dear «Contact_person»,

Thank you for your registration of interest in the Aboriginal Cultural Heritage Assessment for 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East. Your interest in the project has been formally registered in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.

The subject area is situated at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East within the Wollondilly Shire Council and is approximately 157ha (**Figure 1**). AHMS understands that Wollondilly Shire Council propose to re-zone the subject area through a gateway determination process with an objective of opening up the area for future subdivision and development.

Enclosed is the proposed methodology for the Aboriginal Cultural Heritage Assessment which includes archaeological survey. I would like to invite you to review the methodology and provide comment. Can you please provide any comments you may have by **(6 January 2014)**.

Thanks again for registering your interest and participation in this project. I look forward to receiving your response to the proposed methodology. If you have any questions, please do not hesitate to contact me on (02) 9555 4000.

Yours sincerely,

Stacey Kennedy

Senior Archaeologist NSW - Aboriginal Heritage

Contact Details

This letter has been prepared by Archaeological & Heritage Management Solutions Pty Ltd (AHMS) for the proponent, Michael Brown Planning Strategies:

Table 1 - Contact Details

Proponent	Archaeological Advisor
Michael Brown Planning Strategies	Archaeological & Heritage Management Solutions Pty Ltd
Po Box 295	2/729 Elizabeth Street
Camden, NSW, 2570	Waterloo NSW 2017
Contact Person: Michael Brown	Contact Person: Stacey Kennedy
T. (02) 4648 0877	T. 02 9555 4000
E: michael@michaelbrown.com.au	F. 02 9555 7005
	M. 0408597246
	E: skennedy@ahms.com.au

Background

The subject area is situated at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) & 116-118 Menangle Street (Lot 9 DP 233840), Picton East within the Wollondilly Shire Council and is approximately 157ha (**Figure 1**). AHMS understands that Wollondilly Shire Council propose to re-zone the subject area through a gateway determination process with an objective of opening up the area for future subdivision and development.

AHMS will be undertaking the assessment in accordance with the relevant OEH guidelines. An important part of the assessment will be Aboriginal community consultation that aims to identify cultural values and places of importance to the Aboriginal community within the subject area.

As the proposed works may have the potential to impact on Aboriginal cultural heritage in the future, Michael Brown Planning Strategies have engaged AHMS, to undertake an Aboriginal Cultural Heritage Assessment (ACHA) of the study area in accordance with OEH guidelines. The ACHA will assess the potential impact of any proposed future development, and will provide the necessary documentation to apply for an Aboriginal Heritage Impact Permit (AHIP), or Permits, should one be required.

Proposed Assessment Methodology

AHMS proposes to develop an ACHA in accordance with the latest OEH guidelines for the proposed development, being:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010); and
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010).

Development of the ACHA will include the following tasks:

- Aboriginal community consultation;
- Archaeological survey (further detail is provided below). This component would be undertaken in conjunction with representatives of the Registered Aboriginal Parties (RAPs) based on selective commercial engagements determined by the client;
- Preparation of the ACHA, which incorporates Aboriginal consultation and any cultural information provided, outlines the findings of the archaeological survey, assesses potential impacts to Aboriginal heritage, and makes recommendations on any Aboriginal heritage sites and/or objects that may be present within the proposed subject area;
- If required, prepare an application for an Aboriginal Heritage Impact Permit (AHIP) or Permits to allow the proposed activity and/or additional mitigation measures to be conducted;
- If sites are identified, submit Site Cards and Site Impact Recording Forms to OEH; and
- If required, develop a Care and Control agreement for recovered artefacts and/or submit a site update card to OEH upon reburial of artefacts.

Archaeological Survey Methodology

It is proposed to undertake archaeological survey of the subject area. Methods will follow the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (2010)* and aim to identify any visible Aboriginal objects (material traces and evidence of Aboriginal land); as well as identify those areas where it can be inferred that, although not visible, material traces or evidence of Aboriginal land use have a likelihood of being present under the ground surface (potential archaeological deposits).

The sampling strategy will provide a full coverage survey on foot by undertaking following the requirements of the Code and include:

1. Inspection of all landforms that will potentially be impacted;
2. Placing a proportional emphasis on those landforms deemed to have archaeological potential; and
3. Re-inspecting the GPS location of any previously recorded Aboriginal sites (if present within the subject area), as well as provide information on their current extent and significance;
4. The accurate definition of survey units;
5. Taking representative photographs of survey units and landforms where informative;

6. Recording landform and general soil information for each survey unit;
7. Recording the land surface and vegetation conditions encountered during the survey, accounting as appropriate for things like vegetation, rock outcrops, coarse fragments, etc.) and how these impact on the visibility of objects;
8. Recording any Aboriginal objects observed during the survey; and
9. Recording of spatial information suitable for mapping according to Code requirements and the calculation of survey coverage.

The archaeological survey is designed to comprehensively cover the subject area in a systematic manner by examining all areas of ground surface visibility and representative landforms. Any areas of ground exposure will be examined for archaeological evidence such as stone artefacts, charcoal and shell. Ground surfaces and cut and fill features will also be examined to determine the degree of soil disturbance, erosion and potential for subsurface archaeological deposits.

An analysis of topographic maps and aerial photographs of the activity area will be undertaken prior to the survey to identify landforms and areas of ground surface exposure in the form of tracks, dams, cuttings and areas of ground exposure. These areas will then be targeted during the survey as they provide an opportunity to identify surface artefact scatters and to investigate any exposed soil profiles.

The Archaeological survey will involve a five stage approach:

Stage 1 – AHMS will seek contact with the landowner/Sponsor to arrange a date for the archaeological survey to be conducted. AHMS will also seek advice from the landowner on access issues and discuss any stipulated requirements.

Stage 2 - An analysis of topographic maps and aerial photographs will be undertaken prior to the survey to identify landforms across the subject area and to identify areas of ground surface exposure in the form of tracks, unsealed roads, dams, cuttings and areas of ground exposure. These areas will then be targeted during the survey because they provide an opportunity to identify surface artefact scatters and to investigate exposed soil profiles.

Stage 3 - The first step when entering the study area to familiarize ourselves with the landscape and identify areas of ground surface visibility.

Stage 4 - Following the initial scoping work, surveying will be conducted on foot. Areas of ground surface visibility will be surveyed in their entirety.

Stage 5 – Any surface artefact scatters found during the survey will be recorded in detail using a pro-forma developed for field recording. The location and extent of each surface site would be recorded with a GPS. Field notes will be made and photographs taken to document landscape configuration, soil profiles, soil disturbance, ground visibility and vegetation types.

The *OEH Due Diligence Code of Practice for the Protection of Aboriginal Objects* in New South Wales requires that when a desktop assessment and archaeological survey confirm the presence or likelihood of Aboriginal objects that will be harmed by a proposed development, further investigation is required.

However, if the results of the desktop research and archaeological survey indicate that there is a low likelihood for sub-surface Aboriginal objects with potential conservation value to be present within the subject area and high levels of past disturbance have most likely removed or disturbed any Aboriginal sites or objects, then further archaeological investigation (in the form of sub-surface testing) should not be considered warranted prior to the proponent undertaking an Aboriginal Heritage Impact Permit (AHIP).

Aboriginal Consultation

AHMS has recently begun the formal consultation process in accordance with OEH's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010). The project currently has the following Registered Aboriginal Parties (RAPs):

- Tharawal Local Aboriginal Land Council;
- Cubbitch Barta Native Title Claimants Aboriginal Corp;
- Peter Falk Consultancy.

Please note that unless otherwise advised, we are required to send details of all RAPs to OEH and Local Aboriginal Land Council as part of the consultation procedure.

Timeframes

AHMS proposes the following indicative timeframes for the project:

- Distribution of this document to the RAPs: 5 December 2013.
- End of review period for the proposed methodology: 6 January 2013.
- Field Survey: two days to be undertaken within January (proposed to be within these dates: Mon 13 /01/2014 - Fri 17/01/2014).
- Review period of draft report: mid February 2013.

Information Sought

AHMS would appreciate your review of the above methodology proposed for the investigation and assessment of the project.

In returning your answers, please include the following where appropriate:

- Any protocols that you would like adopted during the project;
- Identification of any Aboriginal objects of cultural significance and/or importance that you are aware of within the activity area, and how you wish them to be dealt with during the project;
- Identification of any places of cultural significance and/or importance that you are aware of within the activity area, and how you wish them to be dealt with during the project;
- Guidance on the protocols, sensitivity, use and/or distribution of any cultural information that you provide AHMS;
- Whether you require any further information prior to AHMS proceeding with the project; and
- Any initial thoughts on the potential long term storage and/or management of the Aboriginal objects that may be recovered from the test excavations.

Please ensure AHMS is also provided with your nominated individual's contact information including phone number, fax number, postal address and e-mail address (if available).

References

Department of Environment, Climate Change and Water (2010) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, DECCW, Sydney.

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

Mills & Wilkinson (1994) Archaeological Survey of Proposed Upgrade of the Shortland Wastewater Treatment Works, Report prepared for Hunter Water Corporation on behalf of Sinclair Knight Merz Pty Ltd.

Office of Environment and Heritage,(2011) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, OEH, Department of Premier and Cabinet, Sydney.

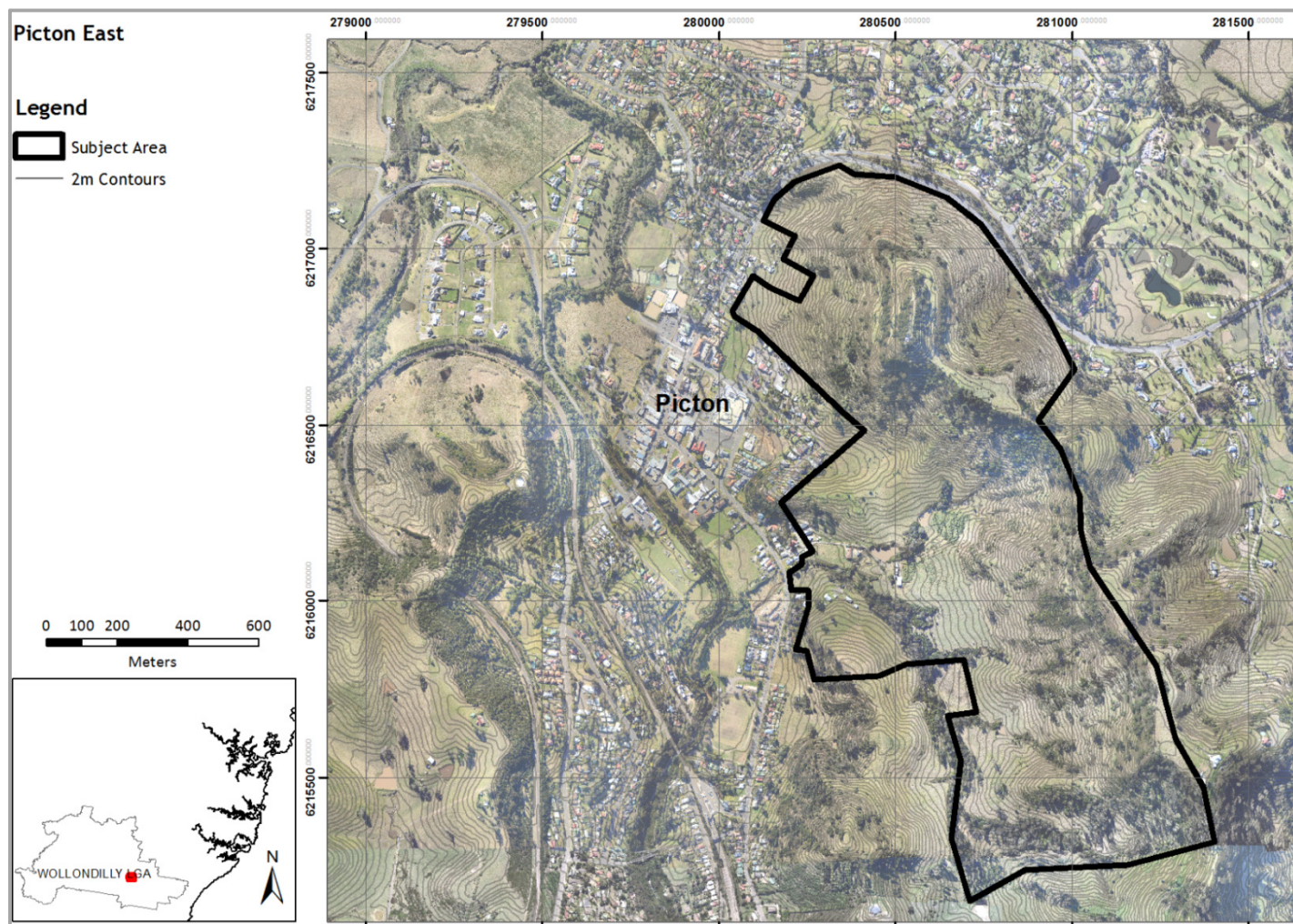


Figure 1 - The location and extent of the study area (Black).

Review of Draft Aboriginal Cultural Heritage Assessment

Cubbitch Barta Native Title Claimants Aboriginal Corporation

Cubbitch Barta Native Title Claimants
Aboriginal Corporation,
55 Nightingale Road,
PHEASANTS NEST, N.S.W. 2574.
30th September, 2014.

AHMS,
2/729 Elizabeth Street,
WATERLOO, N.S.W. 2017.

Dear Fenella,

PICTON EAST REZONING

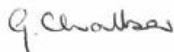
Thank you for the opportunity of participating in the above proposed project. I did not realise when participating in the foot survey, that the areas surveyed were being divided into three separate projects, which would require separate comments three times. Therefore I will comment on them separately.

The landscape in and around Wollondilly, and in this case more specifically Picton, cannot be compared to other archaeological investigations at Rouse Hill and the Hills district. The predictive models applied to the northern part of the Cumberland Plain mostly do not apply to the southern Cumberland Plain or the sandstone country in the south.

The reason that the bias for recording rock shelters and grinding grooves is that the general area is mostly affected by the mining industry, in which case the potential for impacts and possible damage are biased towards recordings. However the impacts to artefact scatters in general, and hence the reason for recording them, has not been a significant factor in their locations, because of the lack of major developments recently. The mention that burial sites typically do not occur in the region, is unsubstantiated when there is at least one very significant burial on Rumkers Creek, not too far away, of a named Aboriginal man.

I do recommend that further assessment of the area is required for this area of land, particularly when at least one area of PAD, was identified on a previous survey in the immediate vicinity.

Yours faithfully,



Glenda Chalker
Hon. Chairperson
Phone/Fax 0246841129 0427218425

Review of Draft Aboriginal Cultural Heritage Assessment

Cubbitch Barta Native Title Claimants Aboriginal Corporation

Cubbitch Barta Native Title Claimants
Aboriginal Corporation,
55 Nightingale Road,
PHEASANTS NEST, N.S.W. 2574.
30th September, 2014.

AHMS,
2/729 Elizabeth Street,
WATERLOO, N.S.W. 2017.

Dear Fenella,

PICTON EAST REZONING

Thank you for the opportunity of participating in the above proposed project. I did not realise when participating in the foot survey, that the areas surveyed were being divided into three separate projects, which would require separate comments three times. Therefore I will comment on them separately.

The landscape in and around Wollondilly, and in this case more specifically Picton, cannot be compared to other archaeological investigations at Rouse Hill and the Hills district. The predictive models applied to the northern part of the Cumberland Plain mostly do not apply to the southern Cumberland Plain or the sandstone country in the south.

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I do recommend that further assessment of the area is required for this area of land, particularly when at least one area of PAD, was identified on a previous survey in the immediate vicinity.

