

Proposed Urban Development of Lot 1, DP119459, 2402 Sutton Road, Sutton, NSW Archaeological Due Diligence Assessment

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Executive Summary

Bowen Heritage Management Pty Ltd Australia (BHM) was commissioned by Liz Tritschler of Diverse Project Solutions (DPS) to prepare an Archaeological Due Diligence Assessment for a proposed urban development at Lot 1, DP119459, 2402 Sutton Road, Sutton, NSW (the study area). The property is 30.12 hectares (74.4 acres) immediately north west of the Sutton Township, NSW. The project is in the planning stage and as yet, no ground disturbing activities have occurred. The land is subject to assessment under Part 4 (Development) and Part 5 (Environmental Assessment) of the NSW Environmental Planning and Assessment Act (EP&A Act) 1979. This due diligence assessment considers the Aboriginal and historical heritage and archaeology of the study area, the potential impacts of the proposed urban development on any identified heritage values, and presents recommendations and an impact management strategy in compliance with the NSW National Parks and Wildlife Act (NPW Act) 1974.

The overall aim of the assessment is to determine whether there are any heritage values associated with the study area that could potentially be affected by the proposed urban development and to provide relevant management measures if impacts are likely.

RESULTS

A search (on 25/09/2014) of the Office of Environment and Heritage's (OEH) Aboriginal Heritage Information Management System (AHIMS) and other relevant literature, identified one Aboriginal heritage site had previously been recorded within or within close proximity to the study area (AHIMS search number 141793). However, 9 Aboriginal sites were identified within a one kilometre radius of the study area, and 85 Aboriginal heritage sites were identified within a four kilometre radius study area. An archaeological field survey of the study area (on 23/11/2014) identified no historical heritage sites of significance, six previously unrecorded Aboriginal cultural heritage sites – all stone artefact sites – and three areas of Potential Archaeological Deposit (PADs).

Two of the identified Aboriginal cultural heritage sites are positioned within the Environmental Management Zone of the study area and are therefore not at risk of impact. The remaining four Aboriginal cultural heritage sites are located within portions of the study area that is to be developed and these sites will require a management strategy to be implemented before development works begin. Each of the three identified PAD areas is on higher land above McLaughlins Creek within the study area. One of the PADs is located within the Environmental Management Zone of the study area and is therefore not at risk of impact. The other two PADs are located within portions of the study area that is to be developed and will therefore require a management strategy to be implemented before development works begin. Two of the Aboriginal cultural heritage sites and each of the PADs are considered to have a potential to reveal sub-surface Aboriginal archaeological site deposits.

RECOMMENDATIONS

If the identified Aboriginal sites and areas of PAD cannot be avoided by the proposed development, a heritage strategy of artefact collection and sub-surface test excavation investigations – to determine the presence, nature and extent of archaeological sites – is recommended to be undertaken before ground disturbing elements of the proposed sub-division occurs. No archaeological constraints exist for the remainder of the study area.

If the identified Aboriginal sites and areas of PAD cannot be avoided an Aboriginal Heritage Impact Permit (AHIP) will be required to undertake the proposed artefact collection process and the sub-surface investigations. Any archaeological test excavation procedures must be conducted in accordance with Requirements 15 and 16 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (2010).

ABBREVIATIONS USED IN THIS DOCUMENT

BHM:	Bowen Heritage Management
AHIMS:	Aboriginal Heritage Information Management System
AHIP:	Aboriginal Heritage Impact Permit
DECC:	Department of Environment and Climate Change
EP&A Act:	Environmental Planning and Assessment Act, 1979
NP&W Act:	NSW National Parks and Wildlife Act, 1974
OEH	Office of Environment and Heritage
PAD:	Potential Archaeological Deposit
SHI:	State Heritage Inventory
SHR:	State Heritage Register
RAO:	Registered Aboriginal Organisations
RNE:	Register of the National Estate

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1 Introduction

Bowen Heritage Management Pty Ltd (BHM) was commissioned by Liz Tritschler of Diverse Project Solutions (DPS) to prepare an Archaeological Due Diligence Assessment for a proposed urban development of Lot 1, DP119459, 2402 Sutton Road, Sutton, NSW (the study area). The property is 30.12 hectares (74.4 acres) in size and is located immediately north west of the Sutton Township, NSW (Figure 1, 2, 3). This due diligence assessment has been prepared to assist the proponent with meeting heritage obligations required by the Office of Environment and Heritage (OEH) and Yass Valley Council.

