

**Greater Macarthur Investigation Area
Archaeological Research Design and
Management Strategy Final**

Department of Planning and Environment

February 2017



AHMS
ARCHAEOLOGICAL & HERITAGE
MANAGEMENT SOLUTIONS



Document Control Page

AUTHOR/HERITAGE ADVISOR	Anita Yousif, Laressa Berehowyj and Fenella Atkinson
CLIENT	Department of Planning and Environment
PROJECT NAME	Greater Macarthur Investigation Area: Archaeological Research Design and Management Strategy
REAL PROPERTY DESCRIPTION	Various

EXTENT PTY LTD INTERNAL REVIEW/SIGN OFF				
WRITTEN BY	DATE	VERSION	REVIEWED	APPROVED
Anita Yousif, Laressa Berehowyj and Fenella Atkinson	31/09/2016	1 Draft	Susan McIntyre-Tamwoy	
Anita Yousif, Laressa Berehowyj and Fenella Atkinson	10/10/2016	Final Draft	Alan Williams	Susan McIntyre-Tamwoy, Updated Aboriginal heritage maps to be substituted once data has been received.
Anita Yousif, Laressa Berehowyj and Fenella Atkinson	3/02/2017	Final	Susan McIntyre-Tamwoy	Susan McIntyre-Tamwoy

Copyright and Moral Rights

Historical sources and reference materials used in the preparation of this report are acknowledged and referenced in figure captions or in text citations. Reasonable effort has been made to identify, contact, acknowledge and obtain permission to use material from the relevant copyright owners.

Unless otherwise specified in the contract terms for this project EXTENT HERITAGE PTY LTD:

- Vests copyright of all material produced by EXTENT HERITAGE PTY LTD (but excluding pre-existing material and material in which copyright is held by a third party) in the client for this project (and the client's successors in title);
- Retains the use of all material produced by EXTENT HERITAGE PTY LTD for this project for EXTENT HERITAGE PTY LTD ongoing business and for professional presentations, academic papers or publications.

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
25/108 St Georges Tce
Perth WA 6000
P 08 9381 5206

Executive Summary

This Regional Archaeological Research Design and Management Strategy (RARDMS) has been developed to address recommendations in the *Greater Macarthur Investigation Area Aboriginal and Historic Heritage Gap Analysis* (AHMS, 2017), which includes the need for regional scale cultural heritage planning of the Greater Macarthur Investigation Area (GMIA).

Key elements of the RARDMS are the:

- development of research questions for the GMIA set within the Australian and NSW heritage thematic framework.
- identification of predictive models of high, medium and low potential for archaeological sites identified for the entire GMIA, which will provide a basis for managing future archaeological assessments.
- identification of areas of high conservation value that should be considered for permanent conservation in relation to both Aboriginal and historic heritage.
- proposals for the streamlining and improvement of certain aspects of Aboriginal heritage assessments including:
 - ensuring adequacy and consistency of due diligence assessments.
 - the establishment of an Aboriginal Cultural Heritage Advisory Committee shared across both the Wollondilly and Campbelltown Councils.
 - use of the provisions in section 90R of the National Parks and Wildlife Act, NSW 1974 (as amended) to ensure that Aboriginal Heritage Impact Permits (AHIPs) relating to specific parcels of land are appropriately transferred to new owners as necessary.
 - establishment of a Registered Aboriginal Party List for the GMIA (Appendix A).
 - recommendations to keep consultation live to increase efficiency (reducing time spent) in the conduct and preparation of required Aboriginal Cultural Heritage Assessment Reports (ACHARs).
 - adoption of a modified Aboriginal heritage excavation methodology as a standard in the study area where the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010) would normally apply.

CONTENTS

1	INTRODUCTION.....	1
1.1	Project Background.....	1
1.2	Study Area Identification.....	2
1.3	Statutory Context.....	2
1.4	Project Objectives and Scope.....	2
1.5	Approach and Methodology.....	3
1.6	Limitations.....	4
1.7	Authorship and Acknowledgements.....	4
2	HISTORICAL OVERVIEW.....	7
2.1	Aboriginal History.....	7
2.2	Historical Period.....	14
3	THE ARCHAEOLOGICAL AND CULTURAL RESOURCE.....	16
3.1	Introduction.....	16
3.2	The Aboriginal Archaeological and Cultural Resource.....	16
3.3	The Historical Archaeological Resource.....	29
4	ARCHAEOLOGICAL RESEARCH DESIGN.....	41
4.1	Aboriginal Archaeology.....	41
4.2	Historical Archaeology.....	51
5	ARCHAEOLOGICAL MANAGEMENT STRATEGY.....	54
5.1	General Processes.....	54
5.2	Aboriginal Archaeology.....	55
5.3	Historical Archaeology.....	71
6	REFERENCES.....	78
7	GLOSSARY.....	80

LIST OF TABLES

Table 1.	Early colonial ethnographic records.....	12
Table 2.	Aboriginal sites summarised by site feature, see also Figure 9.....	18
Table 3.	Summary description of known sites and potential site types.....	19
Table 4.	Zones of historical archaeological potential in the study area.....	30
Table 5.	Aboriginal archaeological research themes & Questions.....	42
Table 6.	Management and methodological questions to be considered in Aboriginal cultural values assessments.....	45
Table 7.	Historical archaeological research themes.....	52
Table 8.	Preliminary Aboriginal archaeology areas of high conservation value.....	57
Table 9.	A summary of criteria and rankings used to determine a site's significance.....	69

LIST OF FIGURES

Figure 1.	Regional map showing the location of the Greater Macarthur Investigation Area.....	6
Figure 2	Early ethnographic encounters between Europeans and Aboriginal people noted in the historic record.	10
Figure 3.	AHIMS sites within the GMIA (source: AHIMS search October 2016).	27
Figure 4.	Aboriginal archaeological predictive model for the GMIA incorporating updated AHIMS data (October 2016)	28
Figure 5.	Historical archaeological sensitivity of the overall GMIA.....	35
Figure 6.	Historical archaeological sensitivity of the Menangle Park / Mount Gilead Priority Area..	36
Figure 7.	Historical archaeological sensitivity of the Menangle Heritage Conservation Area within the Menangle Park / Mount Gilead Priority Area.	37
Figure 8.	Historical archaeological sensitivity of the Central Precinct.....	38
Figure 9.	Historical archaeological sensitivity of the Historic Town of Appin within the Central Precinct.....	39
Figure 10.	Historical archaeological sensitivity of the Wilton Priority Area.....	40
Figure 11.	Aboriginal archaeological management divisions.	59
Figure 12.	Areas of high conservation value for Aboriginal heritage within the Menangle Park and Mount Gilead Priority Area.	60
Figure 13.	Areas of high conservation value for Aboriginal heritage within the Wilton Priority Area.	61
Figure 14.	Areas of high conservation value for Aboriginal heritage within Central A.....	62
Figure 15.	Areas of high conservation value for Aboriginal heritage within Central B.....	63
Figure 16.	Areas of high conservation value for Aboriginal heritage within Central C.	64
Figure 17.	Due diligence Flowchart 1: Do you need to use this due diligence code? (DECCW 2010a: 1).....	66
Figure 18.	Due diligence Process Flowchart 2 (DECCW 2010b: 10).....	67
Figure 19.	Historical archaeological areas recommended for permanent protection based on assessed significance.....	72

APPENDICES

Appendix 1: Aboriginal Consultation Log	82
---	----

1 INTRODUCTION

1.1 Project Background

A *Plan for Growing Sydney* requires that the NSW Government develop a framework for the identification of new Growth Centres (Action 2.4.2). The framework is needed to improve the management of future land release, stimulate competition to keep downward pressure on prices, and help prevent speculative investment and land-banking. In response to this action, the Department of Planning & Environment (DPE) undertook a review of the Greater Macarthur Investigation Area (GMIA) which aims to develop a long-term growth framework to assist with the future orderly release of land, allowing efficient delivery of infrastructure. It will also allow the cumulative effects of development to be carefully considered and addressed.

As a preliminary step in characterising the cultural heritage values of the GMIA area, and identifying areas where further archaeological investigation was warranted, Archaeological & Heritage Management Solutions, AHMS (now Extent Heritage Pty Ltd) was commissioned by the DPE to prepare an Aboriginal and Historical Heritage Gap Analysis. This is consistent with previous recommendations that cultural heritage planning should be considered on a broader regional scale than currently occurs at the individual development project level (AHMS, 2013). The gap analysis was produced in 2015 as a draft report and was placed on public exhibition, along with the other reports prepared for the GMIA.

Following receipt of submissions the *Greater Macarthur Investigation Area - Aboriginal and Historic Gap Analysis* was finalised (AHMS, 2017). Given the time that had elapsed the Aboriginal and historic heritage data considered in the analysis was also updated. That several recommendations arose from the findings of that study including:

- expanding the protected curtilage of the Mt Gilead historic site on the LEP (to incorporate a proportion of its cultural landscape), and consideration of this site for the State Heritage Register
- the relisting of Meadowvale and part of its original landholding on the LEP
- expanding the curtilage for Beulah homestead on the LEP to protect the homestead in its cultural landscape setting
- consideration of these sites of high conservation value, as well as those of high Aboriginal archaeological sensitivity, for permanent protection (see Figure 11 and Figure 9 in AHMS 2017).

One of the findings arising from the literature review conducted as part of the gap analysis related specifically to archaeological heritage of the region. The study concluded that the understanding of the archaeological resource of the GMIA was constrained by limited, site-specific investigations completed to address narrow client requirements, and as a result there was no adequate regional picture of the Aboriginal and historical archaeological potential of the GMIA. The following recommendation was made as a result of the gap analysis project:

Preparation of an integrated Aboriginal and historical regional archaeological research design and management strategy (RARDMS) to serve as an holistic framework for future archaeological investigation in the GMIA (AHMS, 2016).

AHMS has subsequently been commissioned by the DPE to prepare this RARDMS for the Greater Macarthur region (this document) to provide an investigation framework to adequately address cultural heritage of the GMIA. This RARDMS is envisaged as an iterative document that will be refined as the results of future studies contribute to the regional knowledge base.

1.2 Study Area Identification

The GMIA covers an area of 180.2km² within the Campbelltown and Wollondilly local government areas (LGAs), and is located approximately 50km south east of Sydney (**Figure 1**). Preliminary analysis by the DPE and a number of technical consultants has since refined this investigation area and identified an 'urban capable' boundary, which forms the basis of the area investigated for this research design. Following the initial investigations and the public exhibition phase, DPE announced support for the Greater Macarthur Priority Growth Area (PGA) with development within the region to be focussed on discrete areas within Campbelltown and Wollondilly council areas (for more details see www.planning.nsw.gov.au). This RARDMS has been prepared to cover the entire GMIA area as shown in **Figure1**.

The study area covered by this RARDMS includes the localities of Glenlee, Appin, Gilead, Brooks Point, Wilton, Menangle Park, Menangle, and parts of Glen Alpine, Rosemeadow, Douglas Park, Maldon and Pheasants Nest. It is characterised by predominantly rural pastoral and agricultural landscape, with small urban development centres at Menangle, Appin, Wilton and Bingara Gorge. Major roads include the Hume Highway and Appin Road, and major rivers include the Nepean, Cataract and Georges rivers.

1.3 Statutory Context

In New South Wales, Aboriginal and historical items, places and sites, whether recorded or as yet undiscovered, are protected under the following state and Commonwealth legislation:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Cwlth)*
- *Heritage Act 1977 (NSW)*
- *National Parks and Wildlife Act 1974 (NSW)*
- State Environmental Planning Policy (Sydney Region Growth Centres) amendment (Greater Macarthur) 2016

1.4 Project Objectives and Scope

This RARDMS has been prepared to guide and optimise future investigation and management of the Aboriginal and historical archaeological resources and cultural heritage values of the GMIA, based on their significance and statutory requirements. The report draws upon and integrates the information gathered by previous research undertaken on many heritage items and locales in the last few decades.

Its key purpose is to ensure that the region's known and potential archaeological resources are better understood, and adequately managed throughout the precinct planning and development decision making process.

The project scope includes:

- Identification of known objects, places and archaeological sites of Aboriginal cultural and historical archaeological significance within the GMIA.
- Preparation of an overarching predictive model of Aboriginal and historical cultural and archaeological material and its likely distribution across the GMIA.

- Identification of regional historic themes relating to the Aboriginal and European occupation of the Greater Macarthur area, to assist in the development of research questions and the assessment of archaeological research potential.
- Preparation of an overarching general management strategy for the investigation, assessment, conservation, interpretation, management and protection of the Aboriginal and historical archaeological resource.
- Development of overarching general recommendations for the conservation and management of intangible Aboriginal cultural values, and tangible Aboriginal and historical archaeological and cultural resources as part of the planning framework.

1.5 Approach and Methodology

The ARDMS has been prepared based on the recommendations of the *Greater Macarthur Investigation Area - Aboriginal and Historic Heritage Gap Analysis* (AHMS, 2016). For the purposes of this RARDMS, the GMIA has been divided into three main precincts:

- 1) the northern precinct, encompassing the Menangle Park and Mount Gilead PGA;
- 2) the southern precinct, encompassing the Wilton PGA; and
- 3) the central precinct, encompassing the remainder of the GMIA not identified as a PGA.

The methodology for the preparation of this report includes:

- Review of primary and secondary sources including statutory and non-statutory heritage lists and state agency databases, relevant heritage studies and archaeological reports (as available) to augment the work undertaken in the gap analysis and resulting in the update of the gap analysis report (AHMS, 2017);
- Consultation with local Aboriginal Traditional Elders and Knowledge holders to assist in the identification, recording and management of places of Aboriginal cultural value (Aboriginal cultural values places);
- Refinement of the existing Aboriginal and historical archaeological predictive models of the GMIA within a Geographic Information System (GIS) framework; and
- Targeted site inspection of the GMIA PGAs to identify and inspect heritage listed items, heritage conservation areas, Aboriginal and historical archaeological sites and the natural landscape and settings, in order to ground-truth and refine the models.

This report was prepared taking into consideration the principles and procedures established by:

- Australian ICOMOS, 2013. *The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance 2013*
- Heritage Branch, Department of Planning, 2009. *Guidelines for the Preparation of Archaeological Management Plans*
- Heritage Branch, Department of Planning, 2009. *Assessing Significance For Historical Archaeological Sites and 'Relics'*
- Heritage Office, Department of Planning 2006. *Historical Archaeology Code of Practice*

- NSW Heritage Office, 2001. *Assessing Heritage Significance*
- Heritage Office, Department of Planning 1996. *NSW Heritage Manual*
- Office of Environment and Heritage, 2011. *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*
- Department of Climate Change and Water, 2010. *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*
- Department of Climate Change and Water, 2010. *Aboriginal Cultural Heritage Consultation Requirements for Proponents*
- NSW Heritage Office 1998. *Guidelines for Management of Human Skeletal Remains*

1.6 Limitations

This RARDMS primarily deals with the Aboriginal and historical archaeological resource and archaeological sites of the GMIA. While the conservation and management requirements of the built and natural heritage are considered in the context of the archaeological resources, they are not addressed in detail in this report. Generally most built items of local and State significance will have some potential to have associated archaeological deposits; and development proposals that affect these built heritage places should consider and address the potential for archaeological material.

Wollondilly and Campbelltown Councils each have heritage LEPs, however neither explicitly consider archaeological heritage and there a number of gaps that have been identified in their treatment of built heritage (see AHMS 2017). Further work to improve the comprehensiveness of the LEPs would assist in delivering good outcomes for cultural heritage in the region.

This report is based on existing and publicly available environmental and archaeological information and reports about the GMIA. The background research did not include any independent verification of the results and interpretations of externally sourced existing reports (except where our targeted sites inspections indicated inconsistencies).

Information from the Aboriginal Heritage Information Management System (AHIMS) was provided to AHMS by OEH during the Gap Analysis study. Following public exhibition the information in the Gap Analysis Study was updated with AHIMS data provided by OEH in October 2016. The assessment reflects the scope and the accuracy of the AHIMS site data at that time. Aboriginal sites will continue to be found and recorded as new assessments are undertaken. Due to the size of the project and scope of works, no quality control of the AHIMS data (e.g., confirming site location or site types) was undertaken as part of the development of this RARDMS.

The predictive model of the potential Aboriginal and historical archaeological resource, whilst robust, is primarily desktop based, informed by previously identified items, places and objects, environmental factors and disturbance mapping. A general site inspection of targeted areas was carried out for the preparation of this research design and to ground-truth the predictive models, however this was not definitive and further on-site works will be required throughout the GMIA in the future.

1.7 Authorship and Acknowledgements

This project forms part of Stage 2 of the GMIA heritage investigations undertaken by AHMS. Stage 1 – the GMIA Aboriginal and Historic Heritage Gap Analysis (AHMS, 2016) was managed by Dr. Susan

McIntyre-Tamwoy M. ICOMOS and Dr. Alan Williams M. AACAI. Stage 2 including the preparation of this ARDMS and the update of the Gap Analysis report (AHMS, 2016) was managed by Dr. Susan McIntyre-Tamwoy. The RARDMS was prepared by Anita Yousif (Historical Archaeology Team Leader), Laessa Berehowyj (Heritage Advisor) and Fenella Atkinson (Senior Heritage Advisor). GIS specialist, Tom Sapienza (Heritage Advisor), prepared the maps and spatial data in this report.

The research design was reviewed for quality assurance by Dr Susan McIntyre-Tamwoy.

The project was guided by a joint Office of Environment and Heritage (OEH) / Department of Planning and Environment (DPE) team including Gina Metcalfe and Alison West from DPE and Bronwyn Smith and Fran Scully from OEH. Their advice and input is gratefully acknowledged.

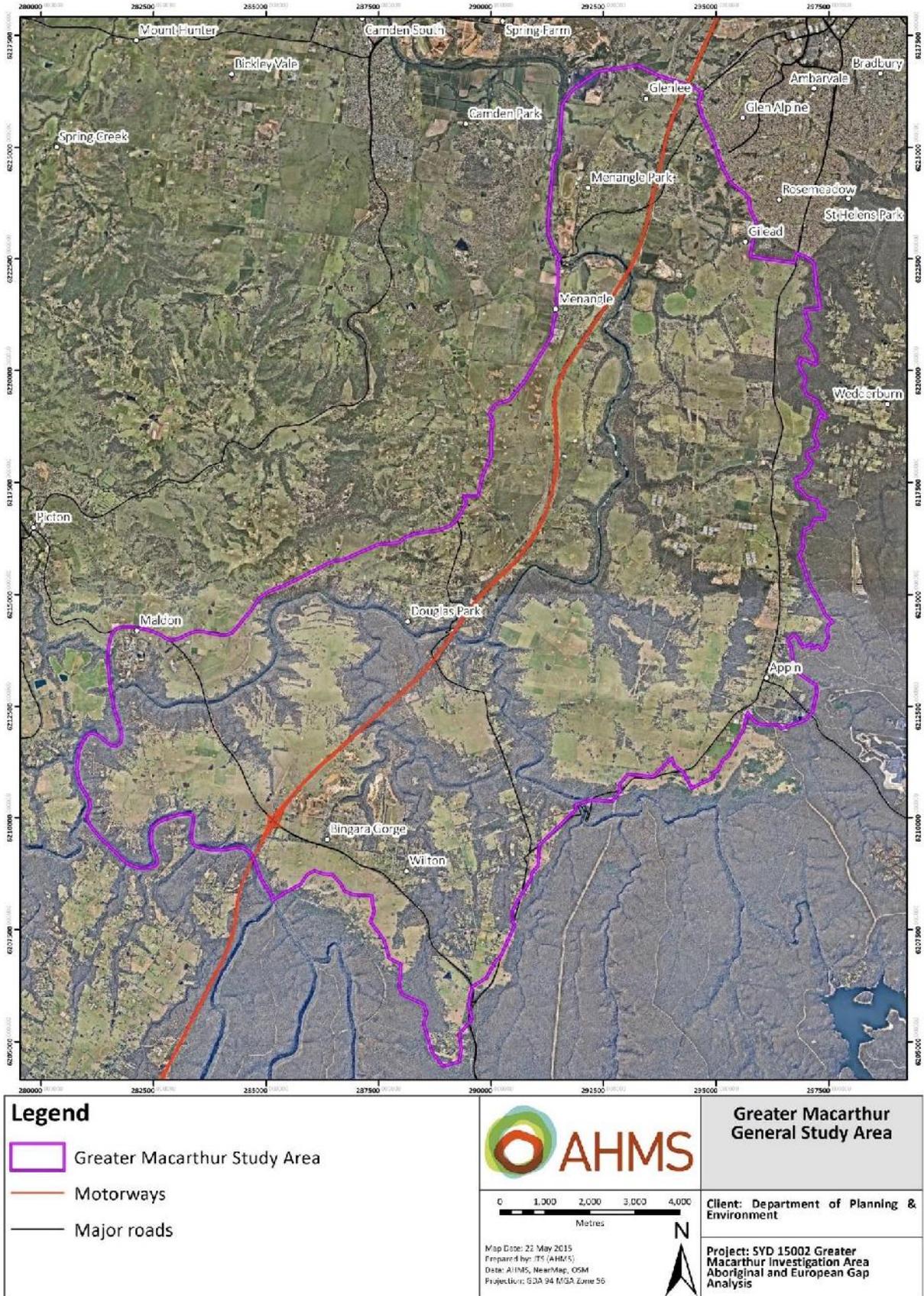


Figure 1. Regional map showing the location of the Greater Macarthur Investigation Area.

2 HISTORICAL OVERVIEW

2.1 Aboriginal History

2.1.1 The Sydney Region

Over thirty separate Aboriginal groups populated the wider Sydney area in 1788, each with their own country, practices, diets, dress, and dialects. We now know of these groups as 'clans' and each identified with broader cultural-linguistic groups known as 'tribes': Darug, Darkinjung, Gundungarra, Tharawal, Guringai (Coastal Darug), Eora (Coastal Darug) and Awabakal.

Each clan of thirty to fifty people lived within their own territory, occasionally converging with other clans to trade, hunt, fight, feast, arrange marriages, conduct ceremonies, resolve disputes, and share information. The database includes details of a gathering of three clans on their way to Camden to learn a new song (Backhouse, 1843), Burramattagal people venturing out to Manly to feast on a beached whale (Tench, 1793), and groups of hunters near Carabeely cooperating on a large-scale kangaroo hunt (Barrallier, 1802). There was often tension between neighbouring groups and the boundaries between territories were not lightly traversed (White, 1788). On an expedition north-west of Parramatta, Watkin Tench records that his guides Colebee (Gadigal) and Ballederry (Burramattagal) quickly found themselves in 'country unknown' and that they described those who lived there as 'enemies'. When the party finally reached the Hawkesbury River, Tench (1791) surmised that 'Our natives had evidently never seen this river before'.

The interactive map reveals a landscape criss-crossed with Aboriginal paths, many of which later became roads. Missionary James Backhouse was amazed by the speed and sophistication of communication between clans; on 23 October 1835 he encountered Aboriginal people in Richmond who knew of his brief visit to Wellington, over three hundred kilometres away: 'Our persons, costume, and many other particulars, including our manner of communicating religious instruction, had been minutely described' (Backhouse, 1843, p. 339).

The same paths that wove these communities together rapidly spread the small pox virus throughout the region in 1789. The devastating outbreak of small pox forced major reorganisation amongst clan groups. When William Bradley sailed into Sydney in May 1789, he recorded the 'dreadful havock' that small pox had wrought amongst Aboriginal communities: 'we did not see a Canoe or a Native the whole way coming up the Harbour & were told that scarce any had been seen lately except laying dead in & about their miserable habitations' (Bradley, 1969). Traditional burial practices broke down and clans merged together as entire communities were taken by the virus (Hunter, 1793). Bodies were found in caves and by streams, around the harbour and all along 'the path between Port Jackson & Broken Bay' (Bradley, 1969). The impact of small pox continued to ripple across the country, reducing communities in the Hunter 'from about 200, to 60' (Backhouse, 1843, p. 401).

The primary sources offer only glimpses of the ceremonial life of these Aboriginal communities. Europeans recorded some Aboriginal customs, such as the avulsed teeth and 'scarifications' of certain initiated men, and the kangaroo teeth necklaces and the missing little finger joints of 'mountaineer' and coastal women. But, due to the secrecy surrounding ceremonial events, there are serious limitations to even the most richly described accounts like the 'Yoo-long Erah-ba-diang' initiation ceremonies Collins records at the head of Farm Cove and in the 'middle harbour' (Collins, 1798); the contests and dances conducted on 'a clear spot between the town and the brickfield' (Collins, 1798); and the operation performed by Yellomundee, a 'caradyee', on Colebee's wound on the banks of the Hawkesbury (Tench, 1791).

Those clans that lived along the coast were saltwater people. They harvested shellfish from the shore; men fished from the shallows with long four-pronged spears, while the women fished in bark canoes

using turban shell hooks and lines. The hunters' toolkit included clubs, boomerangs, womeras, spears tipped with shell, and, of course, fire. At times they stayed for several months in the one area: Joseph Banks (1998) records finding 'a small village consisting of about 6 or 8 houses' on the south shore of Botany Bay in April 1770, and in December 1790, Watkin Tench describes a similar 'little village (if five huts deserve the name)' on the north side of the bay. Botany Bay was a focal point of Aboriginal activity; it has the highest density of plotted ethnographic sources in the Sydney area.

The inland clans fished for mullet and eels in rich lagoons, but much of their food came from yams dug out from the river banks and worms known as 'cah-bro' extracted from river driftwood. Colebee and Ballederry called these people the 'climbers of trees' after their practice of skilfully ascending gums in pursuit of animals, cutting footholds in the trunks with a stone axe. More hunting traps were plotted in the area from Parramatta to Richmond than any other part of Sydney. These included 'bird decoys' full of feathers, hollowed-out trees, and a tapering chute at the foot of Richmond Hill 'between forty and fifty feet in length', constructed of earth, weeds, rushes, and brambles (Collins, 1798).

Fire was a constant presence in early Sydney, from the 'moving lights' seen on the harbour at night (Banks, 1998:243) to lone trees burning on the Cumberland Plain, 'the smoke issuing out of the top part as through a chimney' (White, 1788). 'In all the country thro' which I have passed,' wrote Arthur Phillip in May 1788, 'I have seldom gone a quarter of a mile without seeing trees which appear to have been destroyed by fire' (Phillip, 15 May 1788). The first Australians became known as the 'fire-makers' (Cox, 1815). They used fire to open paths and to clean country; to drive animals into the paths of hunters and then to cook the kill; to keep warm at night and to carry as a torch the next day; to treat wood, melt resin and crack stone for tools; to gather around and dance and share stories.

The interactive map gives us an insight into local burning regimes. On a hot dry day in September 1790, for example, David Collins observed Aboriginal people 'burning the grass on the north shore opposite to Sydney, in order to catch rats and other animals' (Hunter, 1793). Almost exactly twelve months later, on 31 August 1791, they were again 'firing the country' in the same place on a hot day ahead of heavy rains. While Collins regarded this to be another 'remarkable coincidence', it suggests a connection to the land and an understanding of the seasons which the settlers could not fathom. This dismissive approach proved devastating during the 1799 flood of the Hawkesbury. Settlers who ignored the flood warnings given by Aboriginal people were engulfed by a destructive torrent as the 'river swell'd to more than fifty feet perpendicular height above its common level' (Collins, 1798).

After contact, early Sydney remained, in the words of historian Grace Karskens, 'an Eora town' (Karskens, 2009:351). Crowds of Aboriginal people would flow through the settlement at Sydney Cove, eating in the yard of Government House, sharing a table with the Governor himself, or gathering at Bennelong's hut. Large parties of convicts paid regular visits to an Aboriginal family in Woolloomooloo, 'where they danced and sung with apparent good humour' (Collins, 1798). A short-lived fish trade sprang up in Parramatta, with Aboriginal people selling fresh bream and mullet for bread and salted meat (Collins, 1798). Fierce warfare broke out on the Hawkesbury. And clans came 'not less than one Hundred Miles' to attend Governor Macquarie's 'Annual Meeting of the Natives' at Parramatta. Each of these events makes up a single plotted marker in the ethnographic database. Combined they knit together a rich tapestry of Aboriginal activity around early Sydney.

2.1.2 The Greater Macarthur Investigation Area

What little we know about the traditional owners of the area at the time of contact comes from archaeology, later oral histories, and scraps of information recorded in early journals, such as those quoted above. Various attempts have been made to map what were formerly known as tribal areas at the time of contact; the country associated with particular languages. The inconsistencies in results indicate the limited nature of the documentary record, but also reflect the fact that Aboriginal people did not have geographical boundaries in the Western sense.

Tindale's mapping places the study area in the western part of Tharawal country, near the boundary with Gandangara country (Tindale, 1974). Horton's map of Aboriginal language groups undertaken on behalf of Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) indicates that the study area is in Tharawal country, but with Dharug to the north-west and Gundungurra to the south-west (Horton, 2000). Kohen (1993) suggests that the northern part of the study area, to the north of Cataract River, is within Dharug country. Attenbrow (2010:23) suggests that the western part of the study area may have been within Gundungurra country.

Shortly after the arrival of the First Fleet in Sydney Cove, two bulls and four cows went missing (Liston, 1988: 49-50). They ended up on land to the south of the Nepean River, in the area of Menangle and Camden. Once the herd was discovered by the Europeans in 1795, the area was named the Cowpastures, and the Aboriginal people of this area were referred to as the Cowpastures tribe, which may be equivalent to the *Cobbiti Barta* clan.

In 1804, in relation to the cattle in the Cowpastures, Governor King recorded:

It has been reported that the Natives have killed some. This I doubt, as the Natives have always shewn the greatest fear on Meeting them, and climbed Trees till they left the place. Perhaps in course of Time this may be the Case. After tasting Beef they may endeavour to kill them.

(King to Macarthur, 2 Nov 1805, HRA Ser 1 Vol.5)

Early colonial records include a number of ethnographic observations made in the general vicinity of the study area, and relating to the Cowpastures tribe and others in the area (**Table 1** and **Figure 32.**) In 1790, Williams Dawes mapped 'Native Huts' on an area of good land not far to the south-east of the study area (Nathan et al 2009). Barrallier passed through the area in late 1802. He made some comments on the diet of the local people, who caught eels, fish and shellfish from the swamps of Manhandle and Carabeely. They also ate 'opossums and squirrels', and occasionally kangaroo; and Barrallier described the method of hunting the latter. During this trip at least, he was guided in his interactions with the local people by Gogy, a Tharawal man, and his writing indicates an appreciation for the complexity of the inter-cultural encounter.

Two years later, in early 1804, Caley also noted the lake or pond named *Munangle*, with a quantity of eels when full. This lake is thought to have been located on the Nepean, within or near the northern part of the study area.

A convict, John Warby, was stationed semi-permanently in the Campbelltown area from 1802 to care for the herd (Liston, 1988: 50). Warby explored the surrounding area with the guidance of local Dharawal men. Dharawal people also guided Charles Throsby in the southern highlands from c1810; and Hamilton Hume, in the Appin district from 1812 (Liston, 1988: 50). There were otherwise few Europeans in the region before 1810, and no reports of violence (Liston, 1988: 50). However, more intensive European occupation of the Minto, Airs and Appin districts took place in the following decade, and the impact on the local Aboriginal people was exacerbated by drought in 1814-16.

During these drought years, Gandangara people moved east towards the rivers within Dharawal country, and it appears that this was interpreted as threatening by the Europeans (Goodall and Cadzow, 2009: 52-53). Governor Macquarie initially urged forbearance among the Europeans, and asked the Cowpasture Aborigines to refrain from violence (Liston, 1988: 51). But as the conflict continued, in 1814 he ordered a party of 12 armed Europeans with four Aboriginal guides to apprehend five Aborigines, possibly Gandangara people, who he thought to be responsible for the death of two European children. The party returned with no success, and in spring the Gandangara people moved back west. Gandangara people returned to the area in early 1816, and conflict broke out again (Liston, 1988: 51).