Yours faithfully,



Glenda Chalker
Hon. Chairperson
Phone/Fax 0246841129 0427218425

Appendix B Archaeological Technical Report



Archaeological Technical Report:

Picton East Rezoning;

**1735 Remembrance Drive and 108-
118 Menangle Street, Picton, NSW**

For Michael Brown Planning Strategies

FINAL

May 2015

AHMS

ARCHAEOLOGICAL & HERITAGE
MANAGEMENT SOLUTIONS



AUTHOR/HERITAGE ADVISOR	Stacey Kennedy
PROPONENT	Michael Brown Planning Strategies
PROJECT NAME	Picton East Rezoning
REAL PROPERTY DESCRIPTION	1735 Remembrance Drive (Lot 106 DP 1111043), 108-118 Menangle Street (Lot 2 DP 229679 and Lot 9 DP 233840), Picton, NSW
DATE	May 2015

AHMS INTERNAL REVIEW/SIGN OFF				
WRITTEN BY	DATE	VERSION	REVIEWED	APPROVED
Stacey Kennedy	February 2014	1	Alan Williams	Alan Williams
	September 2014	2		
	October 2014	3		
	May 2015	4	N. Richards	S. McIntyre-Tamwoy

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GLOSSARY

Aboriginal Cultural Heritage Assessment (ACHA)	A document developed to assess the archaeological and cultural values of an area, generally required as part of an Environmental Assessment (EA).
Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010	Guidelines developed by Office of Environment and Heritage (OEH) to guide formal Aboriginal community consultation undertaken as part of an Aboriginal Cultural Heritage Assessment (ACHA).
Aboriginal Heritage Impact Permit (AHIP)	The statutory instrument that the Director General of the Office of Environment and Heritage (OEH) issues under Section 90 of the <i>National Parks and Wildlife Act 1974</i> to allow the investigation (when not in accordance with certain guidelines), impact and/or destruction of Aboriginal objects.
Aboriginal object	A statutory term defined under the <i>National Parks and Wildlife Act 1974</i> as, 'any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'.
Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a)	Guidelines developed by OEH to inform the structure, practice and content of any archaeological investigations undertaken as part of an Aboriginal Cultural Heritage Assessment (ACHA).
Department of Environment, Climate Change and Water (DECCW)	Now known as the Office of Environment and Heritage (OEH), Department of Premier and Cabinet.
Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010b)	Guidelines developed by OEH, outlining the first stage of a two stage process in determining whether Aboriginal objects and/or areas of archaeological interest are present within a subject area. The findings of a due diligence assessment may lead to the development of an Aboriginal Cultural Heritage Assessment.
<i>Environmental Planning and Assessment Act 1979</i>	Statutory instrument that provides planning controls and requirements for environmental assessment in the development approval process. The Act is administered by the DPI.
Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)	Guidelines developed by OEH to inform the structure and content of an Aboriginal Cultural Heritage Assessment (ACHA).
Isolated find	An isolated find is usually considered a single artefact or stone tool, but can relate to any product of prehistoric Aboriginal societies. The term "object" is used in the ACHA, to reflect the definitions of Aboriginal stone tools or other products in the <i>National Parks and Wildlife Act 1974</i> .
<i>National Parks and Wildlife Act 1974</i>	The primary piece of legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of this Act outlines the protection afforded to and offences relating to disturbance of Aboriginal objects. The Act is administered by OEH.
Office of Environment and Heritage (OEH)	The OEH is responsible for managing the Aboriginal Heritage (and other) provisions of the <i>National Parks and Wildlife Act 1974</i> .
Potential Archaeological Deposit (PAD)	An area assessed as having the potential to contain Aboriginal objects. PADs are commonly identified on the basis of landform types, surface expressions of Aboriginal objects, surrounding archaeological material, disturbance, and a range of other factors. While not defined in the <i>National Parks and Wildlife Act 1974</i> , PADs are generally considered to retain Aboriginal objects and are therefore protected and managed in accordance with that Act.
Proponent	A corporate entity, Government agency or an individual in the private sector which proposes to undertake a development project.

ABBREVIATIONS

ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AHMS	Archaeological and Heritage Management Solutions
BP	Before present (AD 1950)
CHL	Commonwealth Heritage List
DECCW	Department of Environment, Climate Change and Water (now OEH)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERS	Eastern Regional Sequence
ka	Abbreviation for thousands of years ago (e.g. 1 ka equals 1,000 years ago)
LALC	Local Aboriginal Land Council
LGA	Local Government Area
LTO	Land Titles Office
NHL	National Heritage List
NPW Act	<i>National Parks and Wildlife Act 1974</i>
OEH	Office of Environment and Heritage (formerly DECCW)
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal party
RNE	Register of the National Estate
SHR	State Heritage Register
SHI	State Heritage Inventory
WHL	World Heritage List

SUMMARY

Background

Archaeological and Heritage Management Solutions Pty Ltd (AHMS) has been commissioned by Michael Brown Planning Strategies (on behalf of the proponent) (**Table 1**) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for land situated at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679), and 116-118 Menangle Street (Lot 9 DP 233840), Picton, NSW (the subject area) (**Figure 1**).

This report is the Archaeological Technical Report component of the ACHA, and was undertaken in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales* (DECCW 2010a).

Consultation with the Aboriginal communities within the region has been undertaken in accordance with procedures set out in the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010c). The Registered Aboriginal Parties for the project are: Cubbitch Barta Native Title Claimants Aboriginal Corporation, Tharawal Local Aboriginal Land Council, and Peter Falk Consultancy.

Aboriginal Archaeology

One previously recorded Aboriginal site is situated within the subject area within the hatched area shown on Figure 1. This site is designated a ceremonial/dreaming site called Carbundi/Vault Hill (52-2-1378) and is within the area proposed for rezoning as public reserve.

There are no previously recorded sites in the unhatched area shown on Figure 1 which is the area proposed for future development. However areas of archaeological potential were identified within this area and will require further investigation in future stages of the development process.

Ground surface survey was undertaken as part of this investigation. Ground visibility across the subject area varied from high (100%: areas of erosion/high exposure) to low (0%: areas demonstrating dense grass cover). No Aboriginal cultural heritage was identified. Visibility during the survey was overall very limited. Some visibility was observed in natural grass clearings, along cattle tracks, eroded creek banks and in areas of disturbance (such vehicle tracks/driveways).

The poor ground surface visibility was generally ineffective in identifying the nature, extent and significance of Aboriginal cultural heritage across the activity area. The results of the survey did not modify any of the predictions made in the predictive modelling developed as part of the desktop assessment.

A number of conclusions regarding likely archaeological patterning were made drawing on the results of the survey:

- Ground surface visibility across the activity area was generally very low and was therefore ineffective at determining the nature, extent and density of potential surface Aboriginal cultural heritage within areas of dense vegetation cover;
- Although native vegetation was examined, none retained evidence of cultural scarring;
- Areas of prior cut and fill disturbance initially identified during the desktop assessment were examined during the survey. Disturbance within these areas was considerable and has most likely resulted in the complete removal of any archaeological deposits (if present);
- Although no Aboriginal cultural heritage was identified within the unhatched area shown in Figure 1, the survey did identify landforms with the potential for sub-surface Aboriginal cultural heritage to be present.

Potential Archaeological Impact

As a result of the investigation, we have developed and mapped the predictions made regarding archaeological potential within the unhatched area shown in Figure 1. The purpose of the predictive model is to:

- Provide the proponent, landowners, Wollondilly Shire Council and the Registered Aboriginal Parties with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis; and
- Help inform early planning and design work.

The reason that the model does not extend into the hatched area (see figure 1) proposed to be rezoned as public reserve is because this area was added to the subject area after the technical study had been completed. It is considered that with proper planning that Aboriginal sites within the public reserve can be conserved.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying 'archaeological sensitivity'. For the purposes of the model, the term 'archaeological sensitivity' is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

The model traits for the subject area are (**Figure 17**):

- Low spurs/crest/terrace landforms situated within 100m of a waterway/drainage line: very high archaeological potential;
- Land within 50m of a waterway/drainage line: high archaeological potential;
- Land within 100m of a waterway/drainage line: moderate archaeological potential;
- Land within 200m of a waterway/drainage line: low archaeological potential;
- All other areas = very low sensitivity; and
- Cut and fill disturbance = very low - nil sensitivity.

Recommendations

- Based on the findings of this study, there are no Aboriginal heritage issues that indicate that the re-zoning of the subject site from rural to residential should not proceed although note the recommendation below relating to site 52-2-1378.
- It is recommended that prior to any proposed impact, further assessment and characterisation is undertaken to characterise areas of archaeological interest identified in Figure 17. Should any Aboriginal objects/sites as defined by the National Parks and Wildlife Act 1974 be identified, appropriate assessments and permits under this Act would be required prior to their disturbance.
- Site 52-2-1378 is located within land proposed to be zoned RE1 public reserve. It is recommended that the boundaries of this site be identified and mapped to ensure it is protected during future planning for the reserve.

Recommendations received from the Registered Aboriginal Parties in response to the review of the draft ACHA are as follows:

- Further assessment of the subject area is required.

1 INTRODUCTION

1.1 Background

Archaeological and Heritage Management Solutions Pty Ltd (AHMS) has been commissioned by Michael Brown Planning Strategies (the proponent) (**Table 1**) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for land situated at 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679), and 116-118 Menangle Street (Lot 9 DP 233840), Picton, NSW (the subject area) (**Figure 1**).

In accordance with NSW Office of Environment and Heritage (OEH) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011), an ACHA consists of two documents - a Cultural Heritage Assessment and an Archaeological Report - which together provide cultural and scientific assessment of the subject area.

This document forms the Archaeological Technical Report, which explores the environmental and archaeological values of the subject area, and the potential for the proposed development to harm Aboriginal objects. It should be read in conjunction with the Cultural Heritage Assessment, which explores the broader cultural values of the subject area.

Table 1 Proponent details.

Proponent representative	Archaeological advisor
Michael Brown Planning Strategies	Archaeological and Heritage Management Solutions Pty Ltd
PO Box 295 Camden NSW 2570	2/729 Elizabeth Street Waterloo NSW 2017
Contact person: Michael Brown T. 02 4648 0877 E: michael@michaelbrown.com.au	Contact person: Fenella Atkinson T. 02 9555 4000 E: fatkinson@ahms.com.au

1.2 Project Framework and Purpose of the ACHA

Wollondilly Shire Council has requested that a Gateway Determination, under section 56 of the *Environmental Planning and Assessment Act 1979*, be undertaken in respect to a planning proposal to rezone part of the subject area from RU2 Rural Landscape to R2 Low Density Residential. To address matters in the Gateway Determination, as advised by the Department of Planning, a number of specialist studies are required, including Aboriginal Heritage.

Wollondilly Shire Council has requested that an Aboriginal Heritage Assessment of known and potential heritage values be produced and include details of appropriate strategies and recommendations for the management of heritage values for the subject area. Council also requires that the following tasks/methodology be undertaken:

- Assess Aboriginal heritage values relevant to the site with reference to the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011) and incorporate two stages as follows:
 - a) The preparation of Aboriginal archaeological assessment - identification and assessment of Aboriginal objects and making recommendations for their management; and

- b) The preparation of a cultural heritage assessment - involving consultation with Aboriginal stakeholders (groups and individuals) in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a), which can include the assessment of historical, oral history and broader values.
- The outcomes of the two stages shall be combined into mapping of high, moderate and low Aboriginal cultural value; and
- Recommendations to manage Aboriginal heritage values across the subject area will be developed.

As such, this report describes the results of archaeological investigation and cultural heritage assessment undertaken to identify the extent and significance of any physical remains of past Aboriginal occupation within the subject area; in accordance with the objectives and task/methodologies outlined by the Wollondilly Shire Council.

It has also been developed in accordance with the following relevant OEH guidelines:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a);
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b).

1.3 Subject Area

For the purposes of this report, the 'subject area' refers to parts of 1735 Remembrance Drive (Lot 106 DP 1111043), 108-114 Menangle Street (Lot 2 DP 229679) and 116-118 Menangle Street (Lot 9 DP 233840), Picton, NSW, as shown on **Figure 1**. It is situated within the Wollondilly Local Government Area (Parish: Picton; County: Camden).

The subject area encompasses properties located immediately east of the Picton Town Centre encompassing land between the two major roads leading into Picton, namely Remembrance Drive and Menangle Street. The properties comprise a total area of 208,000 m² and are subject to Wollondilly Shire Council zones: RU2 Rural Landscape and RE1 Public Recreation.

1.4 Limitations

This report is based on existing publicly available environmental and archaeological information and reports about the subject area, in addition to the results of the archaeological survey undertaken as part of the current assessment. The background research did not include any independent verification of the results and interpretations of externally sourced existing reports (except where the fieldwork indicated inconsistencies).

The report includes predictions regarding the potential for sub-surface archaeological materials to exist within certain landforms/landscapes in the subject area. The predictions are based on evidence from surface indications, environmental contexts, and thorough assessment of significant ground disturbance activities undertaken throughout the past. Although an area may be assessed as having low potential to contain unknown Aboriginal cultural heritage, there always remains the possibility that undetected artefacts may exist in any given area.

Information from AHIMS was provided to AHMS by OEH. Information in the assessment reflects the scope and the accuracy of the AHIMS site data, which in some instances is limited.

1.5 Investigator and Contributors

This report was written by Stacey Kennedy, (B. Arch Hons, La Trobe) (Senior Archaeologist), with the assistance of Alistair Hobbs. Alan Williams (Manager NSW - Aboriginal Heritage) reviewed and edited a final draft of the report.

The archaeological survey was conducted by Stacey Kennedy and Michelle Lau. Registered Aboriginal Party representatives from Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC), Peter Falk Consultancy (PFC) and Tharawal Local Aboriginal Land Council (TLALC) also participated in the survey.

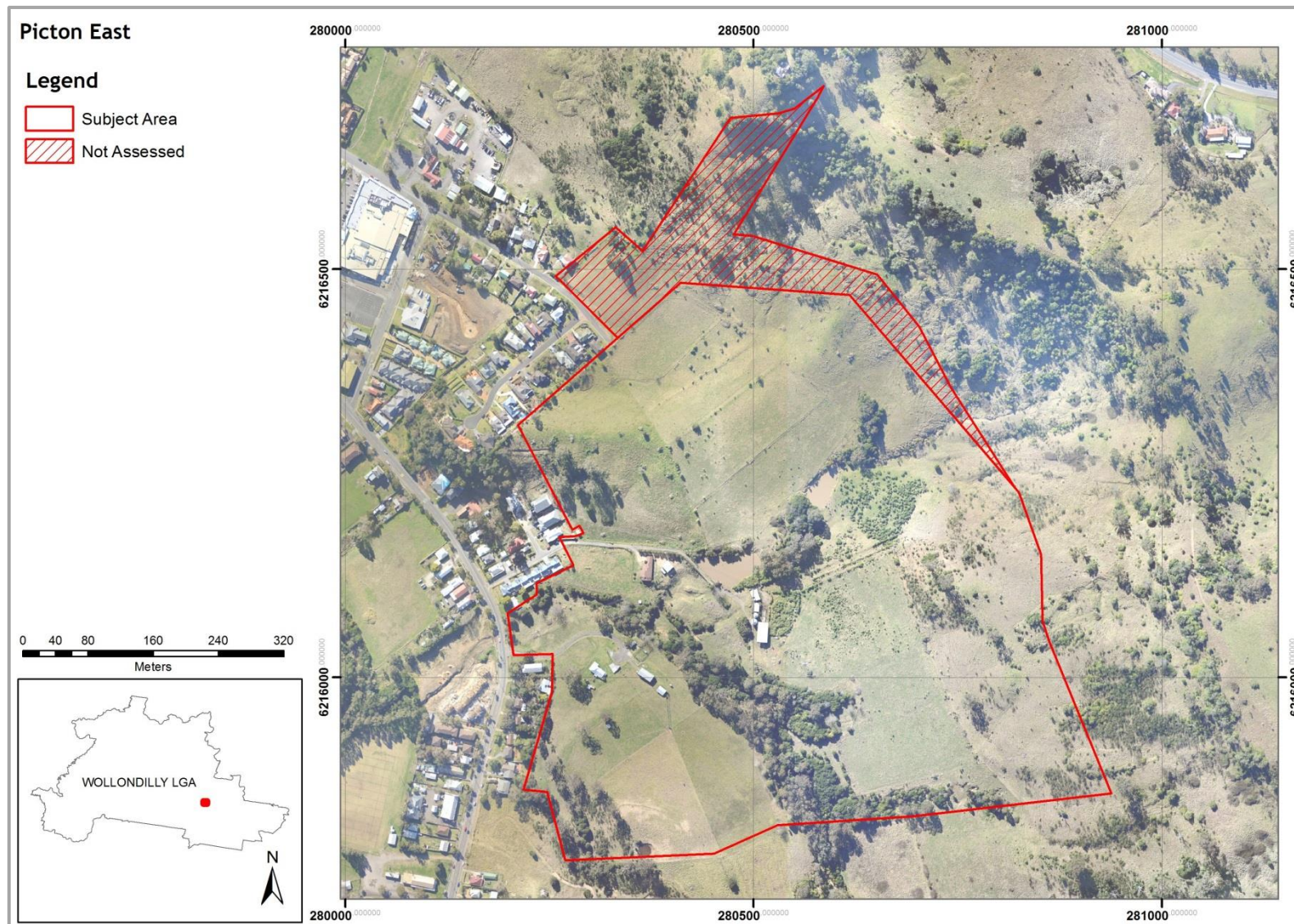


Figure 1 Location and extent of subject area.