The aim of this investigation is to identify any cultural values (and potential impacts to these values), through the use of appropriate archaeological procedures. This will facilitate an outline of the range and nature of European and Aboriginal cultural material (or areas of potential cultural heritage value) within the study area. Relevant mitigation measures for any potential impacts to this material are also provided, along with a determination of whether an Aboriginal Heritage Impact Permit (AHIP) is required for the subdivision proposal.

The results of the archaeological assessment, in report format, will act as a suitable document to be incorporated, as appropriate, into the proponents Development Application with Yass Valley Council detailing the study areas suitability for development.

This research has been conducted in accordance to the requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH 2010). It identifies the heritage values of the study area and suggests suitable mitigation approaches.

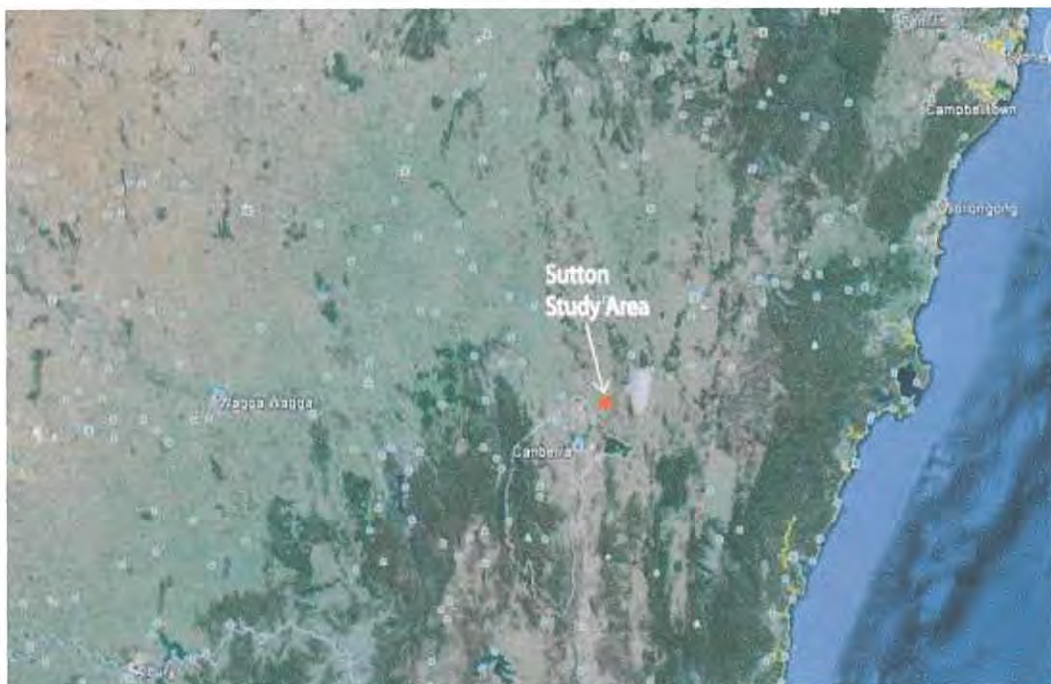


Figure 1 Study area location relative to the State of New South Wales (Google Earth).



Figure 2 Study area location (in dotted red line) relative to the Village of Sutton (Sutton 8727-1S 1: 25,000 topographic map 2nd edition 2002).



Figure 3 Study area location (in dotted red line) relative to the Village of Sutton (Sutton 8727-1S 1: 25,000 aerial map 2nd edition 2002).

AUTHORSHIP

Alister Bowen (BHM Archaeologist) conducted the desktop assessment, historical and Aboriginal heritage field survey and report writing for this project. Fieldwork was undertaken on the 23rd of November 2014. Alister completed an Honours degree in archaeology in 1999 at the Australian National University and a PhD in archaeology in 2007 at La Trobe University. A background in the Trades has equipped Alister with strong practical experience to complement his academic qualifications. He has undertaken a wide range of historical and pre-historical archaeological projects in Queensland, South Australia, Victoria, the Australian Capital Territory and New South Wales.