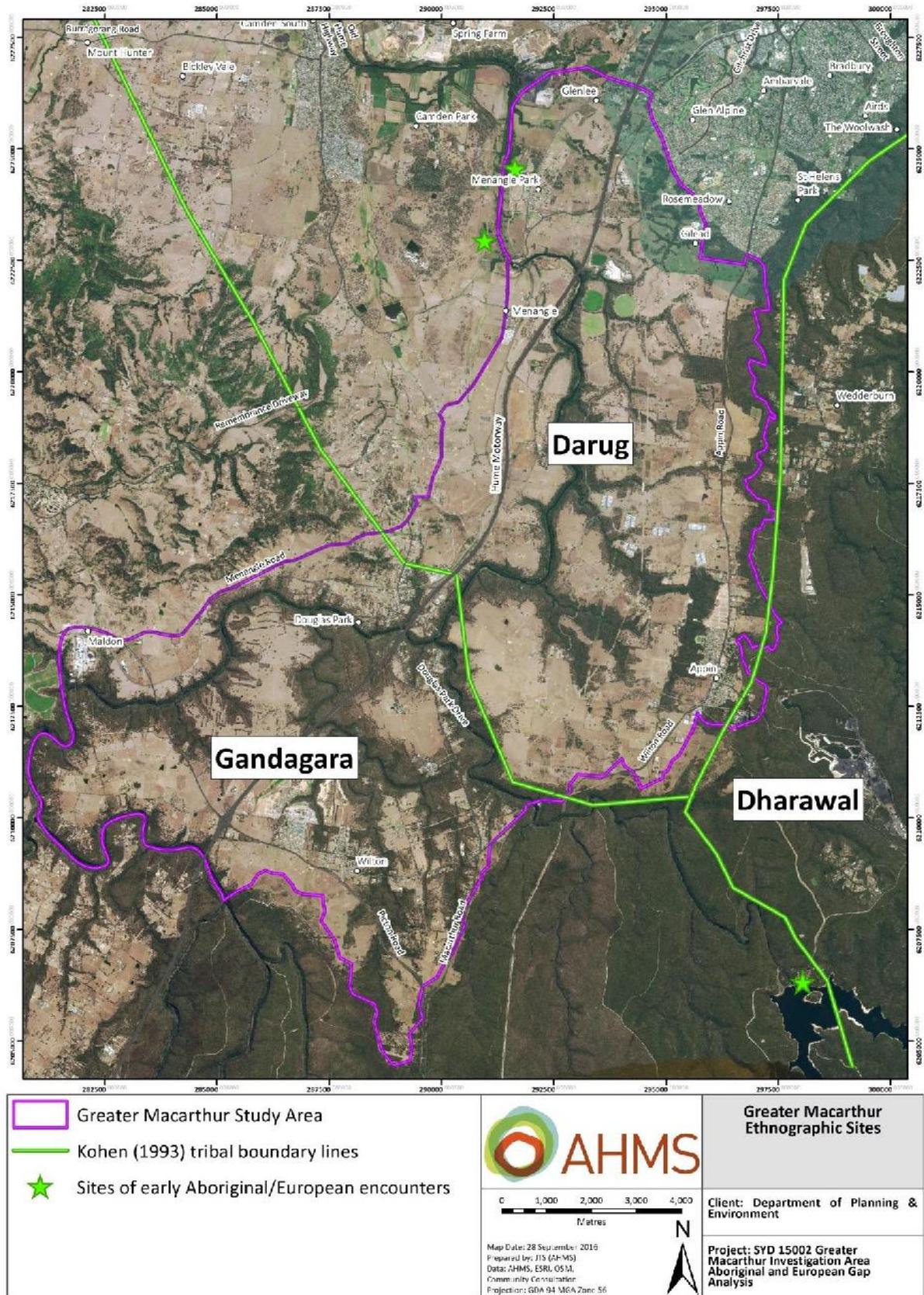


Figure 2 Early ethnographic encounters between Europeans and Aboriginal people noted in the historic record.

The conflict resulted in murders of both Aborigines and Europeans, but local relations were not clearly divided. During the period of most intense conflict, some Dharawal families were able to take refuge on Throsby's estate in Glenfield, about 20km to the north-east of the study area (Goodall and Cadzow, 2009: 52). Throsby believed that the violence was the result of specific murders, and was not aggression against Europeans in general (Liston, 1988: 52).

In 1816, Macquarie reported on the conflict, and on his plans to take action:

I am much Concerned to be under the Necessity of Reporting Murders and to Your Lordship that the Native Blacks of this Country, Inhabiting the distant Interior parts, have lately broke out in Open Hostility against the British Settlers residing on the Banks of the River Nepean near the Cow Pastures, and have Committed most daring Acts of Violence on their Persons and Depredations on their Property, in defending which no less than five White Men have been lately Killed by the Natives, who have not been known to Act in such a ferocious Sanguinary Manner for many Years past. ... With this view it is my Intention, as soon as I shall have Ascertained What Tribes Committed the late Murders and Depredations, to send a Strong Detachment of Troops to drive them to a Distance from the Settlements of the White Men, and to Endeavour to take some of them Prisoners in order to be punished for their late atrocious Conduct, so as to Strike them with Terror against Committing Similar Acts of Violence in future. Many of the Settlers have entirely Abandoned their Farms in Consequence of the late Alarming Outrages. In Order, however, to Induce them to return to their Farms, I have sent some small Parties of Troops as Guards of Protection for those Farms which are Most exposed to the Incursions of the Natives; but these have of late become so very Serious that Nothing Short of Some Signal and Severe Examples being made will prevent their frequent Recurrence. However painful, this Measure is Now become Absolutely Necessary. Unwilling hitherto to proceed to any Acts of Severity towards these People, and if possible to Conciliate and Keep on friendly Terms with them, I have forgiven or Overlooked Many of their Occasional Acts of Violence and Atrocity, exclusive of Numberless petty Thefts and Robberies Committed by them on the defenceless remote Settlers for the last three Years.

(Macquarie to Bathurst, 18 March 1816, HRA, Ser 1 Vol.9)

The raid ordered by Macquarie in 1816 resulted in the massacre of at least 14 men, women and children at Appin (Karskens, 2009: 225). Macquarie then forbade armed Aborigines from approaching within a mile of any town or farm, and for a group of any more than six Aborigines to remain on any farm (Karskens, 2009: 514). Karskens explains that this was equivalent to banishment, as Aboriginal men always carried spears and clubs, and family groups usually numbered more than six (Karskens, 2009: 514).

After the 1816 conflicts, the Dharawal tended to remain to the south of the Nepean River in the Cowpastures (Liston, 1988: 55). In 1818, an area of Macarthur's Camden estate, just to the west of the study area, was marked out for the occupation of the local Aborigines (Liston, 1988: 55). Corroborees were held at Camden Park and at Denham Court, 12km to the north-east of the study area, until at least the 1850s, usually when other Aborigines were passing through the district (Liston, 1988: 57).

The local people also travelled to attend ceremony elsewhere. The French explorer Jules Dumont d'Urville and Lieutenant David Collins described 'the men from the Cowpastures' as 'the most remarkable' of those present at a large gathering that was held in 1824 in colonial Sydney: 'They were rather short, but stocky, strong and superbly built. The painting on their bodies, resembling some kind of coats of mail, added even more to their martial attitude and to their bellicose stance' (Organ, 1990:134).

Table 1. Early colonial ethnographic records.

Date	Description
7 Nov 1802	In the swamps of Manhangle, Carabeely, and others, enormous eels, fishes, and various species of shells are found, which are sometimes used by the natives as food. They usually feed upon opossums and squirrels, which are abundant in that country, and also upon kangaroo-rat and kangaroo, but they can only catch this last one with the greatest trouble, and they are obliged to unite in great numbers to hunt it.
10 Dec 1802	When the natives assemble together to hunt the kangaroo, they form a circle which contains an area of 1 or 2 miles, according to the number of natives assembled. They usually stand about 30 paces apart, armed with spears and tomahawks. When the circle is formed, each one of them holding a handful of lighted bark, they at a given signal set fire to the grass and bush in front of them. In proportion as the fire progresses they advance forward with their spear in readiness, narrowing the circle and making as much noise as possible, with deafening shouts, until, through the fire closing in more and more, they are so close as to touch one another. The kangaroos, which are thus shut into that circle, burn their feet in jumping on every side to get away, and are compelled to retire within the circle until the fire attacks them. They then try to escape in various directions, and the natives frightening them with their shouts throw their spears at the one passing nearest to them. By this means not one can escape. They roast the product of their chase, without skinning nor even gutting the animals, and then divide it among themselves, after having cut each animal into pieces.
10 Dec 1802	I saw a native coming. Gogy went to welcome him, and after a short conversation, they came and sat by my side. I learnt from this native that Kelly had passed at Manhangle in the morning, accompanied by two men and one horse loaded with provisions, and that they had shot at them several times. He told me that himself and Wooglemai, whom I knew, were the only men in his party, the rest being women and children. They had been obliged to run away, and one bullet passed very near his shoulders. Having seen my camp, he had come to make his complaint to me. When he had finished speaking, he took his net and gave me several swamp shells, which I liked very much. I gave him, in return, a joint of kangaroo, which he ate, and, picking up his axe and his net, he returned whence he had come.
11 Dec 1802	<p>... thinking the waggon would very likely cross the river in the morning, I went with Gogy and two of my men to meet it. When I arrived at Manhangle I directed my march towards a fire I had caught sight of, and when I was thirty paces from it, the native pointed out to me a big wild dog lying in a bush.... Gogy told me that the fire I had reached by that time had been lighted by the native who had come to complain the day before. I saw several natives on the bank opposite Manhangle, who, recognising Gogy, called him. He went to them after giving his new axe to his wife. He told me he would come to meet me at Barhagal.</p> <p><i>Source: Francis Barrallier, 'Journal of the expedition, undertaken by order of His Excellency Governor King, into the interior of New South Wales', in Historical Records of New South Wales Volume V (Sydney: William Applegate Gullick, Government Printer, 1897), Appendix A, 7 November 1802.</i></p>
Feb 1804	<p>About five Miles from the Ford to the Southward is a Lake or Pond, named by the Natives Munangle. It is tolerable large and produces a quantity of Eels, but it is sometimes dry in long droughts.</p> <p><i>Source: Caley in Governor King to Mr. John Macarthur, 2 November 1805, Historical Records of Australia, Series 1, Volume 5, July 1804-August 1806, Governor's Despatches to and from England (Sydney: The Library Committee of the Commonwealth Parliament, 1915), 580.</i></p>

Date	Description
16 Nov 1810	<p>Macquarie, with his wife Elizabeth and a large party travel by horse carriage from Parramatta to the Cow Pastures, guided by John Warby, a constable based at the Government Hut on the Nepean River.</p> <p>Near John Macarthur's property at Camden (Benkennie), the governor meets Murringong (Cow Pastures Clan) Aborigines, including Koggie (Cogy) and his wife Nantz, Bootbarrie (Budbury), Young Bundle, Billy and their wives.</p> <p><i>Source: Macquarie, Diary, 16 November, 1810, MS A778:12, Mitchell Library, Sydney</i></p>
7 May 1814	<p>A militia of ex-soldiers fires on a large group of Gundungurra feasting on corn at Milehouse's farm at Appin, 70 kilometres south-west of Sydney, killing a boy. The Aborigines flee after they kill veteran trooper Isaac Eustace and cut off his hand. Aborigines kill a woman and two children at nearby Butcher's farm.</p> <p><i>Source: SG 14 May 1814.</i></p>
14 May 1814	<p>Vengeful warriors spear and kill stockkeeper William Baker and his de facto wife Mary Sullivan on the property run by Elizabeth Macarthur at Camden. After his role in the overthrow of Governor William Bligh, John Macarthur is still in exile in England.</p> <p><i>Source: HRNSW Vol. V: 496, 503.</i></p>
4 June 1814	<p>It is reported that Aborigines from Jervis Bay have joined with the 'mountain tribes' (Gundungurra) and say they will kill the white settlers 'when the moon shall be as large as the sun' (ie at full moon).</p> <p>Cogie, the Murringong (Cow Pastures) chief stays on friendly terms with the settlers, fleeing to Broken Bay. He alleges that the mountain clans are cannibals.</p> <p><i>Source: SG 4 June 1814.</i></p>
14 June 1814	<p>Aborigines attack settlers at Bringelly, Airds and Appin to avenge the murder of an Aboriginal woman and two children.</p> <p><i>Source: SG 14 June 1814.</i></p>
18 June 1814	<p>In a General Order, Governor Macquarie says he regrets 'the unhappy Conflicts' between the 'natives of the Mountains' and settlers at Bringelly, Airds and Appin, caused by the Aborigines helping themselves to the maize. He promises to punish anyone involved in hostilities on either side.</p> <p><i>Sources: SG 18 June 1814; 7 July 1814.</i></p>
Sept 1814	<p>John Warby and Cow Pastures trackers guide soldiers to the hideout of bushranger Patrick Collins, who has been robbing settlers in the Hawkesbury area. Coggy spears Collins in the leg when he tries to escape. 'All the natives of the Cow Pastures came in a body to claim the reward,' writes Surgeon Joseph Arnold.</p> <p><i>Source: Joseph Arnold, Journal, 1810-15, MS C720, 19 June - 13 July 1815, ML.</i></p>
30 Sept 1814	<p>Warby 'and others' are paid £40.5.0 (forty pounds and five shillings) for capturing Collins.</p> <p><i>Source: Police Fund, 30th September 1814, Colonial Secretary, Reel 60381/S2758:554, SRNSW</i></p>
17 Feb 1815	<p>Thomas Hassall reports that the 'Cundurah' (Gundungurra) has attacked Macarthur's farm at Camden.</p> <p><i>Source: Reverend J S Hassall, In Old Australia, Brisbane, 1902:178.</i></p>
March 1816	<p>After two years of severe drought, the Gundungurra (Gandangara) come down from the mountains to attack settlers in the outlying Cow Pastures (Camden) district, burning houses and sheds, spearing cattle and plundering crops. They kill four men employed by George T Palmer (son of Commissary John Palmer) at the Nepean River and three of Mrs Elizabeth Macarthur's stock-keepers at Camden.</p> <p><i>Source: SG 16, 21 March 1816.</i></p>
18 March 1816	<p>Macquarie advises Lord Bathurst in London: 'It is my Intention, as soon as I shall</p>

Date	Description
	<p>have Ascertained What Tribes Committed the late Murders and Depredations, to send a strong Detachment of Troops to drive them to a Distance from the Settlements of the White Men.'</p> <p><i>Source: Macquarie to Bathurst, 18 March 1816, HRA 9:54.</i></p>
10 April 1816	<p>Three separate detachments of troops head southwest towards the Cow Pastures (Camden), from Liverpool to Airds and Appin, and to Windsor, Richmond, Kurrajong and the Grose River. Macquarie orders that Aboriginal adults killed are to be 'hanged up on trees in conspicuous situations, to strike the survivors with the greatest Terror.'</p> <p><i>Source: Lachlan Macquarie, Governor's Diary & Memorandum Book Commencing on and from Wednesday the 10th. Day of April 1816.- At Sydney, in N. S. Wales. Lachlan and Elizabeth Macquarie Archive, Macquarie University Library. Linked with permission.</i></p>
17 April 1816	<p>At dawn, Captain James Wallis and his troops ambush sleeping Aborigines in their camp near William Broughton's Farm at Appin. They open fire, killing 14 Aboriginal men and women and wounding five others. 'I regret to say some had been shot and others met their fate while rushing in despair over the precipice', Wallis advises Macquarie. The dead include the Gundungurra leaders Durelle and Kanabygal.</p> <p><i>Source: Captain James Wallis, Journal, 17 April 1816, Colonial Secretary In letters, 4/1735, Reel 2161:52-60, SRNSW.</i></p>

2.2 Historical Period

The following summary of the regional history has been adopted from the Gap Analysis report (AHMS, 2017).

The search for productive agricultural land saw the expansion of the early settlement at Sydney to include areas such as Parramatta, the Hawkesbury and 'Cowpastures'. The fertility of the latter was centred on the rich alluvial soils of the Nepean River. Much of the best land at Cowpastures was occupied by John MacArthur's Camden Park.

Early town development was stimulated by Governor Macquarie who laid out the sites of Campbelltown and Appin to supplement his proposed capital of the south-west - Liverpool. Both these towns were expanded and replanned by T.L. Mitchell in the early 1830s. Macarthur also initiated the private town of Camden in the 1830s to compete with the Government foundation at Narellan. It was not to become a concrete proposition until the 1840s.

The agricultural base in the south-west changed in the 1830s and 1840s and both diversified, with the introduction of vines and fruit growing, and the general movement from grain to grazing - especially on the larger holdings. By the 1860s the area capitalised on an opportunity to grow hay for sale in Sydney and supplemented this move with a growing butter industry from the 1880s. By the 1880s the Camden Estate was also being broken up, tenants moved out, and allotments sold - some as hobby farms.

Transport in the area remained focussed on the small scale and horse powered vehicle for many years. While other regions in the Greater Sydney area saw the introduction of rail, the south west had only the tramway between Camden and Campbelltown. The old railway line south of Sydney had finished at 'Menangle North' station but was extended south in 1863 with the construction of the Menangle Railway Viaduct over the Nepean and its floodplain and a new station at Menangle. The rail line was introduced from Sydney, south to Wollongong in the 1880s.

The small scale rural nature of the south west persisted through the early part of the 20th Century with the towns of Campbelltown, Picton, Appin, Wilton etc. providing commercial and service centres for the rural population. The 1945 "Map of Existing Land Use in the County of Cumberland" shows much of the study area still overwhelmingly used for arable and grazing purposes. The post war expansion of suburbs, the growth of private car use and the County of Cumberland Plan (1947) have all had their effect on the development of the region. Campbelltown developed as a regional service centre on a larger scale by the 1980s and 1990s.

3 THE ARCHAEOLOGICAL AND CULTURAL RESOURCE

3.1 Introduction

This section provides an overview of both the Aboriginal and historical archaeological potential of the GMIA. It draws on the available ethno-historical, environmental and archaeological research, together with staged community consultation, to identify key areas within the GMIA that are likely to contain significant Aboriginal and historical archaeological resources, culminating in the development of a predictive model of Aboriginal and historical archaeological sensitivity. The focus is placed on the identification of key areas that contain or are likely to contain archaeological resources within the boundaries of the Greater Macarthur PGAs rather than a site-specific assessment of all potential items.

3.2 The Aboriginal Archaeological and Cultural Resource

3.2.1 General

The Gap Analysis report (AHMS, 2017) identified that there has been only limited Aboriginal archaeological investigation of the study area, with the majority of the studies prepared for individual areas that are the subject of to specific proposed developments. With respect to Aboriginal archaeology, there are only 356 known archaeological sites identified in the AHIMS database. This information, along with landform and disturbance analysis, has been used to develop a predictive model for the GMIA. The AHIMS data and predictive model have been used as a preliminary guide to the Aboriginal archaeological resource of the study area.

3.2.2 Aboriginal Consultation and places of Significance arising from the Consultation

Aboriginal community consultation is ongoing in the development of this ARDMS. Consultation commenced in 2015 as part of the work undertaken as part of the GMIA Aboriginal and Historic Heritage Gap Analysis (AHMS, 2017) and has continued through to the development of this document. It is proposed that the RARDMS be provided as a draft for comment to all registered Aboriginal stakeholders and that these comments are addressed in the finalisation of the strategy.

The Aboriginal community consultation undertaken during the earlier stages of this project resulted in the identification of six areas with specific cultural value to the Aboriginal community:

1. Rocky Pond Creek massacre/burial – An area southwest of Appin, east of Douglas Park Drive near Cataract River was the site of a historical massacre. The site is also documented on the AHIMS database.
2. Hanging tree associated with (1) – An area east of (1) at which Aboriginal people were hanged in association with the massacre event.
3. Fishing and story place – A stretch of the Nepean river, east of Menangle near Birdseye corner, that was known to have good fish and eels, and been extensively used by Aboriginal people in the recent past and continues to be used today. Within this stretch is an important Story Place that the informant did not want more precisely identified in a public document.
4. Historic building owned by BHP – A structure just north of Douglas Park, which is known to contain holes in the walls through which Aboriginal people were shot in the past.
5. Barrigal lagoon – A stretch of the Nepean river, west of Menangle Park, that was known to have good fish and eels, and been extensively used by Aboriginal people in the recent past (although participants commented that the lagoons depended on seasonal floods

and there had been no significant flood events since the 1980s. Activities nearby also included meetings and dancing, along with day-to-day subsistence.

6. Canoe tree – A tree with large culturally created scar is known in the northern quadrant of (5).

In addition to the specific cultural locations listed above, a number of other areas were considered to have cultural importance arising from participant's first-hand knowledge of a large number of rock shelter and open sites occurring within these areas. These areas included areas south of Gilead, the catchment of Elladale Creek, a small area north of Menangle and a small location near Bingara Gorge. The importance of the Nepean River was also identified with the riverbanks between Menangle and Douglas Park being highlighted. In the southern part of the study area participants commented that many sites occurred along the headwaters of the upper creeks at the interface with the relatively flat country where access to both the open hunting grounds and the sandstone shelters occurring along the creeklines was relatively easy. Participants also noted that a large area of land was owned by Tharawal LALC in the Appin region along the south-eastern border of the study area and as yet no decision have been made as to its future use.

3.2.3 Aboriginal Archaeological Sites recorded on the AHIMS

Searches of the AHIMS database which were carried out on 24 March 2015 (AHIMS Searches #166835, #166836, #166837, #166838 and #166839) identified a total of 263 previously registered Aboriginal sites within the GMIA. In October 2016 updated AHIMS data revealed 356 recorded sites and the predictive model was refined using this new data. The following sections outline the information regarding site types and patterning that can be derived from this total.

Site Features

In describing a site for registration in the AHIMS database, each site must be described as either closed or open:

- Closed sites are all associated with rock shelters. This includes the potential archaeological deposits within the shelter, the shell deposits clearly spilling from the shelter, and the art on the rock shelter itself.
- Open sites are all other sites. These include grinding grooves and engravings that are located in open spaces where there is no rock shelter.

Approximately two thirds of the total sites previously registered are open sites (226 or 63%), particularly within the shale-based Cumberland subregion (**Figure 3**). Approximately one third of the sites are rock shelters (130 or 37%), the majority of which are in the south of the GMIA, particularly within the Hawkesbury and Lucas Heights soil landscapes where suitable stone outcrops occur (**Table 2** and **Figure 3**). It should be noted that one additional closed site was identified in the general vicinity of west Appin, which had location and site content restrictions.

A registered site is then described in terms of one or more of a set list of 20 site features, which are set by OEH. The 356 sites in the study area have a total of 574 different site features (**Table 2**). The most frequently recorded site feature is artefact (i.e., isolated objects and/or artefact scatters), again particularly within the shale-based Cumberland subregion.

Table 2. Aboriginal sites summarised by site context and site features¹.

Site Types	Site Count*	% of Total
Undefined Art Site	69	12.02
Axe Grinding Groove	8	1.39
Rockshelter with Art	60	10.45
Rockshelter with Deposit	77	13.41
Rockshelter with Midden	1	0.17
Burial/s	1	0.17
Habitation Structure	17	2.96
Isolated Find	97	16.90
Midden	2	0.35
Moderate sized artefact scatter (<50)	6	1.06
Small sized artefact scatter (<10)	22	3.83
Potential Archaeological Deposit	124	21.6
Scarred Tree	16	2.79
Stone Arrangement	6	1.05
Undefined Artefact Site	68	11.85
Total	574	100

¹ Some sites have multiple archaeological features, and hence the total presented is greater than the number of actual site locations in AHIMS database results (total number of sites excluding duplicates in the AHIMS system is 356).

Table 3. Summary description of known sites and potential site types.

Site feature	Description	GMIA
Aboriginal Ceremony and Dreaming	Previously referred to as mythological sites these are spiritual/story places where no physical evidence of previous use of the place may occur, e.g. natural unmodified landscape features, ceremonial or spiritual areas, men's/women's sites, dreaming (creation) tracks, marriage places etc.	One story place has been identified in the GMIA, along a stretch of the Nepean River near the Birdseye corner. There are likely to be other ceremonial and Dreaming sites in the GMIA that are yet to have been identified.
Aboriginal Resource and Gathering	Related to everyday activities such as food gathering, hunting, or collection and manufacture of materials and goods for use or trade.	There are no registered Aboriginal Resource and Gathering sites in the GMIA. However, such sites were identified during Aboriginal consultation near fresh water sources, swamps and in the immediate vicinity of major and minor creek lines, in particular along the Nepean River and at Barrigal Lagoon, around Menangle Park.
Art	Art is found in shelters, overhangs and across rock formations. Techniques include painting, drawing, scratching, carving engraving, pitting, conjoining, abrading and the use of a range of binding agents and the use of natural pigments obtained from clays, charcoal and plants.	They are often found in areas where sandstone rock outcrops form suitable surfaces for painting or engraving - particularly in rock overhangs along the deeply incised gorges of the Nepean and Allens Rivers, and on flat rock platforms adjacent to the Elladale and Ousedale Rivers. Their distribution across the GMIA according to the AHIMS data is constrained to the Cataract Subregion of the Sydney Basin, though it is likely that other art sites exist.
Artefact	Objects such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell demonstrating evidence of use of the area by Aboriginal people	This site type usually appears as surface scatters of stone artefacts in areas where vegetation is limited and ground surface visibility is increased. Such scatters of artefacts are also often exposed by erosion, agricultural events such as ploughing, and the creation of informal, unsealed vehicle access tracks and walking paths. Isolated artefacts may represent a single item discard event or be the result of limited stone knapping activity. The presence of such isolated artefacts may also indicate the presence of a more extensive, in situ buried archaeological deposit, or a larger artefact scatter obscured by low ground visibility. Artefact sites are likely to be located on any and all landforms associated with past Aboriginal activities, such as ridgelines that would have provided ease of movement through the area and on dry, relatively flat or gently sloping land with access to water, particularly creeks, swamps and rivers. Artefact sites are the most commonly registered Aboriginal site on the AHIMS database in the GMIA.
Burial	A traditional or contemporary (post-contact) burial of an Aboriginal person, which may occur outside designated cemeteries and may not be marked, e.g. in caves, marked by stone cairns, in sand areas, along creek banks etc.	Soft sediments such as middens, dunes and estuary banks on, or close to, rivers, creeks and beaches, allowed for easier movement of earth for burial; however, bodies may also have been wrapped in bark or placed in caves or rock shelters. Aboriginal burial sites can be marked by depressions, though many may occur outside designated cemeteries

ARCHAEOLOGICAL & HERITAGE MANAGEMENT SOLUTIONS

Site feature	Description	GMIA
		<p>and may not be marked.</p> <p>If burials occurred in sand deposits along the Nepean these may have been impacted in the past by floods and /or sandmining.</p> <p>Known Aboriginal burial sites in the GMIA have been recorded on AHIMS and by Aboriginal community representatives in the vicinity of the Cataract River at Rocky Ponds Creek (AHIMS #52-2-1933).</p>
Ceremonial Ring	Raised earth ring(s) associated with ceremony	<p>There have been no ceremonial rings (bora grounds) identified within the GMIA, however this may in part reflect a lack of investigation rather than actual site distribution.</p> <p>They usually consist of a circular clearing defined by a raised earth circle, which is connected by a pathway to a second, smaller circle. Ceremonial rings may also have been accompanied by geometric designs carved on nearby trees. Unfortunately, the raised earth features are easily destroyed by agricultural and pastoral activities, vegetation growth and weathering.</p>
Conflict	Previously referred to as massacre sites where confrontations occurred between (1) Aboriginal and non-Aboriginal people, or (2) between different Aboriginal groups	<p>There is often very little detail recorded regarding specific events and locations; and often, sites are unmarked. Conflict sites are most likely to occur in places of Aboriginal and settler interaction. A massacre site has been identified along the Cataract river near Rocky Ponds Creek (#52-2-1933, shown as 'Burial' site on Figure 3), and consultation with the Aboriginal community reveals their belief that a nearby hilltop was a hanging tree site – this remains unregistered on the AHIMS.</p>
Earth mound	A mounded deposit of round to oval shape containing baked clay lumps, ash, charcoal and, usually, black or dark grey sediment. The deposit may be compacted or loose and ashy. Mounds may contain various economic remains such as mussel shell and bone as well as stone artefacts. Occasionally they contain burials.	<p>No earth mound sites have been registered in the GMIA. This site type would be particularly vulnerable to impact as a result of agricultural practices, although artefacts may remain as a scatter. Large earth mounds are a more common feature in western NSW.</p>
Fish Trap	A modified area on watercourses where fish were trapped for short-term storage and gathering.	<p>These sites are most likely to occur along river banks, creeks and streams where fish resources were plentiful. Some, however, made use of natural rock platforms and tidal processes.</p> <p>No fish trap sites have been identified in the GMIA. Again, it is possible that if such places once existed along the Nepean that they would have been impacted by flooding, quarrying or sandmining activities along the river.</p>
Grinding Groove	A groove in a rock surface resulting from manufacture of stone tools such as ground edge hatchets and spears, may also include rounded depressions resulting from grinding of seeds and grains.	<p>Often sandstone is chosen for grinding and water is used as the wetting agent. As a consequence, these sites are generally located on sandstone outcrops in close proximity to water. Grinding grooves have</p>

ARCHAEOLOGICAL & HERITAGE MANAGEMENT SOLUTIONS

Site feature	Description	GMIA
		been identified at Bingara Gorge along Stringybark Creek, and along Ousedale Creek near Appin. It is likely that with further survey this site type will be found to be more common given the distribution of suitable sandstone throughout the rivers and creek systems in the GMIA.
Habitation structure	Structures constructed by Aboriginal people for short or long term shelter. More temporary structures are commonly preserved away from the NSW coastline, may include historic camps of contemporary significance. Smaller structures may make use of natural materials such as branches, logs and bark sheets or manufactured materials such as corrugated iron to form shelters. Archaeological remains of a former structure such as chimney/fireplace, raised earth building platform, excavated pits, rubble mounds etc.	Seventeen (17) habitation structure sites have been registered in the GMIA. However, it is suspected that closer review of the site cards would reveal that these are actually recordings of rock shelters rather than structures. The early ethnographic records indicate that such structures were built in the local area. However, this site feature is vulnerable to impact from historical land use and natural weathering.
Hearth	Aboriginal fireplaces which are sometimes marked by hearth stones. They usually also contains charcoal and may also contain heat treated stone fragments.	Although hearth sites can be found at any location at which other Aboriginal activities were taking place, they are relatively rare site types in the Sydney Basin at present there are no recorded hearth sites on the AHIMS database in the GMIA.
Modified (Carved or Scarred) Tree	Trees which show the marks of modification as a result of cutting of bark from the trunk for use in the production of shields, canoes, boomerangs, burials shrouds, for medicinal purposes, foot holds etc, or alternately intentional carving of the heartwood of the tree to form a permanent marker to indicate ceremonial use/significance of a nearby area, again these carvings may also act as territorial or burial markers.	Sixteen (16) modified trees have been registered within the GMIA. There is potential for the presence of this site feature wherever old growth trees remain standing. This site feature is particularly rare on the Cumberland Plain due to land clearing and development. Scarred trees are utilitarian in nature and would once have been a common feature of the landscape however their regional rarity has heightened their significance for local Aboriginal groups. Similar scars can be caused by other (non-Aboriginal) activities such as bushfire, machine damage etc., and care should be taken to ensure accurate identification. Carved trees on the other hand were traditionally associated with ceremonies and/or burials and are considered to have very high heritage significance wherever they occur.
Non-human bone and organic material	Objects which can be found within cultural deposits as components of an Aboriginal site such as fish or mammal bones, ochres, cached objects which may otherwise have broken down such as resin, twine, dilly bags, nets etc	This site feature has not been registered in the GMIA. Such objects may be located within deposits such as PADs and middens in rock shelters and open sites, but organic materials do not generally survive well in the archaeological record in deposits subject to frequent wetting and drying. For this reason bone material is more likely to survive (if at all) in rock shelter deposits in the region.
Ochre Quarry	Ochre quarries are a source of ochre used for ceremonial occasions, burials, trade and artwork.	Ochre quarries are only found where ochre occurs in the landscape and has been exploited in the past. There have been no previously identified ochre procurement sites recorded in the GMIA. However, ochre has been found elsewhere in Hawkesbury sandstone.