2 EXISTING ENVIRONMENT

This section explores the landscape and landforms within the subject area. For the purposes of an ACHA, the type of landscape, geomorphic history and extent of disturbance within a given area all play a role in the presence and/or preservation of Aboriginal objects. As outlined in OEH's Code, this section aims to assist in the prediction of:

- The potential of the landscape to contain Aboriginal objects;
- The ways Aboriginal people have used the landscape in the past, with reference to the presence of resource areas, surfaces for art and other focal points which may have been used for particular activities and settlement; and
- The likely distribution of the material traces of Aboriginal land use based on the above.

To investigate these three aims, this section focusses on environmental variables, including geomorphology and soils, landforms, flora and fauna, hydrology and previous significant ground disturbance.

2.1 Landscape Characteristics

The subject area is situated within the greater Sydney Basin bioregion, which covers ~3,624,008 ha, and occupies 4.53% of NSW's central east coast. The Sydney Basin includes large parts of the Hawkesbury-Nepean, Hunter and Shoalhaven river catchment systems and the smaller Lake Macquarie, Lake Illawarra, Hacking, Georges and Parramatta River catchments, as well as smaller portions of the headwaters of the Clyde and Macquarie rivers (NSW National Parks and Wildlife Service 2003: 185-186). The Basin is further divided into smaller sub-bioregions distinguished by finer differences in geology, vegetation and biophysical attributes. The Cumberland subregion, as distinct from surrounding sandstone landscapes in all directions, provides a landscape context within which the types and distribution of Aboriginal archaeological evidence follow generally consistent patterns (Brown 2010). It is within this subregion that the subject area is situated.

The Cumberland subregion is characterised by the gently undulating Wianamatta shale-based landscape of western Sydney (NPWS 2003). The high erosional susceptibility of the shale typically leads to landscapes of generally low relief. The subject area, however, includes some relatively steep slopes indicating at least some underlying erosion resistant rock. This bioregional context is of particular relevance in setting reasonable parameters for the application of predictive models.

Additional factors contributing to the overall landscape assessment are also included in the following subsections.

2.1.1 Geology and Soils

The subject area is situated on Picton and Luddenham soil landscapes (**Figure 2**).

Picton is a colluvial landscape characterised by extensively cleared open forest and steep sideslopes usually having a southerly aspect. Local relief is between 90 - 300m with slope gradients >20%. Soil types include red and brown podzolic soils (50-200cm) on upper slopes. Brown and yellow podzolic soils and soloths are present on lower slopes and benches with red and brown earths on colluvial material (Hazelton & Tille 1990: 50). Deep (>300cm) yellow podzolic soils and soloths are present on lower slopes and in drainage lines. Dominant soil materials include a topsoil of dark brown, hard setting sandy loam and reddish brown sandy clay covering brown stony light clay (Hazelton & Tille 1990: 52)

The geology in the Picton region is made up of Ashfield Shale, Bringelly Shale and Minchinbury Sandstone. This comprises laminite, dark grey shale, calcareous claystone, Razorback Sandstone member, fine to medium grained lithic quartz sandstone and rare coal. This is known as the Wianamatta Group (Hazelton & Tille 1990: 50).

Luddenham is an erosional landscape characterised by undulating to rolling low hills with narrow ridges, hillcrests and valleys. Vegetation consists of extensively cleared open forest. Common trees include spotted gum, forest red gum and grey box. Soil types include podzolic soils and earthy clays situated on crests and upper slopes with prairie soils present on lower slopes and drainage lines (Hazelton & Tille 1990:70).

2.1.2 Hydrology

The subject area largely drains in a westerly direction via minor tributaries to Reeves Creek; which flows southwards to Stonequarry Creek (**Figure 3**). The presence, location and size of water sources are of considerable significance in predicting the likelihood of past activities occurring that would have led to the accumulation of Aboriginal objects.

2.1.3 Flora and Fauna

The natural vegetation of a landscape is an important consideration, because it provided Aboriginal people with resources which they could exploit. Bark from trees could be stripped to make canoes, shields and other utilitarian items. The vegetation itself provided food resources and habitats for animals, such as possums and birds, which could in turn be hunted for their meat, fur and feathers.

In a broader context, the Cumberland subregion of the Sydney bioregion naturally supports grey box, forest red gum, ironbark woodland with some spotted gum on the shale hills (NPWS 2003).

Dominant tree species include sydney blue gum and blackbutt. Other species include grey ironbark, turpentine, white stringybark, rough-barked apple and broad leaved apple (Hazelton & Tille 1990: 51). Common understorey species include sweet pittosporum, coffee bush, blackthorn, hickory and hairy clerodendrum (Hazelton & Tille 1990: 51,70). Grasses include bordered panic grass, paddock love grass, kangaroo grass and wire grass (Hazelton & Tille 1990: 71).

Significant stands of vegetation are located along the ridgelines of the outlying hills, along the banks of creeks and on some of the steeper slopes of the lower inner hills. There are also a large number of scattered mature trees throughout the site. However, the majority of the subject area has been cleared of vegetation as a result of human activity.

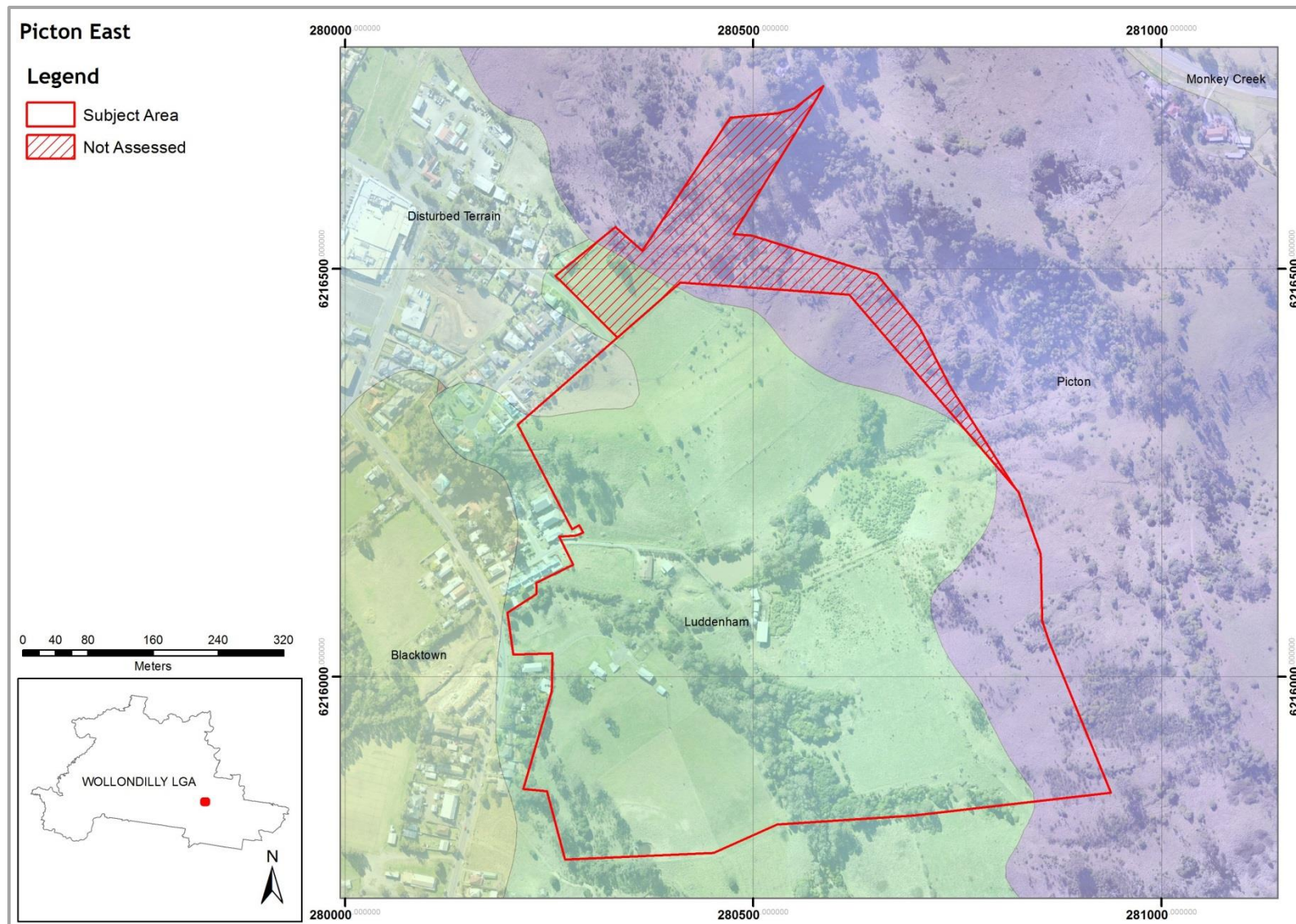


Figure 2 Soil landscapes of the subject area and immediate surrounds.

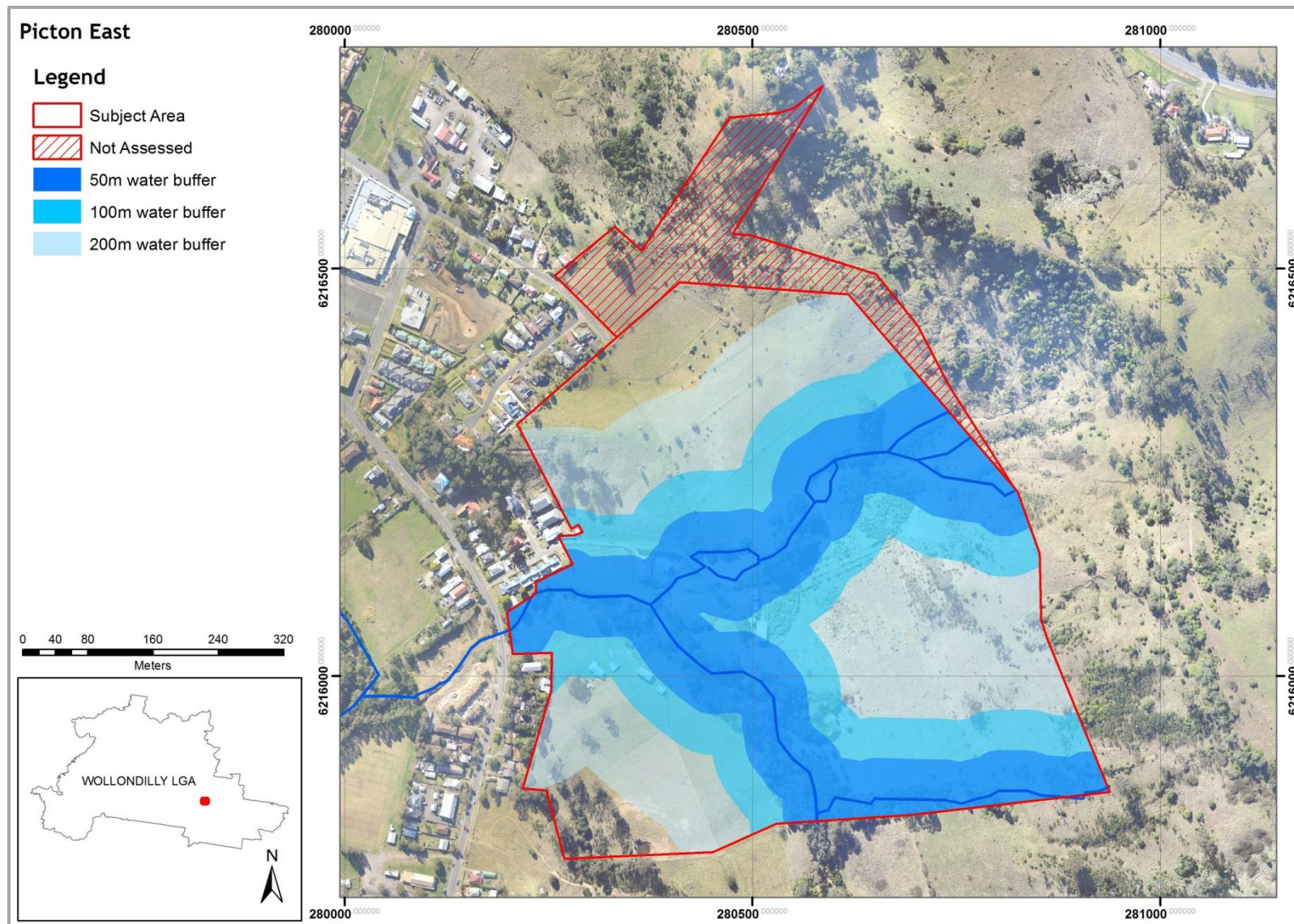


Figure 3 Map showing land situated within 50, 100 and 200m of creek/drainage lines within the subject area.

2.2 Previous Disturbance

In order to identify the extent and nature of past land use disturbance within the subject area we reviewed recent NearMap high resolution aerial photography (2013) and a series of historical aerial photographs (1955, 1975, 1988, and 1996) (**Figure 4** to **Figure 7**). Our analysis of the aerial photography indicates the subject area had been cleared for low intensity farming activities prior to 1955.

The small drainage line situated within the northern portion of the subject area (**Figure 3**) is not apparent in any of the historical aerial photographs (1955, 1975, 1988, and 1996) (see **Figure 4** to **Figure 7**). It is therefore likely that it represents soil erosion rather than a permanent water source. As such, Reeves Creek and the other tributaries, are of more interest for the presence of Aboriginal cultural materials.

Two residential premises with ancillary buildings are present within the subject area but otherwise it comprises cleared land used for dairying and grazing purposes. Aside from the cleared land used for farming and grazing, there has been little change to the majority of the subject area from the 1950s onwards.

Prior examples of land-use disturbances identified during our analysis of current and historical aerial photographs are listed below:

- Clearing of native vegetation across parts the of the subject area for farming and grazing purposes.
- Construction of fences.
- Construction of houses and associated out buildings.
- Construction of driveways and tracks throughout the subject area.