REPORT STRUCTURE

This report is structured in the following way:

- | | |
|-------------------|---|
| <i>Chapter 2</i> | Outlines the proposed development; |
| <i>Chapter 3</i> | NSW heritage legislative framework and statutory requirements; |
| <i>Chapter 4</i> | Potential archaeological site types located within the study region; |
| <i>Chapter 5</i> | Background to the European occupation of the study region and study area; |
| <i>Chapter 6</i> | Background to the Aboriginal occupation of the study region; |
| <i>Chapter 7</i> | Environmental background relating to the study area, including its current archaeological context, and implications for potential archaeological sites; |
| <i>Chapter 8</i> | Assessment of heritage sites located within the study region and the archaeological potential of the study area; |
| <i>Chapter 9</i> | Explanation of the field methodology employed, any identified gaps in the in knowledge required for the study and the survey results; |
| <i>Chapter 10</i> | Heritage management, impact mitigation measures and sub-surface sampling strategy; |
| <i>Chapter 11</i> | Development of a series to actions to be taken in the event an unexpected heritage find during the construction works; and |
| <i>Chapter 12</i> | A list of references used in the report. |

2 Proposed Development

The proposed urban development (the study area) incorporates an area of 30.12 hectares (74.4 acres) in size and is located immediately north west of the Sutton Township, NSW, in the Yass Valley Council local government area. The study area comprises a zone of 'Environmental Management Area' which is to be left undeveloped and undisturbed from building activities (*Figure 4*). Other than the zone of 'Environmental Management Area', all regions of the study area are to be impacted on by the proposed urban development.

The proposal involves ground disturbing activities that are necessary for the construction of roads, the building of dwellings and the development of associated infrastructure such as sewerage, electricity, gas, telecommunication services, allotment fencing, and general block improvements.



Figure 4 Plan of the proposed Environmental Management Area – labelled REI (Vekta 2014).

3 Heritage Legislation

Aboriginal cultural heritage in New South Wales is protected by the *National Parks and Wildlife (NPW) Act 1974* (NPW Act). Land managers are required to consider the effects of their activities or proposed development on the environment under several pieces of legislation, principally the *Environmental Planning & Assessment Act 1979* (EP&A Act) and the *Heritage Act 1977* (the Heritage Act). Cultural heritage, which includes indigenous heritage, is included within the definition of “environment”. In certain circumstances Commonwealth legislation protecting indigenous heritage may also apply to indigenous heritage places in NSW.

Presently, the study area is not heritage listed under Commonwealth, State or Local entities. A brief outline of the relevant legislation is provided below.

NATIONAL PARKS AND WILDLIFE ACT 1974 (NSW)

All Aboriginal objects within the state of New South Wales are protected under Part 6 – Aboriginal objects and Aboriginal Places – of the *National Parks and Wildlife Act 1974*.

The Act defines an “Aboriginal Object” 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.

Sites of traditional significance that do not necessarily contain archaeological materials may be gazetted as “Aboriginal places” and are protected under Section 84 of the *National Parks and Wildlife Act 1974*. This protection applies to all sites, regardless of their significance or land tenure. Under Section 86 and Section 90, a person who, without first obtaining the consent of the Director-General, knowingly destroys, defaces or damages, or knowingly causes or permits the destruction or defacement of or damage to, an Aboriginal object or Aboriginal place is guilty of an offence.

The National Parks and Wildlife Act is administered by the NSW OEH (Office of Environment and Heritage), with the Director-General of that department the consent authority. All due diligence heritage assessments are to be undertaken in accordance with the appropriate OEH requirements set out in:

- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*

Other similar and relevant legislation for investigating Aboriginal cultural heritage in NSW can be viewed in:

- *the Code of practice for Archaeological investigations of Aboriginal Objects in New South Wales;*
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural heritage in NSW;*
- *Aboriginal cultural heritage consultation requirements for proponents 2010;*
- *the Guidelines to Aboriginal Heritage Impact Assessment 2005.*
- *the Heritage Branch NSW's Assessing Significance for Historical Archaeological Sites and 'Relics', 2009;*

- *NSW Heritage Manual 1996 and specific Heritage Office guidelines; and*
- *the Burra Charter.*

HERITAGE ACT 1977 (NSW)

The *Heritage Act 1977* is administered by the OEH and aims to protect the natural and cultural heritage of NSW with emphasis on non-indigenous cultural heritage through protection provisions and the establishment of a Heritage Council.