Site feature	Description	GMIA
Potential Archaeological Deposit (PAD)	An area where Aboriginal objects may occur below the ground surface.	This type of site is an area in which subsurface artefacts or other cultural material is considered likely to occur, based on a review of the environmental and historical context of the area, and previous archaeological investigations. Physical evidence of the potential deposit may or may not be visible on the ground surface, or may be obscured by dense vegetation. Within the GMIA, PADs may be present across the landscape at any location where Aboriginal people once made use of the landscape, camped or travelled. In this region, PAD sites are likely to occur on ridgelines and spurs and along rivers, creeks, streams and swamps where suitable camping areas and pathways occur.
Shell	An accumulation or deposit of shellfish from beach, estuarine, lacustrine or riverine species resulting from Aboriginal gathering and consumption. Usually found in deposits previously referred to as shell middens. Must be found in association with other objects like stone tools, fish bones, charcoal, fireplaces/hearths, and burials. Will vary greatly in size and components.	Two (2) shell sites have been registered in the GMIA. Midden deposits most often occur in close proximity to water sources within coastal, estuarine and riverine contexts, and are thus relatively unlikely to occur in the GMIA.
Stone Arrangement	Human produced arrangements of stone usually associated with ceremonial activities, or used as markers for territorial limits or to mark/protect burials	Six (6) stone arrangement has been registered in the GMIA.
Stone Quarry	Usually a source of good quality stone which is quarried and used for the production of stone tools	Stone quarry sites are found where suitable raw materials occur within the landscape, and where these have been exploited in the past. Within the GMIA, quarry sites may be located where rock outcrops in ranges or along watercourses with suitable pebble beds. No such quarry sites have been identified.
Waterhole	A source of fresh water for Aboriginal groups which may have traditional ceremonial or dreaming significance and/or may also be used to the present day as a rich resource gathering area (e.g. waterbirds, eels, clays, reeds etc)	No waterhole sites have been registered in the GMIA. Further anthropological/ethnographic research and cultural values mapping would be required to identify this site feature. However, there is some potential for the presence of significant waterholes along the many watercourses of the GMIA.

Site Distribution

As a broad guide, OEH (2010a:12) has identified five landscape features that indicate the likely existence of Aboriginal objects:

- Within 200m of waters.
- Within a sand dune system.
- On a ridge top, ridge line or headland.
- Within 200m below or above a cliff face.
- Within 20m of or in a cave, rock shelter, or a cave mouth.

In general, this is considered to be the case only on land that is not disturbed land, defined as follows (OEH, 2010: 18):

Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable.

Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure) and construction of earthworks.

Site patterning for the GMIA can be refined somewhat through an analysis of environmental data and the results of previous archaeological investigations. On average, the GMIA has approximately one previously recorded site per 0.45 km². The Cumberland subregion, which comprises the greater part of the study area, contains by the far the greatest number of sites - about 86% of all sites previously documented with a distribution of approximately 1.75 sites/ km². The Sydney Cataract subregion has a lower number of previously recorded sites, at a slightly higher density, around 2.1/ km².

The number and density of previously recorded sites is likely to be influenced by a number of factors not directly related to past Aboriginal occupation:

- Previous archaeological investigations. Much of the southern third of the GMIA has not been subject to previous comprehensive investigation, while those investigations that have taken place in the northern and central thirds has largely been limited to documentary research and survey. The distribution and numbers of sites within the Cumberland subregion certainly reflects a bias towards areas that have been subject to greater investigation due to proposed development and /or resource extraction activities. Areas which would be highly likely to contain sites (i.e., along the sandstone river cuttings) are often outside development survey areas as they occur within catchment /environmental protection zones. In addition, areas in private ownership not subject to development proposals remain largely unsurveyed.
- Previous historical land use. The post-contact use of much of the study area has consisted of various agricultural practices which are likely to have had some effect on archaeological evidence of various site types if they once existed. In particular, site features such as modified trees, stone arrangements, habitation structures and ceremonial rings are particularly vulnerable to impact from this type of use which generally involves land disturbance associated with land clearing, cropping and/or ploughing.
- Accessibility. The inaccessibility of parts of the Sydney Cataract subregion to public survey and investigation within the GMIA means that the number of recorded sites in these areas is likely to substantially under-represent the number of sites that are actually present.
- Under-representation of intangible values in research. Some site features are not necessarily associated with tangible features. However, the relevant legislation, the *National Parks and Wildlife Act 1974*, protects Aboriginal objects. This has resulted in an archaeological focus in

research and reporting, which is at least partly responsible for the under-representation of intangible values. In addition the region was subject to several violent clashes between Aborigines and early settlers during the early period of European settlement and as a result Aboriginal traditional occupation of the area was severely disrupted. This undoubtedly led to a loss of traditional knowledge about some places (although as we have seen in section 3.2.2 some survives until the present day).

- Under-representation of historical Aboriginal sites in documented history. Aboriginal history after European settlement is not as well represented in documentary sources as non-Indigenous Australian history, and no detailed investigation appears to have taken place within the GMIA. The documentary sources that are available, along with the results of the preliminary cultural values mapping, undertaken for the Gap Analysis, indicate that there are likely to be many more historical Aboriginal places within the GMIA than are presently recorded. These might include places where Aboriginal people worked and lived during the historic period.

The results of previous archaeological investigations that influence site patterning can usefully be divided between the Cumberland and Sydney Cataract subregions. The Cumberland subregion contains by the far the greatest number of recorded sites in the study area - about 86% of all sites previously documented with a distribution of approximately 1.75 sites/ km². This bioregion encompasses most of the study area. The majority of these recorded sites are primarily open sites composed of stone artefacts (either as artefact scatters or isolated finds). Recorded sites are clearly clustered, most likely a product of the archaeological survey activity that has resulted from small-focussed development related cultural resource management studies. Sites appear to be mainly distributed along the margins of the Nepean and Georges rivers and their tributaries.

The Sydney Cataract subregion has a lower number of previously recorded sites, at a slightly higher density, around 2.1/ km². The subregion has the highest concentration of rock shelter sites, and sites that retain rarer features, such as shell (freshwater midden material), rock art, and grinding grooves. The majority of these sites are situated along the Georges and Cataract Rivers, Wallandolla Creek, and unnamed, minor first and second order tributaries.

The factors that define the site distribution referred to in the subregional comparisons relate to whether a particular area has a sandstone or shale substrate. The Cumberland subregion is mostly shale and the Sydney Cataract mostly sandstone country, but these are by no means absolute distinctions, with a relatively broad transition area. The Nepean River for instance is characterised by its sandstone gorges and this provides the landscape suitable for sandstone rockshelters. There are a number of sites in the Cumberland subregion that are sandstone country sites (94 closed sites, mostly rock shelters with art) even though these generally occur in very low numbers across the majority of the subregion. Conversely, a number of open sites, predominantly artefact scatters or grinding grooves, were located in the Sydney Cataract subregion (n=12). The subregional patterns outlined here are therefore less clear than might be the case if the study area was located in the centre of the two subregions or if the current mapping was refined through additional work which allowed more precise mapping of the local intricacies of the geological transition.

The following is a general summary of the information obtained from a review of select and key studies about archaeological site patterning across the GMIA, Cumberland Plain and Sydney Cataract subregions (AHMS 2017).

Cumberland Plain Sub-region

- Archaeological investigation of the subregions has been fairly extensive, especially in areas developed for residential, mining and agricultural purposes outside the current study area. Investigations have included site surveys, excavation and salvage works. From these studies, numerous archaeological models have been developed.

- The models developed to predict Aboriginal site locations generally indicate that regardless of landform type, stream order proximity is the primary determinant of the scale and complexity of archaeological sites. The number of sites in a given area and sites with higher stone artefact densities (>100 artefacts per site) occur near high order streams and drainage lines, while less sites in a given area and lower densities of artefacts per site occur near low order streams/drainage lines.
- The excavations and stone artefact assemblages in proximity to higher order streams/drainage lines also show evidence of a variety of tool types and repeated occupation over time whereas the stone artefact assemblages in sites near low order drainage are less varied (as well as less in number) and appear to indicate more transient and casual occupation. The scale of occupation near high order drainage lines has been attributed to the greater number of resources in these areas.
- High densities of artefacts have been principally found on lower slopes, alluvial floodplains next to high order streams and on middle to upper ridges. Some of these high density sites show evidence of knapping (stone tool making) activities. However, low density artefact scatters have been found on the surface of all landforms including creek banks, creek terraces, flats, lower and upper slopes, elevated spurs, crests and ridge tops. These results are indicative of a 'background scatter' of occupation occurring across the region with sporadic areas of intensive or repeat usage.
- High density open artefact scatters occur along the major rivers and associated stream/drainage networks. This landform is subject to cyclical flooding which can result in archaeological material being buried by alluvial and colluvial deposits. This means that archaeological material is often not visible on the ground, but can be found in areas of sub-surface exposure, such as those caused by erosion.
- Regardless of landform, it has also been shown that elevation is a more important determining factor in the location of archaeological sites than aspect.
- Analysis indicates that local availability of raw materials is also a key factor in Aboriginal occupation and site distribution. Unfortunately, our understanding of the distribution of such sources in the GMIA is poor however elsewhere the Nepean River is as source of gravels known to be utilised by Aboriginal people for raw materials.
- Following the trend of the archaeology of the Sydney Basin, the majority of sites in the subregion typologically dated to the mid- to late Holocene (<6,000 years BP). Some evidence suggests that earlier archaeological sites may occur in rock shelters or sand dune deposits in key resource areas.

Sydney Cataract Sub-region

- Archaeological investigation of the Sydney Cataract sub-bioregion is limited. Few site surveys and excavations have been completed in the area due to limited development in the area. The majority of work in the area has been primarily focused in the Holsworthy Defence base to the east of the study area.
- Unlike the Cumberland Plain subregion, archaeological site patterning does not appear to be as strictly related to stream order.
- Studies across this region have tended to focus on the individual characteristics of sites, rather than on site patterning across the area. This is because known sites tend to occur in the sandstone formations rather than in proximity to water sources or other variables. Patterning tends to appear to be relatively random due to isolated occurrence of shelter formations.
- The main site types across the subregion are shelters with deposits, rock art and grinding grooves.
- On the Hawkesbury sandstone formations along the river and its feeder creeks the most common site types were Aboriginal art and occupation sites. These were located within sandstone overhangs or shelters. Sheltered, painted art/occupation sites tend to occur more frequently

above valley floors or below ridge tops. There appears a general preference for northerly or north-westerly aspects.

- In other similar parts of the Sydney Basin, Attenbrow (2004) found that any overhang or rock shelter with reasonable head room, a level dry floor and a depth offering protection from extremes of sun, wind and rain could have been occupied by Aboriginal people in the past. Attenbrow (2004) also demonstrated that 70% of potential archaeological deposits (PAD) recorded within shelters are Aboriginal sites.
- Open artefact scatters are less common due to the lack of open flat areas in the steep sandstone country. However, these site types may still occur and are most likely to be situated on flat terraces adjacent to higher order streams (as in the Cumberland subregion).
- Axe grinding grooves are commonly found in creek beds, at the tops of valleys, above or along watercourses and also around rock pools or ridge tops near aquifers.
- Aboriginal burial sites may be located in rock shelter occupation deposits or within soft dry deposits such as sand bodies.

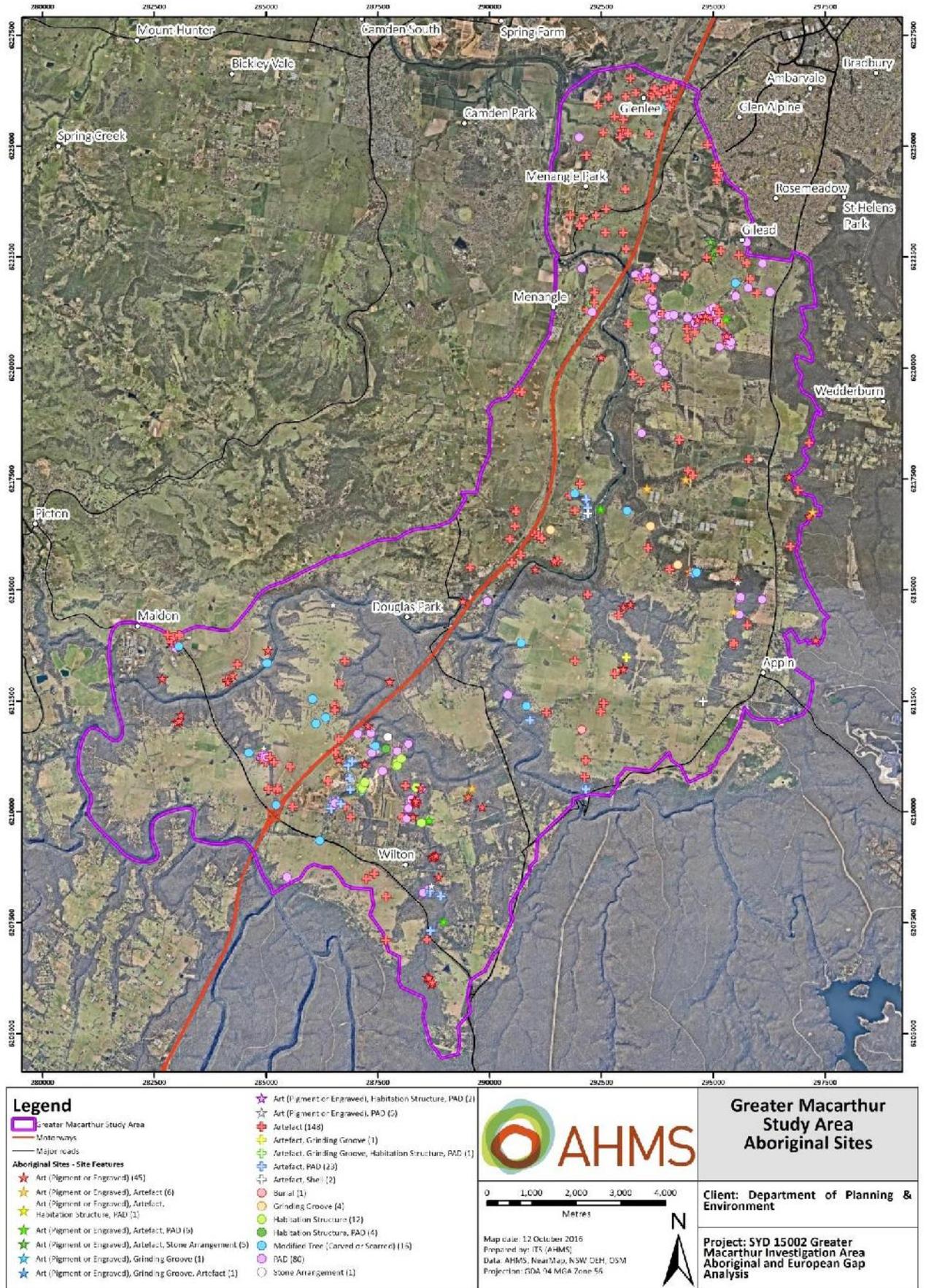


Figure 3. AHMS sites within the GMIA (source: AHMS search October 2016).

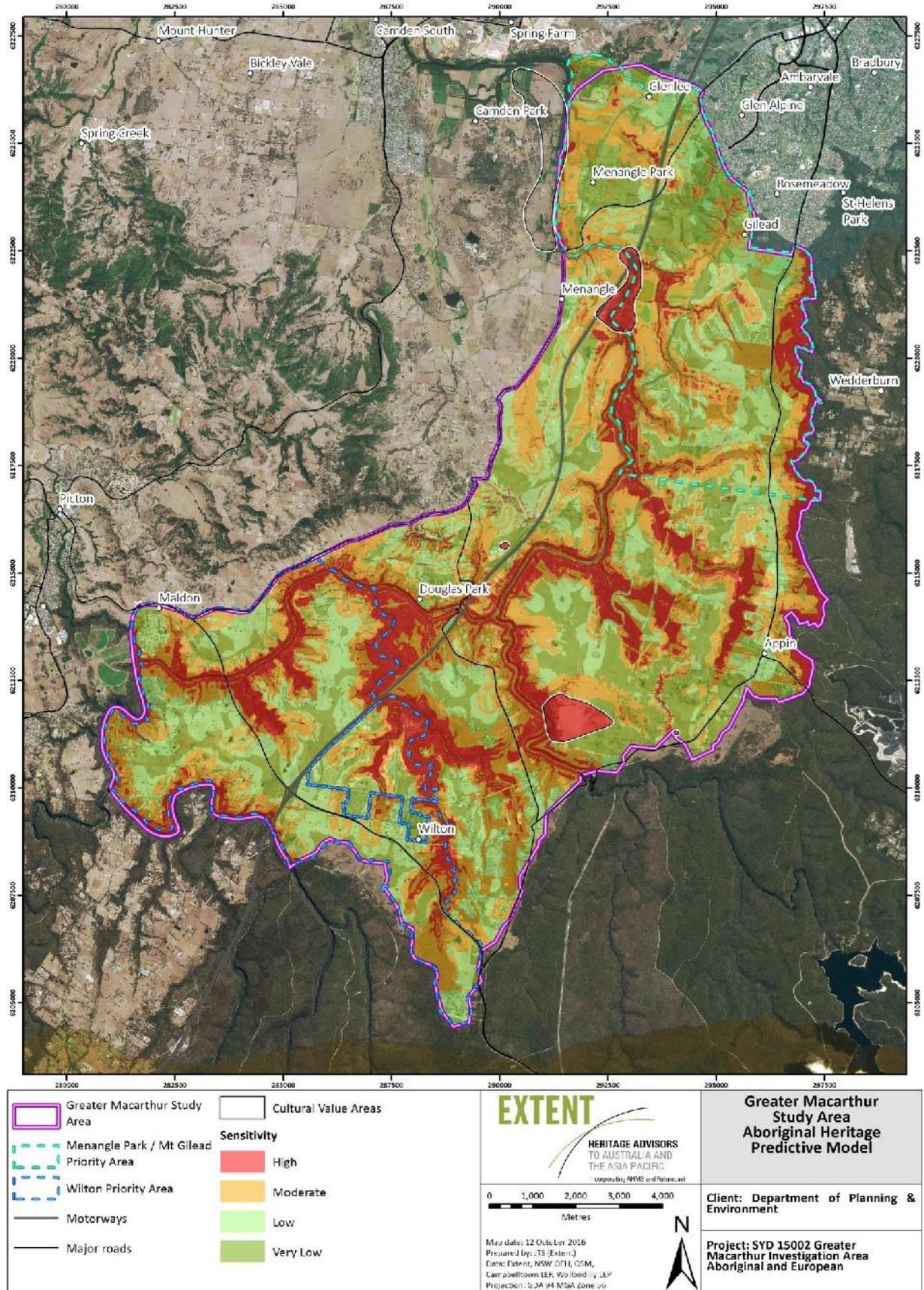


Figure 4. Aboriginal archaeological predictive model for the GMIA incorporating updated AHIMS data (October 2016)

3.3 The Historical Archaeological Resource

3.3.1 General

The Gap Analysis (AHMS, 2017) report identified that there has been limited heritage investigations of the study area, with the majority of the studies prepared for individual areas subjected to specific impacts and developments. While there are a number of historic buildings and structures that have been identified and listed on the Local government LEP and on other registers, with respect to historical archaeology few known archaeological sites have been identified in the relevant LEPs. The archaeological potential of historic sites in the area has only been considered in a few heritage reports. This RARDMS provides a broad regional picture of the historical archaeological potential, which has been formed on the basis of predictive modelling and general observations made during a four day site inspection. The predictive modelling reflects the concept that archaeological relics are generally concentrated around the areas of occupation. Consequently, the identified heritage items and sites are identified as key areas that are likely to contain historical archaeological resources.

In accordance with GMIA's PGAs, the study area has been divided into three main areas:

- the Menangle/Mt Gilead PGA;
- the Central Area (including West Appin); and
- the Wilton PGA.

Two of the main precincts also include a sub precinct each:

- the Menangle Heritage Conservation Area within the Menangle/Mt Gilead Priority Precinct; and
- the Historic Town of Appin within the Central Area, which owing to the concentration of heritage items located within, is considered as a separate area.

The PGAs are shown in **Figure 5**

3.3.2 Historical Archaeological Potential

The history of European settlement of the study area indicates that it has been used primarily for pastoral, agricultural and mining activities over the past 200 years of occupation.

The complex cultural landscape is comprised of the following elements: townships, self-contained homesteads, infrastructure transport, cemeteries, agricultural land, and cultural plantings. The potential for sites early Aboriginal-Settler contacts also remains.

The term 'archaeological potential' is defined as the likelihood that a site may contain material or tangible evidence related to an earlier phase of site occupation, activity or development either as ruins, isolated physical artefacts or buried archaeological deposits. The potential for archaeological evidence to be preserved can range from very low to high, as follows:

- Very Low – the degree of ground disturbance indicates that there is minimal or no potential for any archaeological evidence to survive.
- Low - it is unlikely that archaeological evidence associated with a particular historical phase or feature survives;
- Moderate - it is possible that some archaeological evidence associated with a particular historical phase or feature survives. If archaeological remains survive they may have been subject to some disturbance.
- High - it is likely that archaeological evidence associated with this historical phase or feature survives intact.

After reviewing the available information relating to significant heritage places in the GMIA four zones of archaeological potential have been identified commensurate with the assumed levels of potential for survival of archaeological evidence. The distribution of these zones across the GMIA has been mapped in Figure 5-10. These maps should be considered in conjunction with the maps outlining Aboriginal cultural and archaeological sensitivity when considering future activities, including future archaeological investigations

- Zone 1: High Archaeological Potential (shaded in red and hatched) - centres around identified heritage sites and items such as historic towns, homesteads, houses/cottages, schools, churches and cemeteries, archaeological ruins, bridges, roads, weirs, forests that are considered to include intact archaeological remains.
- Zone 2: Moderate Archaeological Potential - centres on the area surrounding the identified heritage sites and items that is still likely to contain some aspects of archaeological evidence such as unrecorded associated structures, fence lines, rubbish pits/dumps, etc.
- Zone 3: Low Archaeological Potential - covers the balance of the study area (excluding the zones of nil potential) and is considered to be either disturbed or undeveloped with disturbed or sporadic archaeological evidence that has not been identified. This zone may include unexpected archaeological finds.
- Zone 4: Very low Archaeological Potential – includes the areas of significant disturbance including areas such as quarries, bulldozed areas of new developments where cultural soil horizons bearing historical archaeological evidence have been disturbed or partially or fully removed.

Table 4 below summarises the zones of potential archaeological remains of the study area from all historical phases, with consideration of the site development processes that may have affected the survival of those remains, as described above.

Table 4. Sites of historical sensitivity in the study area and their assigned archaeological potential.

Item Number	Item Name and Location	Listings	Significance of the heritage item	Historical Archaeological Potential
Menangle Park/Mt Gilead Priority Area				
1	Glenlee, early colonial homestead	SHR (0009); NT (S7769) RNE (3277);	State	High
2	Menangle Park Paceway		Local	Low
3	Menangle House	NT (S8936); RNE (3279)	Local	Moderate-High
4	The Pines	NT (S10491)	Local	Moderate-high
5	Riverview, Menangle Park	none	Local	Moderate-high
6	Sugarloaf Farm (Mt Huon)	SHR (01389); CLEP (01389); Dept. of Planning and Infrastructure S170.	State	High
7	Upper Canal System (Pheasants Nest to Prospect Reservoir)	SHR (01373); Sydney Water S170; CLEP; WLEP (I16); NT (S10079)	State	Moderate-High
8	Kilbride	CLEP (59)	Local	Low
9	Glen Lorne	CLEP (55)	Local	High
10	Mount Gilead	CLEP (58); NT (R616)	Local	High

Item Number	Item Name and Location	Listings	Significance of the heritage item	Historical Archaeological Potential
11	Hillsborough Homestead archaeological site	none	Local	High
12a	Beulah	SHR (00540); CLEP (00368); NT (R515)	State	High
	Timber Beam Bridge on Beulah	NT(R714)	State	Moderate-high
13	Humewood Forest	CLEP (53)	Local	High
14	Meadowvale	none	none	High
15	Brookdale Site	CLEP (54)	Local	High
15a	Hume Monument	CLEP (56)	Local	Moderate-High - as part of the Brookdale site
16a	Menangle Viaduct	NT (R4185)	Local	Moderate
Menangle Conservation Area (61) and Menangle Landscape Conservation Area (60)				
16	Menangle Rail Bridge of Nepean River	SHR (01047); WLEP (I80); Australian Railtrack Corporation S170; NT (S11457); RNE (3284)	State	High
17	Menangle Weir	WLEP (I101)	Local	Moderate
18	Camden Park Rotolactor	WLEP(I83)	local	Moderate
19	Camden Park Estate Central Creamery	WLEP (I100)	Local	Moderate
20	Menangle Railway Station Group	SHR (01191); Australian Railtrack Corporation S170; WLEP (I81); NT (R4178)	State	Moderate-High
21	Dairy Cottage	WLEP (I97)	Local	Moderate
22	Menangle Public School (Former)	WLEP (I291)	Local	High
23	St James' Anglican Church	WLEP (I94); NT (R4180)	Local	High
24	St Patrick's Catholic Church	WLEP (I91)	Local	High
25	Menangle School of Arts Community Hall	WLEP (I292)	Local	Moderate-High
26	Menangle Store	WLEP (I98); NT (4183)	Local	Moderate
27	Camden Park Estate – Central Creamery Manager's Cottage	WLEP (I82)	Local	Moderate
28	Gilbulla (Anglican Conference Centre)	WLEP (I96); NT (R4184)	Local	Moderate
Central Area				
29	Elladale	WLEP (I11); NT (R54)	Local	Moderate-High
30	Northhampton Dale Group	WLEP (I13); NT (R621)	Local	Moderate-High
31	Windmill Hill Group including Ruins	SR (01931); WLEP (I89); Water NSW S170; NT (R733)	State	High
32	Upper Nepean	SHR (01373); WLEP	Local	High

Item Number	Item Name and Location	Listings	Significance of the heritage item	Historical Archaeological Potential
	Scheme – Broughton Pass Weir	(I15)		
33	Douglas Park Stone Ruin	WLEP (A4)	Local	High-Extant
34	St Marys Tower	WLEP (I71); NT (R2161)	Local	Moderate-High
35	Douglas Park Stone Cottages	WLEP (I70)	Local	High
36	Railway Cottage	WLEP (I69)	Local	Moderate
37	Mountbatten	NT (R2162)	Local	High
37a	Douglas Park (Dowle Street) Group of Items (Morton Park Group including bakery, homestead, early dwelling, stone stables)	RNE101970-0175); NT (R2155-21161)	Local	Unidentified (further research required)
63	Historic road section/Nepean River crossing south of Douglas Park		Local	Moderate (requires further assessment)
Appin				
38	Appin Public School and Schoolmaster's Residence	WLEP (I8)	Local	Moderate
39	Appin Hotel	WLEP (I1)	Local	Nil
40	Stone Cottage	WLEP (I7)	Local	High
41	Shop (former) (Post Office)	WLEP (I6)	Local	High
42	Bungalow	WLEP (I5)	Local	Low-Nil
43	St Bede's Catholic Church and Graveyard	WLEP (I12); RNE (3320); NT (R671 and R 672)	Local	High
44	Weatherboard Cottage	WLEP (I10)	Local	Low-Nil
45	Darcy's Corner	WLEP (I3)	Local	Moderate-High
46	St Mark's Anglican Church and Graveyard	WLEP (I9); RNE (3321); NT (R679 and R678)	Local	High
47	St Mark's Anglican Rectory (former)	WLEP (I14); NT (R643)	Local	High
48	Courthouse and Gaol	WLEP (I2); NT (R543)	Local	High
49	Darcy's House Site	WLEP (A1)	Local	Moderate-High
50	Appin Inn	WLEP (I4)	Local	High
Wilton Precinct				
51	Maldon Suspension Bridge over the Nepean River	WLEP (I78)	Local	Unidentified
52	Maldon Weir	WLEP (I77)	Local	Unidentified
53	Wilton Park	SHR (00257); WLEP (I277)	State	High
54	Kedron	WLEP (I280)	Local	Moderate-High
55	Cottage at 180 Wilton Park Rd	WLEP (I279)	Local	Moderate-High

Item Number	Item Name and Location	Listings	Significance of the heritage item	Historical Archaeological Potential
56 ²	Aboriginal Shelter Site	WLEP (I285)		N/A
57	Cottage	WLEP (275)	Local	Moderate
58	St Luke's Anglican Church	WLEP (I276)	Local	Moderate
59	Pheasants Nest Weir	WLEP (I278)	Local	Moderate
62	Homestead Bingara Gorge		Local	Moderate- High

3.3.3 Historical Archaeological Significance

Archaeological significance refers to the heritage significance of known or potential archaeological remains. Assessment of archaeological significance is more challenging than assessment of above ground heritage items as the extent and nature of the archaeological features is often unknown and judgment is usually formulated on the basis of predicted attributes.

The *Assessing Heritage Significance for Historical Archaeological Sites and Relics* (Heritage Branch, 2009) is a manual specifically designed for assessing a level of significance for the archaeological resource and states that:

The main aim of an archaeological significance assessment is to identify whether an archaeological resource, deposit, site or feature is of cultural value - a 'relic'. The assessment will result in a succinct statement of heritage significance that summarises the values of the place, site, resource, deposit, or feature.

For archaeological sites that have been assessed as containing 'relics', understanding the significant values is critical, because these sites are a non-renewable resource. Like other environmental resources, they must be managed for both the present and the future. The identified values of the site or 'relics' (the heritage significance) will help determine which management options are most appropriate (Heritage Branch, 2009, p2).

While all of the established heritage assessment criteria are relevant to archaeological remains, the manual puts an emphasis on the research potential of the remains. Research potential is the ability of the archaeological material to provide additional or important information about various aspects national state and local history.

The study area comprises a substantially intact rural colonial landscape with a number of early Australian historic heritage places including built structures, archaeological remains and cultural and natural landscape elements. The heritage listings of the significant heritage items are provided in **Table 4** of this report. With the exception of several individual heritage sites, the significance of the study area's archaeological resource has not been re-assessed for this project.

In general, the GMIA study area has the potential to contain rare and relatively intact archaeological resources that may provide important information on the various phases of the area's occupation that can contribute to our understanding of the culture and history of the state, region, its local areas and potentially the nation itself. The archaeological resources may contribute to research into the

² While this item is likely to have low historic archaeological potential, it has high Aboriginal heritage potential.

settlement of the area from the early decades of the nineteenth century, ways of life of the settlers, technologies and development of education and religious practices in the developing rural community.

The archaeological evidence may provide opportunities for comparative studies to be made between rural practices and lifestyles throughout nineteenth century with other rural area such as Parramatta and the 'Hawkesbury'. Furthermore, the potential archaeology of the study area could contribute to research into the nature and level of relationship between the local Aboriginal groups and the first European settlers of the area.

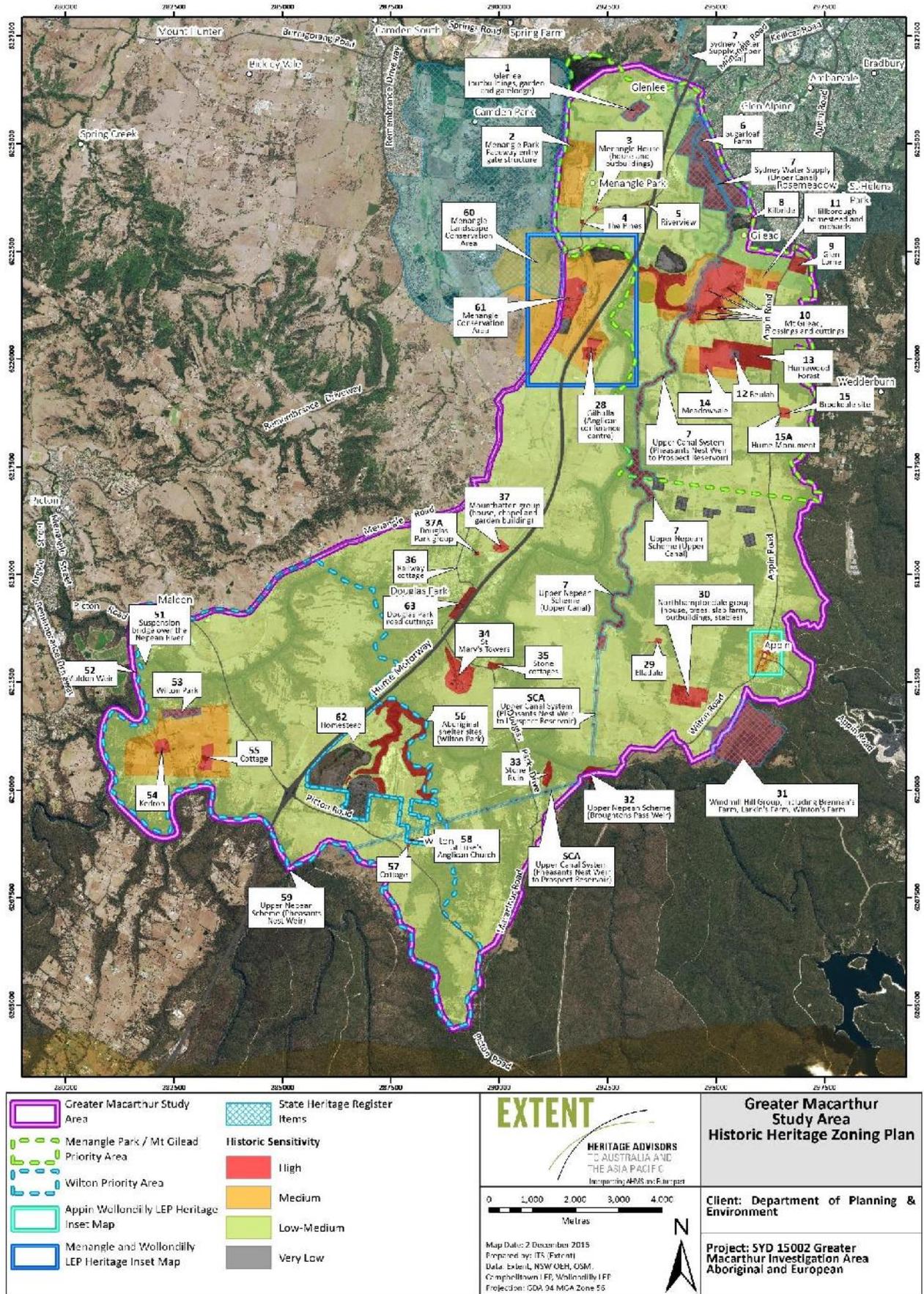


Figure 5. Historical archaeological sensitivity of the overall GMIA.