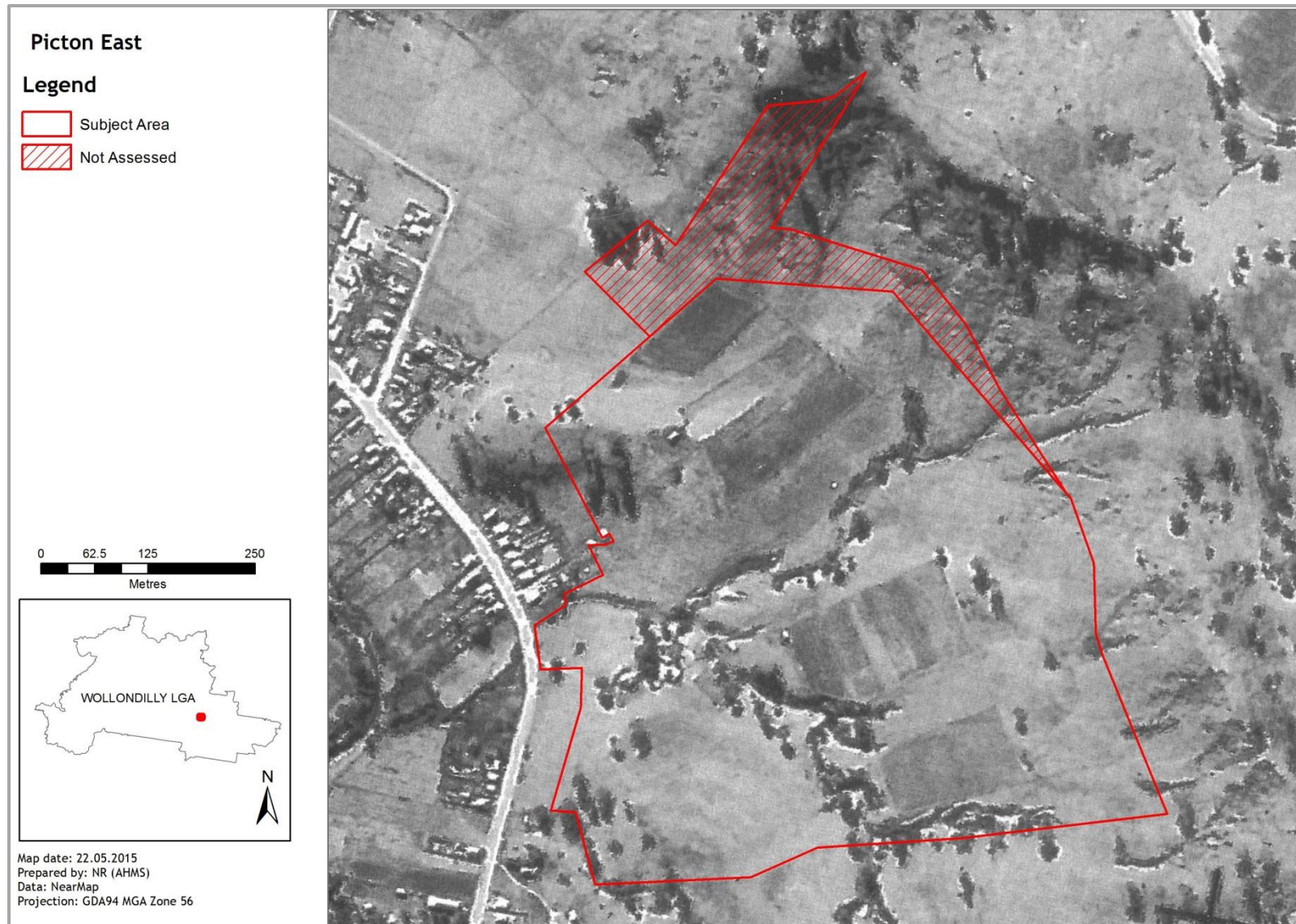


Figure 4 *Historic aerial of the subject area and immediate surrounds (LPI: 1955).*



Figure 5 *Historic aerial of the subject area and immediate surrounds (LPI: 1975).*

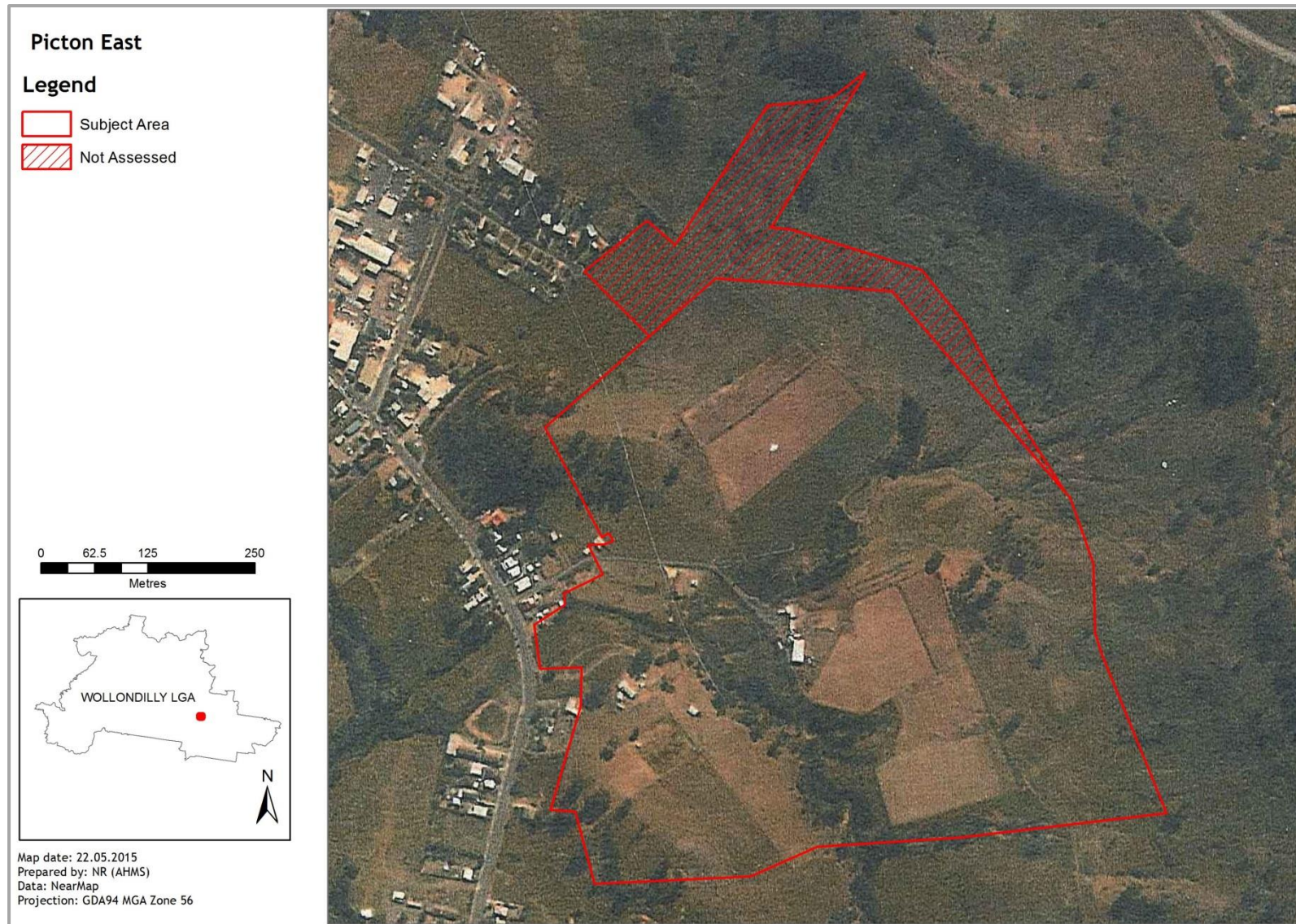


Figure 6 *Historic aerial of the subject area and immediate surrounds (LPI: 1988).*

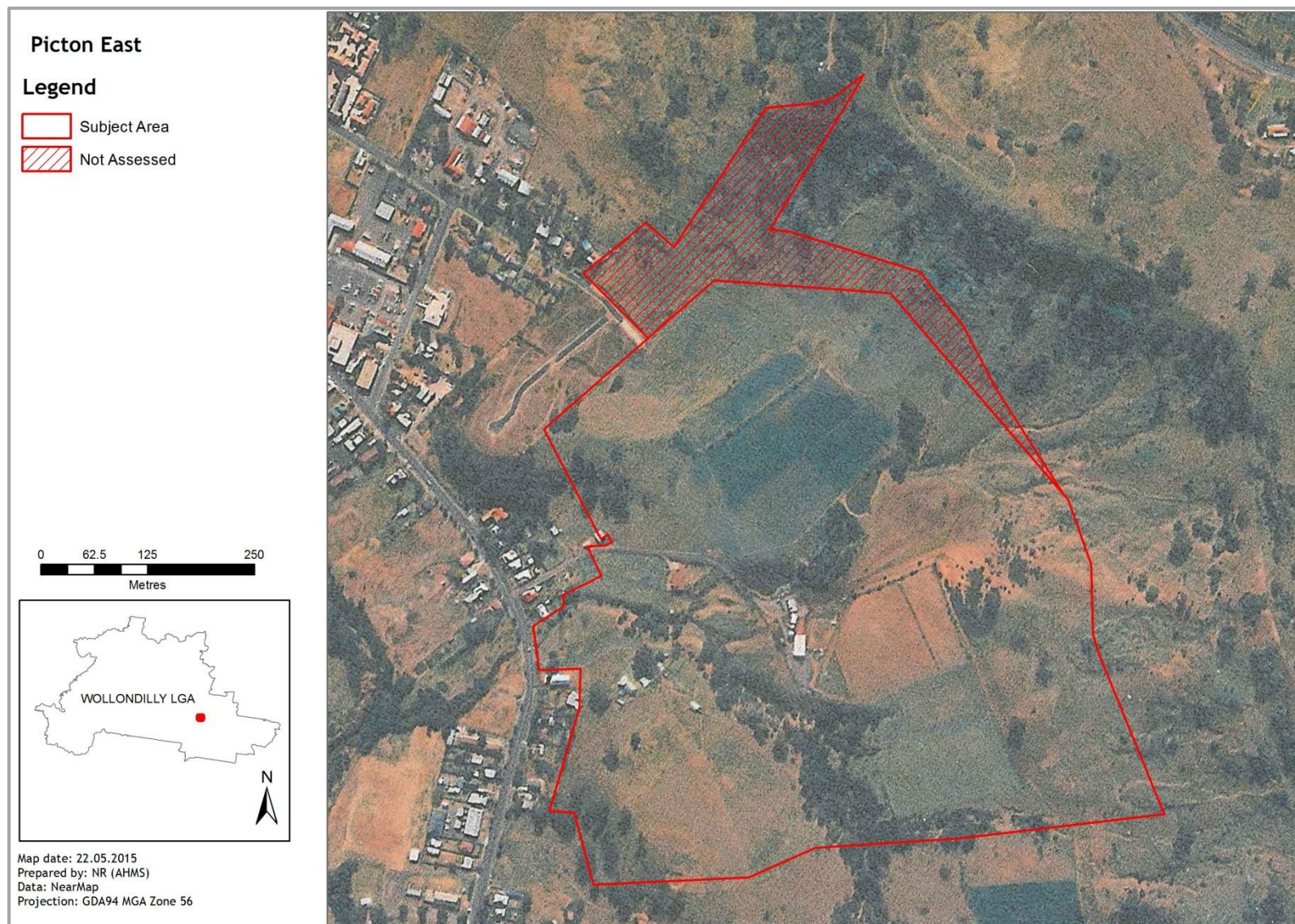


Figure 7 *Historic aerial of the subject area and immediate surrounds (LPI: 1996).*

3 ARCHAEOLOGICAL CONTEXT

This section discusses the regional and local archaeological context within which the subject area is situated. For the purposes of determining settlement and site location patterns, archaeologists examine regional and local trends in the distribution of known sites in relation to environment and topography. This provides evidence about economic and social systems in the past and also assists archaeologists in predicting likely site types, site locations and the nature of the archaeological resource in any given area.

3.1 General History

The subject area is situated within the Cumberland sub-bioregion of the greater Sydney Basin bioregion. The archaeology of the region has been well documented through a large number of academic studies, regional management studies and impact assessment investigations over the past 30 years.

3.1.1 Early Occupation

The timing of the initial colonisation of the Cumberland Plain is presently unknown. As with sites across the rest of the continent, the oldest accepted dates are unlikely to represent the very earliest time at which people were present (Attenbrow 2010: 21). There is sparse archaeological evidence of Pleistocene occupation of the region.

Early dates have been reported for artefacts found within the Cranebrook Terrace, a body of sand on the margins of the Nepean River (Nanson *et al.* 1987). Wood within the deposit has been dated to 26,700±1700/-1500 BP & >31,800 BP with a suggestion that the gravel was deposited even earlier, about 47,000-43,000 BP (Nanson *et al.* 1987: 72-73). However, there is some question about the association of the artefacts with the gravel deposit, and even the authenticity of the artefacts (McDonald 2008: 36) and this site is therefore, not presently commonly accepted.

The earliest widely accepted date for the Sydney region is for a site within the Parramatta Sand Terrace, CG1, which has been dated to 30,735 ± 407 BP (McDonald 2008: 36). Two further sites within this sand body have been excavated; RTA-G1 and CG3. The late Pleistocene assemblage derived from these sites is dominated by silicified tuff artefacts, with an upper limit bracketed by age determinations of c 8,000 to 6,000 BP (McDonald 2008: 36). The results of the recent excavation of an archaeological deposit within a sand body on the margins of the Hawkesbury River, to the north of Pitt Town, suggest that occupation of this area began even earlier, perhaps as early as 36 ka (AHMS, February 2013).

The dates of these sites fall at about the beginning of the Last Glacial Maximum, a period from about 30 to 18 ka, when temperatures were between 6 and 10°C cooler than they are today and rainfall was lower. At the height of the Last Glacial Period, about 21.3 ka, areas of rainforest and tall open forest contracted, and areas of woodland became more extensive than in the periods before 44 ka and after 11.7 ka (Attenbrow 2010: 37). After this time, the climate gradually became warmer and wetter, and sea levels rose. From this period onwards, there is a more continuous archaeological record for the Sydney region (Attenbrow 2010: 153). One of the earliest dated sites from this period is Shaws Creek KII rockshelter, with an initial occupation phase associated with a radiocarbon date of 12,980±480 BP (Kohen *et al.* 1984: 62).

Similar dates have been obtained from archaeological deposits within the sand body to the north of Pitt Town. Excavations have been undertaken at three places within this sand, in each case resulting in the recovery of two discrete lithic assemblages, with the earlier dating to the terminal Pleistocene (Williams *et al.* 2012). The OSL ages obtained suggest that occupation began as early as 36 ka, with

a period of intense activity between 20 and 15 ka. Williams *et al.* (2012: 93) suggest that the occupation of the sites may have been associated with the exploitation of gravel beds, exposed within the Nepean-Hawkesbury at that time. These gravels may have been the principal source of the silicified tuff which is the predominant material in late Pleistocene lithic assemblages on the Cumberland Plain.

A number of other sites in the Sydney region have also been dated to the terminal Pleistocene or early Holocene, either through artefact typology or absolute dating. An assemblage of silicified tuff artefacts recovered from the site RH/CC2, at Rouse Hill, a stratified open site, is considered to derive from the terminal Pleistocene (Williams *et al.* 2012: 87). The occupation of Darling Mills SF2, a rockshelter at West Pennant Hills, has been dated to around 11,800 years (Attenbrow 2010: 20). A site at Discovery Point (Tempe) with an initial silicified tuff assemblage, is associated with a calibrated date of 10 ka (McDonald 2008: 37).