The *Heritage Act 1977* provides blanket protection for surface and sub-surface relics and for heritage items of state significance listed on the State Heritage Register. The Act defers to local planning instruments under the *Environmental Planning & Assessment Act 1979* for the protection of items of local significance ("items of the environmental heritage").

While Aboriginal heritage sites and objects are primarily protected by the *NPW Act 1974*, if an Aboriginal site, object or place is listed on the State Heritage Register or is of great significance it can be protected by an interim heritage order issued by the Minister on the advice of the Heritage Council.

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is administered by the NSW Department of Planning and Infrastructure. This Act requires that environmental impacts are considered in a land-use and development planning approval process, including impacts on indigenous and non-indigenous heritage. In the framework of Aboriginal heritage, the Act identifies permissible land use and development constraints.

The NSW NPW provides guidelines for Aboriginal heritage assessment, including those conducted under the *EP&A Act 1979*. However, where Aboriginal heritage assessments are conducted under the Integrated Development Approval process, a more detailed set of NPW guidelines applies.

ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE PROTECTION ACT 1984 (COMMONWEALTH)

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* protects areas and/or objects which are of significance to Aboriginal people and which are under threat of destruction. The Act can, in certain circumstances override state and territory provisions, or it can be implemented in circumstances where state or territory provisions are lacking or are not enforced. A significant area or object is defined as one that is of particular importance to Aboriginal people according to Aboriginal tradition. The Act must be invoked by or on behalf of an Aboriginal or Torres Strait Islander or organisation.

DUE DILIGENCE CODE OF PRACTICE

As this heritage assessment is to be carried out in accordance with the OEH's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010)*, a basic understanding of the code requirements should be outlined.

The Code states that individuals and organisations are required to undertake reasonable and practicable steps in order to:

- Identify whether Aboriginal objects are, or are likely to be present, in the area.
- Determine whether their activities are likely to harm Aboriginal objects (if present).
- Determine whether an AHIP application is required.

A person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later unknowingly harm an object without an AHIP.

The code sets out a series of assessments to identify the potential impact of an activity on Aboriginal cultural heritage and for deciding whether an AHIP is required for a development.

The proponent must:

- Determine whether the proposed activity is likely to disturb the ground surface or a culturally modified tree.
- Conduct a search of the OEH AHIMS database to ascertain whether Aboriginal objects have been recorded in the area of the proposed development.
- Undertake a landscape analysis to assess the archaeological sensitivity of the proposed development area.
- If Aboriginal objects are deemed likely to occur within an area of developmental impact and the land has not been previously disturbed, effort must be made to avoid harm to Aboriginal object/s or landscape features by moving the boundaries of the proposed activity.
- If activity boundaries cannot be moved, then a heritage based desktop assessment and visual land inspection must be conducted to determine the presence or absence of Aboriginal cultural heritage and the necessity for an AHIP application.
- If it has been determined that harm is likely to occur to Aboriginal cultural heritage, a detailed archaeological investigation and impact assessment must be carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010) and an application be made for an AHIP.

4 Potential items of archaeological interest

ABORIGINAL SITES

A summary of the Aboriginal site types that may be located within the study area for this project is provided in *Table 1*. These artefact types are the material items (located on the ground surface and revealed in areas of archaeological potential) that are capable of identifying Aboriginal occupation of an area.

Table 1 A summary of the site types that may be located within the study area for this project (from Parks and Wildlife Group Site Type Definitions).