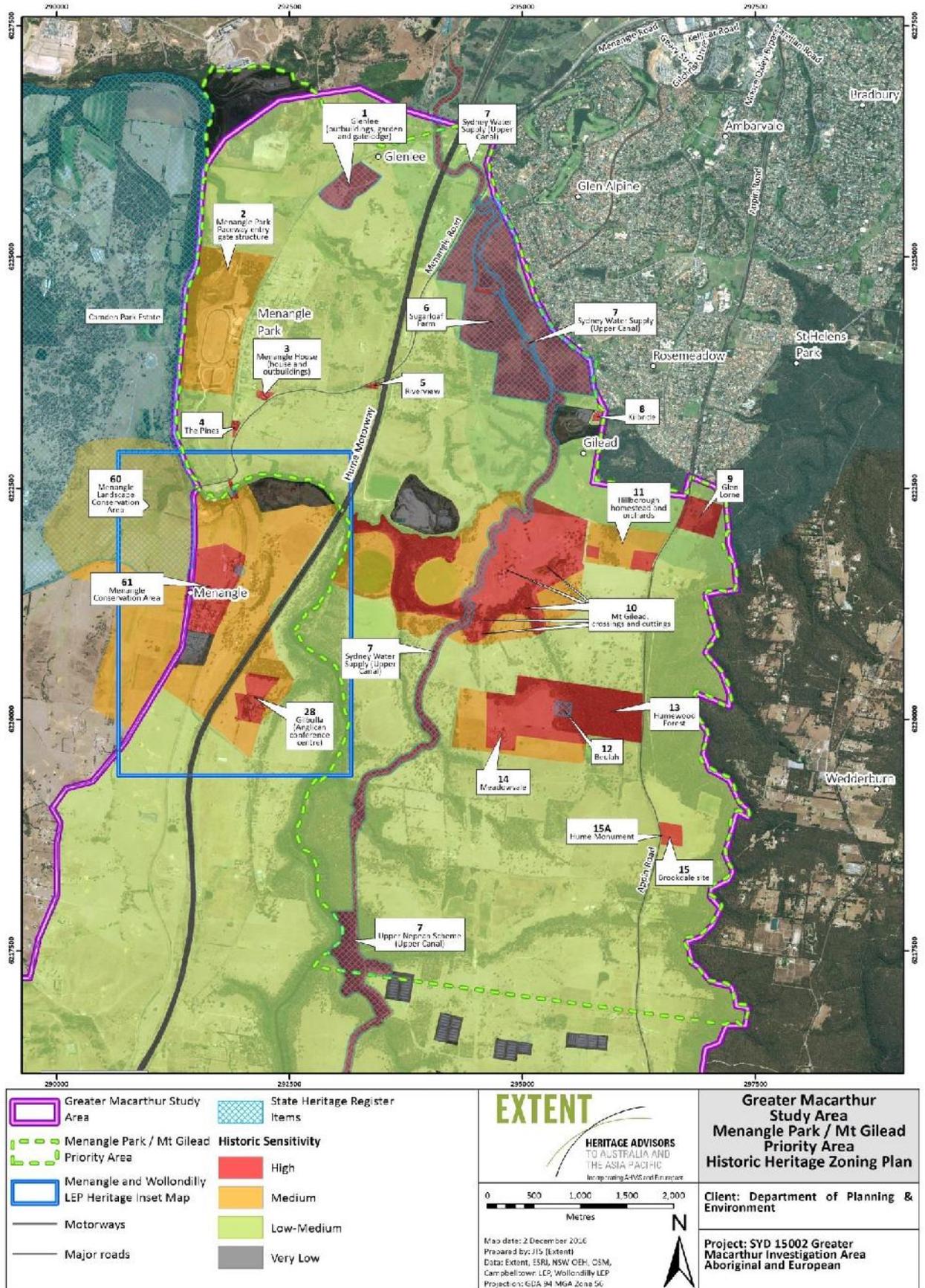


Figure 6. Historical archaeological sensitivity of the Menangle Park / Mount Gilead Priority Area.

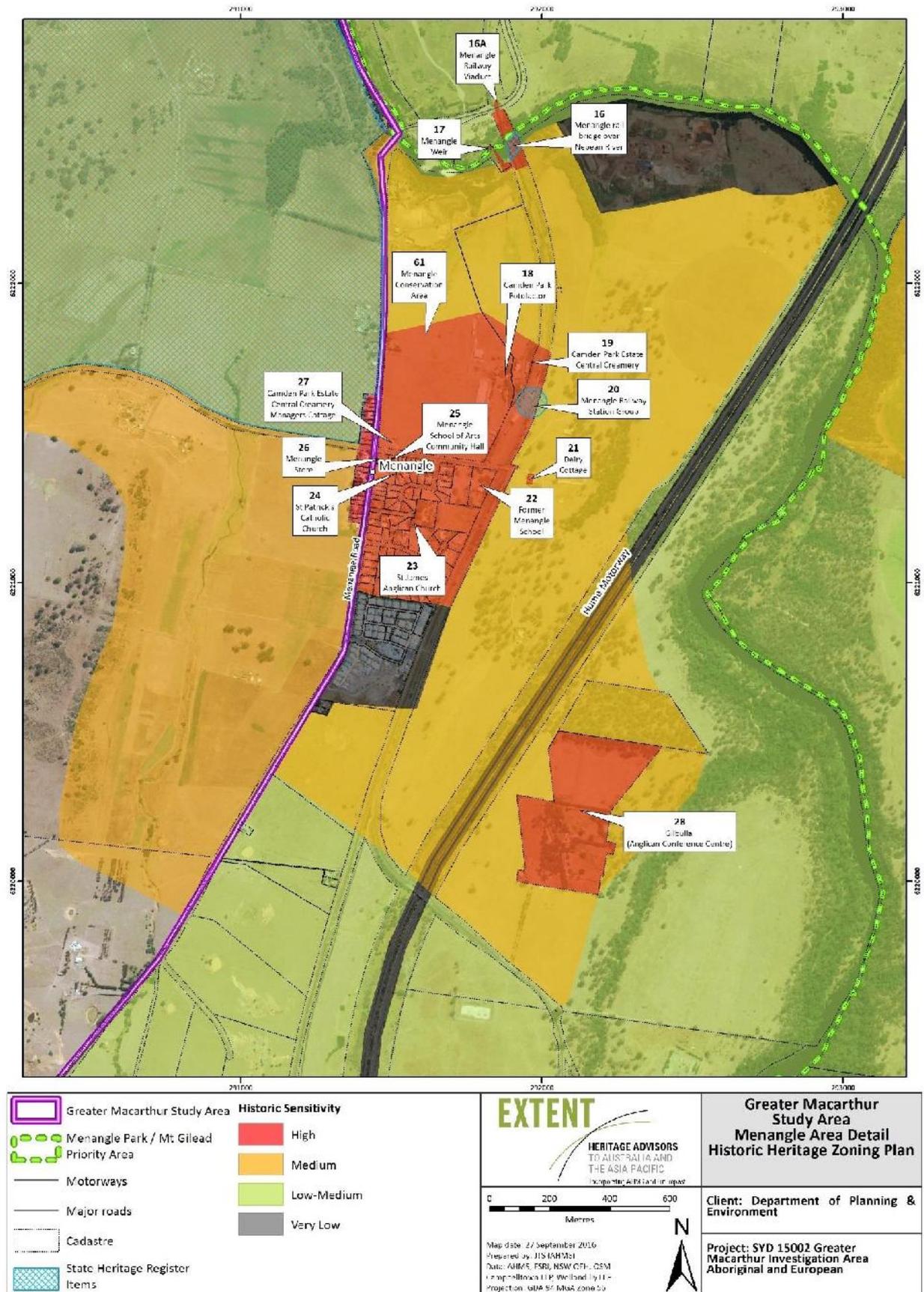


Figure 7. Historical archaeological sensitivity of the Menangle Heritage Conservation Area within the Menangle Park / Mount Gilead Priority Area.

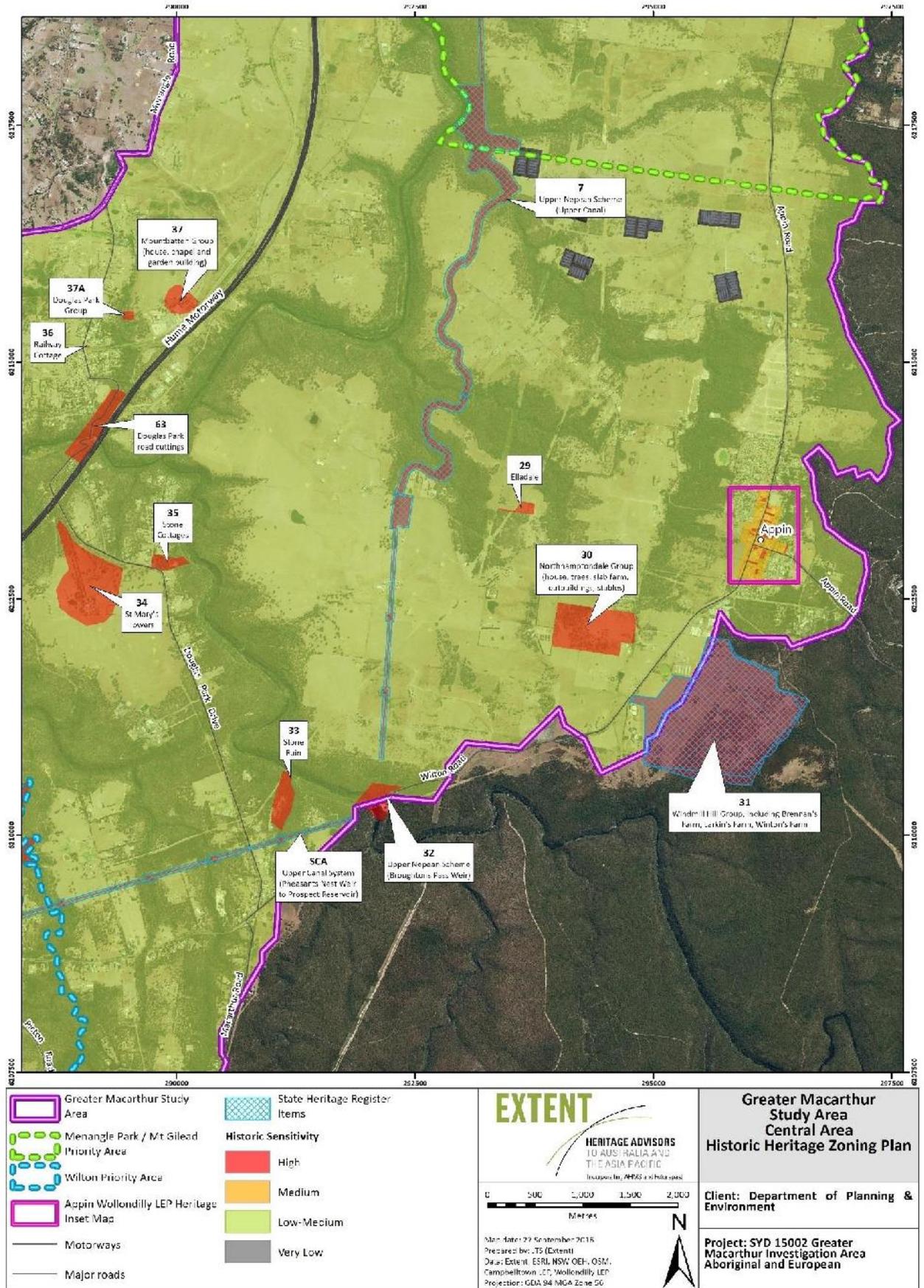


Figure 8. Historical archaeological sensitivity of the Central Precinct.

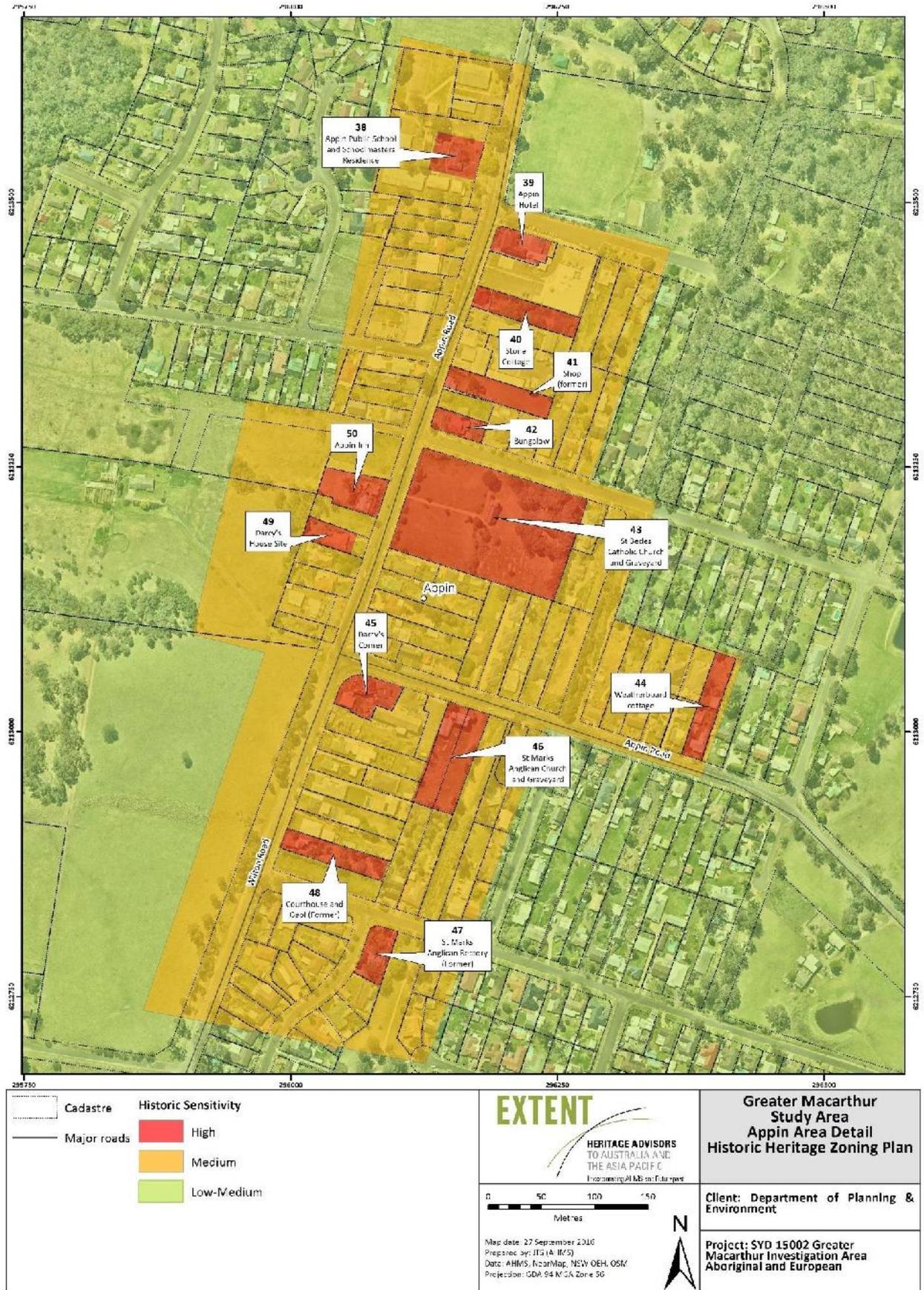


Figure 9. Historical archaeological sensitivity of the Historic Town of Appin within the Central Precinct.

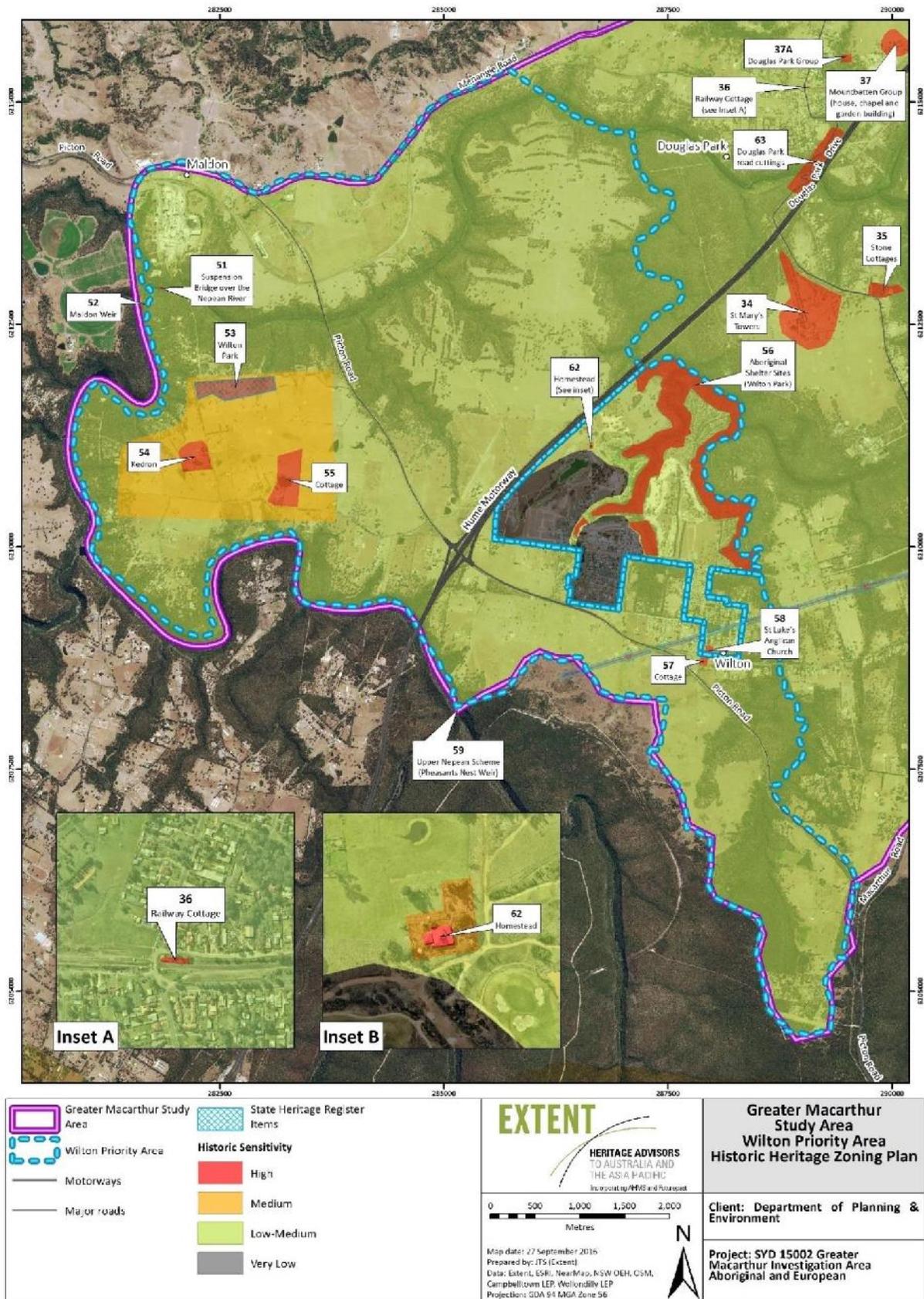


Figure 10. Historical archaeological sensitivity of the Wilton Priority Area.

4 ARCHAEOLOGICAL RESEARCH DESIGN

To assist in the management of GMIA's cultural resource, a regional archaeological and research design has been developed to guide and optimise any future investigations. The main aim of any archaeological investigation (either physical or theoretical) is to realise the research potential of the known and potential resources of the study area, with an ultimate outcome of creating a better understanding of the cultural heritage of the region/area/site. This research framework identifies the research objectives and investigative priorities associated with the GMIA study area by providing research questions and selecting historic themes relevant to the study area's archaeological assets. It provides a basis for:

- the preparation of site specific archaeological assessments;
- management and synthesis of readily available information;
- identification of sites requiring archaeological intervention; and
- tailoring the investigation methodology to the site's archaeological potential and significance.

4.1 Aboriginal Archaeology

4.1.1 Research Themes

A number of research themes have been developed to guide investigation of the Aboriginal archaeological heritage of the GMIA as the study area is redeveloped (**Table 5**). The Australian Historic Themes Framework has been used as a contextual structure³ with an additional theme 'Developing archaeological methodologies' added under a broader heading of "Developing Science and Social science frameworks" to address gaps in the existing system.

Recognising the reflexive nature of archaeological research, these themes have been developed to address the following three key factors:

- The nature of the known Aboriginal archaeological resource of the GMIA, and identified gaps in the knowledge base.
- The importance of meaningful Aboriginal community involvement in the identification, assessment and management of Aboriginal cultural heritage values.
- The current understanding of the Aboriginal archaeology of the Cumberland Plain and Australia more generally.

The themes and associated questions are intended to contribute to a better understanding of the Aboriginal archaeology of the GMIA, and also the evolution of research and management methods as a greater understanding of the region is obtained. They are broad in nature, to accommodate the expected development in knowledge, skills and understanding over the long-term redevelopment of the GMIA. It is expected that specific questions would be developed for each investigation, based on the particular characteristics of the area in question, and further developments in the archaeological understanding of the GMIA.

³<http://www.environment.gov.au/system/files/resources/e5e08ce4-5d6e-421d-8cba-1f76a16519e8/files/australian-historic-themes-framework.pdf>

Table 5. Aboriginal archaeological research themes and questions.

Australian Theme Group	Themes	Cumberland Plain theme	Research Questions
1. Tracing the Evolution of the Australian environment	1.1 Tracing climatic and topographical change	Climatic and topographical change in the GMIA and human interaction	<ul style="list-style-type: none"> • What archaeological evidence is there for human response and adaptation to climatic change and/or environmental change of the region? • Are there Pleistocene deposits present along the Nepean and Georges rivers within the GMIA, as along other major river systems in the region? • What environmental changes were associated with the Last Glacial Maximum (LGM), and what did these changes mean for the Aboriginal people of the area? • What was Post-LGM and Holocene environments and life like in general?
	1.4 Appreciating the natural wonders of Australia	Appreciating the natural landscape of the GMIA	<ul style="list-style-type: none"> • How can archaeological research and Aboriginal traditional cultural stories combine to enhance our understanding of the natural environment of the GMIA? • Are there any areas considered of natural wonder by Aboriginal people within the GMIA?
2. Peopling the Continent	2.1 Living as the first Australians	Living as Aboriginal people in the Cumberland plain	<ul style="list-style-type: none"> • When did Aboriginal people first settle in the Cumberland Plain? • What were the drivers and incentives for the early settlement by Aboriginal people of the Cumberland Plain? • What can the archaeological remains tell us about the culture and society of Aboriginal people in the Cumberland Plain? • What archaeological evidence is there regarding cultural boundaries, meeting places and shared country?
		Living as Aboriginal people in the GMIA	<ul style="list-style-type: none"> • What is the earliest occupation of the GMIA, and how does this compare with the Sydney Basin? • How does the archaeological resource of the GMIA (i.e., southern Cumberland Plain) compare with that rest of the Cumberland Plain? • What are the differences and/or similarities in site patterning in relation to land forms in the GMIA as compared to the rest of the Cumberland Plain/ neighbouring regions? • Is there a difference in the technology or raw materials used in the manufacture of stone tools in the GMIA as compared with elsewhere in the GMIA? • What was the likely population size of Aboriginal people in the GMIA prior to

Australian Theme Group	Themes	Cumberland Plain theme	Research Questions
			<p>European settlement?</p> <ul style="list-style-type: none"> • What evidence for resource exploitation/ harvest/use is there and how does it compare to other areas? • Does the nature of past Aboriginal occupation appear to have been influenced by stream-order or other landforms? • Were the higher order watercourses foci of initial occupation of the area? • Is there archaeological evidence of seasonal variations in land-use? • Was there consistent occupation of the area from initial settlement onwards? • Does the distribution of occupation across the landscape change over time? • Is there evidence of management of the land through fire? • What evidence is there of trade and exchange networks within the region and with other parts of Australia? • Are there overlaps or significant differences between the distribution of diagnostic features in the archaeological assemblage, such as lithic technologies and art motifs?
	<p>2.6 Fighting for land 2.6.1 Resisting the advent of Europeans and their animals</p>	<p>Evidence for resistance in the GMIA</p>	<ul style="list-style-type: none"> • What cultural and traditional knowledge is there of resistance by Aboriginal people in the past? • What is the archaeological evidence for resistance by Aboriginal people in the past? • What archaeological evidence is there of the immediate post-contact period, and how can this add to the documentary sources?
	<p>2.6.2 Displacing Indigenous people</p>		<ul style="list-style-type: none"> • Is there archaeological evidence that can add to our historical knowledge about the displacement of Aboriginal people in the GMIA?
<p>5. Working</p>	<p>5.7 Surviving as Indigenous people in a white-dominated economy</p>	<p>Maintaining connections to land in the GMIA</p>	<ul style="list-style-type: none"> • The popular historic narrative of the region depicts Aboriginal people as having been killed or removed early in the European settlement of the area. However some Aboriginal families claim traditional connection to the area even today - what archaeological and cultural evidence is there to fill the gap in knowledge about Aboriginal people in the GMIA in the post contact period?
	<p>5.8 Working on the land</p>		<ul style="list-style-type: none"> • In many parts of Australia Aboriginal people maintained a connection with country by working on rural properties. Is there archaeological and/or cultural evidence that Aboriginal people worked on some of the significant rural properties in the GMIA?

Australian Theme Group	Themes	Cumberland Plain theme	Research Questions
Developing Science and Social science frameworks	Developing archaeological methodologies		<ul style="list-style-type: none"> • What archaeological methods will be used and how will they inform and assist Aboriginal aspirations for the understanding and management of Aboriginal cultural values? • How will the proposed archaeological methodology maximise the archaeological information relating to the above questions? • How will cultural values be assessed and how will scientific and Aboriginal community significance be determined? • What dating techniques are most applicable and how will they be used in the archaeological investigation? • What palaeo-environmental and/or environmental techniques are most applicable and how will they be used in the archaeological investigation? • What stone tool analysis methodologies are most suitable and how will they be employed in the archaeological investigation?

4.1.2 Management framework for Aboriginal Archaeology/Cultural Values

Identifying the physical evidence of past Aboriginal land use is only one of the steps in ensuring the appropriate management of Aboriginal cultural values. The key to understanding and appropriately managing cultural heritage is outlined in the Australia ICOMOS Burra Charter (2013). The first step is to gather all available information about the place and then to assess its significance. Management of cultural heritage places should then follow based on 'significance'.

In relation to Aboriginal heritage, the scientific significance flows from the ability of the resource to answer the key research questions. However, social significance must also be considered and flows from the importance of sites to the Aboriginal community especially to traditional owners but also in many places in NSW to Aboriginal people with historic interests that have developed from their long term settlement in areas other than their traditional home country. The Australian Heritage Commission guide: *Ask First: a guide to respecting Indigenous heritage places and values* (2002) provides a starting point for developing a consultation rationale. This gives rise to a number of management and methodological questions that should also be addressed in any proposed archaeological investigations. This in turn is likely to require additional investigation techniques to supplement archaeological survey and excavation techniques.

Table 6. Management and methodological questions to be considered in Aboriginal cultural values assessments.

Theme	Questions
Significance	<ul style="list-style-type: none"> • How can significance best be managed conserved and enhanced? • How can the Aboriginal community best be involved in the identification and assessment of their heritage? Are there additional/new techniques that can be used to enhance the consultation process beyond those required in current OEH guidelines? • Is there a place for the involvement of the broader public in significance assessment of key places?
Conservation	<ul style="list-style-type: none"> • What measures can and should be employed to protect significant sites for future generations? Mechanisms may include: <ul style="list-style-type: none"> ○ Listing on the AHIMS database. ○ Codicils on property deeds. ○ Aboriginal Place gazettal. • What options are available for interpretation? • How can the results of the investigation be made available to the interested public? • Can the local community be involved in the future management of the site? • Should Aboriginal language be incorporated into the redevelopment of the area? • Can the cultural landscape values of the site/area be recognised and conserved? • What avenues for conservation have been explored and where conservation is not possible what other measures can be adopted to ensure information can be obtained to contribute to the questions above?
Research techniques	<ul style="list-style-type: none"> • What corrections and updates can be made to the AHIMS database? • How can the presence/absence of under-represented site features be investigated? • How can survey and excavation techniques be planned to best investigate the specific archaeological resource of the GMIA? • What additional analyses, such as palynology/phytoliths, chronology,

	<p>sediment analysis, lithic analysis, use wear and residue analysis, can be used to recover additional information from archaeological excavations?</p> <ul style="list-style-type: none"> • How can the archaeological evidence be analysed in conjunction with other sources, such as ethnography, anthropology, oral history and documentary history to improve the information obtained from archaeological investigations? • How can the information from the GMIA be compared to the broader understanding of the GMIA, the Cumberland Plain and Australia?
--	--

Archaeological Techniques and Methods

Archaeological techniques and methods of investigation of cultural material are described in detail in OEH's (2010b) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. Initially, investigations are often constrained to surface investigation (field survey) to identify key locations and areas for further investigation. Once these areas are defined, subsequent investigation usually includes sub-surface investigation to identify buried cultural material. These test excavations are also permitted under the Code of Practice in most instances (some sites are exempt and require an AHIP, such as rock shelters, shell middens, and areas within a certain proximity to specified landscape features such as rock shelters). While the Code of Practice allows some archaeological investigation to be undertaken without a permit it is restrictive in the methodology that it allows for such investigations. The alternative is to undertake such investigations under an AHIP however these involve lengthy timeframes to obtain. These factors over the past 6 years have resulted in a general decrease in horizontal extent and depth of investigations undertaken for proposed development areas. This is due to the requirement of all test pits being 0.25m² in size, which imposes practical limitations on the depth of excavation. Elsewhere in Australia a standard excavation unit of 1m² is considered more appropriate.

An alternative archaeological method is proposed⁴ (see below) to investigate and answer the questions posed above (Table 6). These methods should only be adopted for site types and landscapes that are currently allowed to be investigated under the Code of Practice, with those restricted sites (rock shelters, middens, post-contact, burials) still subject to an AHIP prior to excavation.

Test Excavations

For assessments in the GMIA that require sub-surface investigation, it is recommended that a similar approach is adopted for all developments. This would allow for comparative analysis across projects and across the region as a whole. This section identifies a standard test excavation approach that is recommended for use as the default by developers and proponents unless there are site-specific reasons for an alternate approach:

- Test excavations should consist of a systematic grid of test pits across the area/s requiring investigation. Test pits should be spaced at intervals of no more than 50m apart, with in-filling of additional test pits to higher spatial resolutions in areas where significant cultural material is identified.
- Excavations should be undertaken in 1m² test pits and in (max) 10 cm spits. Each test pit should be given an alpha-numeric label for identification purposes. A standard site recording form should be used for each test pit. Details should include site name, date, site recorder,

⁴ This project has been undertaken by the Department of Planning and Environment in consultation with OEH who have participated in the review of the project and its outcomes. We note that this proposed process differs from the Code of Practice (DECCWA 2010)

spit number and depth, square ID, description of finds, description of soil, sketch plan of excavation (if relevant to show feature) and a bucket tally per spit. Where significant cultural materials are identified within a test pit, it should be expanded using additional contiguous 1m² test pits up to 25m².