3.1.2 The Holocene Period

The Holocene period began at ~12 ka, and continues through to the present. The last significant rise in sea level occurred approximately 7,000 years ago, and the level stabilised after about 6,500 years ago. Bays and estuaries formed in previous low-lying valleys and flats, and the groups living along the coast were forced inland (McDonald 2008: 40). Later in the Holocene, about 3,000 years ago, the onset of an ENSO dominated climate started a trend to a drier and more variable rainfall (McDonald 2008: 37).

The archaeological evidence indicates that significant and widespread changes occurred during the Holocene. Changes in lithic technology included a decline in the use of silicified tuff as the preferred raw material, and a greater use of local materials; a substantial growth, then decline, in the production and use of backed artefacts; and the introduction of ground-edged implements (with the peak period being approximately 4-1 ka).

There is also a considerable increase in archaeological evidence of occupation. McDonald notes a spike in artefact accumulation rates in the 9th and 8th millennia. From about 6 ka, there was a steady increase in the number of sites being used. Almost 80% of the Sydney region's radiocarbon ages date to the last 5,000 years (Williams *et al.* 2013), the number of dated sites peaks in the second millennium, and 28% of regional dates fall between 2,000 and 1,000 BP (McDonald 2008).

It has been argued that this is a result of increased populations and 'intensification' of cultural activity during this period. Smith *et al.* (2008) and Williams (2013), both suggest that populations were in fact larger in the last 2000 years than any preceding period. Using radiocarbon data and regional studies, they demonstrate that there is an increasing use of sites in all locations at this time, which cannot be explained by movement of people across the landscape, but rather points to increasing numbers of people using more of the landscape.

Alternative explanations have also been put forward. The best-known of these is based on Attenbrow's detailed study of the Upper Mangrove Creek catchment, in the Hunter region to the north of the Cumberland Plain (Attenbrow 2004). Attenbrow found significant changes in site patterning during the Holocene. She concluded that population was unlikely to have changed, but the use of sites, most notably in the last 2000 years did. This increased use of sites appeared in the archaeological record as increasing population. Holdaway *et al.* (2008), similarly suggest that populations did not increase in the late Holocene, but that the changes seen in the archaeological record reflect taphonomic change.

It is likely that the technological changes and possible population increase were accompanied by broad social changes. Hiscock and Attenbrow have suggested that the changed climate conditions after ~3,000 years ago stimulated a change in foraging practice, perhaps incorporating a shift to higher mobility (McDonald 2008: 37). McDonald suggests instead that by about 4 ka, people occupied

smaller territories, and on a more permanent basis. People used residential bases and defined foraging ranges on annual and extended cycles (McDonald 2008: 40).

3.2 Regional Site Patterns

3.2.1 Site Type Classification

Archaeological site types are classified in a number of ways. At the most basic level, sites are divided into rockshelter sites and open sites. Although rockshelter sites are fairly distinctive and definable, an 'Open site' is a fairly broad description. It may be a scatter of stone tools (or even a prediction of them occurring underground - Potential Archaeological Deposit (PAD)) almost anywhere in the landscape or other different and distinctive site types such as grinding grooves or engraved rock art on open slabs of sandstone.

Any one site (or close group of linked sites described as a 'site complex') can contain several different site type classifications. For example, a rockshelter may contain rock art on the walls, artefacts on the floor surface or outside the shelter and be predicted to contain faunal remains and further artefacts in the accumulated deposit inside.

A basic description of terms used in relation to different site types is provided in **Table 2**.

Table 2 *Description of archaeological site terms.*

Site Type	Description
Open Camp Site	An open camp site is typically a surface scatter of stone artefacts with further presumed subsurface material associated with it. The term is considered to be something of a misnomer insofar as the allusion to camping tends to suggest overnight or 'domestic use', whereas flaked stone material may occur in highest density where artefacts were manufactured. While the term is no longer used in AHIMS site recording, nor used by many archaeologists, its persistence in reporting gives cause to provide a definition here
Isolated Find	An isolated find is the location of a single artefact. It may be interpreted as 'background scatter' which is essentially ubiquitous across most Australian landscapes
PAD	The term 'potential archaeological deposit' when first applied in Sydney regional archaeology in the 1980s referred to rockshelters that were large enough and with enough accumulated deposit to allow archaeologists to presume that subsurface cultural material was highly likely to be present. Since then it has come to include open site contexts where the same prediction can be made – for example a level raised terrace area near permanent water where inferences from regional patterns suggest artefacts will occur. PAD listings are also sometime made for administrative reasons as a way of generating an AHIMS site number for the purposes of a permit application for test excavation (and in some cases in the past for a precautionary 'consent to destroy' so that unanticipated finds would not hold up development).
Stone Quarry	Stone quarries in the Hunter and greater Sydney region are principally outcrops of silcrete, quartz or other crystalline rock in open contexts. Stone was also sourced from river gravels and pebbles in conglomerate sandstone although these sources tend not to be recognised as sites.
Ochre Quarry	Ochre is typically a clay that is tinted by hydrated iron oxide that is used dried and powdered, although other oxide pigment sources are also given the name. A site may be listed as an ochre quarry based on clear evidence of its extraction, oral history, or just a presumption that its use would have been likely. In some cases, sites have been listed based on entirely modern use by the contemporary Aboriginal community.
Grinding groove	Grinding grooves occur mostly in fine, even grained sandstone that has been used as an abrasive for sharpening tool edges or points. This is usually related to ground edge hatchets (or 'axes') although spear sharpening grooves also occur. Grinding grooves are almost always associated with drainage lines (even if ephemeral and not mapped) as water is important in facilitating the grinding process.

Site Type	Description
Waterhole / well	Waterholes are generally natural formations whereas wells are usually dug by hand. They are often found in association with grinding grooves and considered to be natural features in sandstone creek beds where their use by Aboriginal people can be inferred.
Shell Midden	Shell middens are typically coastal sites, yet they may also occur near drainage lines or swamp systems. where large numbers of shellfish remains have accumulated as food waste near to the resource itself. Middens can occur as large open sites or be considered an attribute of deposits within a rockshelter, usually just denoting that shell has been found along with other remains.
Burial	Burials are usually associated with sandy deposits and occasionally found in rockshelters.
Shelter with deposit	Rockshelters are confined to sandstone areas where the shelter is large and dry enough to have been used by Aboriginal people. They often have high archaeological significance because the steady erosion of material from the ceiling of the shelter creates floor deposits that are stratified through time and usually provide for the preservation of organic material such as shell and bone. Rockshelters are also typically where pigment rock art is found and best preserved.
Shelter with art	Rock art in shelters tends to be pigmented art, although engravings have been identified (McDonald 2008). The style is generally described as Simple Figurative Style dominated by crude naturalistic depictions of human and animal motifs. These are done mainly in clay based (e.g. red ochre and white pipeclay) pigments and charcoal. Some stencilling has also been identified. Stencilling involved mixing the pigments with water and saliva then spraying the material by mouth over hands, common implements (e.g. boomerangs, hatchets) or animal parts leaving the object highlighted as a bare patch within the pigment (Maynard 1976, McDonald 2008).
Rock engraving	Rock engravings generally occur on large slabs of flat exposed sandstone, although some do occur in rockshelter contexts. As with the pigment art, engravings are generally crude, naturalistic and considered to be part of the Simple Figurative style (McDonald 2008). Most engravings are abraded although some pecking is known.
Scarred tree	Scarred trees typically result from the removal of bark for making implements such as coolamons, shelter panels or canoes (Long 2003, 2005). Some scarred trees have carvings on them although these are not generally known for the subject area. Very few scarred trees have survived to recent times.

3.2.2 Archaeological Site Distribution

Predictive modelling of the likelihood of Aboriginal archaeological sites occurring has been well developed for the Cumberland sub-bioregion due to the large number of studies associated with development in western Sydney over recent decades.¹

Starting in the 1980s, Haglund (1980a), Kohen (1986, 1993) and Smith (1989) analysed strong correlations between the location of artefact sites and proximity to water in western Sydney. These patterns have been further investigated and formalised into predictive 'models' such as McDonald's 'stream order model' (e.g. JMcDCHM 2005, White & McDonald 2010) and Baker's 'activity zones model' (Baker 1998, AMBS 2000). While more recent GIS-based models do provide for some statistical determination of site likelihood (e.g. Ridges 2010), predictive modelling more frequently

¹ Comments received from one of the RAPs (Cubbitch Barta Native Title Claimants Aboriginal Corporation) indicate that predictive modelling based on the results of investigation undertaken in the northern Cumberland Plain largely do not apply to the region of the subject area (Chalker, pers.comm, 30.9.14; reproduced in ACHA Appendix A). However, we have used these results as a guide, in conjunction with OEH advice that the presence of water is in general an indication of the likelihood of the presence of Aboriginal objects (see DECCW 2010: 12).

involves a largely discursive consideration of a number of principles – the most significant being proximity to water and landform.

The location of most archaeological sites is usually given as 200 metres or less. In a recent large scale study of the Hills Shire, of a total of 219 sites with verifiable locations, 94% were within 200m of water and those that weren't were mostly isolated finds (Brown 2010). Only one site was located more than 500m from mapped water (**Figure 8**). These data are broadly comparable with observations by previous authors and may also provide support to the current regulatory requirements of Aboriginal cultural heritage assessment focusing on areas within 200m of water (**Table 3**).

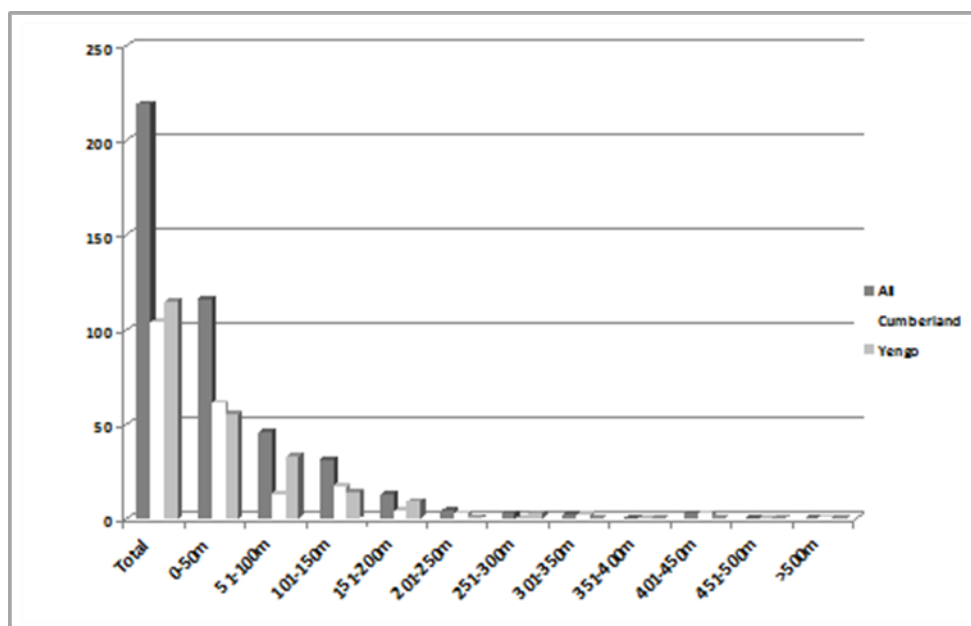


Figure 8 Site proximity to water in the comparable landform of the Hills Shire (Brown 2010).

Table 3 Previous statements based on proximity of sites to water in the Cumberland Plain.

Author	Statement	Against Hills Shire LGA AHIMS data (Brown 2010b)
Smith 1989	50% of sites within 50m of water	53% within 50m of water
Kohen 1986; 1993	65% of sites within 100m of water	73% of sites within 100m of water
OEH (also AAV)	Within 200m of water is an appropriate threshold for requiring archaeological assessment	94% of sites within 200m of water
Kohen 1986; 1993	<8% of sites more than 500m from water	1 site (0.5%) greater than 500m from water

Other recent work by White and McDonald (2010) reviewing a large body of data from archaeological investigations in the Rouse Hill Development Area has further developed the understanding of artefact distribution and proximity to water. Where in earlier models, the distances measured were essentially to any mapped water, White and McDonald made some important refinements in relation to drainage of different stream order. For 1st order streams, they found that the correlation with proximity to water was relatively weak and essentially representative of a general low density background scatter. For 2nd order streams, the pattern of high density within 50m previously observed by some authors since the 1980s was confirmed; however for the larger 4th order streams (like Eastern Creek), density was found to be highest between 50m and 100m of water (**Table 4**).

Table 4 *Observations on artefact distribution based on stream order for the RHDA (White & McDonald 2010).*

Stream order	Characteristics	Av. artefact density (/m2)
1st order	No significant difference in artefact distribution with distance from water	0.7
2nd order	Artefact density is highest within 50m of water and declines with increasing distance from water	6.5
3rd order	Insufficient data	
4th order	Artefact density is highest 51-100m from water, lower closer to water and declines with increasing distance more than 100m from water	13.9

White and McDonald were also able to show that landform has an important influence on artefact distribution in the Cumberland Plain - not in itself a new observation, but at least not previously subject to comparable quantitative analysis and statistical tests of significance. The tendency for level terraces near to water to have significantly higher densities of artefacts - previously a very reliable observation-based assumption - was securely proven. One of the more important refinements, however, was the demonstration that creek flats, despite their proximity to water, had low artefact densities; essentially the same as mid-slopes (**Table 5**).

Table 5 *Observations on artefact distribution based on landforms for the RHDA (White & McDonald 2010).*

Landform	Description	Av. artefact density (/m2)
Creek flat	Flood plains with flat to very gently inclined surfaces, adjacent to streams	3.8
Terrace	Former flood plains but no longer frequently flooded and occur at higher elevations than flats	20.8
Lower Slope	The lower third of slopes above valley floors	8.4
Mid-slope	The middle third of valley slopes between valley floors	3.8
Upper slope / ridge	The upper third of slopes and ridge tops forming watersheds	0.4

For the purposes of applying these data, Reeves Creek, a second order stream, flows through the middle portion of the subject area and therefore land within 100 m of the creek bank has a high potential to contain Aboriginal cultural materials. However, this area is dominated by alluvial flats and floodplains; and, as outlined in **Table 7**, these landforms have fairly low potential to contain significant cultural deposits. Along the creekline, however, are several slightly elevated areas or terraces (**Figure 17**) and these potential for have higher Aboriginal objects in significant densities to be present based on the data above.

3.2.3 Local Archaeological Studies

Only a minimal number of previous Aboriginal cultural heritage assessments have been undertaken of the local area.

McDonald (1999) conducted an archaeological survey of the proposed 'Nangarin Estate' agricultural/rural residential subdivision at Picton, approximately 4km to the west of the subject area.

McDonald highlights that only a few areas surrounding Picton have been subject to archaeological investigation and none have included sub-surface testing.

"Most of the recorded sites in the Picton and broader district are thus associated with exposures of Hawkesbury Sandstone (i.e grinding grooves and shelters). No open artefact scatters (only five isolated finds) are on record for the immediate area, and there have been no sub-surface archaeological investigations. The lack of recorded open sites may represent a tendency for much of Aboriginal occupation to have focussed on the available rockshelters. However, it is more likely that this site recording bias reflects generally poor ground surface visibility factors on the shale hillslopes, and previous disturbance regimes, rather than the distribution of archaeological material as an indicator of human behaviour" (McDonald 1999: 13).

Based on previous studies, local site patterning and environmental information, McDonald makes the following predictions regarding sites which may be expected to occur within the Picton area:

- Shelters with deposit and/or art, and axe grinding grooves in the areas of Hawkesbury sandstone near Stonequarry Creek and Long Gully;
- Open artefact scatters or isolated stone artefacts on the shale hillslopes and flatter areas near creeks; and
- To a lesser degree, given the amount of previous land clearance, scarred or carved trees (McDonald 1999: 13).