Site types	Definition
Stone artefact scatters	Stone artefact scatter sites, also known as open campsites, are usually indicated by surface scatters of stone artefacts and sometimes fire blackened stones and charcoal. Where such sites are buried by sediment they may not be noticeable unless exposed by erosion or disturbed by modern activities. The term campsite is used as a convenient label which, in the case of open sites, does not necessarily imply that Aboriginal people actually camped on the sites; rather it indicates only that some type of activity was carried out there.
Isolated finds	Sites consisting of only one identified stone artefact, isolated from any other artefacts or archaeological evidence. They are generally indicative of sporadic past Aboriginal use of an area.
Grinding grooves	Grooves resulting from the grinding of stone axes or other implements are found on flat areas of suitable sandstone. They are often located near waterholes or creek beds as water is necessary in the sharpening process. In areas where suitable outcrops of rock were not available, transportable pieces of sandstone were used.
Quarries	These are areas where stone was obtained for flaked artefacts or ground-edge artefacts, or where ochre was obtained for rock paintings, body decoration or decorating wooden artefacts.
Art sites	Rock engravings, carvings or peckings are found on sandstone surfaces both in the open and in shelters. These are referred to as rock engraving sites.
Scarred trees	Scarred trees bear the marks of bark and wood removal for utilisation as canoes, shields, boomerangs or containers. It is commonly very difficult to confidently distinguish between Aboriginal scars and natural scars or those made by Europeans.
Burial sites	Burials may be of isolated individuals, or they may form complex burial grounds.
Stone arrangements, carved trees and ceremonial grounds	These site types are often interrelated. Stone arrangements range from simple cairns or piles of rocks to more elaborate arrangements; patterns of stone laid out to form circles and other designs, or standing slabs of rock held upright by stones around the base. Carved trees are trees with intricate geometric or linear patterns or representations of animals carved into their trunks. Ceremonial grounds and graves were often marked by such trees. Bora grounds are a common type of ceremonial site and they are generally associated with initiation ceremonies. They comprise two circles, generally edged with low banks of earth but sometimes of stone, a short distance apart and connected by a path.

POTENTIAL ARCHAEOLOGICAL DEPOSITS

An area of Potential Archaeological Deposit (a PAD), is defined by Parks (2010: 5) as any location where the potential for sub-surface archaeological material is considered to be medium or high, relative to the surrounding landscape. The potential for sub-surface material to be present is assessed using a criteria developed from the results of previous surveys and excavations relevant to the region. The boundaries of PADs are generally defined by the extent of particular micro-landforms known to have high correlations with archaeological material. A PAD may or may not be associated with surface artefacts.

HISTORICAL SITES

Historical archaeology in Australia relates to a study of the period after initial contact between Aboriginal and European people. Historical archaeology has the benefit of using the physical remains of human activities in conjunction with historical documents. As with Aboriginal sites, the physical remains may be above or below ground and may be any item, landform or feature that was formed by human action at or after the 'contact' period. Historical remains are particularly useful for conducting comparisons between sites and identifying local, regional and sometimes national and international patterns of behaviour. The historical site types that may be located within the study area for this project are (but not limited to):

- intact or ruined buildings, building foundations or building fabrics;
- board landform features that suggest 'post-contact' human occupation such as dug pits or mounds, transport infrastructure, plantings, and evidence of animal or land husbandry; and
- occupational domestic and industrial tools and refuse deposits.

Note: During the archaeological field inspection of the study area, ten items dating to after the 1930s were identified. None of these items are considered to be of historical significance. A discussion of these items takes place in Chapter 9 below.

HISTORICAL HERITAGE SEARCHES

The background investigation included a search of the NSW Heritage Branch, Department of Planning, State Heritage Register (SHR) and Inventory (SHI), the Register of the National Estate (RNE) and the National Trust Register.

It was found that no previously recorded historical heritage sites/items are located within the study area.

5 Historical Overview

Sutton is situated on the west bank of the Yass River, approximately 17 kilometres south of Gundaroo, 6 kilometres south west of the Canberra boarder, just two kilometres from the Federal Highway, and 225 kilometres south west of Sydney. Its current population is about 220. The Sutton region was first officially surveyed in 1853 as a pastoral area. However, there has been a small European farming population in the area since as early as 1830s. The Sutton area is traditionally known for pasture growing and its horse, cattle and sheep farming/husbandry. However, in recent years, the region has become home to alpacas and deer farms, wineries and olive groves (<http://www.yassvalley.com.au/towns-and-villages/sutton.aspx>). The following section contains a historical (non-Aboriginal) summary of the history of the study area and surrounding Sutton region.

The first documented case of Europeans visiting the Sutton area is from the explorer Charles Throsby who, in 1820, was in search of the Murrumbidgee River (<http://gungahlin.net/history.html>). Whilst exploring from Lake George to the Murrumbidgee River, Throsby would have travelled through the Sutton/Gundaroo area and probably walked very close to the proposed subdivision land of this report. Of the area, Throsby stated it was “a beautiful clear plain...that is as finest country as ever was seen...and a fine rich black soil fit for any purpose either grazing or agriculture” (Gunning and District Historical Society 1992: 33).