- Reduced levels of the top and bottom of the test pit, and at the base of every fourth spit (i.e., every 20cm), using a dumpy level against a known elevation, should be undertaken. Other levels may be taken as required, for instance to maintain vertical integrity, during excavation.
- Excavation should be undertaken to basal clays or culturally sterile deposits (defined as <5 artefacts from three consecutive spits).
- All excavated sediment should be sieved through a medium (e.g. 5mm) gauge mesh for artefact recovery. Where fragile culture materials (e.g., small animal bone, teeth) are observed during the excavation, a smaller sieve size may be adopted.
- Where artefacts are found in situ they should be recorded in situ before being removed bagged and labelled.
- Artefacts should be collected from the sieves, appropriately labelled and bagged according to excavation pit and spit provenance.
- Soil samples should be undertaken as part of the test excavation works. Samples should consist of both bulk 5cm soil samples (i.e. 0-5cm, 5-10cm, 10-15cm, etc.) and high resolution soil/environmental samples at 2cm resolution (i.e. 2-3cm, 4-5cm, 6-7cm, etc.) for the full depth of the excavation. Samples should attempt to recover at least 50grams of sediment per sample taken. Samples for soil micromorphology should also be collected (where possible), and be taken to investigate any interesting characteristics (e.g., bioturbation, thin land surfaces) or stratigraphic breaks in the deposits. Note that it is not expected that this level of sampling would be undertaken for each test pit, rather only those that encompass the most complete record of a given area, or where significant cultural material is recovered.
- Chronological samples should be recovered down the entire stratigraphic sequence. As a rule of thumb, samples should be collected at regular intervals, ideally between 5 and 20cm apart. When sampling for Optically Stimulated Luminescence (OSL) / Thermo-Luminescence (TL) samples must be 15cm from the surface and any visible stratigraphic breaks. Note that it is not expected that this level of sampling would be undertaken for each test pit, rather only for those that encompass the most complete record of a given area, or where significant cultural material is recovered.
- The test excavations should be documented using photographic records, written descriptions and scaled drawings. If discrete high-density artefact concentrations or cultural features, such as hearths, are revealed during the excavation, these will be excavated and recorded (by photography and planning). The locations of in-situ artefacts in such features may also be individually recorded.

The procedures and processes above are to be used as a default or guide, and should be modified based on the specific assessment and/or requirements of a project. Such modifications should be undertaken by a heritage specialist in consultation with the Aboriginal stakeholders and client. Where changes are considered significant, and neither compliant with the approach above nor the Code of Practice, discussion with OEH should be undertaken before their implementation.

Post-Approval Works (Salvage Excavations)

Once the nature, extent and significance of any cultural materials are identified through the test excavation program, any future archaeological management within a study area can be determined in consultation with relevant Aboriginal community representatives. While this type of guidance and advice will be included in the ACHAR, and any required AHIP application, this section provides a brief summary as an indication of some of the possible management responses available if significant cultural materials are identified, including: i) conservation *in situ* - the retention of a cultural deposit in its current location and form; and ii) conservation *ex situ* – the archaeological recovery of cultural

deposits for long term curation in another location (e.g., museum). Other options may also be considered such as interpretive outcomes and/or offset arrangements.

Conservation *in situ* of a deposit should always form the first management consideration for any cultural materials identified (regardless of significance), with other options explored where *in situ* retention is infeasible. Where conservation *in situ* is possible, these cultural deposits and options for their management should be managed through a Plan of Management that is linked to both the site and the land within which it is situated. The plan of management should provide guidance on the policies and procedures needed to ensure the long term conservation of the cultural deposits in question.

In situations where conservation *in situ* is not possible, conservation *ex situ* is often the alternative approach. In archaeological terms, this is normally associated with 'salvage excavations', which is the careful recovery of a large portion of the cultural deposit to be affected by the development. Due to the often coarse nature of test excavations (the main aim of which is to identify the presence or absence of Aboriginal objects, as well as their broad spatial patterning), salvage excavations: i) are undertaken at a finer resolution of cultural material recovery and with more detailed recording; ii) seek to obtain a large sample of the archaeological assemblage – as close to 100% as possible; and iii) require additional environmental and chronological analysis to further understand the site's formation and use in the past. In situations where conservation *ex situ* is determined, criteria for implementing salvage excavations will be based on achieving the research aims and objectives outlined in this RARDMS, and fall into three main categories:

- The nature of the soil profile and archaeological deposit observed. Where archaeological deposits have good stratigraphic integrity, it is likely that further mitigation measures should be recommended. This is especially the case in sand deposits, where good stratigraphic integrity is often present, and in this region can be of significant antiquity.
- The nature and composition of the archaeological assemblage. This should include the density, technological attributes, and diversity of artefactual material, the presence of features (e.g. hearths, dense occupation deposits), and other archaeological remains (e.g. faunal and shell materials).
- The location of the cultural materials requiring archaeological mitigation being within areas of potential impact.

While the size and recovery methods for any salvage excavations should be determined on a case-by-case basis following the test program, they should endeavour to reflect current best practice for the region, and allow comparison with nearby studies outlined in **Section 3**. To achieve this, the following methods should be established as the default standard approach:

- Salvage excavations should be undertaken as open area excavation of contiguous test pits. The size of the salvage area would be dictated by the size of the cultural deposit, level of significance and the amount of impact, but should generally be up to 100m² in any one location. The open area can be excavated in a series of hold points at 25m², 50m², and 75m² with consideration at each as to whether the works need to proceed to fulfil the aims and objectives of the ARDMS. This decision is determined by the Excavation Director, usually in discussions with the client and Aboriginal stakeholders.
- Excavations should be undertaken in contiguous 0.25m² (50 x 50 cm) test pits and in 5 cm spits up to the total area permitted. Each test pit should be given an alpha-numeric label for identification purposes. A standard site recording form should be used for each spit of each excavation unit (50 x 50 cm). Details will include site name, date, site recorder, spit number and depth, square ID, description of finds, description of soil, sketch plan of excavation (if relevant to show feature) and a bucket tally.

- Reduced levels of the top and bottom of the test pit, and at the base of every fourth spit (i.e. every 20cm), using a dumpy level against a known elevation, should be undertaken. Other levels may be taken as required, for instance to maintain vertical integrity, during excavation.
- Excavation should be undertaken to basal clays or culturally sterile deposits (defined as <5 artefacts from three consecutive spits).
- All excavated sediment should be sieved through a small (e.g. 3mm) gauge mesh for artefact recovery. Where fragile culture materials (e.g. small animal bone, teeth) are observed during the excavation, a smaller sieve size may be adopted.
- Artefacts should be collected from the sieves, appropriately labelled and bagged according to excavation pit and spit provenance.
- Soil samples should be undertaken as part of the salvage works. Samples should consist of both bulk 5cm soil samples (i.e. 0-5cm, 5-10cm, 10-15cm, etc.) and high resolution soil/environmental samples at 2cm resolution (i.e. 2-3cm, 4-5cm, 6-7cm, etc.) for the full depth of the excavation. Samples should attempt to recover at least 50grams of sediment per sample taken. Samples for soil micromorphology should also be collected (where possible), and be taken to investigate any interesting characteristics (e.g. bioturbation, thin land surfaces, etc.) or stratigraphic breaks in the deposits.
- Chronological samples should be recovered down the entire stratigraphic sequence. As a rule of thumb, samples should be collected at regular intervals, ideally between 5 and 20cm apart. When sampling for OSL/TL, samples must be 15cm from the surface and any visible stratigraphic breaks.
- The salvage excavations should be documented using photographic records, written descriptions and scaled drawings. If discrete high-density artefact concentrations or cultural features, such as hearths, are revealed during the excavation, these will be excavated and recorded (by photography and planning). The locations of in-situ artefacts in such features may also be individually recorded.

The procedures and processes above are to be used as a default or guide, and should be modified based on the specific assessment and/or requirements of a project. Such modifications should be undertaken by a heritage specialist in consultation with the Aboriginal stakeholders and client.

Post Excavation Analysis

The post-excavation analysis should be designed to address the research objectives and specific research questions outlined above, along with other relevant questions that may arise based on the results of the excavation. Results of analysis should be presented as part of the ACHAR or as a separate excavation report, and where possible ensure comparative site data and exploration of the research questions above. Post-excavation analysis should involve the following components:

- Stone artefact analysis: Analysis of artefact assemblage by a qualified lithics specialist. Tasks should include descriptive and functional recording of recovered materials (after Holdaway and Stern, 2004). Values of recorded attributes and metrics should be entered into a database for statistical analysis of assemblage patterns. Analysis of the vertical and horizontal patterning of artefact distribution should be undertaken. Where relevant, usewear and residue investigations should also be considered. The full artefact catalogue would be included as an appendix to the ACHAR or other report and in Excel spreadsheet format. Analysis should seek to answer the following broad questions:
 - Source information. What raw material resources were used; where did they come from; and what does this tell us about Aboriginal use of the region in the past?
 - Stone reduction technology. How was the stone worked and used? Does this change over time? Can the function of the site be inferred from the artefact assemblage? What does this tell us about Aboriginal occupation, use, settlement and activities undertaken through time in this region?

- Finished Implements. What were the finished implements used for and what can that tell us about site function(s)?
- Post-depositional influences. What post-depositional influences have impacted on the assemblage, and what does this tell us about the integrity and significance of the site?
- Site chronology. When was the site occupied? Was the assemblage the product of repeated occupations or a single event? Is there spatial patterning in the assemblage, and what does this tell us about repeated use, activities and/or occupation of the region through time?
- Shell midden analysis: Analysis of shell material by a qualified heritage specialist. Tasks should include identifying whether the assemblage is natural or cultural in origin, descriptive information, which includes sorting by species for each excavated unit, total weight, total weight of fragments, minimum number of individuals (MNI) (White, 1953; Orchard, 2005), presence/absence of burnt shell, and presence/absence of modified shell. Values of recorded attributes and metrics should be entered into a database for statistical analysis of assemblage patterns. Analysis of the vertical and horizontal patterning of artefact distribution should be undertaken. The full artefact catalogue would be included as an appendix to the ACHAR or other report and in Excel spreadsheet format. Analysis should seek to answer the following broad questions:
 - What shellfish were consumed and in what quantities?
 - How and where were shellfish gathered and how were they prepared and eaten (or used for other purposes)?
 - Are there any differences in shell species distribution across/through the site which may indicate a patterning or 'layout' to the campsite?
 - What do variations in pH levels and shell concentrations indicate about site disturbance?
- Faunal analysis: Analysis of bone material recovered by a qualified heritage specialist. Tasks should include identifying whether the assemblage is natural or cultural in origin, descriptive information, which includes sorting by species for each excavated unit, total weight, total weight of fragments, MNI (White, 1953; Orchard, 2005), presence/absence of burnt bone, and presence/absence of modified bone. Values of recorded attributes and metrics should be entered into a database for statistical analysis of assemblage patterns. Analysis of the vertical and horizontal patterning of artefact distribution should be undertaken. The full artefact catalogue would be included as an appendix to the ACHAR or other report and in Excel spreadsheet format. Analysis should seek to answer the following broad questions:
 - What animals/fish were consumed and in what quantities?
 - How and where were animals/fish gathered and how were they prepared and eaten (or used for other purposes)?
 - Are there any differences in animal/fish species distribution across/through the site which may indicate a patterning or 'layout' to the campsite?
- Geomorphology: Analysis of sedimentology and landscape history by a specialist geomorphologist to understand the formation of the archaeological site and distribution of cultural material. Analysis should include a range of techniques that can inform the formation and post-depositional changes of the soil profile, and thereby provide information on the nature of the cultural deposits. These could include particle size, magnetic susceptibility, loss-on-ignition, basic geochemical properties, pollen, phytolith and charcoal analysis. While the findings of these techniques are wide-ranging, a focus for these types of work is usually whether the assemblage can be considered to be in situ or whether it has been relocated in the soil profile through bioturbation – an issue that has significant implications for the significance and subsequent management of an archaeological resource.
- Chronology: Recovery and processing of adequate samples to understand the age of the soil profile and any associated cultural material. Samples are usually undertaken by

archaeologists, but require specialised laboratories and/or universities to process. A range of chronological approaches are feasible, including radiocarbon, OSL, TL, cosmogenic, Pb^{210} , Uranium series. Most commonly, radiocarbon and/or OSL/TL are adopted in Australian cultural resource management to identify the formation origins of a soil, and bracket cultural deposits temporally.

4.2 Historical Archaeology

4.2.1 Research Themes

The research potential of the study area should be considered in a broad context, as well as in a more site specific context. An archaeological investigation of an individual site or item should consider physical evidence of its historical development and occupation in a thematic context. This framework will allow the evidence documented from the subject site to be compared and contrasted with similar or comparable sites. The Heritage Council of NSW has composed a table of NSW Historical Themes based on the Australian Heritage Themes to ensure that information recovered from the site can be understood within a broader research framework. Previous works such as the 2009 Campbelltown Heritage Study Review and 2006 Wollondilly Heritage Study identified overarching themes related to the historical development of their respective LGAs. For a full list of relevant reports and studies reviewed in the development of the themes below refer to the reference list in the Final Greater Macarthur Investigation Area Aboriginal and Historic Heritage Gap Analysis (AHMS, 2017).

The historical context for the overall study area can be grouped into the themes presented in **Table 7**.

Table 7. Historical archaeological research themes.

Australian Theme	NSW Theme	Examples
1 Tracing the natural evolution of Australia	Environment – naturally evolved	The study area is comprised of rolling hills and green pastures that influenced the early settlement
2 Peopling Australia	Aboriginal Cultures and interaction with other cultures	Interaction and contact between local Aboriginal groups and European settlers
	Convict	There are a number of convict built structures within the GMIA (e.g. Mt Gilead barn and windmill, causeway)
3 Developing local, regional and national economies	Agriculture	The study area has been settled in the early decades of the nineteenth century to provide arable land that has been used for crop cultivation, orcharding and gardening as well as animal rearing. The area is considered to have a high potential in providing archaeological evidence of these activities
	Environment – cultural landscape	A larger portion of the study area provides a unique and well preserved landscape that combines natural landforms, faunal and floral species with examples of early colonial homesteads and the manmade Upper Canal system that discreetly rubs through the area. This provides opportunities for conservation of parts of the historic cultural landscape and the investigation and interpretation of archaeological sites in a landscape context
	Forestry	The study area includes Humewood Forest that serves as a biobank
	Mining	Evidence of mining shafts and extraction of ore for local purposes have been identified around the Mountbatten homestead and Appin area (stone quarries) mills and mill race
	Pastoralism	The study area includes a number of homesteads that in historical times were used to breed, raise and process livestock. Features include grazing fields, and dams/ ponds, barns
	Transport	Early roads demonstrated by road markers, cuttings and surfaces, early Menangle railway station group and railway viaduct; weirs across the Nepean river (Maldon Crossing and Menangle weir), mail coaches, etc.
4 Building settlements, towns and cities	Towns, Suburbs and villages	The study area includes two historic towns: Menangle and Appin with the early town nucleus incorporating a number of original buildings, some of which date back to c1810 (i.e. the Appin Courthouse and gaol)
	Utilities	This state theme is demonstrated by the Upper Canal system with Pheasant Nest Dam, a number of windmills, weirs across the Nepean river
8 Developing Australia's culture life	Domestic life	The study area has high potential to provide evidence of domestic artefacts from various archaeological sources (underfloor and yard deposits, wells, cess-pits, etc.) that can demonstrate activities associated with domestic life and working around self-contained homesteads, work spaces, post offices, gaols, etc.
	Religion	The study area includes a number of churches of various denominations with graveyards and a convent that are able to tell the story of the local religious believes and practice
9 Marking the phases of life	Persons	The study area was occupied by a number of notable persons of the area including the Macarthur and Hume families

4.2.2 Historical Archaeology Research Questions

Archaeological resources provide tangible evidence of past life and make a contribution to our understanding of the history and use of a local area. Given the substantial costs associated with the archaeological excavation of places, research designs should aim to address substantive research themes developed through background research and the assessment of significance of a site. Archaeological research questions provide a framework for an archaeological investigation and for the analysis of the results of the excavation and artefacts recovered during excavation.

The following research questions should inform archaeological investigations of any site within the GMIA:

- What is the nature and extent of historical archaeological remains?
- What do the archaeological remains tell us about the activities carried out there?
- What can the archaeological evidence tell us about the profile of people that lived and work in the region during the nineteenth century? What can we learn about their socio-economic status, religion, and ethnic backgrounds?
- What evidence is there of interaction between the local Aborigines and European settlers in the Contact period?
- What is the evidence of interactions between free settlers, convicts and Aboriginal people?
- Is there evidence of customary patterns manifested in construction techniques, types of food consumed, religious practices, and so forth?
- Can archaeological evidence collected from individual sites provide a clearer picture of the regional development and interconnectivity throughout the nineteenth century?
- Were landowners in the Greater Macarthur Area innovative /advanced or otherwise in the application of available technologies?
- Are there differences in artefact assemblages of emancipists, convicts, government officials and Aboriginal workers?

5 ARCHAEOLOGICAL MANAGEMENT STRATEGY

The principle measure for the management of historical archaeological resources within the study area is their significance. The level of archaeological significance defines the degree of impact or tolerance for change that the archaeological resource can be subjected to, and determines the level of investigation and recording that is required.

5.1 General Processes

A key element of the management strategy is the recognition that Aboriginal and historical archaeology is a valuable historical resource. As the archaeological investigation of the GMIA progresses, it is important to ensure that the recovered information is available to a broader public for ongoing research and developing understanding of the history of the area. To this end, the following three processes should be implemented.

Interpretation Strategy

An overall heritage interpretation strategy should be developed for the GMIA as a whole. Interpretation planning for an area such as this is a complex task, because of the diverse heritage values, stakeholders and land-uses. In addition, the planning landscape can be dynamic and the interpretation strategy needs to be flexible and robust enough to cope with any changes that occur. It needs to address opportunities for interpretation through a variety of locations, methods and media, cater for different audiences and ideally provide a roadmap to scale up or down the level of interpretation depending on demand, and to plan for future refreshes to interpretive media.

The interpretation strategy should be developed in consultation with local stakeholders, so that the interpretive media are viewed as assets and drawcards to the community. It should outline the overarching framework for the interpretation of the GMIA, and be designed to provide useful, detailed information for the implementation of effective interpretation throughout the GMIA.

The interpretation strategy would be a high-level document, which identifies themes, audiences, locations and opportunities for interpretation. It would form the basis for individual, and more detailed interpretation plans to be developed and implemented on the scale of individual developments and precincts.

Digital Archive

All reporting associated with the archaeological assessment and investigation of the GMIA should be submitted to the relevant consent authorities, for inclusion in their archives, including:

- Heritage Division, OEH
- Aboriginal Heritage Information Management System (OEH)
- Wollondilly and Campbelltown Councils.

In addition, the reporting should be made publicly available online, through a website maintained by DPE. Where information derived from the archaeological investigation of the GMIA is of a culturally sensitive nature it should be carefully managed by the report authors in consultation with the Aboriginal stakeholders and relevant State and local government agencies.

Artefact Repository

A physical location within the GMIA should be nominated as a permanent repository for Aboriginal and historical archaeological assemblages recovered from investigations in the area. The nature of

the repository should be determined as part of the overall interpretation strategy. However, as a general rule, the assemblages should be made available for research and education purposes.

5.2 Aboriginal Archaeology

5.2.1 Aboriginal Archaeology Advisory Group

At present, the resources of the Regional Operations Group of the Heritage Division of the OEH are overstretched. They have no capacity to review documentation in the early stages of project assessment, and in general do not see impact assessments until the development plans are finalised and development consent is issued. Councils in the GMIA lack specialist skills in Aboriginal cultural heritage. Together this can mean that:

- Opportunities for conservation may be lost, as sites of high significance are only identified late in the process.
- There is no adequate third-party review of due diligence assessments, as the development consent authority often does not have the relevant archaeological expertise at hand.

We recommend the formation of an Aboriginal archaeology advisory group for the GMIA, to be composed of the following:

- Campbelltown and Wollondilly Council heritage advisors
- Representative of Tharawal Local Aboriginal Land Council
- Representatives of the traditional owners
- Senior Aboriginal archaeology specialist

It is suggested that the advisory group would:

- Provide advice to Council, or the relevant consent authority, regarding the level of archaeological assessment required for specific projects taking into consideration the predictive models for Aboriginal and historic archaeological heritage outlined in the RARDMS.
- Review due diligence assessments submitted with development applications, and make recommendations to Council as to adequacy.
- Review archaeological methodologies for survey, test and salvage excavation for appropriate compliance with the RARDMS and make recommendations to consent authority as to adequacy⁵.

5.2.2 Management Divisions

The GMIA has been divided into five maps of Aboriginal archaeological management requirements. (See Figure 11):

- Menangle Park and Mount Gilead PGA.
- Wilton PGA.
- Central A.
- Central B.
- Central C.

⁵ Where methodologies proposed are not compliant with the RARDMS nor with the Code of Practice an AHIP will be required and the proposal must be referred to OEH.

Figures 12 – 16 show the Aboriginal archaeological sensitivity of the region. They are colour coded to assist in future management. The management regime for each of the coloured zones is as follows:

- Red: The red areas on these maps have a high potential to contain Aboriginal archaeological sites and objects. It has already been demonstrated in the region that some of these sites are likely to be of high Aboriginal and/or scientific significance. These areas should be considered for long term conservation. Any development activity of management activity that involves ground disturbance will require preparation of an ACHAR.
- Orange: These areas have moderate potential to contain Aboriginal archaeological sites and objects based on a range of factors including proximity to water. Some of these sites are likely to be of high Aboriginal and/or scientific significance. Development in these areas should be informed through the development of an ACHAR.
- Peach: The areas are predominantly ridgelines and hilltops and also have a moderate potential to contain Aboriginal archaeological sites and objects. Hilltops and ridgelines in this region are less likely to have stratified in situ archaeological deposits, however they may be of high cultural values to Aboriginal people because of traditional way finding and look outpoints with important vistas. Development in these areas should be informed through the development of an ACHAR.
- Light Green: These areas have low potential to contain Aboriginal archaeological sites and objects. However, due to the scale of the mapping the significant sites and objects cannot be ruled out. A due diligence assessment of any development proposed in these areas is recommended to determine the likelihood of sites and objects, whether or not an ACHAR is required.
- Green: These areas have been assessed generally as having very low potential to contain significant or substantial Aboriginal sites or objects. Detailed disturbance mapping (which was outside the scope of this current study) is likely to reduce this area further. At this stage, due diligence assessment is recommended.
- Black: Areas shaded black have no potential to contain Aboriginal sites and objects as the landforms have been so modified by modern land uses e.g. quarries. Further detailed disturbance mapping focussing in areas which have been subject to substantial ground disturbance is likely to increase this zone. No further Aboriginal cultural heritage assessment is required.

5.2.3 Cultural Values Mapping

Preliminary mapping of Aboriginal cultural values was undertaken as part of the GMIA gap analysis, and demonstrates the presence of locations with intangible heritage values and sites with historical Aboriginal heritage significance within the study area (AHMS 2017). Comprehensive field survey and test excavation were beyond the scope of the desktop study and many parts of the area have never been subject to field investigation. Therefore, the known Aboriginal resource should not be considered to be exhaustive since it is possible that other such locations are present within the GMIA. A more thorough process of cultural values mapping should be undertaken, including:

1. An anthropological study
2. Documentary research into the Aboriginal history of the GMIA (this may help to clarify or validate sites such as the location of the reported hanging tree)
3. Additional Aboriginal community consultation to discuss outcomes of 1 and 2

The results of the cultural values mapping should inform a revision of this RARDMS and interpretation strategy.

5.2.4 Testing the Archaeological Predictive Model

The archaeological predictive model is based largely on the association between known archaeological sites in the GMIA and landform types, in particular relationship to water sources and ridgelines. Ideally a program of archaeological investigation should be undertaken in order to test the model within each of the five management divisions. The investigation should consist of:

- Archaeological survey of a representative sample of the landforms, land-use areas, and archaeological sensitivity zones within each management area.
- Targeted archaeological test excavation, to ground truth the modelling of subsurface archaeological sensitivity.

The results of the investigation should then be used to refine the predictive model for each of the five management divisions. The results would allow a preliminary significance assessment of the identified and predicted Aboriginal archaeological resource of the GMIA. This would inform a revised version of this RARDMS.

Alternatively, testing can be undertaken over time as development proposals are developed. In this situation, it will be important to collate the disparate nature of this information into a central repository, and periodically revise and refine the predictive model.

5.2.5 Strategic Conservation

Throughout the GMIA, a strategic approach to conservation of Aboriginal values should include setting aside areas of high Aboriginal cultural values for permanent conservation. A preliminary identification of areas that are likely to be of high conservation value in relation to Aboriginal cultural values is outlined in **Table 8** and shown in Figures 12-16- based on the following criteria:

- Significant landforms as outlined in OEH guidelines, such as watercourses, ridgelines and remnant vegetation.
- Areas of identified cultural value.
- Areas of high archaeological sensitivity (see AHMS 2017).
- Known AHIMS sites that are likely to be of high significance -this includes all closed sites (likely to be rock shelters).

Conservation is an active rather than passive process, and will require conservation management planning. This will specify the nature of activities to be allowed, and the measures that must be undertaken in order to conserve the identified values in each zone. Conservation may be compatible with a range of other land uses such as bio-banking, wildlife corridors, historic heritage conservation, and passive recreation. Conservation zones incorporating some of the areas should be considered and where these lands are managed for environmental and or recreational purposes, management should explicitly consider their Aboriginal cultural value.

Table 8. Preliminary Aboriginal archaeology areas of high conservation value.

Menangle Park and Mount Gilead Priority Area	
Significant landforms	Barrigal Lagoon Sugarloaf Mount Gilead Bushland between Appin Road and the Georges River Nepean River Georges River
Cultural values	Area south of Gilead Small area on the Nepean River, north of Menangle
High archaeological sensitivity	Corridors of the Nepean River and tributaries Corridor of the Georges River
AHIMS site features	Art

	Modified tree
Wilton Priority Area	
Significant landforms	Bushland surrounding the upper reaches of Allens Creek Round Hill Ridgeline Cataract River Allens Creek Nepean River
Cultural values	Fishing place and story place on the Nepean River Small area near Bingara Gorge
High archaeological sensitivity	Corridor of the Nepean River Corridors of the Cataract River and tributaries
AHIMS site features	Art Grinding groove Habitation structure Modified tree Stone arrangement
Central A	
Significant landforms	Ridgeline between Quarter Sessions Road and the Cataract River Nepean River Georges River Cataract River
Cultural values	Elladale Creek catchment Rocky Pond Creek massacre / burial Hanging tree
High archaeological sensitivity	Corridors of the Nepean River and tributaries Corridor of the Georges River
AHIMS site features	Art Burial Grinding groove Modified tree Shell
Central B	
Significant landforms	Nepean River Ridgeline north of McWilliam Drive Elevated area north-east of Sullivan Road
Cultural values	Historical building owned by BHP Small area on the Nepean River, north of Menangle
High archaeological sensitivity	Corridor of the Nepean River and tributaries Ridgeline north of McWilliam Drive Elevated area north-east of Sullivan Road
AHIMS site features	Art Grinding groove Modified tree Shell
Central C	
Significant landforms	Nepean River Cataract River Bushland bounded by the Hume Motorway, the Nepean River and Allens Creek, and continuing south-west of the Hume along Allens and Clements Creeks and Sandy Gully
Cultural values	None yet identified
High archaeological sensitivity	Corridor of the Nepean River Corridor of Cataract River Corridor of Allens Creek
AHIMS site features	Art Habitation structure

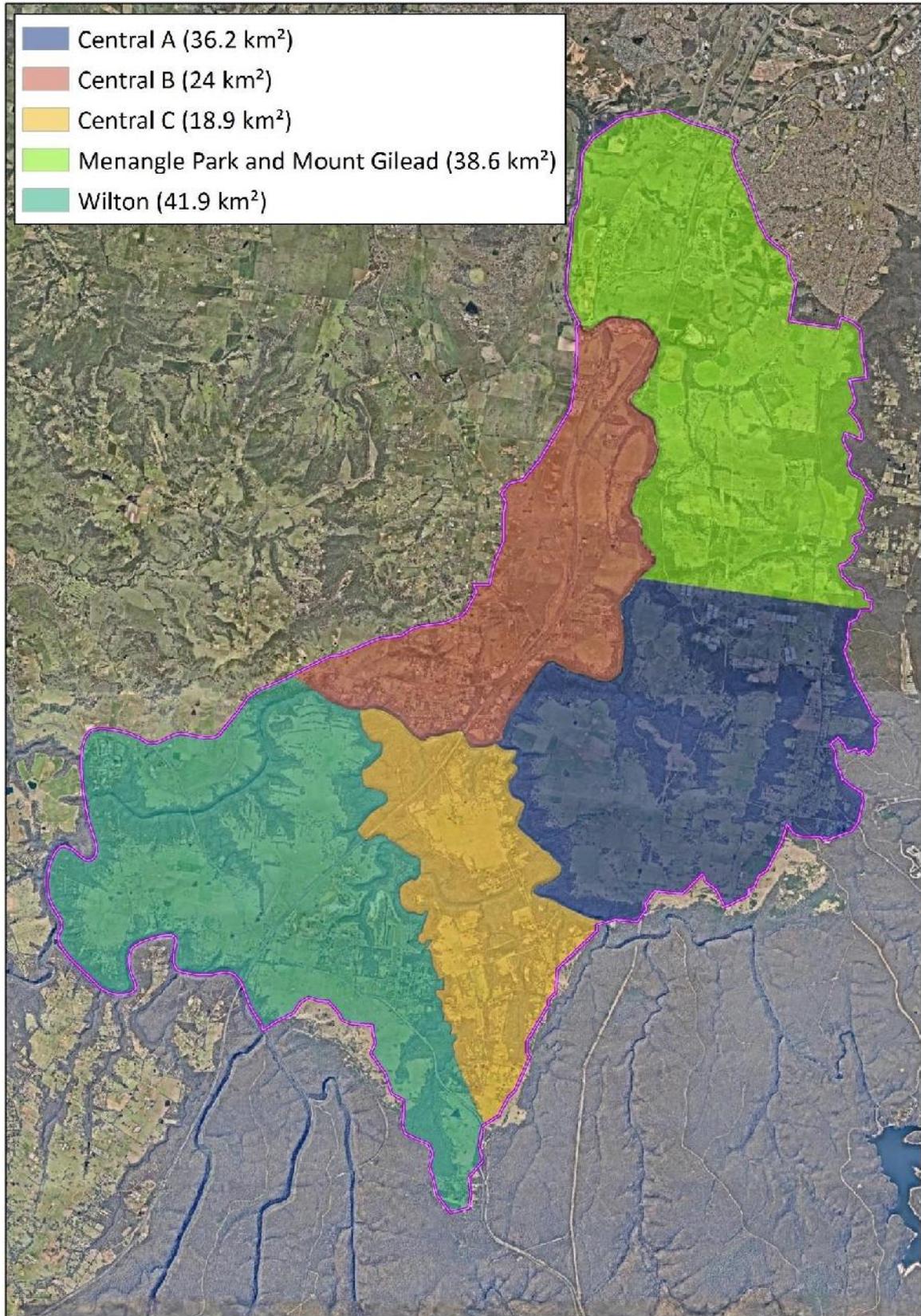


Figure 11. Aboriginal archaeological management divisions.