As a result of the archaeological survey the following sites were identified within the study area: two open campsites, three isolated finds, a shelter with a deposit, two shelters with potential archaeological deposit, and an area of potential archaeological deposit. McDonald discusses the site distribution of the Aboriginal sites identified within the study area, which is of direct relevance to the current subject area.

- The open campsites were formerly situated on the banks of a minor tributary - at the junction of two smaller (first order) tributaries - which then flowed into Stonequarry Creek (approx. 450 to the south);
- Both of the campsites are situated on a broad, gently sloping area of land below the main steep hillslopes;
- The shelter with archaeological deposit is located 450m south west of the open artefact scatters, overlooking Stonequarry Creek; and
- All isolated finds were identified on the lower hillslope (McDonald 1999: 27).

Twenty three stone artefacts were identified within the subject area. The majority of artefacts comprised flaking debris, however, one stone hatchet head fragment was also found. Raw materials present within the assemblage comprised indurated mudstone, quartz and silcrete. The hatchet fragment was composed of water worn volcanic pebble.

The sites comprising shelters with PAD and one open campsite were assessed as having low - mod archaeological significance, while all other sites were assessed as having low archaeological significance.

Dibden (2002) completed a Cultural Heritage Assessment for a proposed residential development at Appin, within the Wollindilly LGA, approximately 20km west of the subject area. Archaeological survey was undertaken of the study area and covered an area of 37ha. As the ground surface visibility was assessed as being low the effective survey coverage was calculated at 1.21% but still considered adequate to assess the nature of Aboriginal cultural material present within the study area.

Three Aboriginal sites (previously recorded and identified during the survey) and two rockshelters (with potential archaeological deposits (PADs)) were identified within the subject area. All of the sites were recorded as being present within the western section of the study area.

As the residential development was limited to the eastern section of the study area; no ground disturbance activities (and therefore impact to the Aboriginal sites) to the western section was proposed. No further work was recommended for the eastern section of the study area prior to development works going ahead. It was recommended that further mitigation and management strategies be undertaken for the five sites identified within the western section of the study area, however, none were provided within the report.

3.3 AHIMS Sites

The Office of Environment and Heritage (OEH) maintains the Aboriginal Heritage Information Management System (AHIMS), a database of known and registered Aboriginal sites in NSW. A basic and subsequent extensive search of AHIMS was carried out on 30 January 2013 and 27 February 2014.

One registered Aboriginal site is situated within the subject area (AHIMS No. 52-2-1378). It is located within the area proposed for rezoning as RE1 Public Reserve.

The search results are attached at **Appendix 2** and mapped in **Figure 9**. The search area was centred on the subject area and land within a three-five kilometre radius.

The results of the AHIMS search indicate that the most prevalent sites situated within 3-5km of the subject area consist of the following site types: scarred trees (n=2), rockshelter with art (n=2), axe grinding grooves (n=4), isolated stone artefacts (n=12), burials (n=2), Aboriginal Ceremony and dreaming site (n=1 *note: this refers to 52-2-1378 discussed above), stone artefact deposits/scatters (n=5), potential archaeological deposit (n=1), and an art site (n=1).

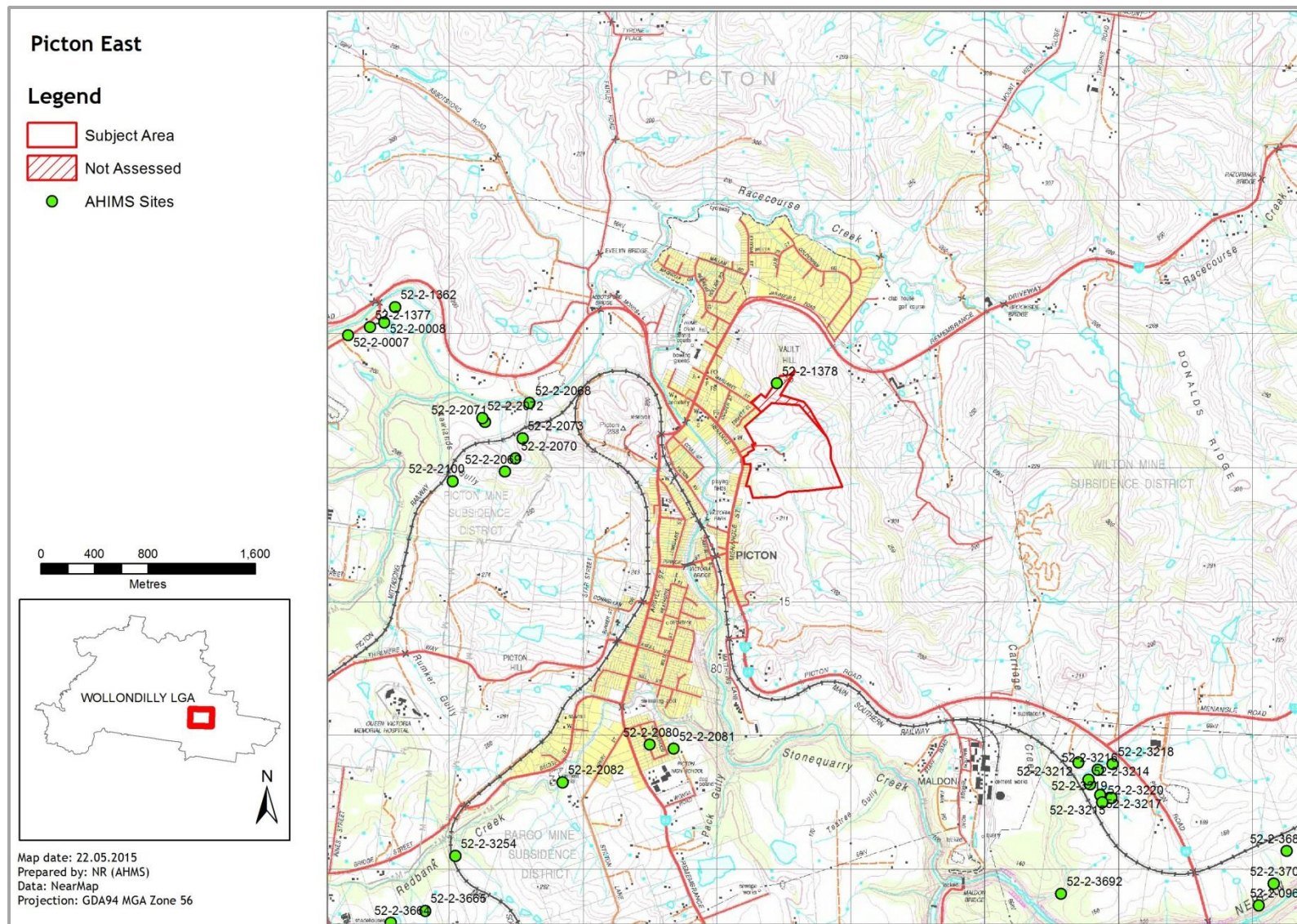


Figure 9 Aboriginal site distribution within 3-5km of the subject area.

3.4 Summary

Based on the information presented above, a number of conclusions can be made in regards to the potential of the subject area to contain any Aboriginal cultural heritage or Aboriginal objects:

- Regional archaeological records indicate that terraces, lower slopes and areas of minor elevation in association with creeklines have high likelihood of containing extensive and archaeologically significant cultural materials. Cultural materials have been demonstrated to occur >200 m from the edge of a watercourse, but more usually areas within 50-100m contain the greatest density of materials. Reeves Creek, a second order creek, is situated within the middle portion of the subject area, therefore, land within 100 m of this feature is considered to have potential for Aboriginal cultural heritage.
- Where drainage lines have incised down through shale to underlying sandstone geology, associated site types such as rockshelters, grinding grooves and rock art may occur in the Cumberland sub-bioregion; however this only occurs near to the margins with surrounding sandstone country areas and is not applicable for the current subject area.
- Areas containing remnant native vegetation have potential to retain trees bearing cultural scars; and provide an indication of soil profile integrity. This is most likely to occur along the banks of Reeves Creek and associated drainage lines as aerial imagery indicates that these areas have not suffered from the same amounts of clearance activities as other parts of the subject area.
- Aboriginal objects (primarily in the form of stone artefact deposits) are likely to be found at varying densities across most landforms within the subject area.
- Higher density artefact scatters and sub-surface deposits may be found on crest landforms, and low flat rises within close proximity to fresh water sources.
- Higher density artefact scatters and sub-surface deposits may be found adjacent to original drainage channels, particularly permanent and reliable water sources.
- The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands.
- A review of the underlying geology of the subject area has not identified the presence of suitable raw materials typically used in the manufacture of stone artefacts. As such, quarry sites are not expected to occur.
- Burial sites typically do not occur in the region outside of sandy or rockshelter contexts.²
- Shell midden (or other faunal) deposits do not occur on the soil landscapes identified for the subject area and are therefore not expected.
- Stone arrangements have not been recorded in Sydney shale country and therefore are not expected to occur within the subject area.

While there is generally accepted to be a low density, almost ubiquitous 'background scatter' of artefacts across the Cumberland Plain, the well-developed artefact distribution modelling for the area clearly demonstrates that major activity areas, where stone tools were either manufactured or maintained, did essentially have nearby freshwater as a precondition for use. On ephemeral first order streams, occupation was often immediately adjacent to the water (0-50m), while on larger permanent 4th order streams the majority of activity leading to the accumulation of stone artefacts was set back from the creek within the area between 50 and 100 metres from water. Activities at sites with evidence of intense or repeated occupation were also focused on areas with particular amenity to use that are generally explicable and predictable - especially on raised, flat, well drained terraces, with a slight tendency for higher density on locations with northerly and north-easterly aspect. Low-lying

² Comments received from one of the RAPs (Cubbitch Barta Native Title Claimants Aboriginal Corporation) advise that there is a known burial on Rumker Creek, in the local region (Chalker, pers.comm., 30.9.14, reproduced in ACHA Appendix A).

creek flats and slopes on the other hand have been shown to have significantly lower densities of material evidencing Aboriginal use, regardless of their proximity to water.

4 FIELD INVESTIGATION

4.1 General

The principal aim of the survey was to identify exposed cultural material (i.e. surface sites) and to assess disturbance levels. The survey aimed to identify areas of archaeological potential, landforms, vegetation patterns, geomorphic units, and areas of disturbance.

The investigation was also used to assess the extent to which past land-uses may have affected natural soil profiles. This information was used to assess the depth and potential integrity (intactness) of natural soil profiles across the subject area and the likely impact of future development.

The survey was undertaken in accordance with the methodology provided to the RAPs on the 4 and 5 February 2014 and the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010a).

AHMS staff and Aboriginal representatives who participated in the survey are listed below in (Table 6).

Table 6 **Survey participants.**

Date	Participants
4/02/2014	Stacey Kennedy (AHMS) Michelle Lau (AHMS) Peter Falk (PFC) Jacara Clarke (CBNTCAC) Robert Hunter (TLALC)
5/02/2014	Stacey Kennedy (AHMS) Michelle Lau (AHMS) Peter Falk (PFC) Glenda Chalker (CBNTCAC) Robert Hunter (TLALC)

4.2 Survey Methodology

The survey only covered the unhatched area in Figure 10 as this was the extent of the proposed subject area at that time. Since then the boundaries of the subject have been expanded to include the hatched area that is proposed to be rezoned Re1 Public Reserve.

The survey methodology comprised sampling of landforms within the subject area. This enabled the survey team to target areas likely to contain sites while avoiding areas which had nil ground visibility (covered with dense vegetation such as grass, or built structures). Survey areas were selected on the basis of ground surface visibility, landform and presence of previously recorded Aboriginal places. Any areas of ground exposure were examined for archaeological evidence such as stone artefacts, charcoal and shell. Ground surfaces and cuttings were also examined to document landscape configuration, soil profiles, soil disturbance, erosion and potential for subsurface archaeological deposits.

During the survey, detailed field notes and photographs were taken to document landscape configuration, soil profiles, soil disturbance, ground surface visibility and vegetation types. The Standard Assessment methodology entailed a five stage approach:

Stage 1 – AHMS sought contact with the landowner/proponent to arrange a date for the archaeological survey to be conducted. AHMS also sought advice from the landowner on access issues and discussed any stipulated requirements;

Stage 2 - An analysis of topographic maps and aerial photographs was undertaken prior to the survey to identify landforms across the subject area and to identify areas of ground surface exposure in the form of tracks, unsealed roads, dams, cuttings and areas of ground exposure. These areas were then targeted during the survey because they provided an opportunity to identify surface artefact scatters and to investigate exposed soil profiles;

Stage 3 - The first step when entering the subject area was to familiarize ourselves with the landscape and identify areas of ground surface visibility. This greatly assisted in scoping out the approach to survey within the subject area;

Stage 4 - Following the initial scoping work surveying was conducted on foot. Areas of ground surface visibility was surveyed in their entirety; and

Stage 5 – Any Aboriginal cultural material found during the survey was recorded in detail using a pro-forma developed for field recording. The location and extent of each surface site was recorded with a GPS. Field notes were made and photographs taken to document landscape configuration, soil profiles, soil disturbance, ground visibility and vegetation types.

The sampling strategy also provided a full coverage survey on foot by undertaking the following:

1. Inclusion of all landforms that were potentially to be impacted; and
2. Place a proportional emphasis on those landforms deemed to have archaeological potential.

Survey recording also followed the requirements of the Code by including:

3. An accurate definition of survey units;
4. Taking representative photographs of survey units and landforms where informative;
5. Recording landform and general soil information for each survey unit;
6. Recording the land surface and vegetation conditions encountered during the survey, accounting as appropriate for things like vegetation, rock outcrops, coarse fragments, etc.) and how these impact on the visibility of objects;
7. Recording of any Aboriginal cultural material observed during the survey; and
8. Recording of spatial information suitable for mapping according to Code requirements and the calculation of survey coverage.

4.3 Survey Coverage

The subject area was traversed by the survey team who walked in transects with a spacing of 10 - 20m between each team member. Ground visibility across the subject area varied from high (100%/m²: areas of erosion/high exposure) to low (0%/m²: areas demonstrating dense grass cover).

Transects covered all landforms within the subject area and targeted the following:

- Areas with exposed soil, such as creek banks, fence posts, tracks and cuttings;
- Areas identified in the predictive modelling as having potential to contain Aboriginal cultural heritage, such as elevated flat rises, creek lines and tributaries;

- Mature native trees.

The topography of the subject area comprises mid and lower simple hill-slopes and low spurs interspersed by open depressions. Reeves creek and associated tributaries flow in a westerly direction southwards towards Stonequarry Creek.

Although the majority of the subject area has been previously cleared, portions of native vegetation stands remain alongside drainage lines. All native vegetation was inspected for signs of cultural modification, although none were found. Significant ground disturbance was identified within several locations, particularly in areas of excavation (dams) and construction (residential dwellings and sheds etc) however, the majority of the subject area seems to be relatively undisturbed.

Survey transects covered all landforms within the subject area, including creek lines, slopes and low spurs. Reeves Creek obstructed the continuation of Transect 4 southwards. An attempt to survey this portion of the subject area was made but access points were locked at the time of survey. It is not considered that this has hindered any conclusions made in this report.

A summary of transect information for the survey is provided in **Table 8**.

Table 7 *Effective survey coverage of subject area.*

Area covered (m2)	Per cent of activity area surveyed	Ground survey visibility (%)	Effective survey coverage(m2)
208,000	100	10	20,800

Table 8 *Transect descriptions.*

Transect	Start/End GPS co- ordinates	Landform	Condition
1	280544/ 6216480 280860/ 6215840	Creek banks, mid & lower simple slopes	This transect includes the north-east and south-east portion of the subject area. The survey area included the banks of an unnamed drainage line and landforms associated with mid and lower slopes. Visibility was very poor due to dense grass cover, although soil profile exposures were observed along eroded parts of the creek banks. No significant disturbance was noted in this transect except for erosion along the creek. No trees bearing cultural scars were identified and no Aboriginal cultural heritage was identified.
2	280460/ 6216480 280740/ 6215828	Creek banks, mid & lower simple slopes	This transect includes the middle portion of the subject area. The survey area included the banks of a unnamed drainage line and landforms associated with mid and lower slopes. Visibility was very poor due to dense grass cover, although soil profile exposures were observed along eroded parts of the creek banks. No significant disturbance was noted in this transect except for erosion along the creek. No trees bearing cultural scars were identified and no Aboriginal cultural heritage was identified.
3	280360/ 6216440 280640/ 6215820	Creek banks, mid & lower simple slopes	This transect includes the middle portion of the subject area. The survey area included the banks of a unnamed drainage line and landforms associated with mid and lower slopes. Visibility was very poor due to dense grass cover, although soil profile exposures were observed along eroded parts of the creek banks. No significant disturbance was noted in this transect except for erosion along the creek. No trees bearing cultural scars were identified and no Aboriginal cultural heritage was identified.
4	280260/ 6216352 280460/ 6216032	Creek banks, mid & lower simple slopes	This transect includes the north-west and west portion of the subject area. The south-west portion of the subject area could not be traversed due to the presence of Reeves Creek which could not be crossed. This transect included the same landforms features as the above transects. Visibility was very poor due to dense grass cover, although soil profile exposures were observed along eroded parts of the creek banks. No significant disturbance was noted in this transect except for erosion along the creek. No trees bearing cultural scars were identified and no Aboriginal cultural heritage was identified.

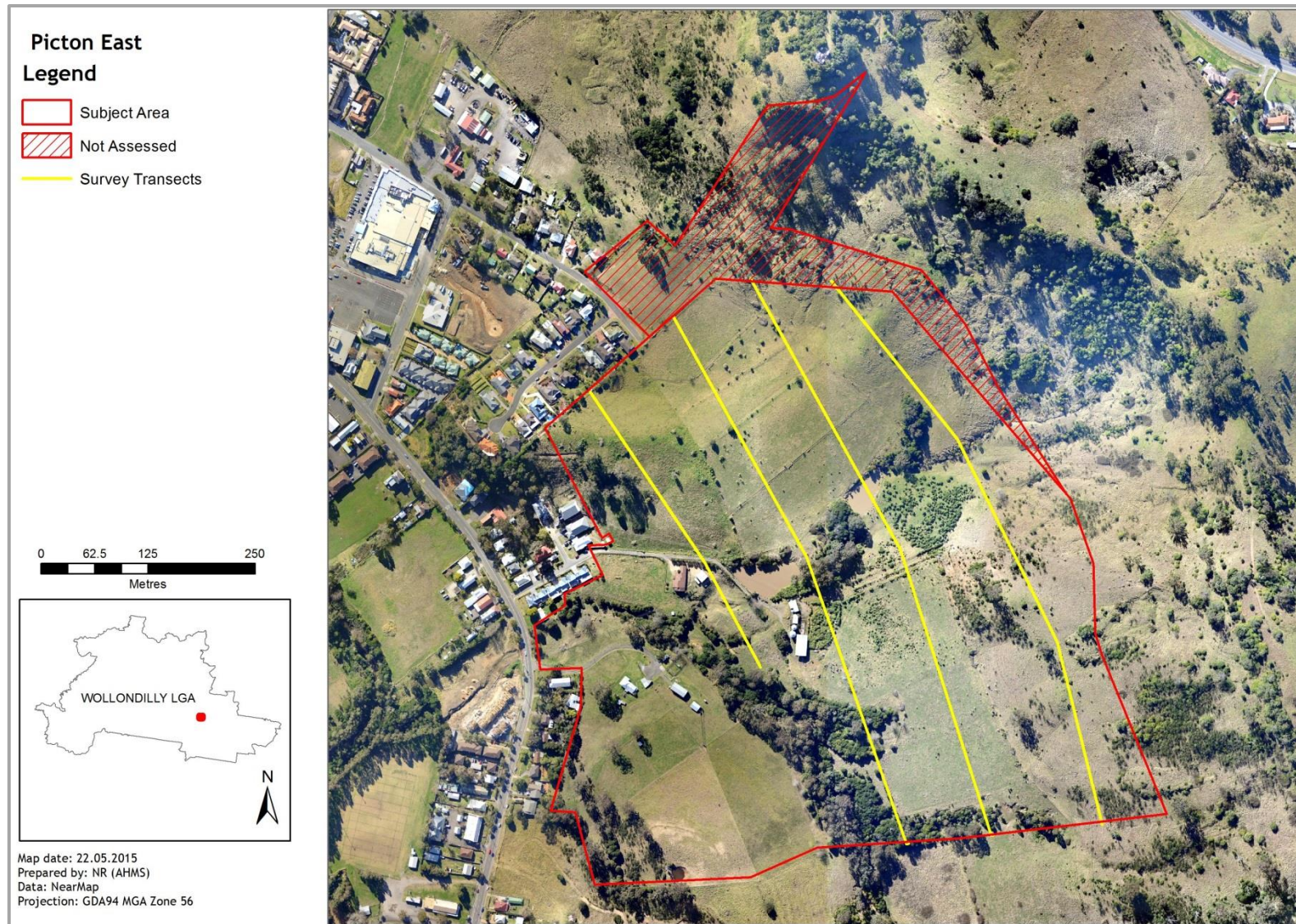


Figure 10 Aerial map of the subject area detailing the location of survey transects (Transect 4 could not continue past Reeves Creek).



Figure 11 Dam situated at western end of small drainage line.



Figure 12 Banks of dry dam: excellent visibility 100%.



Figure 13 Banks of minor drainage line (tributary of Reeves Creek).



Figure 14 Southern view of Reeves Creek.



Figure 15 Northern view (toward Vault Hill) of minor drainage line.



Figure 16 Western view of Reeves Creek and subject area.

4.4 Results

That part of the subject land that is shown as 'not hatched' was surveyed and the approximate location of the transects are noted (see Figure 10). No Aboriginal cultural heritage was identified within this area. Visibility during the survey was very limited. Some visibility was provided by natural clearings, along cattle tracks, eroded creek banks and in areas of disturbance (such vehicle tracks/driveways).

The poor ground surface visibility affected the ability of the survey to identify Aboriginal cultural heritage across the subject land. The results of the survey did not modify any of the predictions made in the predictive modelling developed as part of the desktop assessment.

A limited number of conclusions regarding likely archaeological patterning were made base on field observations:

- Ground surface visibility across the activity area was generally very low and was therefore ineffective at determining the nature, extent and density of potential surface Aboriginal cultural heritage within areas of dense vegetation cover.
- Although native vegetation was examined, none retained evidence of cultural scarring.
- Areas of prior cut and fill disturbance initially identified during the desktop assessment were examined during the survey. Disturbance within these areas was considerable and has most likely resulted in the complete removal of any archaeological deposits (if present).
- Although no Aboriginal cultural heritage was identified, the survey did identify landforms with the potential for sub-surface Aboriginal cultural heritage to be present.

Since the technical investigation of the subject land the boundaries have changed due to the iterative nature of the planning process. As can be seen in Figure 10 the additional area shown hatched has not been surveyed. This area contains one registered Aboriginal site 52-2-1378 which is described as a ceremonial/dreaming site called Carbundi in the locality of Vault Hill. This area is proposed to be rezoned as public reserve and the conservation of sites within it is possible with sound planning.

5 PREDICTIVE SENSITIVITY MODEL

As a result of the investigation, we have developed and mapped the predictions made regarding archaeological potential (**Figure 17**). The purpose of the predictive model is to:

- Provide the proponent, landowners, Wollondilly Shire Council and the Registered Aboriginal Parties with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis; and
- Help inform early planning and design work.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying 'archaeological sensitivity'. For the purposes of the model, the term 'archaeological sensitivity' is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

Factors included in Predictive Model

Proximity to water sources:

Proximity to water is one of the key determinants of archaeological potential. In general, sites are larger, more complex and more frequently found in close proximity to water sources. Levels of sensitivity are predicted to increase with higher order drainage lines and more permanent wetlands. Drainage and hydrology patterns have been significantly altered since European settlement in order to retain water in storage dams for agricultural purposes and drain waterlogged areas to open them up for grazing and cultivation.

Low spur/crest landforms:

Previous investigations throughout the Cumberland sub-bioregion have shown that low spur/crest landforms are often associated with a higher density and frequency of archaeological deposits – particularly when they are also located in close proximity to water sources. Low spur/crest landforms were delineated using aerial photography and topographic mapping.

Areas of cut and fill disturbance:

These areas are considered unlikely to contain Aboriginal archaeological deposits because topsoil units (i.e. artefact bearing soil units) have been removed. These areas include roads, dams and the construction of building platforms for houses and sheds. They are considered to have negligible archaeological sensitivity.

The model traits for the subject area are:

- Low spurs/crest/terrace landforms situated within 100m of a waterway/drainage line: very high archaeological potential.
- Land within 50m of a waterway/drainage line: high archaeological potential.
- Land within 100m of a waterway/drainage line: moderate archaeological potential.
- Land within 200m of a waterway/drainage line: low archaeological potential.
- All other areas = very low sensitivity.
- Cut and fill disturbance = very low - nil sensitivity.

Picton East

Legend

- Subject Area
- Not Assessed
- Disturbance
- High
- Moderate
- Low

0 40 80 160 240 320
Meters

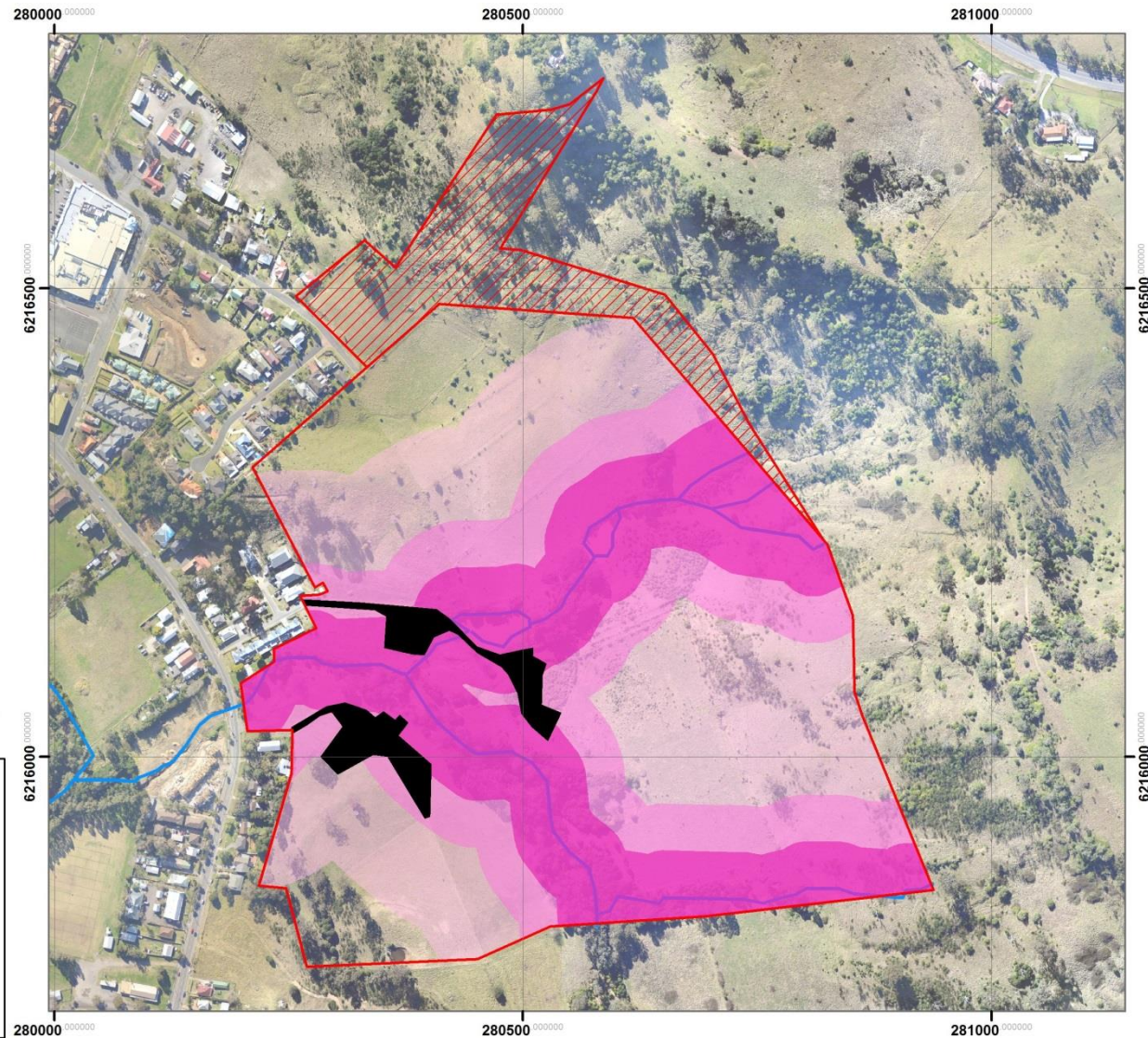
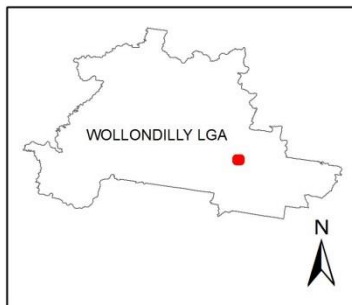


Figure 17 Predictive sensitivity model for the subject area.

6 IMPACT ASSESSMENT AND MANAGEMENT STRATEGIES

6.1 General

The following section details the potential archaeological impact of the proposed development, and the relevant legislative requirements to address this impact. Options to avoid, minimise and/or mitigate impact are outlined.

6.2 Summary of the Proposed Development

The proponent proposes to rezone part of the subject area from RU2 Rural Landscape to R2 Low Density Residential for the purposes of future residential development. Future development of the subject area is likely to include: the sub-division of land, construction of infrastructure and utilities, the development and construction of community facilities and the establishment of parks and conservation open spaces.

As the proposed activity is currently limited to rezoning and planning, development plans and final development footprint plans (i.e. placement of dwellings, roads, utilities, fencing and sheds etc.) were not available at the time of report preparation.

Therefore, this investigation is designed to assist the proponent, local council and planners in identifying and assessing Aboriginal heritage constraints and opportunities and the potential impacts of the proposed development on any known or potential Aboriginal cultural heritage.

6.3 Potential Impact

The findings of this assessment have revealed no significant archaeological or cultural Aboriginal objects or sites, with which to reject the proposed re-zoning. It is, however, highlighted that extensive areas that have potential to contain such sites were identified, and remain poorly defined as this stage.

While these areas are all largely within the riparian corridors, and will probably remain unaffected by any development resulting from the proposed rezoning, recommendations below are made to accurately explore these areas as a priority. It is considered that at the very least no ground disturbance should be permitted prior to such investigations, which will then inform any future management of the subject area.

6.4 Summary of Statutory Context

Aboriginal objects in NSW are protected by the *National Parks and Wildlife Act 1974*. An Aboriginal object is defined as:

... any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Anyone who discovers an Aboriginal object is obliged to report the discovery to OEH.

It is an offence to harm an Aboriginal object. However, there are a number of defences and exemptions to this offence, one of which is that harm was carried out under an Aboriginal Heritage Impact Permit (AHIP).