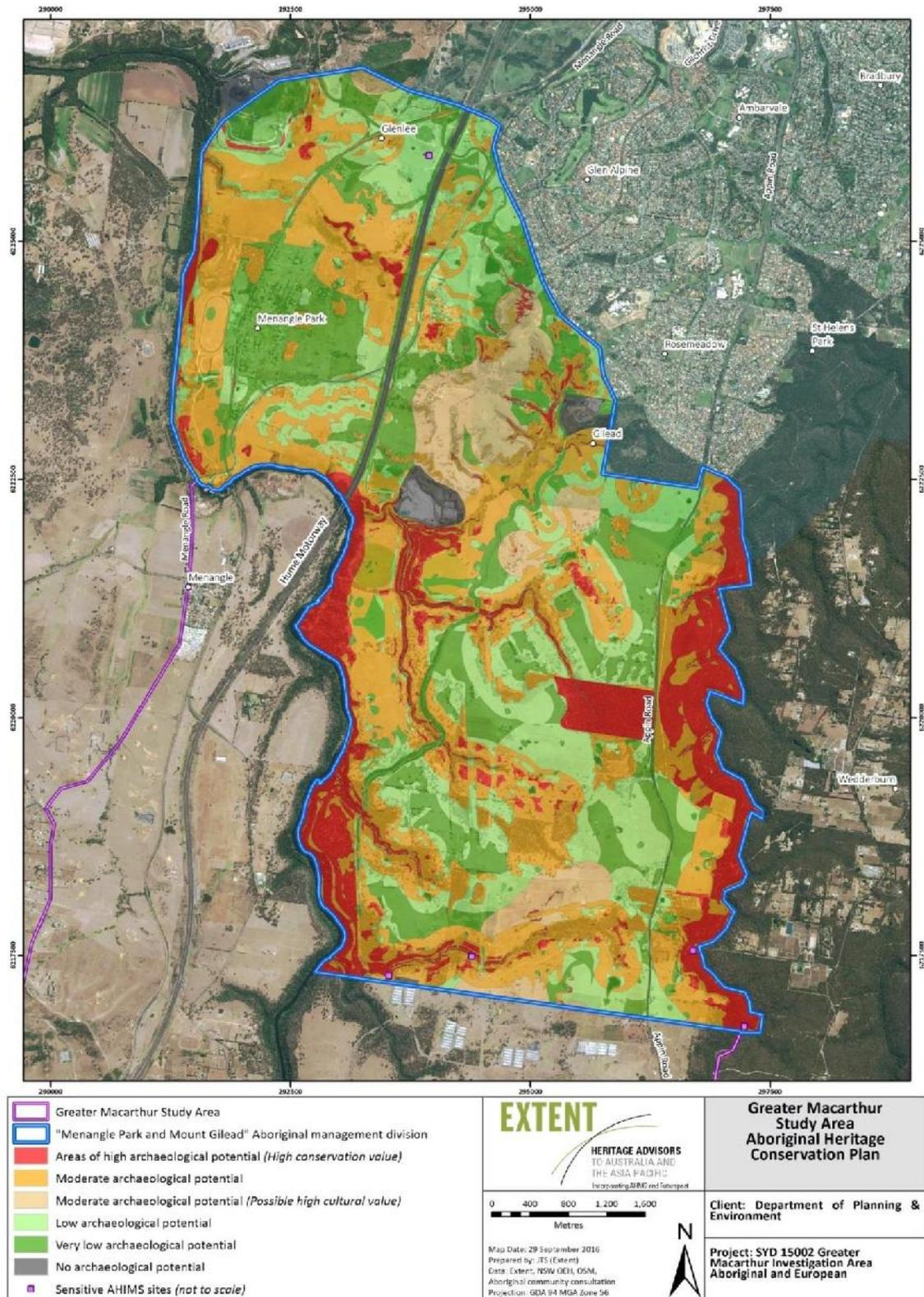


Figure 12. Areas of high conservation value for Aboriginal heritage within the Menangle Park and Mount Gilead Priority Area.

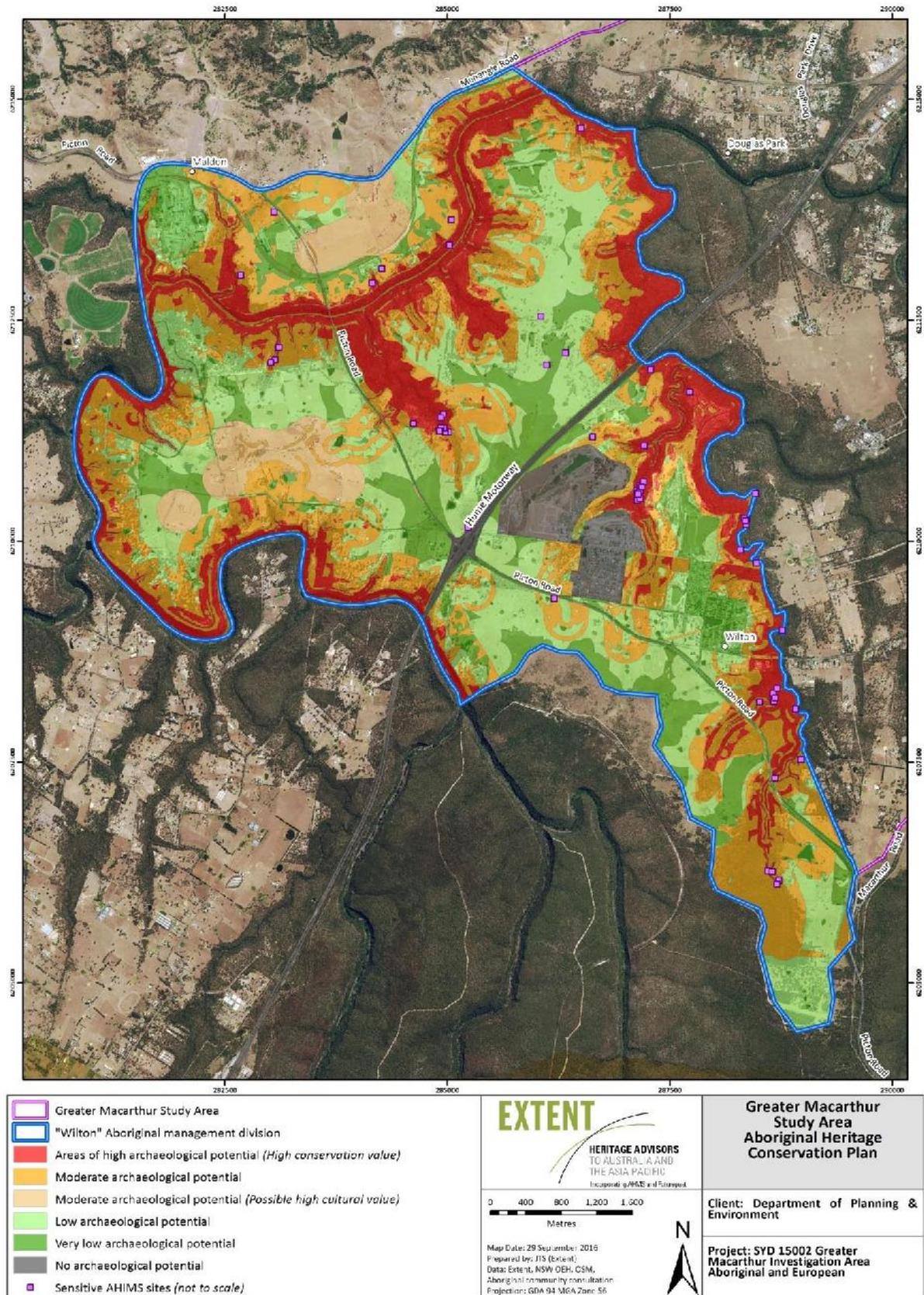


Figure 13. Areas of high conservation value for Aboriginal heritage within the Wilton Priority Area.

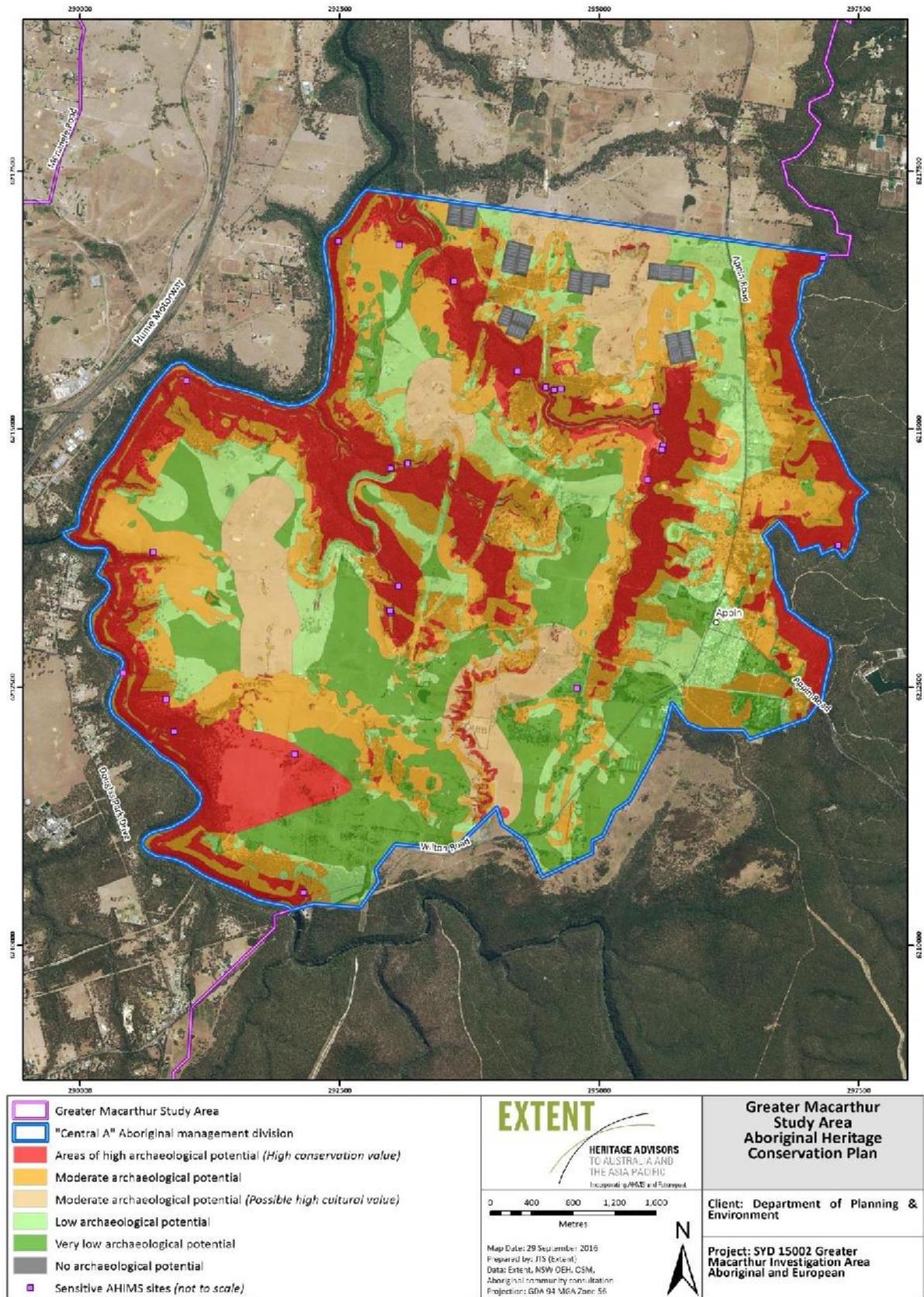


Figure 14. Areas of high conservation value for Aboriginal heritage within Central A.

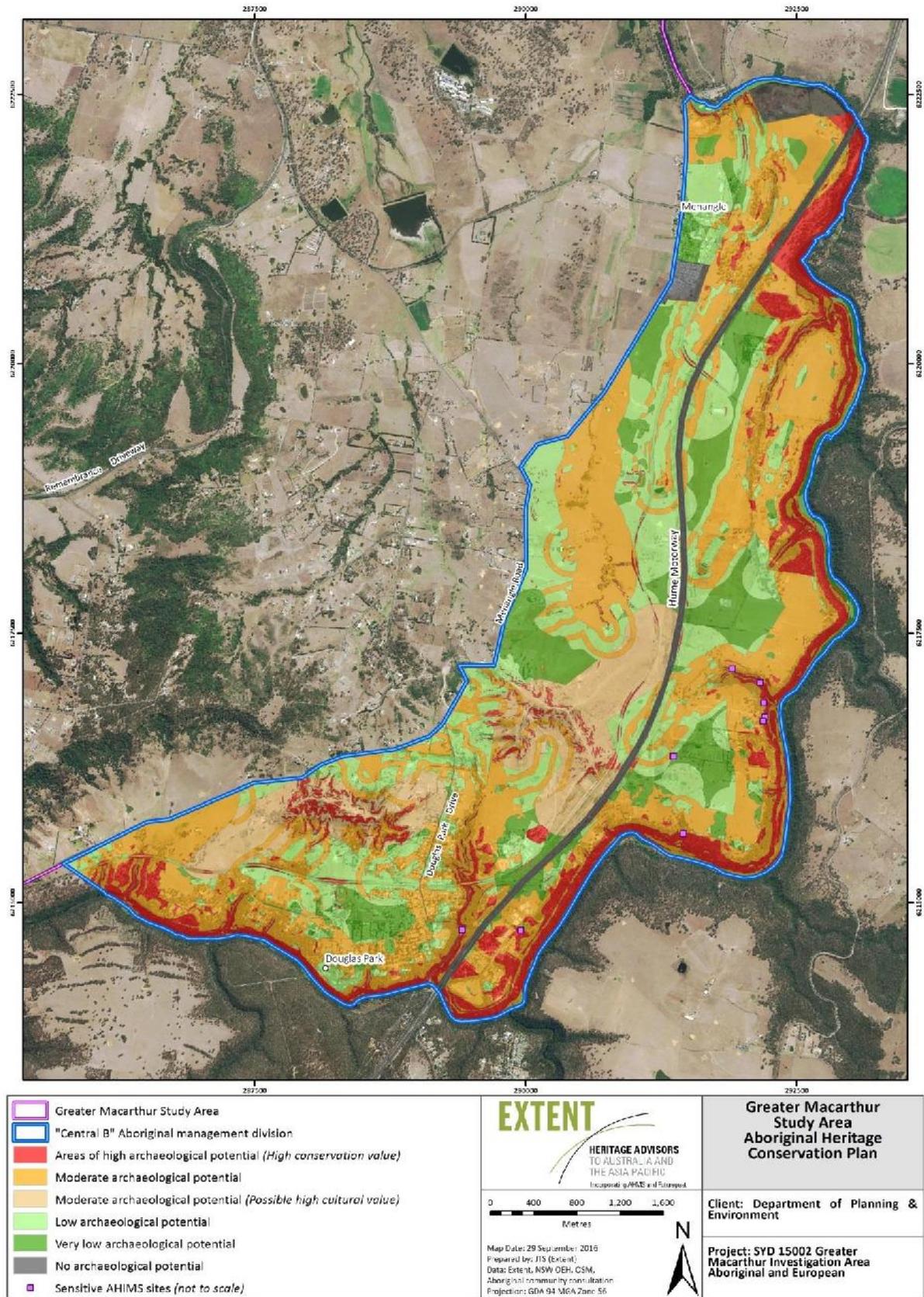


Figure 15. Areas of high conservation value for Aboriginal heritage within Central B.

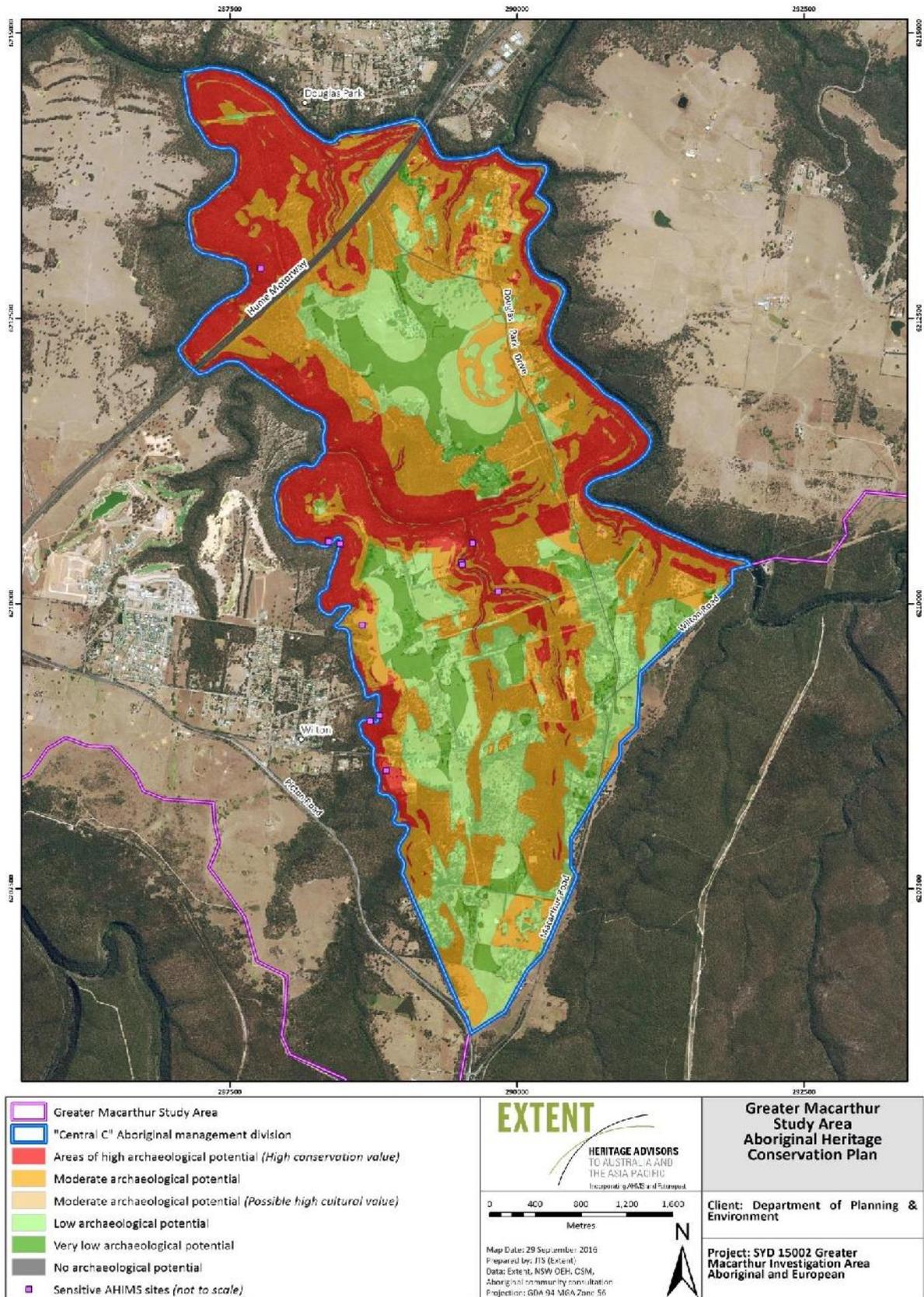


Figure 16. Areas of high conservation value for Aboriginal heritage within Central C.

5.2.6 Assessment and Investigation

Archaeological assessment and investigation of proposed development areas should follow the processes specified in the current legislation and guidelines:

- *National Parks and Wildlife Act 1974*
- *National Parks and Wildlife Regulation 2009*
- *Due diligence code of practice for the protection of Aboriginal objects in New South Wales* (DECCW, 2010a)
- *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, 2010b) (although note that the RARDMS adopts a modified methodology to archaeological test excavations).
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010c)

If the above are amended or replaced, then the present management strategy should be updated accordingly. Several GMIA specific modifications are recommended as detailed below.

Aboriginal archaeological assessment should be based on the assumption that Aboriginal objects are present.

Due Diligence Assessment

As a minimum, every proposed activity should have some level of due diligence assessment, based on the *Due diligence code of practice for the protection of Aboriginal objects in New South Wales* (DECCW, 2010a). There are two stages outlined in this guideline:

- Flowchart 1. Do you need to use this due diligence code? (Figure 17)
- Flowchart 2. The generic due diligence process (Figure 18)

All activities requiring any form of development consent should include as a minimum a due diligence process in accordance with Flowchart 1. This does not require specialist input, and could be prepared by the proponent or their planner. If the results of Flowchart 1 indicate that no further work is required, the activity may proceed with caution. In all other cases, a due diligence assessment in accordance with Flowchart 2 should be undertaken by a heritage specialist. Archaeological testing can be undertaken as part of this assessment and the RARDMS proposes the modified test excavation standard process outlined in section 4.1.2.

If the results of Flowchart 2 indicate that Aboriginal objects are unlikely to be harmed, then the activity may proceed with caution. If Aboriginal objects are likely to be harmed, then an ACHAR will be required. This may involve salvage excavation.

It is recommended that all due diligence assessments should be reviewed for adequacy by the Aboriginal Archaeology Advisory Group.

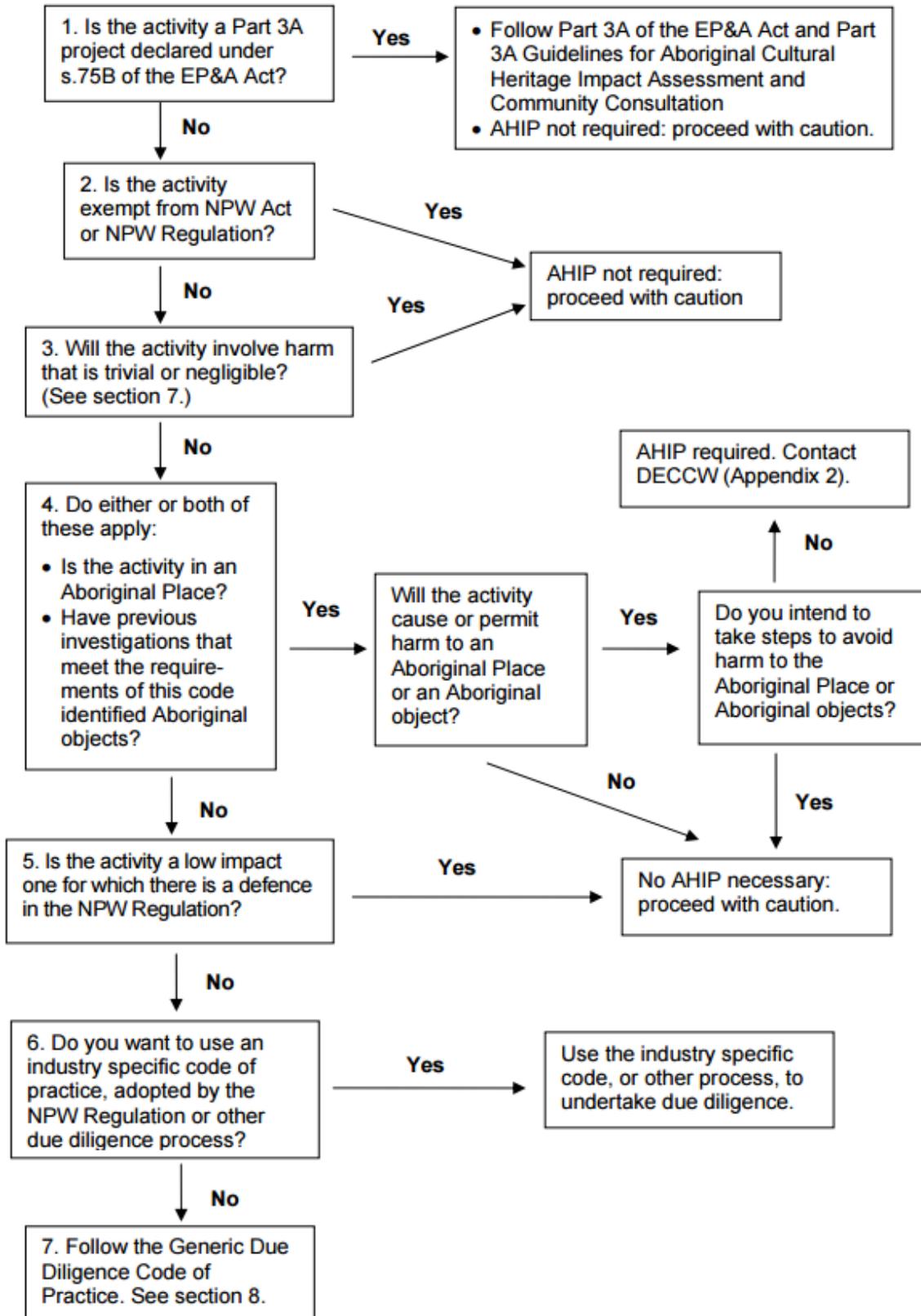


Figure 17. Due diligence Flowchart 1: Do you need to use this due diligence code? (DECCW 2010a: 1).

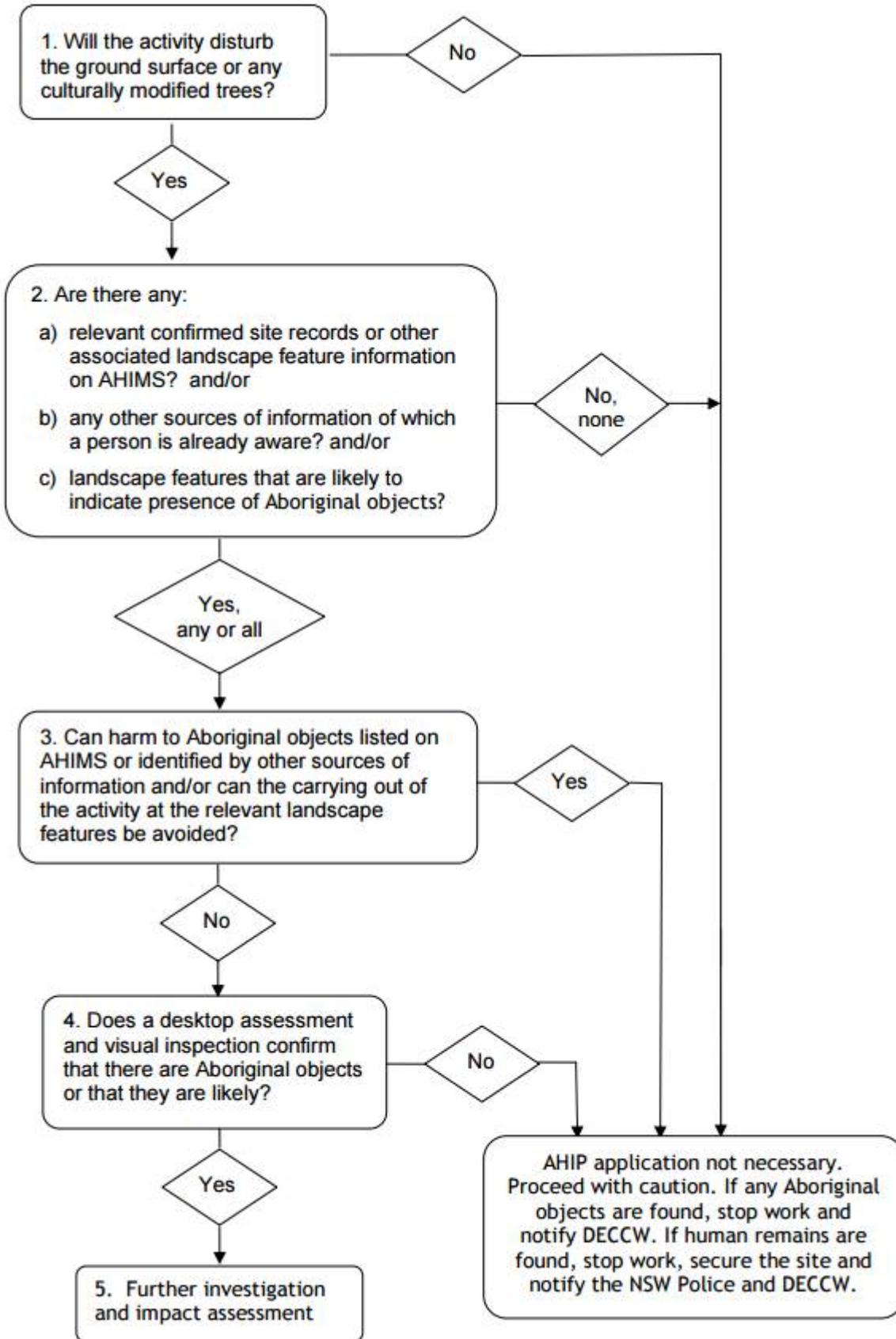


Figure 18. Due diligence Process Flowchart 2 (DECCW 2010b: 10).

Aboriginal Cultural Heritage Assessment

An ACHAR will be required for any development that is likely to impact areas indicated as being having high and moderate potential to contain Aboriginal cultural values. The ACHAR should be prepared in accordance with three guidelines:

- *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, 2010b)
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010c)

The requirements of these guidelines mean that ACHARs are in general lengthy reports that can be onerous for Representative Aboriginal Parties (RAPs) and proponents to review. Given the level of existing information already prepared for the GMIA, it is recommended that ACHARs rely on these works, and are minimised to focus on the specific issues of the site in question. OEH and other consent authorities should be supportive of any ACHARs that seek to achieve these goals.

In addition to the guidelines, any ACHAR should:

- Refer to this RARDMS,
- Identify the research themes and questions the study addresses, and
- Adopt the archaeological investigation methodologies outlined in the RARDMS wherever appropriate.

Streamlining Consultation in the GMIA

Since the introduction of the current *Aboriginal cultural heritage consultation requirements* in 2010, a number of issues have become apparent that hinder the stated aim of the guidelines, these aims being as follows:

The aim is to facilitate positive Aboriginal cultural heritage outcomes by:

- *affording an opportunity for Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal objects(s) and/or place(s) in the area of the proposed project to be involved in consultation so that information about cultural significance can be provided to DECCW to inform decisions regarding applications for an AHIP*
- *providing Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal objects (s) and/or place(s) in the area of the proposed project with the opportunity to participate in decision making regarding the management of their cultural heritage by providing proponents information regarding cultural significance and inputting into management options.*

To facilitate the above aims, DPE has already identified the RAPs for the entire area through Stage 1 of the consultation process as outlined in DECCW (2010: 10-11). It is recommended that this list (see **Appendix 1**) form the main consultation list for future development in the GMIA, and is made publically available via DPE websites, and/or in other information provided to developers and proponents. Given the length of the likely development in the area, it is recommended that the list is reviewed every 5 years, and updated as necessary on the relevant website/media outputs. Maintaining this consultation process will require councils and / or DPE to maintain contact with these groups through letters, emails or newsletters that inform them of Aboriginal heritage investigations in the region. This could be a task assigned to the Aboriginal Advisory Group if such is formed. Maintaining this consultation will streamline the process for developers and save several weeks for each assessment timeline.

Stages 2-4 (DECCW, 2010: 12-14) should be completed for each specific ACHAR. Where the methodologies outlined in the RARDMS are proposed this document can be provided to the RAPs for review and comment especially where the aims and methodologies listed are being adopted. This will substantially reduce timeframes in the earlier stages of any development and assessment project.

Significance assessment

The assessment of heritage values is required by the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011: 7-10). The criteria used are those specified in the *Burra Charter* (Australia ICOMOS, 2013), that is, social, historical, scientific and aesthetic value. In practice, the significance assessment informs the recommendations made for archaeological mitigation.

The significance of a site under each of the four criteria should be ranked according to the following levels:

- Local. Of importance to the local community, and as a component of the local archaeological resource.
- Regional. Of importance to the broader regional community, and as a component of the regional archaeological resource.
- National. Of importance to the national community, and as a component of the national archaeological resource.

This is similar to the ranking used for the management of historical heritage (local, state, national) however it is considered that the region is more appropriate than the state for the understanding and management of a largely pre-contact archaeological resource. As a guide, it is likely that any cultural deposits that contain contact/post-European Aboriginal objects, high densities of stone artefacts (typically >15-20/m²) or other artefactual material, good stratigraphic integrity, and/or are of potential Pleistocene age (>10,000 years) would likely be considered 'significant' and require further consideration (**Table 9**). However, each cultural deposit should be assessed individually against these criteria during the development of an ACHAR.

If a site is found to be of local or no significance according to each of the four criteria, the AHIP application (if required) should be submitted to OEH and identified as of low risk. It is hoped that OEH would triage these types of application and process them promptly. If a site is found to be of regional or higher significance under any of the four criteria, options for conservation should be explored as a priority. If impact to part or the entire site is unavoidable, the AHIP application should be submitted to OEH for assessment, and identified as of high risk.

Table 9. A summary of criteria and rankings used to determine a site's significance.