An AHIP may be issued by OEH, on behalf of the Director-General, under s90 of the *National Parks and Wildlife Act 1974*. An AHIP application must be accompanied by an Aboriginal Cultural Heritage Assessment, prepared in accordance with the OEH guidelines Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011).

6.5 Recommendations

The following recommendations are based on:

- The requirements of the *National Parks and Wildlife Act 1974*.
- The results of the archaeological investigation and assessment documented in this report.
- The views and recommendations of the Registered Aboriginal Parties.

The general recommendations are as follows:

- If the boundaries and/or design of the proposed development are revised, archaeological impact assessment of this revision should be undertaken.

The specific recommendations are as follows:

- Based on the findings of this study, there are no Aboriginal heritage issues that indicate that the re-zoning of the subject site from rural to residential should not proceed.
- Prior to any proposed impact, further assessment and characterisation should be undertaken to characterise areas of archaeological interest identified in **Figure 17**. Should any Aboriginal objects/sites as defined by the *National Parks and Wildlife Act 1974* be identified, appropriate assessments and permits under this Act would be required prior to their disturbance.
- Site 52-2-1378 is located within land proposed to be zoned RE1 public reserve. It is recommended that the boundaries of this site be identified and mapped to ensure it is protected during future planning for the reserve.

The recommendation received from the Registered Aboriginal Parties is as follows:

- Further assessment of the subject area is required.

7 REFERENCES

- AMBS (2000) *Mungerie Town Centre: Archaeological salvage excavations near Kellyville Cumberland Plain, NSW*. Unpublished Report to Department of Urban Affairs and Planning.
- Attenbrow, V. (2002) *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*. UNSW Press, Sydney.
- Attenbrow, V. (2004) *What's Changing: Population Size or Land-Use Patterns? The Archaeology of Upper Mangrove Creek, Sydney Basin*. Terra Australis 21. Canberra: Pandanus Books.
- Attenbrow, V.J (2010) *Sydney's Aboriginal Past. Investigating the Archaeological and Historical Records*. (2nd edition – soft cover). UNSW Press: Sydney.
- Baker, N (1998) *Mungerie Park Town Centre: Archaeology Survey for Aboriginal Sites*. Unpublished Report by Australian Museum Business Services to the Department of Urban Affairs and Planning, Sydney.
- Brown, O (2010) Aboriginal Cultural Heritage Management and Mapping Aspects of Cultural Boundaries, Sub-bioregions and Site Distribution in the Sydney Basin. *Archaeological Heritage* 2: 9-16.
- DECCW (2010a) *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. DECCW: Sydney.
- DECCW (2010b) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. DECCW: Sydney.
- DECCW (2010c) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, DECCW: Sydney.
- Dibden, J (2002) *Proposed Subdivision at Appin, NSW - Lot D DP 162904, Lot 12 DP 752012, Lot 1 DP 598534, Lot 1 DP 819972, Lot 2 DP 819972, Lot 2 DP 598534 and Lot 100 DP 55516 Wollondilly LGA Cultural Heritage Assessment*. An unpublished report to McRoss Developments Pty Ltd.
- Haglund, L (1980) *Report on Archaeological Survey in the City of Blacktown*. Unpublished Report to NPWS.
- Hazelton P.A & Tille P.J (1990) *Soil Landscapes of the Wollongong-Port Hacking 1:100 000 Sheet*. Conservation Service of NSW, Sydney.
- Holdaway, S.J., P. Fanning and E. Rhodes (2008) Challenging intensification: Human-environment interactions in the Holocene geoarchaeological record from western New South Wales, Australia. *Geomorphology* 101: 524–532.
- Jo McDonald Cultural Heritage Management P/L (JMcDCHM) (2005) *Archaeological Salvage Excavation of Eight Archaeological Landscapes in the Second Ponds Creek Valley Rouse Hill Development Area, NSW*. Unpublished Report prepared for Rouse Hill Infrastructures and Landcom.
- Kohen, J (1984) *An archaeological reappraisal of the Jamison's Creek site complex*. Emu Plains. Unpublished report to the NSW National Parks and Wildlife Service, Sydney.
- Kohen, J (1986) *Prehistoric Settlement in the Western Cumberland Plain: Resources, Environment and Technology*. Unpublished PhD thesis, School of Behavioural Sciences, Macquarie University.

Kohen, J (1993) *The Darug and Their Neighbours: The Traditional Owners of the Sydney Region*. Darug Link in association with Blacktown & District Historical Society: Sydney.

Martin, S. (1986) *Macarthur Region Aboriginal Heritage Study*. Report to JRC Planning Services

McDonald, J (1999) *Archaeological Survey Proposed "Nangarin Estate" Agricultural/Rural Residential Subdivision, At Picton, NSW*. Unpublished report to Vinnigombe & Associates on behalf of Bradman Corporation.

McDonald, J (2008) *Dreamtime Superhighway: an analysis of Sydney Basin rock art and prehistoric information exchange*, ANU E Press, Canberra.

Nanson, G.C., Young, R.W., Stockton, E.D (1987). Chronology and palaeoenvironment of the Cranebrook Terrace, near Sydney, containing artefacts more than 40,000 years old. *Archaeology in Oceania* 22: 72-78.

NSW National Parks and Wildlife Service (2003) *The Bioregions of New South Wales: their biodiversity, conservation and history*. NSW National Parks and Wildlife Service, Hurstville.

OEH (2011) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. Office of Environment and Heritage, Department of Premier and Cabinet: Sydney.

Ridges, M (2010) *Aboriginal Sites Decision Support Tool (ASDST): State-Wide Product Outline and Technical Summary*. Department of Environment, Climate Change and Water: Sydney.

Smith, L. J (1989) *Archaeological site survey and analyses of sites on the northern Cumberland Plain*. Unpublished Report to NSW National Parks and Wildlife Service.

Smith, M.A., Williams, A.N., Turney, C.S.M., Cupper, M.L (2008) Human-Environment Interactions of the Australian Drylands: Time-Series Analysis of Archaeological Records. *The Holocene*, 18(3): 397-409.

White, E. and McDonald J (2010) Lithic artefact distribution in the Rouse Hill Development Area, Cumberland Plain, New South Wales. *Australian Archaeology*. 70: 29-38.

Williams, A.N. (2013) A new population curve for prehistoric Australia. *Proceedings of the Royal Society B*, 280: 20130486.

Williams, A.N., Mitchell, P., Wright, R.V.S., Toms, P. (2012) A Terminal Pleistocene Open Site on the Hawkesbury River, Pitt Town, NSW. *Australian Archaeology*, 74: 85-97

Appendix 1 AHIMS Search Results

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : 121219-1

Client Service ID : 89082

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-2100	Clearview	AGD	56	278030	6215900	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
52-2-2085	NG/IF1 Long Gully Creek 1	AGD	56	276375	6216800	Open site	Valid	Artefact : -	Isolated Find	4573
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>	1012	
52-2-2086	NG/OC1 Stonequarry Creek 2	AGD	56	275800	6216175	Open site	Valid	Artefact : -	Open Camp Site	4573
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>	1010	
52-2-2087	NG/OC2 Stonequarry Creek 3	AGD	56	275800	6216175	Open site	Valid	Artefact : -	Open Camp Site	4573
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>	1009	
52-2-2089	NG/IF2 Long Gully Creek 2	AGD	56	276100	6216840	Open site	Valid	Artefact : -	Isolated Find	4573,98440
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>	1008	
52-2-2090	NG/IF3 Long Gully Creek	AGD	56	275670	6216750	Open site	Valid	Artefact : -	Isolated Find	4573
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>	1007	
52-2-2078	Tahmoor 1	AGD	56	278630	6211550	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>		
52-2-2079	Tahmoor 2	AGD	56	279580	6210860	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>		
52-2-2080	Redbank Creek 2	AGD	56	279500	6213930	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>		
52-2-2081	Redbank Creek 3	AGD	56	279680	6213900	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>		
52-2-2082	Redbank Creek 4	AGD	56	278850	6213650	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>		
52-2-2083	Matthews Creek 1	AGD	56	275800	6213040	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>		
52-2-2084	Thirlmere 2	AGD	56	275670	6213140	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Mrs.Caryll Sefton					<u>Permits</u>	1013	
52-2-2069	ISOLATED FINDS 5	AGD	56	278420	6215970	Open site	Valid	Artefact : -	Isolated Find	

Report generated by AHIMS Web Service on 09/01/2013 for Fenella Atkinson for the following area at Datum :GDA, Zone : 56, Eastings : 275700 - 285700, Northings : 6211000 - 6221000 with a Buffer of 0 meters. Additional Info : For an Aboriginal Cultural Heritage Assessment. Number of Aboriginal sites and Aboriginal objects found is 56

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : 121219-1

Client Service ID : 89082

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>		
52-2-2070	ISOLATED FINDS 9	AGD	56	278500	6216070	Open site	Valid	Artefact : -	Isolated Find	
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>		
52-2-2071	ISOLATED FINDS 2	AGD	56	278270	6216340	Open site	Valid	Artefact : -	Isolated Find	
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>		
52-2-2072	ISOLATED FINDS 1	AGD	56	278250	6216370	Open site	Valid	Artefact : -	Isolated Find	
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>		
52-2-2073	ISOLATED FINDS 3	AGD	56	278550	6216220	Open site	Valid	Artefact : -	Isolated Find	
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling					<u>Permits</u>		
52-2-0007	Barkers Lodge;	AGD	56	277248	6216990	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : -	Burial/s, Carved Tree	
	<u>Contact</u>	<u>Recorders</u>	NPWS - Blackheath Office, R Etheridge, W.A Cuneo, Bruce Knox					<u>Permits</u>		
52-2-0008	Barkers Lodge;	AGD	56	277520	6217086	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<u>Contact</u>	<u>Recorders</u>	Australian Museum					<u>Permits</u>		
52-2-1377	Crocodile creek;	AGD	56	277410	6217050	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
52-2-1378	Carbundi;	AGD	56	280450	6216630	Open site	Valid	Aboriginal Ceremony and Dreaming : -	Natural Mythological (Ritual)	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
52-2-1379	Shingle hill;	AGD	56	283000	6212000	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
52-2-0967	Nepean River Gully; Maldon;	AGD	56	284050	6212730	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Val Attenbrow					<u>Permits</u>		
52-2-1518	James's Find;	AGD	56	282960	6211860	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
52-2-1362	Moyen Gully;	AGD	56	277600	6217200	Open site	Valid	Burial : -	Burial/s	1333
	<u>Contact</u>	<u>Recorders</u>	Warren Bluff					<u>Permits</u>		
52-2-2226	NG/OC3 - "STONEQUARRY CREEK 7"	AGD	56	275970	6216020	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Stephanie Garling, Doctor Jodie Benton					<u>Permits</u>		
52-2-3212	AMP IF 1	AGD	56	282702	6213800	Open site	Valid	Artefact : 1		
	<u>Contact</u> T Russell	<u>Recorders</u>	Megan Mebberson					<u>Permits</u>		

Report generated by AHIMS Web Service on 09/01/2013 for Fenella Atkinson for the following area at Datum : GDA, Zone : 56, Eastings : 275700 - 285700, Northings : 6211000 - 6221000 with a Buffer of 0 meters. Additional Info : For an Aboriginal Cultural Heritage Assessment. Number of Aboriginal sites and Aboriginal objects found is 56

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : 121219-1

Client Service ID : 89082

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-3213	AMP IF 2	AGD	56	282787	6213633	Open site	Valid	Artefact : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>		
52-2-3214	AMP IF 3	AGD	56	282776	6213668	Open site	Valid	Artefact : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>		
52-2-3215	AMP IF 4	AGD	56	282935	6213534	Open site	Valid	Artefact : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>	2508	
52-2-3216	AMP IF 5	AGD	56	282845	6213743	Open site	Valid	Artefact : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>		
52-2-3217	AMP OCS 1	AGD	56	282866	6213557	Open site	Valid	Artefact : 3		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>	2508	
52-2-3218	AMP OS 2	AGD	56	282957	6213786	Open site	Valid	Artefact : 3		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>		
52-2-3219	AMP ST 1	AGD	56	282948	6213533	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>		
52-2-3220	AMP PAD 1	AGD	56	282880	6213500	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Megan Mebberson				<u>Permits</u>	2508	
52-2-3254	Redbank Creek 1	AGD	56	278050	6213100	Closed site	Valid	Artefact : 10		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Mrs.Caryll Sefton				<u>Permits</u>		
52-2-3572	Maldon 01	GDA	56	285023	6213349	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	Searle	<u>Recorders</u>	Heritage Concepts				<u>Permits</u>		
52-2-3573	Maldon 02	GDA	56	285045	6213637	Closed site	Valid	Art (Pigment or Engraved) : 1		
	<u>Contact</u>	Searle	<u>Recorders</u>	Heritage Concepts				<u>Permits</u>		
52-2-3574	Maldon 03	GDA	56	284135	6212954	Open site	Valid	Artefact : 1		
	<u>Contact</u>	Searle	<u>Recorders</u>	Heritage Concepts				<u>Permits</u>		
52-2-2068	Stonequarry Creek-1, SC-1	AGD	56	278604	6216484	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	<u>Contact</u>		<u>Recorders</u>	Stephanie Garling				<u>Permits</u>		
52-2-1519	Julian's Find;	AGD	56	282910	6211830	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333
	<u>Contact</u>		<u>Recorders</u>	Warren Bluff				<u>Permits</u>		

Report generated by AHIMS Web Service on 09/01/2013 for Fenella Atkinson for the following area at Datum :GDA, Zone : 56, Eastings : 275700 - 285700, Northings : 6211000 - 6221000 with a Buffer of 0 meters. Additional Info : For an Aboriginal Cultural Heritage Assessment. Number of Aboriginal sites and Aboriginal objects found is 56

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref Number : 121219-1

Client Service ID : 89082

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-3706	Bulli Site 26	AGD	56	284159	6212893	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Ms.Renee Regal					Permits		
52-2-3667	Redbank Creek IA 1	GDA	56	278175	6213091	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.Renee Regal					Permits		
52-2-3663	Myrtle Creek PAD 1	AGD	56	278559	6212032	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Ms.Renee Regal					Permits		
52-2-3664	Redbank Creek OCS-1	AGD	56	277567	6212600	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.Renee Regal					Permits		
52-2-3665	Redbank Creek OCS-2	AGD	56	277824	6212689	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.Renee Regal					Permits		
52-2-3685	Bulli Site 5	AGD	56	284258	6213135	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Renee Regal					Permits		
52-2-3692	Bulli Site 12	AGD	56	282574	6212816	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Mr.Jamie Reeves					Permits		
52-2-3801	Macquarie Place AFT-1	GDA	56	277182	6211066	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mrs.Georgia Roberts					Permits		
52-2-3802	Macquarie Place AFT-2	GDA	56	277200	6211179	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mrs.Georgia Roberts					Permits		
52-2-3876	Rita Street AFT-1	GDA	56	276858	6212784	Open site	Valid	Artefact : -		
	Contact	Recorders	Mrs.Georgia Roberts,Biosis Research Pty Ltd		Wollongong Office			Permits		
52-2-3868	Redbank Tunnel 3/A	GDA	56	278800	6213433	Open site	Valid	Artefact : 4		
	Contact	Recorders	Mr.Peter Kuskie,South East Archaeology					Permits		
52-2-3869	Redbank Tunnel 15/A	GDA	56	278739	6212137	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Peter Kuskie,South East Archaeology					Permits		
52-2-3870	Redbank Tunnel 35/A	GDA	56	278943	6213587	Open site	Valid	Artefact : 3		
	Contact	Recorders	Mr.Peter Kuskie,South East Archaeology					Permits		
52-2-3937	Chris Lee Lodge - TRE01	AGD	56	277476	6211965	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	Tharawal Local Aboriginal Land Council					Permits		

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