Criterion	Threshold indicators		
	National	Regional	Local
Aesthetic	The site or object elicits a strong emotional response and is part of a state or national narrative. Is set within a landscape that inspires awe.	The site is known or suspected of eliciting strong responses from the local community. While similar sites may exist elsewhere they are rare in the local area.	The site or object does not elicit a relevant sensori-emotional response; or The site has been disturbed to the extent that it can no longer elicit a relevant sensori-emotional response.
Historic	The site or object is important in representing an aspect of history important to the State or National as reflected in the Australian (and State) Historical Thematic Framework	The site or object is rare in the local area; and Would provide strong opportunities for interpretation to the public. The site illustrates	The site is common in the local area, does not provide opportunities for interpretation to the public and does not contribute substantially to an understanding of the historic themes relevant to the local area

Criterion	Threshold indicators		
	National	Regional	Local
		elements of the history of the local area	and/or the State. (Note – individuals may still feel attachment for sites below threshold)
Cultural and or spiritual	The site or object is important to an understanding of pre or post contact Aboriginal cultural life in NSW. The site or object is part of a Dreaming story or track. The site or object is part of ongoing ceremony or ritual. Substantial cultural knowledge about this site exists within the relevant Aboriginal community or custodians for this site or has been previously documented.	The site is important to local Aboriginal community, or subset of the community, and this importance can be articulated.	There is little or no knowledge in the Aboriginal community about this site or object. The knowledge that does exist falls into the category of family history and is not generally relevant to the broader Aboriginal community, and/or Aboriginal historical narrative. (Note – individuals may still feel attachment for sites below threshold)
Scientific (archaeological)	The site or object has potential to answer key questions about Aboriginal culture and society in NSW or Australia as a whole pre or post contact. The site or object is unique and/or rare and intact; or The site is the best representative (and intact) example of a type of site that may be common, but not conserved elsewhere.	The site or object is rare in the local area; and It provides potential to learn more about a little understood aspect of Aboriginal cultural or society in the local area. The site has a high artefact density, and is large enough in size to be used to interpret larger scale questions about technology and occupation in the local area.	The site or object is common in the local area and/or the state. The site does not have excavation /research potential or the site is common but has some potential information to be salvaged.

Avoiding Duplication in AHIPs

To avoid the need to seek multiple AHIPS across parts of the GMIA, it is recommended that the following is implemented:

- AHIPs are sought from OEH for long durations. Typically permits are issued with a five year expiry date. It is recommended to avoid the need for repeat AHIPs on the same land that all AHIPs are issued for 10 years.

Where an AHIP has been granted for a parcel of land and that land is sold or transferred to another owner consideration should be given for transferring the AHIP. This can be done by making and an application under section 90 of the *NPW Act 1974 (NSW)*. Section 90 R provides that:

90R Certain Aboriginal heritage impact permit conditions to run with the land

If an Aboriginal heritage impact permit relates to a specified parcel of land and an application is made under section 90B to transfer the permit to another person, the Chief Executive:

(a) must not refuse the application, and

(b) in granting the application, must not vary any of the conditions of the permit.

5.3 Historical Archaeology

Given that most historical archaeological resources of the study area have been subject to very limited or no previous archaeological assessments or investigations, the main approach for the management of historical archaeological resources (known and potential) would be based on the preparation of full archaeological assessments. These would, based on their findings, provide recommendations for the appropriate management of those resources that may be affected by potential adverse impacts.

The principle measure for the management of historical archaeological resources within the study area is their significance. The level of archaeological significance defines the degree of impact or tolerance for change that the archaeological resource can be subjected to, and determines the level of investigation and recording that is required.

Archaeological resources associated with the SHR listed heritage items and sites which are not currently listed, but have been identified as containing known or potential State significant archaeological remain or relics, will be managed in accordance with high level requirements such as retention *in situ*. State significant sites such as for Mt Gilead and Beulah are recommended to be conserved within their cultural landscape setting. Ideally this would be the curtilage of the original property however minimum curtilages have been proposed as permanent conservation areas in Figure 19. Locally significant archaeological resources will be managed in a more flexible manner, depending on the extent, nature and level of preservation.

In general, the most desirable outcome with respect to the historical archaeological resource is to leave any relics undisturbed and *in situ*. Alternatives to disturbance or removal should therefore always be considered. Subsurface disturbance should be restricted, where possible, to reduce the impact on archaeological remains.

5.3.1 Management Categories

In order to appropriately implement the recommended strategy, four categories of archaeological management have been formulated. The categories of archaeological management correspond to the levels of known and/or predictable archaeological potential and significance as follows:

- Management Category 1: for areas of high archaeological potential and where impact and/or removal is generally unacceptable. This includes items listed on the SHR, and areas identified as being of state significance but outside the SHR curtilage and well preserved or intact relics of Local significance (either listed or not).
- Management Category 2: for management of locally significant archaeological remains or those identified in the area of moderate archaeological potential.
- Management Category 3: for management of archaeological resources in the areas of low archaeological potential, archaeological items classified as works and not relics and as such not subject to the Heritage Act.
- Management Category 4: for management of unexpected finds.

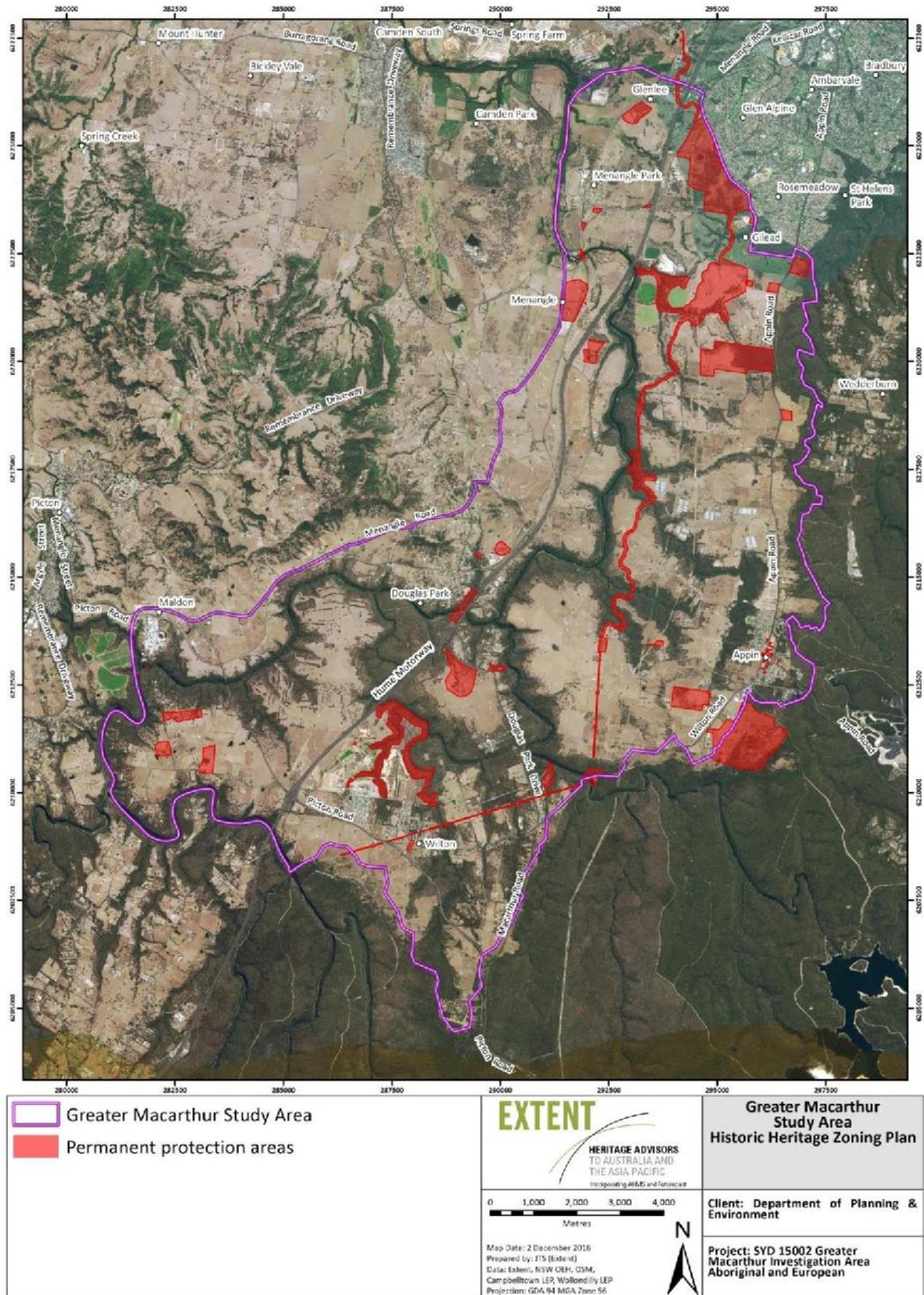


Figure 19. Historical archaeological areas recommended for permanent protection based on assessed significance.

Management Category 1 – State and Locally Significant Archaeological Resources in the Areas of High Archaeological Potential

This management category is applicable to archaeological remains that are listed on the SHR and LEPs (or State Heritage Inventory) or associated with places of known significance that have not yet been listed.

- All ground disturbance works within the SHR curtilages will be carried out in accordance with an Approval under Section 63 or an endorsed Exemption under Section 57(2) of the Heritage Act, unless the project has been approved as a State Significant Development (SSD) or State Significant Infrastructure (SSI).
- All ground disturbance works of areas assessed to have state significant relics but which are not included on the SHR register and areas assessed as likely to contain locally significant relics will be carried out in accordance with an Excavation Permit under Section 141 or an endorsed Exception notification under Section 139(4) of the Heritage Act, unless the project has been approved as a State Significant Development (SSD) or State Significant Infrastructure (SSI).
- All approval/excavation permit applications should be accompanied by relevant support documentation including Archaeological assessments, Impact Statements and site-specific Research Designs. Exemption Applications and Exception notification should be accompanied by a relevant Work Method Statement.
- The aim of Council planning should be to minimise future development impact on these areas and to retain these areas in their current form. This approach will protect areas with high potential for significant archaeological deposits and cultural values.
- Archaeological remains contained within the SHR curtilage would be retained in situ. This may require a change of the proposed design; scope of works change or construction methodology change.
- Archaeological items of local significance with high level of preservation and significance to the local communities should also be retained in situ. In some instances, partial removal would be permissible. This would be determined by the level of proposed impacts and in consultation with the Heritage Division.
- Archaeological test excavation will be required to test the location, extent and nature of significant archaeological resources. The results of test excavation programs would inform further works in the subject area and provide basis for the decisions related to the need for further investigations, salvage and conservation of identified relics.
- The main archaeological investigation programs would involve open area excavation, subject to the findings and recommendation of comprehensive assessments and or testing programs.
- Works which have the potential to impact or disturb archaeological relics would be subject to archaeological monitoring and recording under the approved Excavation Director's supervision.
- In the event that significant archaeological remains (not previously identified) are discovered, the NSW Heritage Division will be notified in accordance with Section 146 of the Heritage Act. Further works in the affected areas would not resumed until a decision on appropriate management has been made. This may require that further approvals under the Heritage Act be sought.
- Category 1 works may benefit from public engagement such as media release, community open days during the works program.
- Post excavation reporting, including artefact analysis and conservation of relics (as deemed necessary) would be required after each archaeological intervention.
- Interpretation of state significant and/or substantial locally significant archaeological remains would be required.

Management Category 2 – Archaeological Resources of Local Significance in the Areas of Moderate Archaeological Potential

This management category is applicable to archaeological remains of local significance in the areas of moderate archaeological potential.

- All ground disturbance works with potential to disturb to archaeological relics will be carried out in accordance with an Excavation Permit under Section 141 or an endorsed Exception Notification under Section 139(4) of the Heritage Act, unless the project has been approved as a State Significant Development (SSD) or State Significant Infrastructure (SSI).
- All approval/excavation permit applications should be accompanied by relevant support documentation including Archaeological assessments, Impact Statements and site-specific Research Designs. Exception notification should be accompanied by a relevant Work Method Statement.
- Where there is an opportunity, development impact should be minimized and opportunities to preserve and protect archaeological remain should be sought.
- In general, impacts, including removal, would be acceptable following appropriate mitigation measures.
- If unexpected relics of State Significance are discovered in the areas of moderate archaeological potential and management category 2 – such relics would need to be managed in accordance with the management category 1 requirements
- Category 2 works may also benefit from public engagement such as media release, community open days during the works program, depending on the nature, level of preservation and significance of the exposed archaeological remains.
- Post excavation reporting, including artefact analysis and conservation of relics (as deemed necessary) would be required after each archaeological intervention.
- Interpretation of well-preserved locally significant archaeological remains would be required.

Management Category 3 – Areas of low archaeological potential

This management category is applicable to archaeological items classified as works and not relics and as such not subject to the Heritage Act, and the areas that have been already disturbed or undeveloped and as such, are unlikely to contain archaeological relics.

- Archaeological involvement such as testing or monitoring prior to or in conjunction with redevelopment work would not be required.
- No planning restrictions or protection measures would be required.
- A proposed development could generally 'Proceed with Caution' in these areas. Archaeological involvement would be on an 'as needed' basis.
- In the event that archaeological remains are discovered, works would stop and the NSW Heritage Division would be notified in accordance with Section 146 of the Heritage Act. Further works in the affected areas would not resumed until a decision on appropriate management has been made. This is likely to require an excavation permit under the Heritage Act to allow further disturbance or removal of the exposed relics.
- Based on the assessed level of significance of unexpected archaeological remains, management category 1 or 2 would be employed.

Management Category 4 – Unexpected Finds

Given the unpredictable nature of archaeology where the presence or absence or the extent and nature of archaeological remains are not known until fully exposed, it is recommended to have

procedures in place in the event of the discovery of unexpected finds. Unexpected finds would be managed as follows:

- In the event that archaeological remains are discovered, works would stop immediately and the exposed remains protected from further disturbance.
- Inspection by an experienced archaeologist to assess the nature and significance of the exposed remains would be required.
- If assessed remains meet the threshold of relics, the NSW Heritage Division would be notified in accordance with Section 146 of the Heritage Act. Further works in the affected areas would not resume until a decision on appropriate management has been made. This is likely to require an excavation permit under the Heritage Act to allow further disturbance or removal of the exposed relics.
- If human remains are suspected, the NSW Police and Coroner's Office should be contacted. If skeletal remains are of Aboriginal descent, OEH and Aboriginal stakeholders should also be informed.

5.3.2 Built Heritage and Landscaping Items

The study area is comprised of a number of listed heritage items and heritage conservation areas and archaeological relics are closely associated or form part of the extant heritage structures and landscaping elements. Therefore, a strategic approach involving archaeological issues would include measures relevant for the protection and management of heritage and landscape items. The following general measures would apply:

- A multidisciplinary team of heritage specialists (built and landscape heritage, Aboriginal cultural heritage and historical archaeology) would liaise closely during any programs that may impact on the overall heritage of the study area or individual sites within it.
- Works within or adjacent to built or landscape heritage items and heritage conservation areas would be subject to detailed planning to ensure that adverse impacts are avoided or minimised.
- Adequate protection of the fabric of heritage items would be provided during works in their vicinity.
- All contractors/project team would receive a heritage induction that identifies potential risks to built heritage and landscape heritage items alongside with Aboriginal and historical archaeological issues.

5.3.3 Archaeological Assessments and Impact Statements

The preparation of the above reports would be carried out in accordance with the NSW Heritage Manual (1996) including *Statements of Heritage Impact* (2002) and *Assessing Significance for Historical Archaeological Sites and Relics* (2009) prepared by the Heritage Division.

5.3.4 Physical Investigations

The objectives of any physical investigation within the study area should focus on realising the research potential of archaeological resources. Only the areas that may be physically affected by the future redevelopment would be investigated and the depth of any archaeological excavation would directly correspond with the depth of proposed excavation for the purposes of the proposed redevelopment.

The extent of archaeological investigation recommended for each of the areas of archaeological potential that could be affected by any redevelopment proposal is based on the following:

- significance, research potential and level of preservation of the archaeological remains.
- nature and extent of the known or potential remains.
- degree of disturbance to which those remains may have been subject.
- nature and extent of proposed impacts to those remains.

It is recommended that a Heritage Work Management Protocols document for site contractors be prepared for every physical investigation to ensure the protection of the extant heritage items and known archaeological remains during any ground works. The protocols document will address logistics related to requirements such as cordoning off the established heritage curtilage buffer zones traffic control, fencing-off of archaeologically sensitive areas, geotextile protection, vibration control etc.

Site Recording

Archaeological remains exposed during site works should be recorded in accordance with accepted best-practice procedures. Provision should be made for detailed site recording (including photography, measured drawings, context sheets) as required, if and when archaeological deposits and features are encountered.

The sites included on the SHR would include the recording of archaeological features and their conservation to archival standard in accordance with the procedures outlined in the *How to Prepare Archival Records of Heritage Items* manual prepared by the then NSW Heritage Office (now the Heritage Division) in 1998.

Soil samples of original garden beds, significant agricultural areas and/or intact refuse debris discovered during archaeological investigations, should be collected for further archaeo-botanical analysis in accordance with standards established for pollen/seed analysis.

Personnel

The archaeological investigation works would be conducted by an Excavation Director approved by the Heritage Division to direct archaeological excavations of State and/or local significant archaeological sites. The Excavation Director would be assisted by qualified archaeologists who would undertake site planning, recording and excavation.

The specific nomination of the Excavation Director should be included in the application letter for the lodgement of relevant Approval/excavation Permit or Exemption/Exception.

Suitable clauses should be included in all contractor and subcontractor contracts to ensure that on site personnel are aware of their obligations and requirements in relation to the 'relics' provisions of the Heritage Act. Contractor and subcontractor contracts should also specify obligations which need to be met regarding the *National Parks and Wildlife Service Act 1974* (NSW) in relation to Aboriginal 'objects' or relics.

Prior to commencing ground disturbance within the study area, all relevant contractors should be required to attend a 'heritage induction' in which the place's heritage values are explained and the potential for archaeological relics is communicated.

5.3.5 Post Excavation Analysis and Reporting

Upon completion of onsite works and artefact analysis, a report would be prepared by the Excavation Director that presents a detailed description of the works performed and their results, illustrated by photographs, survey plans and an artefact catalogue, as appropriate. The report would include a response to the relevant research questions including those raised in this document.

The report of the results of all archaeological fieldwork must be produced in accordance with standard Conditions of Approval for excavation permits (or best-practice procedures if further statutory approval is not required). The report should include:

- a description of the results of the investigation, including a discussion of the nature of the archaeological remains recorded.
- a response to the research questions raised in this RARDMS.

- the results of any post-excavation analysis undertaken, including artefact or sample analysis.
- site records, including artefact catalogues, measured drawings and photographs, where appropriate.
- conclusions relating to the nature and extent of surviving archaeological remains.
- identification of the repository for material recovered from the site.
- recommendations for further archaeological work, site maintenance, conservation or interpretation, as appropriate.

The final archive of archaeological material should consist of all site records produced throughout the physical investigation, which may include context sheets, artefact sheets, photographs, slides, drawings and artefacts (inventoried, boxed, labelled and catalogued).

5.3.6 Long Term Management and Storage of Cultural Material

It has been previously recommended that as part of a GMIA interpretation strategy a regional repository for the long term management and storage of archaeological material is identified. It may be in the interest of major developers to collectively contribute to the funding of such a repository as under current heritage guidelines, artefact assemblages recovered during archaeological investigations would be the property of the site owner, who would be responsible for their permanent curation and storage in a safe and secure location provided by them. In general:

- any significant cultural material uncovered during physical archaeological investigations would be retained for analysis by an artefact specialist.
- the provenance of any artefacts recovered would be recorded according to their contexts.
- artefacts would be cleaned and stored in an appropriate repository, observing specialist conservation requirements where appropriate (e.g., for leather or metal artefacts).
- artefacts would be catalogued in accordance with current best-practice archaeological data recording.

6 REFERENCES

AHMS (2013). Review of Department of Planning and Infrastructure Aboriginal Cultural Heritage Processes. Consultancy report for NSW Department of Planning and Infrastructure.

AHMS (2017). Greater Macarthur Investigation Area Aboriginal and Historic Heritage Gap Analysis Report. Consultancy report for the Department of Planning and Environment.

Attenbrow, V. (2004). 'What's Changing: Population Size or Land Use: The Archaeology of Upper Mangrove Creek, Sydney Basin', *Terra Australis*, vol. 21, Canberra: Pandanus Books.

Attenbrow, V. (2010). *Sydney's Aboriginal Past. Investigating the Archaeological and Historical Records* (2nd edition – soft cover ed.), Sydney: UNSW Press.

Australian Heritage Commission (2002). *Ask First: a guide to respecting Indigenous heritage places and values*.

Australia ICOMOS, 2013 *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013*, Deakin Victoria.

Backhouse, J. (1843). *Narrative of a Visit to the Australian Colonies*. London: Hamilton, Adams and Co.

Banks, J. (1998). *The Endeavour Journal of Joseph Banks, 25 Aug 1768-12 Jul 1771, Volume 2*. Arranged by B.P. Sandford. Sydney: State Library of New South Wales.

Barrallier, F. (1802). *Journal of the expedition, undertaken by order of His Excellency Governor King, into the interior of New South Wales*. In *Historical Records of New South Wales, Volume V*. Sydney: William Applegate Gullick, Government Printer, 1897.

Bradley, W. (1969) *A Voyage to New South Wales, December 1786 - May 1792: The Journal of Lieutenant William Bradley of HMS Sirius*. Sydney: Ure Smith Pty Limited.

Campbelltown City Council (2015). Attachment 2 Mt Gilead Planning Proposal.

Collins, D. (1798). *An Account of the English Colony in New South Wales Vol. 1*. London: T. Cadell Jun. and W. Davies, 1798.

Cox, W. (1815). *Journal, 7 July, 1814 - 6 January, 1815*. SLNSW: Manuscript, C 708/1-2, filed at Safe 1/264-265, 15 September 1814.

DECCW (2010a) *Due diligence code of practice for the protection of Aboriginal objects in New South Wales*. NSW Government Hurstville.

DECCW (2010b) *Code of practice for archaeological investigation of Aboriginal objects in New South Wales* NSW Government, Hurstville.

DECCW (2010c) *Aboriginal cultural heritage consultation requirements for proponents* NSW Government, Hurstville.

Goodall, H. and Cadzow, A., (2009). *Rivers and Resilience: Aboriginal People on Sydney's Georges River*, UNSW Press, Sydney Australia.

Heritage Branch, Department of Planning, (2009a). *Guidelines for the Preparation of Archaeological Management Plans*.

- Heritage Branch. (2009b). *Assessing Heritage Significance for Historical Archaeological Sites and Relics*
- Holdaway, S., Stern, N. (2004). *A Record in Stone: The Study of Australia's Flaked Stone Artifacts*. Canberra: Aboriginal Studies Press.
- Horton, D. (2000). *Aboriginal Australia [Map]*. Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies.
- Hunter, J (1793). *An Historical Journal of the Transactions at Port Jackson and Norfolk Island, London*, Printed for John Stockdale.
- Karskens, G. (2009). *The Colony: A History of Early Sydney*. Crows Nest, NSW: Allen & Unwin.
- King, P.G. (1805), *Historic Records of Australia Ser 1 Vol.5 King to Macarthur, 2 Nov 1805*
- Kohen, J. L (1993). *The Darug and their neighbours: the traditional Aboriginal owners of the Sydney region*. Sydney: Blacktown and District Historical Society.
- Liston, C. (1988). The Dharawal and Gandangara in colonial Campbelltown, New South Wales, 1788-1830. *Aboriginal History*, 12: 49-62.
- Nathan, D. Susannah Rayner and Stuart Brown, (eds), (2009) *William Dawes: notebooks on the Aboriginal language of Sydney, 1790-1791*, London : SOAS. Dawes, 179
- NSW Heritage Office (1998). *Guidelines for Management of Human Skeletal Remains*.
- Office of Environment and Heritage, 2011. *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. NSW Government, Hurstville.
- Orchard, T.J. (2005). The Use of Statistical Size Estimations in Minimum Number Calculations. *International Journal of Osteoarchaeology* 15:351-359.
- Organ, M. (1990), *Illawarra and South Coast Aborigines 1770-1850*, online edition, <http://ro.uow.edu.au/uowbooks/7/>
- Phillip, A. (1788). 'Governor Phillip to Lord Sydney. Sydney Cove, NSW, 15 May 1788', In *Historical Records of NSW* 1(2) – Phillip. 1783-1792. Sydney: Government Printer.
- Tench, W. (1791). *A Narrative of the Expedition to Botany Bay*. London: J Debrett.
- Tench, W. (1793). *A Complete Account of the Settlement at Port Jackson*. London: G Nicol and J Sewell.
- Tindale, N. (1974), *Aboriginal tribes of Australia : their terrain, environmental controls, distribution, limits, and proper names*, University of Californi Press, Berkeley, and Australian National University Press, Canberra....
- White, J. (1788). *Journal of a Voyage to New South Wales*. London: J Debrett.
- White, T.E. (1953). A Method of Calculating the Dietary Percentage of Various Food Animals utilised by Aboriginal peoples. *American Antiquity* 18:396-398.
- Wrigley, J. (2001). *A history of Camden, New South Wales*. Camden: Camden Historical Society .

7 GLOSSARY

Aboriginal Cultural Heritage Assessment Report (ACHAR)	A document developed to assess the archaeological and cultural values of an area, generally required as part of an Environmental Assessment (EA).
<i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010</i>	Guidelines developed by 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. AHIPs are not required where project approval under the state-significant provisions of Part 4 (Division 4.1) of the <i>Environmental Planning and Assessment Act 1979</i> .
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'.
<i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i>	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.
Department of Planning & Environment (DPE)	The DPE is responsible for the management and coordination of land release in PGA precincts.
<i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i>	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 study 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 Department of Planning and Environment.
Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW	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.

Appendix 1: Aboriginal Consultation Log

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Camden Council	mail@camden.nsw.gov.au	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Gandangarra LALC	Temp1@sasl.org.au	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Greater Sydney Local Land Services (GSLLS)	Margaret Bottrell	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Liverpool Council	lcc@liverpool.nsw.gov.au	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
National Native Title Tribunal (NNTT)	nswenquiries@nnt.gov.au	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
NTSCorp	information@ntscorp.com.au	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Office of Environment and Heritage (OEH)	Nicole Davis	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Office of the Registrar, Aboriginal Land Rights Act (ORALRA)	adminofficer@oralra.nsw.gov.au	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Tharawal LALC	receptionist	10/04/2015	Ben emailed pre notification letter SW Growth Centre	Ben Christensen
Blacktown Council	council@blacktown.nsw.gov.au	10/04/2015	Ben emailed Pre Notification Letter NW Growth Centre	Ben Christensen
Deerubbin LALC	staff@deerubbin.org.au	10/04/2015	Ben emailed pre notification letters NW Growth Centre	Ben Christensen
GSLLS	Margaret Bottrell	10/04/2015	Ben emailed Pre Notification Letter NW Growth Centre	Ben Christensen
NTSCorp	information@ntscorp.com.au	10/04/2015	Ben emailed pre notification letters NW Growth Centre	Ben Christensen
Nicole Davis	OEH	10/04/2015	Ben emailed Pre Notification Letter NW Growth Centre	Ben Christensen
ORALRA	adminofficer@oralra.nsw.gov.au	10/04/2015	Ben emailed pre notification letters NW Growth Centre	Ben Christensen
Campbelltown Council	council@campbelltown.nsw.gov.au	10/04/2015	Ben emailed Pre Notification Letter GMIA	Ben Christensen
GSLLS	Margaret Bottrell	10/04/2015	Ben emailed pre notification letters GMIA	Ben Christensen
NNTT	nswenquiries@nntt.gov.au	10/04/2015	Ben emailed pre notification letters GMIA	Ben Christensen
NTSCorp	information@ntscorp.co.au	10/04/2015	Ben emailed Pre Notification Letter GMIA	Ben Christensen
OEH	Nicole Davis	10/04/2015	Ben emailed pre notification letters GMIA	Ben Christensen
ORALRA	adminofficer@oralra.nsw.gov.au	10/04/2015	Ben emailed pre notification letters GMIA	Ben Christensen
Tharawal LALC	reception@tharawal.com.au	10/04/2015	Ben emailed Pre Notification Letter GMIA	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Wollondilly Council	council@wollondilly.nsw.gov.au	10/04/2015	Ben emailed pre notification letters GMIA	Ben Christensen
GSLLS	Margaret Bottrell	13/04/2015	GSLLS 'have no interest in this project' (SW Growth Centre). Via email.	Ben Christensen
GSLLS	Margaret Bottrell	13/04/2015	GSLLS 'have no interest in this project' (NW Growth Centre). Via email.	Ben Christensen
GSLLS	Margaret Bottrell	13/04/2015	GSLLS 'have no interest in this project' (GMIA). Via email.	Ben Christensen
ORALRA	Megan Mebberson (acting manager)	13/04/2015	Re: SW Growth Centre, Megan passed on request to Bianca.ceissman@oralra.nsw.gov.au	Ben Christensen
Campbelltown Council	Debbie McCall	13/04/2015	Re: GMIA, Debbie suggested Megan Ely (Tharawal LALC) and Glenda Chalker (Cubbitch Barta Native Title Claimants Aboriginal Corporation) and cc'd them into email	Ben Christensen
Liverpool Council	Teresa Stambe (Access to information Officer)	14/04/2015	Teresa wrote: 'Council will endeavour to respond to your request as soon as possible'	Ben Christensen
OEH	Nicole Davis	15/04/2015	Re: SW Growth Centre, Nicole forwarded request to Fran Scully and Felicity Barry (OEH), who cover the metro region where study is based	Ben Christensen
OEH	Nicole Davis	15/04/2015	Re: NW Growth Centre, Nicole forwarded request to Fran Scully and Felicity Barry (OEH), who cover the metro region where study is based	Ben Christensen
OEH	Nicole Davis	15/04/2015	Re: GMIA, Nicole forwarded request to Fran Scully and Felicity Barry (OEH), who cover the metro region where study is based	Ben Christensen
OEH	Fran Scully	15/04/2015	Re: all three regions, Fran pointed out that she, along with Susan Harrison and Felicity Barry, are the contacts for the metro region. Fran will answer request soon.	Ben Christensen
Camden Council	Tina Chappell (strategic planning)	15/04/2015	Re: SW Growth Centre, Tina forwarded request to Councils Heritage officer Lisa Howard	Ben Christensen
Camden Council	Lisa Howard	20/04/2015	Re: SW Growth Centre, Lisa supplied list of 4 stakeholders	Ben Christensen
Darug Aboriginal Cultural Heritage	Gordon Morton	21.4.15	Advised that he received our letter from the NTSCorp and wished to register an interest in all three areas.	Alan Williams

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Assessments (DACHA)				
Campbelltown Council	Debbie McCall	22/04/2015	Re: GMIA, Debbie advised AHMS contact Tharawal LALC and Cubbitch Barta	Ben Christensen
Tharawal LALC	Megan Ely	27/04/2015	Ben emailed GMIA pre notification letters	Ben Christensen
Cubbitch Barta Native Title Claimants Aboriginal Corporation (Cubbitch Barta)	Glenda Chalker	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Cubbitch Barta	Glenda Chalker	27/04/2015	Ben emailed Glenda requesting Rebecca Chalker email address	Ben Christensen
Gundungurra Aboriginal Heritage Association	M. Williams	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Gundungurra Tribal Council Aboriginal Corporation	Sharon Brown	27/04/2015	Ben emailed GMIA notification letters. Email bounced back. Ben tried contacting via webpage message link. Message link was broken. Ben tried calling contact number. Contact number disconnected. Ben sent letter in mail via Carmel.	Ben Christensen
Darug Custodian Aboriginal Corporation (DCAC)	Leeanne Watson	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Darug Tribal Aboriginal Corporation (DTAC)	Darug.tribal@live.com.au	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Darug Land Observations (DLO)	Gordon Workman	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Darug Aboriginal Landcare Incorporation (DALI)	Des Dyer	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Corroboree Aboriginal Corporation (Corroboree AC)	Steve Johnson	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Murra Bidjee Mullangari Aboriginal	Darleen Johnson	27/04/2015	Ben emailed GMIA notification letters. Email bounced back twice.	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Corporation				
Peter Falk Consultancy	Peter Falk	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Wurrumay Consultancy (Wurrumay)	Kerrie Slater	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Kawul Cultural Services	Kelly Slater	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Tocomwall	Scott Franks	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Gunyu	Darlene Hoskins-McKenzie	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Walbunja	Hika Tekowhai	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Badu	Karia Lea Bond	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Yerramurra	Nicholas Wade Glover	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Bilinga	Christopher Payne	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Munyunga	Peter Foster	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Wingikara	David Bell	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Murrumbul	Levi McKenzie-Kirkbright	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Jerrigong	Joanne Anne Stewart	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Pemulwuy CHTS	Pemulwuy Johnson	27/04/2015	Ben emailed GMIA notification letters	Ben Christensen
Wingikara? Possibly another stakeholder group	Name was not distinguishable over phone due to patchy coverage	27/04/2015	Ben received an inaudible call from a stakeholder (who was on the train). He mentioned that we wasn't interested in talking about 'dreaming stories and such' (intangible cultural heritage), but rather was interested in recovering artefacts. As the call was very distorted and kept dropping out, Ben requested the man send email containing his concerns. Man said he would.	Ben Christensen
Blacktown Sun		27/04/2015	Ben placed public notice	Ben Christensen
Camden Narellan Advertiser		27/04/2015	Ben placed public notice	Ben Christensen
Campbelltown Macarthur Advertiser		27/04/2015	Ben placed public notice	Ben Christensen
Gunyu	Darlene Hoskins-McKenzie	28/04/2015	Gunyu would like to participate and contribute to the	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
			GMIA consultation process. Gunyuu would also like their details withheld from OEH and LALC	
Cubbitch Barta	Rebecca Chalker	28/04/2015	Ben posted GMIA notification letter via Carmel Prunty (AHMS)	Ben Christensen
Elsie Stockwell and Mervyn Trindall	Elsie Stockwell and Mervyn Trindall c/o Eddy Neumann Lawyers	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Darug Aboriginal Cultural Heritage Assessments (DACHA)	Gordon Morton	28/04/2015	Ben faxed GMIA notification letter. Fax bounced back three times. Ben faxed to Celestine Everingham, who takes mail for Gordon	Ben Christensen
Gunjeewong Cultural Heritage Aboriginal Corporation (Gunjeewong CHAC)	Cherie Carroll Turrise	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Merrigarn Indigenous Corporation (Merrigarn IC)	Shaun Carroll	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Bidjawong Aboriginal Corporation (Bidjawong AC)	James Carroll	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
D'harawal Men's Aboriginal Corporation (D'harawal Men's AC)	Elwyn Brown	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Goobah Developments	Basil Smith	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Wullung	Lee-Roy James Bootah	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Nundagurri	Aaron Broad	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Kamilaroi Yankuntjatjara Working Group (KYWG)	Phil Khan	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Warragil Culrural Services (Warragil CS)	Aaron Slater	28/04/2015	Ben posted GMIA notification letter via Carmel	Ben Christensen
Deerubbin LALC	Kevin Cavanagh	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
DCAC	Leeanne Watson	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
DTAC	Darug.tribal@live.com.au	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
DACHA	Gordon Morton	28/04/2015	Ben faxed Darug ACHA via Celestine Everingham	Ben Christensen
DALI	Des Dyer	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Corroboree AC	Steve Johnson	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Wurrumay	Kerrie Slater	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Kawul CS	Vicky Slater	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Tocomwall	Scott Franks	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Gunyuu	Darlene Hoskins-McKenzie	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Walbunja	Hika Tekowhai	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Badu	Karia Lea Bond	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Yerramurra	Nicholas Wade Glover	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Bilinga	Christopher Payne	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Munyunga	Peter Foster	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Wingikara	David Bell	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Murrumbul	Levi McKenzie-Kirkbright	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Jerrigong	Joanne Anne Stewart	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Pemulwuy CHTS	Pemulwuy Johnson	28/04/2015	Ben emailed NWGC notification letter	Ben Christensen
Gunjeewong CHAC	Cherie Carroll Turrise	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Merrigarn IC	Shaun Carroll	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Murra Bidgee Mullangari Aboriginal Corporation	Darleen Johnson	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Bidjawong AC	James Carroll	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Warragil CS	Aaron Slater	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
KYWG	Phil Khan	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Amanda Hickey Cultural Services	Amanda Hickey	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
HSB Consultants	Patricia Hampton	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Rane Consulting	Tony Williams	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Aboriginal Archaeology Service (AAS)	Anthony Williams	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Dhinawan-Dhigaraa	Ricky Fields	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Culture & Heritage Pty Ltd				
Dhinawan-Dhigaraa Culture & Heritage Pty Ltd	Athol Smith	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Goobah Developments	Basil Smith	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Wullung	Lee-Roy James Boota	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
Nundagurri	Aaron Broad	28/04/2015	Ben posted NWGC letter via Carmel	Ben Christensen
DTAC	John Riley	29/04/2015	John called and talked to Alistair. He is interested in consultation but 'not sure if I can make it'.	Ben Christensen
DLO	Gordon Workman	29/04/2015	Gordon called with a few queries. I advised him to RSVP 3 times, as opposed to once for all three jobs. He also expressed his dissatisfaction with the Murrin people having input into developments in other peoples' country.	Ben Christensen
Tharawal LALC	Megan Ely	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Cubbitch Barta	Glenda Chalker	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Mygunyah Camden Aboriginal Residents Group	Fiona Devine	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Darug Custodian Aboriginal Corporation	Leeanne Watson	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Darug Aboriginal Cultural Heritage Assessments	Gordon Morton	29/04/2015	Ben faxed SWGC notification letter	Ben Christensen
DALI	Des Dyer	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Tocomwall	Scott Franks	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Gunyuu	Darlene Hoskins-McKenzie	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Walbunja	Hika Tekowhai	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Badu	Karia Lea Bond	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Yerramurra	Nicholas Wade Glover	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Bilinga	Christopher Payne	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Munyunga	Peter Foster	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Wingikara	David Bell	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Murrumbul	Levi McKenzie-Kirkbright	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Jerrigong	Joanne Anne Stewart	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Pemulwuy CHTS	Pemulwuy Johnson	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Darug Land Observations	Gordon Workman	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Corroboree AC	Steve Johnson	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Peter Falk Consultancy	Peter Falk	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Wurrumay	Kerrie Slater	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Kawul CS	Vicky Slater	29/04/2015	Ben emailed SWGC notification letter	Ben Christensen
Gandangara LALC	Gandangara LALC	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Rebecca Chalker	Rebecca Chalker	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Tharawal Aboriginal Corporation (Tharawal AC)	Tharawal AC	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
DALI	DALI	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
KYWG	Phil Khan	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Basil Smith	Goobah Developments	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Lee-Roy James Boota	Wullung	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Aaron Broad	Nundagurri	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Gunjeewong CHAC	Cherie Carroll Turrise	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Merrigarn IC	Shaun Carroll	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Murra Bidgee Mullangari Aboriginal Corporation	Darleen Johnson	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Bidjawong Aboriginal Corporation	James Carroll	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Warragil CS	Aaron Slater	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Yarrowalk	Yarrowalk	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen
Liverpool City Council's Aboriginal Consultative	Liverpool City Council's Aboriginal Consultative Committee	29/04/2015	Ben posted SWGC letter via Carmel	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Committee				
DLO	Gordon Workman	29/04/2015	Gordon emailed to register for SWGC and GMIA	Ben Christensen
DACHA	Celestine Everingham	30.4.14	Confirming they were registered for the project.	Alan Williams
DCAC	Justine Coplin	1.5.15	Registered an interest in SWGC	Alan Williams
KYWG	Phil Khan	1.5.14	Registered an interest in NWGC, SWGC and GMIA	Alan Williams
Badu	Karia Bond	05.05.15	Registered an interest in NWGC & SWGC	Ben Christensen
Walbunja	Hika TeKowhai	05.05.15	Registered an interest in NWGC , SWGC & GMIA.	Ben Christensen
Murrumbul	Levi McKenzie-Kirkbright	05.05.15	Registered an interest in NWGC, SWGC &GMIA. Also wish their details to be withheld from OEH and the LALC	Ben Christensen
Munyunga	Peter Foster	05.05.15	Registered an interest in NWGC, SWGC &GMIA. Also wish their details to be withheld from OEH and the LALC.	Ben Christensen
Wingikara	David Bell	05.05.15	Registered an interest in NWGC, SWGC &GMIA. Also wish their details to be withheld from OEH and the LALC.	Ben Christensen
Campbelltown City Council	Andrew Spooner	05.05.15	Ben called Andrew to book in room, he wasn't in. Secretary took call and said he would call back	Ben Christensen
	Daryl Brant	05.05.15	Ben contacted Daryl Brant, who had incorrectly received Shaun Carrol's letter. He said this has happened many times before and wanted the mail flow ceased. Daryl supplied Shaun's current address, which he has attained.	Ben Christensen
Merrigarn IC	Shaun Carroll	05.05.15	Ben rang Shaun but number did not answer. Ben rang again and number has been disconnected	Ben Christensen
OEH	Felicity Barry	05.05.15	Ben rang Felicity Barry and passed on Shaun Carrol's new address.	Ben Christensen
Camden Council	mail@camden.nsw.gov.au	05.05.15	Ben sent application for Birriwa Reserve Clubrooms for GMIA Community Values Workshop (CVW)	Ben Christensen
Cubbitch Barta	Glenda Chalker	05.05.15	Ben rang and informed Glenda of GMIA CVW at Birriwa Reserve Clubrooms, Thursday 7 th 10am. Ben also asked Glenda for Rebecca Chalker's mobile number so he could invite Rebecca to GMIA CVW. Glenda informed Ben that Rebecca was not the right contact for this project and pointed out that Rebecca	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
			should not be on OEH list. Ben then sent Glenda email with CVW details	
Tharawal LALC	Megan Ely	05.05.15	Ben rang to inform of GMIA CVW at Birriwa Reserve Clubrooms, Thursday 7 th 10am. Left message on Megan's voicemail	Ben Christensen
Peter Falk	Peter Falk	05.05.15	Ben rang and informed Peter of GMIA CVW at Birriwa Reserve Clubrooms, Thursday 7 th 10am. Ben then sent email with details	Ben Christensen
D'harawal Mens Aboriginal Corporation	Elwyn Brown	05.05.15	Ben rang to inform of GMIA CVW at Birriwa Reserve Clubrooms, Thursday 7 th 10am. Left message on voicemail.	Ben Christensen
Vinegar Hill Library	Amanda	05.05.15	Ben booked in consultation room for NWGC CVW 2. Wednesday 13 th May 10am-2pm	Ben Christensen
Tharawal LALC	Abbi Whilock	05.05.15	Abbi registered interest and confirmed attendance at GMIA CVW. Ben emailed her details.	Ben Christensen
DCAC	Leeanne Watson	05.05.15	Ben called Leeanne Watson to invite to NWGC CVW 2 on Wednesday 13. No answer	Ben Christensen
DACHA	Gordon Morton	05.05.15	Ben called Gordon to invite to NWGC CVW 2 on Wednesday 13. Gordon can't make it but will check with Celestine.	Ben Christensen
Deerubbin LALC	Steve Randwick	05.05.15	Ben called to arrange NWGC CVW 1. Left message on voicemail.	Ben Christensen
Bidjawong AC	James Carroll	05.05.2015	Ben called to invite to NWGC CVW 2 on Wednesday 13. Sent James email with address. James will confirm.	Ben Christensen
DTAC	-	05.05.2015	Ben called office to invite to NWGC CVW 2 on Wednesday 13. No answer.	Ben Christensen
Gunjeewong CHAC	Cherie Carroll Turrise	05.05.15	Ben called to invite to NWGC CVW 2 on Wednesday 13. No answer.	Ben Christensen
Bilinga	Christopher Payne	05.05.15	Christopher registered interest in GMIA	Ben Christensen
Tocomwall	Scott Franks	06.05.15	Tocomwall registered interest in NWGC, GMIA & SWGC CVW	Ben Christensen
DTAC	Denise Newham	06.05.15	Denise returned Ben's call. Will confirm attendance for NWGC CVW. Ben sent email with CVW details.	Ben Christensen
Peter Falk	Peter Falk Consultancy	06.05.15	Peter Falk confirmed that his son, Duncan, will attend	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
			the GMIA CVW as a sole trader.	
Tharawal LALC	Megan Ely	06.05.15	Ben emailed with details of GMIA CVW	Ben Christensen
D'harawal Mens AC	Elwyn Brown	06.05.15	Ben rang to provide details of GMIA CVW. No answer.	Ben Christensen
DCAC	Leeanne Watson	06.05.15	Ben emailed to provide details of NWGC CVW 2	Ben Christensen
Gunjeewong CHAC	Cherie Carroll Turrise	06.05.15	Ben rang to provide details of NWGC CVW 2. No answer. Left message.	Ben Christensen
Murri Bidgee	Darleen Johnson	06.05.15	Confirmed interest in SWGC and NWGC. Sent insurance.	Ben Christensen
Cubbitch Barta	Glenda Claker	06.05.15	Confirmed place in GMIA CVW. Sent insurance.	Ben Christensen
Aboriginal Archaeological Services (AAS)	Anthony Williams	06.05.15	Confirmed interest in NWGC CVW. Sent insurance.	Ben Christensen
DLO	Gordon Workman	06.05.15	Confirmed interest in SWGC CVW. Sent insurance.	Ben Christensen
Deerubbin LALC	Kevin Cavanagh	06.05.15	Ben rang Kevin to arrange NWGC CVW at Deerubbin. Kevin expressed that Deerubbin would like to consult separate of the other Representative Aboriginal Parties (RAPs). Ben emailed Kevin request for separate CVW at Deerubbin LALC, as requested.	Ben Christensen
D'harawal Mens AC	Elwyn Brown	06.05.15	Ben rang to provide details of GMIA CVW. No answer. No email contact on file.	Ben Christensen
Deerubbin LALC	Kevin Cavanagh	06.05.15	Kevin confirmed NWGC CVW 1 on May 13 at 2:30	Ben Christensen
KYWG	Phil Khan	07.05.15	Ben rang Phil to invite him to NWGC CVW 2. Phil confirmed attendance. Ben emailed Phil details.	Ben Christensen
DCAC	Leeanne Watson	07.05.15	Ben rang DCAC office to invite to NWGC CVW 2. No answer.	Ben Christensen
Liverpool City Council's Aboriginal Consultative Committee	Norma Burrows	07.05.15	Norma Burrows emailed to register interest in the SWGC. Requested a copy of final report for review	Ben Christensen
Gunjeewong CHAC	Cherie Carrol Turrise	08.05.15	Cherie confirmed Gunjeewong interest in NWGC CVW. I emailed her daughter with invite for NWGC CVW 2. Email sent. Ben called to invite but left voicemail when there was no answer. Ben sent letter of invite. Cherie returned call and confirmed attendance.	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
DALI	Des Dyer	08.05.15	Des confirmed interest in SWGC CVW.	Ben Christensen
Corroboree AC	Marilyn Carroll Johnson	08.05.15	Marilyn registered interest in GMIA, SWGC, and NWGC on behalf of Steve Johnson. Insurance and C of C supplied.	Ben Christensen
Aaron Broad	Nundagurri	08.05.15	Aaron called to express interest in NWGC, SWGC and GMIA . Ben returned call and confirmed	Ben Christensen
Bidjawong AC	James Carroll	11.05.15	Ben sent email requesting NWGC CVW 2 attendance confirmation. Ben called too. No answer. Left voicemail.	Ben Christensen
DTAC	Denise	11.05.15	Ben sent email requesting NWGC CVW 2 attendance confirmation. Ben called too. No answer. Left voicemail.	Ben Christensen
DACHA	Celestine Everingham	11.05.15	Ben sent fax requesting NWGC CVW 2 attendance confirmation. Ben called too	Ben Christensen
DCAC	Justine Coplin	11.05.15	Justine cannot make it to NWGC CVW but may be able to arrange another person to fill in. Will confirm soon.	Ben Christensen
DTAC	John Riley	11.05.15	John unsure if he can make it. Will try to arrange and attendant and confirm.	
DLO	Gordon Workman	11.05.15	Gordon called. He asked why he wasn't invited to NWGC CVW 2 on Wednesday. I explained that there were several CVWs due to numbers and that he would be invited to NWGC CVW 3, which was still being organised. He asked to have this explained in an email, along with a list of stakeholders who had confirmed interest in this job. Sue informed me that she would email him about this. He also requested that I email him explaining what the cultural values exploration was all about. I did so.	Ben Christensen
DCAC	Leeanne Watson	11.05.15	Leeanne confirmed her attendance for NWGC CVW 2	Ben Christensen
Gunjeewong CHAC	Steve Carroll	11.05.15	Steve registered interest in SWGC via letter.	Ben Christensen
Gandangara LALC	Brad Maybury	11.05.15	Brad called for Alan. Registered interest in SWGC	Alan Williams
DCAC	Justine Coplin	11.05.15	Registered interest SWGC	Ben Christensen
Warragil	Aaron Slater	11.05.15	Registered interest in GMIA CV and NWGC	Ben Christensen
Tocomwall	Scott Franks	12.05.15	Ben emailed to provide details of NWGC CVW3	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
DLO	Gordon Workman	12.05.15	Ben emailed to provide details of NWGC CVW3	Ben Christensen
DALI	Des Dyer	12.05.15	Ben emailed to provide details of NWGC CVW3	Ben Christensen
AAS	Anthony Williams	12.05.15	Ben emailed to provide details of NWGC CVW3	Ben Christensen
Nundagurri	Aaron Broad	12.5.15	Registered interest in NWGC, SWGC & GMIA	Ben Christensen
Yerramurra	Nicholas Glover	12.5.15	Registered interest in NWGC, SWGC & GMIA	Ben Christensen
Eora	Kahu Brennan	12.5.15	Registered interest in NWGC, SWGC & GMIA	Ben Christensen
Ngunawal	Edward Stewart	12.5.15	Registered interest in NWGC, SWGC & GMIA	Ben Christensen
Wandandian	William Bond	12.5.15	Registered interest in NWGC, SWGC & GMIA	Ben Christensen
Gangangarra	Kim Carriage	12.5.15	Registered interest in NWGC, SWGC & GMIA	Ben Christensen
Gandangara LALC	Brad Maybury	13.5.15	Alan left a message returning his call.	Alan Williams
Gandangara LALC	Brad Maybury	19.5.15	Ben left a message returning his call.	Ben Christensen
AAS	Anthony Williams	19.5.15	Ben called to seek confirmation regarding NWGC CVW3. Brent will be in attendance	Ben Christensen
DLO	Gordon Workman	19.5.15	Ben called Gordon to seek confirmation for NWGC CVW3, but no connection. Gordon Workman answered on second try. Gordon Workman confirmed attendance, along with John Riley of DTAC	Ben Christensen
DALI	Des Dyer	19.5.15	Ben called to seek confirmation regarding NWGC CVW3. Des cannot make the CVW. He would however like to be kept informed as to the results of the CVW.	Ben Christensen
Tocomwall	Scott Franks	19.5.15	Ben called to seek confirmation regarding NWGC CVW3. Scott will confirm attendance this afternoon. Danny may make it.	Ben Christensen
Tocomwall	Sarah Franks	20.05.15	Sarah Franks submitted invoice	Ben Christensen
Goobah	Basil Smith	21.05.15	Late expression of interest for NWGC and GMIA	Ben Christensen
Murramarang	Roxanne Smith	21.05.15	Late expression of interest for NWGC and GMIA	Ben Christensen
Cullen Dullah	Casey Smith	21.05.15	Late expression of interest for NWGC and GMIA	Ben Christensen
Deerubbin LALC	Steve Randall	21.05.15	Steve sent invoice for NWGC CV workshop. I requested amendment.	Ben Christensen
AAS	Tony Williams	21.05.15	Tony sent invoice for NWGC CV workshop. I requested amendment.	Ben Christensen
Wurrumay	Kerrie Slater	22.05.15	Late expression of interest for SWGC	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Gulaga	Wendy Smith	24.05.15	Late expression of interest for NWGC and GMIA	Ben Christensen
Biamanga	Seli Storer	24.05.15	Late expression of interest for NWGC and GMIA	Ben Christensen
Kawul CS	Vicky Slater	24.05.15	Late expression of interest for SWGC and GMIA	Ben Christensen
Gandangara LALC	Lana	25.05.15	Ben called to request SWGC CVW at Gandangara LALC. Brad Maybury was not in office. Left message with Lana and followed up with reiteration in email	Ben Christensen
Gunjeewong CHAC	Julie Schroder	25.05.15	Sent invoice for NWGC CVW	Ben Christensen
Deerubbin LALC	Alfredo Velis	25.05.15	Sent invoice for NWGC CVW	Ben Christensen
DCAC	Leeanne Watson	25.05.15	Leeanne emailed DCAC's response to NWGC CVW	Ben Christensen
AAS	Tony Williams	26.05.15	Sent invoice for NWGC CVW	Ben Christensen
Cubbitch Barta	Glenda Chalker	26.05.15	Ben sent email with GMIA Cultural Values map	Ben Christensen
Peter Falk Consultancy	Peter Falk	26.05.15	Ben sent email with GMIA Cultural Values map	Ben Christensen
Tharawal LALC	Megan Ely	26.05.15	Ben sent email with GMIA Cultural Values map	Ben Christensen
Goobah	Basil Smith	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen
Murra Marang	Roxanne Smith	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen
Cullen Dulla	Casey Smith	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen
Gulaga	Wendy Smith	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen
Biamanga	Seli Storer	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen
Kawul CS	Vicky Slater	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen
Wurrumay	Kerrie Slater	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment.	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Gandangara	Lana	26.05.15	Ben rang again to book in meeting room for SWGC CVW. Brad was not in the office. Ben left message.	Ben Christensen
Merrigran	Shaun Carroll	26.05.15	Ben sent email pointing out RAP's late registration of interest. Ben also informed that reports will however be public and open to comment. Ben also informed Shaun that it is his responsibility to keep OEH list contact details current.	Ben Christensen
Peter Falk Consultancy	Peter Falk	26.05.2015	Peter Falk emailed to ask how invoice is to be written up. Ben informed of how.	Ben Christensen
Peter Falk Consultancy	Peter Falk	27.05.2015	Peter Falk emailed invoice for GMIA & SWGC CVW	Ben Christensen
Department of Planning and Environment (DPE)	Paula Tomkins	27.05.2015	Ben emailed CVW invoices to Paula from Gunjeewong, Duncan Falk, DLO, Tocomwall, Deerubbin LALC (x2) and AAS.	Ben Christensen
Gandangara LALC	Brad Maybury	27.05.2015	Ben called and spoke to Brad. Brad cannot meet Wednesday May 3 but could possibly meet Thursday May 4. Brad will call Sue on Friday. Ben emailed Brad phone details and CC'd Sue in email	Ben Christensen
AAS	Tony Williams	27.05.2015	Ben emailed to request amendment of invoice, so AHMS are billed. Invoice amended.	Ben Christensen
Peter Falk	Peter Falk	27.05.2015	Ben emailed to request amendment of invoice, so AHMS are billed. Invoice amended.	Ben Christensen
Gunjeewong	Julie Schroder	27.05.2015	Ben emailed to request amendment of invoice, so AHMS are billed. Invoice amended.	Ben Christensen
Cubbitch Barta	Glenda Chalker	27.05.2015	Ben emailed to notify of billing address	Ben Christensen
YKWG	Phil Khan	27.05.2015	Ben emailed to notify of billing address	Ben Christensen
DCAC	Leeanne Watson	27.05.2015	Ben emailed to notify of billing address	Ben Christensen
Tharawal LALC	Abbi Whillock	27.05.2015	Ben emailed to notify of billing address	Ben Christensen
DTAC	John Riley	27.05.2015	Ben emailed to notify of billing address	Ben Christensen
Liverpool City Council's Aboriginal Consultative Committee	Norma Burrows	27.05.2015	Ben emailed and rang to invite to Community Values Workshop May 3. Norma not in the office.	Ben Christensen
Liverpool City Council's Aboriginal	Norma Burrows	28.05.2015	Norma emailed to say that May 3 is fine by her.	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Consultative Committee			Ben emailed to notify of billing address	Ben Christensen
			Ben emailed to notify of billing address	Ben Christensen
Cubbitch Barta	Glenda Chalker	30.05.2015	Glenda emailed to ask about billing.	Ben Christensen
Cubbitch Barta	Glenda Chalker	30.05.2015	Ben replied ton Glenda re: billing	Ben Christensen
Elouera	Lenard Nye	04.06.2015	Elouera registered interest in NWGC, SWGC and GMIA	Ben Christensen
Dharug	Andrew Bond	04.06.2015	Dharug registered interest in NWGC, SWGC and GMIA	Ben Christensen
Walgalu	Ronald Stewart	04.06.2015	Walgalu registered interest in NWGC, SWGC and GMIA	Ben Christensen
Tharawal	Violet Carriage	04.06.2015	Tharawal registered interest in NWGC, SWGC and GMIA	Ben Christensen
Ngarigo	Newton Bond	04.06.2015	Ngarigo registered interest in NWGC, SWGC and GMIA	Ben Christensen
Peter Falk Consultancy	Peter Falk	07.06.2015	Peter emailed to check on pay date for GMIA	
Dharug	Andrew Bond	09.06.2015	Ben informed that registration was past close of registrations date but that stakeholder would be able to view and comment on report	Ben Christensen
Walgalu	Ronald Stewart	09.06.2015	Ben informed that registration was past close of registrations date but that stakeholder would be able to view and comment on report	Ben Christensen
Tharawal	Violet Carriage	09.06.2015	Ben informed that registration was past close of registrations date but that stakeholder would be able to view and comment on report	Ben Christensen
Ngarigo	Newton Bond	09.06.2015	Ben informed that registration was past close of registrations date but that stakeholder would be able to view and comment on report	Ben Christensen
Elouera	Lenard Nye	09.06.2015	Ben informed that registration was past close of registrations date but that stakeholder would be able to view and comment on report	Ben Christensen
Peter Falk Consultancy	Peter Falk	09.06.2015	Ben emailed Peter back and CC'd Carmel into email to answer aforementioned pay query	Ben Christensen

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
DACHA	Celestine Everingham	09.06.2015	Ben faxed reminding of CVW invoice	Ben Christensen
DCAC	Leeanne Watson	09.06.2015	Ben emailed reminding of CVW invoice	Ben Christensen
YKWG	Phil Khan	09.06.2015	Ben emailed reminding of CVW invoice	Ben Christensen
DTAC	John Riley	09.06.2015	Ben emailed reminding of CVW invoice	Ben Christensen
Gandangara	Brad Maybury	09.06.2015	Ben emailed reminding of CVW invoice	Ben Christensen
Liverpool City Council's Consultative Committee (LCCCC)	Norma Burrows	09.06.2015	Ben emailed reminding of CVW invoice. Norma on away until Sept. Ben called Liverpool City Council and spoke to Sarah Rees. Sent email to Sarah with invoice details	Ben Christensen
Tharawal LALC	Abbi Whillock	09.06.2015	Ben emailed reminding of CVW invoice	Ben Christensen
Cubbitch Barta	Glenda Chalker	09.06.2015	Ben emailed reminding of CVW invoice. Glenda acknowledged email and said invoice would be sent tomorrow	Ben Christensen
DCAC	Leeanne Watson	10.06.2015	Leeanne emailed invoice for NWGC CVW, although invoice address incorrect. Ben returned email requesting address change.	Ben Christensen
DACHA	Julie Schroder	23.06.2015	Julie emailed asking when NWGC CVW will be paid. Ben forwarded request to Accounts manager, Jo Craig	Ben Christensen
LCCCC	Norma Burrows	26.06.2015	Norma informed that an invoice would soon be submitted	Ben Christensen
Gandangara LALC	Dhaval Amin	26.06.2015	Invoice for SWGC meeting submitted	Ben Christensen
		October – November	PUBLIC EXHIBITION	
Cubbitch Barta Native Title Aboriginal Corporation	Glenda Chalker	15.02.2016	Update letter – GMIA progress – project on hold awaiting instructions from client re submissions	
Bilinga	Christopher Bell	15.02.2016	Update letter – GMIA progress – project on hold awaiting instructions from client re submissions	
Corroboree Aboriginal Corporation	Marilyn Carroll Johnson	15.02.2016	Update letter – GMIA progress – project on hold awaiting instructions from client re submissions	
Duncan Falk Consultancy	Duncan Falk	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions sent by post	
Gunyu Aboriginal	Darlene Hoskins-McKenzie	15.02.2016	Update letter- GMIA- GMIA progress – project on hold	

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Corporation			awaiting instructions from client re submissions	
Kamilaroi-Yankuntjatjara Working Group	Phil Khan	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Munyunga Aboriginal Corporation	Peter Foster	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Murrumbul Aboriginal Organisation	Mr Levi McKenzie - Kirkbright	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Tharawal Local Aboriginal Land Council		15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Tocomwall	Scott Franks and Danny Franks	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Walbunga	Mr Hika Te Kowhai	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Wingikara Cultural Services	David Bell	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Darug Land Observations Pty Ltd	Gordon Workman	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Warragil Cultural Services	Aaron Slater	15.02.2016	Update letter- GMIA- GMIA progress – project on hold awaiting instructions from client re submissions	
Kamilaroi-Yankuntjatjara Working Group	Phil Kahn	19.02.2016	Phil called about this and another job AI was doing – just checking he was registered. Confirmed he was and passed him on.	
Duncan Falk Consultancy	Duncan Falk	22.02.2016	Call from Duncan just checking if there was likely to be any field work coming up	Susan McIntyre-Tamwoy
Cubbitch Barta Native Title Aboriginal Corporation	Glenda Chalker	july2016 check date with laressa	Follow up Visit – clarification of cultural areas	Susan McIntyre-Tamwoy & Laressa
Bilinga	Christopher Bell	31 August 2016	Update letter- GMIA sent via email	Susan McIntyre-Tamwoy
Corroboree Aboriginal Corporation	Marilyn Carroll Johnson	31 August	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Cubbitch Barta Native Title Aboriginal Corporation	Glenda Chalker	31 August	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
Duncan Falk Consultancy	Duncan Falk	31 August	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Gunyuu Aboriginal Corporation	Darlene Hoskins-McKenzie	31 August	Update letter- GMIA –sent via email	Susan McIntyre-Tamwoy
Kamilaroi-Yankuntjatjara Working Group	Phil Khan	31 August	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Munyunga Aboriginal Corporation	Peter Foster	31 August	Update letter- GMIA –sent by email	Susan McIntyre-Tamwoy
Murrumbul Aboriginal Organisation	Mr Levi McKenzie - Kirkbright	31 August	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Tharawal Local Aboriginal Land Council PO Box 20 Buxton NSW 2571	Megan Ely	31 August	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Tocomwall	Scott Franks and Danny Franks	31 August	Update letter- GMIA- sent by email	Susan McIntyre-Tamwoy
Walbunja	Mr Hika Te Kowhai Snr Technical Officer	31 August	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Warragil Cultural Services	Aaron Slater	31 August	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Wingikara Cultural Services	David Bell	31 August	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Darug Land Observations Pty Ltd	Gordon Workman	31 August	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Cubbitch Barta Native Title Aboriginal Corporation	Glenda Chalker	8 September 2016	Email from Glenda clarifying the amount she could invoice for meeting with smct and laressa	Susan McIntyre-Tamwoy
Kamilaroi-Yankuntjatjara Working Group	Phil Khan	8 sept 2016	Received letter in post from Phil Khan	Susan McIntyre-Tamwoy
Bilinga	Christopher Bell	31 January	Update letter- GMIA sent via email	Susan McIntyre-

Organisation/Group	Representative Contacted	Date	Comments	AHMS Contact
		2017		Tamwoy
Corroboree Aboriginal Corporation	Marilyn Carroll Johnson	31 January 2017	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Cubbitch Barta Native Title Aboriginal Corporation	Glenda Chalker	31 January 2017	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Duncan Falk Consultancy	Duncan Falk	31 January 2017	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Gunyuu Aboriginal Corporation	Darlene Hoskins-McKenzie	31 January 2017	Update letter- GMIA –sent via email	Susan McIntyre-Tamwoy
Kamilaroi-Yankuntjatjara Working Group	Phil Khan	31 January 2017	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Munyunga Aboriginal Corporation	Peter Foster	31 January 2017	Update letter- GMIA –sent by email	Susan McIntyre-Tamwoy
Murrumbul Aboriginal Organisation	Mr Levi McKenzie - Kirkbright	31 January 2017	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Tharawal Local Aboriginal Land Council PO Box 20 Buxton NSW 2571	Megan Ely	31 January 2017	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy
Tocomwall	Scott Franks and Danny Franks	31 January 2017	Update letter- GMIA- sent by email	Susan McIntyre-Tamwoy
Walbunja	Mr Hika Te Kowhai Snr Technical Officer	31 January 2017	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Warragil Cultural Services	Aaron Slater	31 January 2017	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Wingikara Cultural Services	David Bell	31 January 2017	Update letter- GMIA-sent by email	Susan McIntyre-Tamwoy
Darug Land Observations Pty Ltd	Gordon Workman	31 January 2017	Update letter- GMIA- sent by post	Susan McIntyre-Tamwoy