The area populated quickly and by the end of the 1830s most of the good land in the Sutton/Gundaroo district was occupied (Gunning and District Historical Society 1992: 33). John Brown is documented as the first European to settle in the Sutton area. Brown was a Methodist minister who immigrated from Devonshire in April 1827. Immediately to the north of what is now Sutton village, Brown built a weatherboard cottage, established a dairy, erected fencing and ran sheep and cattle (Lord 1996: 2). Tom Campbell was another early land owner/occupier in the district. Tom Campbell is likely a relative of Robert Campbell, one of the first European land owners to the Canberra area, who, by 1824, owned 32,000 acres in Canberra’s Duntroon region.

Written histories and Government records suggest the general region surrounding Sutton – including the study area – has been used predominantly for agricultural purposes since the early to mid-1800s. During this period, the study area became cleared of its natural vegetation to make way for the development of pasture land. The Sutton Township was first set out in 1835 by the surveyor Robert Hoddle, who selected and surveyed the land as a village reserve, but nothing came of it for several years (Lord 1996: 4). From 1852, gold mining was undertaken in the district (although only temporarily), further increasing the area’s population. Smaller scale land-ownership in the region was made possible through the Government selling off small blocks of affordable land during the lead up to the passing of the Robertson Land Acts in 1860. The study areas most likely use during this period (the 1830 to 1900s), would have been crop growing, and sheep and cattle farming. The surveyor E. Twynam re-surveyed the village of Sutton in July 1866 and named it Sutton after the first person to walk the village main road, Joseph Sutton. The village was eventually gazetted with that name on 5th July 1876, but the first block wasn’t bought until November 1874 (Lord 1996: 4). By the 1890s, most land in the areas surrounding Sutton had been granted or sold in small blocks of between 80 to 1000 acres to European settlers.

The actual study area is recorded on a 1911 Parish Map as under the ownership of William Guise, a large land owner in the district (and also Joseph's Sutton's father-in-law). Guise first purchased land in the Sutton area in December 1833, from John Brown, and set about actively increasing his land holdings in the region. By the early 1900s Guise owned a great deal of the land surrounding Sutton Village. During this period the study area is recorded as part of a larger block of 1035 acres owned by William Guise (*On line Historical Lands Record Viewer, Parish of Goorooyarroo*) (Figure 5). A mid-1920s map of the Sutton village and nearby area shows that the study area was still owned by William Guise and that there were no houses, farm sheds or constructions of any kind recorded as existing there (Lord 1996: 24). Joe Read is the next recorded owner of the study area, owning the land from sometime in the 1930's to 1987. Read is responsible for the shed and house structures presently in place within the study area. The current owners purchased the study area in 1987 and have used it for crop growing and general agricultural purposes. From the earliest European settlement of the region, to the present, the study area has been used predominantly for agricultural purposes. From European settlement of the region to the present, European farming practices such as tree clearing, ploughing and the growing of improved pasture crops (such as oat, lucerne and ryegrass) has resulted in very little remnant flora of native forest, woodland or natural grassland existing within the study area (Griffin Associates Environment 2011).



Figure 5 Showing a past owner of the study area – study area shown in red dotted line (1911 Parish Map, <http://images.maps.nsw.gov./RotationFilter/Mosaic.asp>).

6 Aboriginal overview

Archaeological evidence suggests that Aboriginal people had occupied all of Australia's environmental zones by 31,000 years before present (BP) (Flood 1995: 286). Ethnographic information relating to the Aboriginal occupation of the study area has been obtained predominantly from historical documentation written by early European explorers, settlers and government officials during the mid-to-late 18th century (Barwick 1984).

Australian Aboriginal people occupied land according to a system of spatial organisation and land occupancy (Clark 1990: 11-14). Individual groups were intimately familiar with their own geographical regions and the seasonal availability of resources within it. Tribal boundaries were often defined through linguistic associations, social relations, and spiritual links to the land. These boundaries were most likely fluid, changing position over time. This suggests that tribal boundaries recorded by European people at, or after, the point of contact can only be considered as current to that period and were probably quite different prior to European observation. To make things more ambiguous, the few European accounts of Aboriginal groups in the broad study region are limited in detail, often confused in regard to Aboriginal group names and give varying interpretations of territorial boundaries (Flood 1980: 2).

In general, early settlers recorded very little of their observations, particularly in regard to the Aboriginal people they encountered (Flood 1980: 26). The best recorded observations come from the journals of early explorers, government surveyors and authors of travel books. By the early 1840s, Currie, Bennet, Lhotsky, Backhouse, and George August Robinson had each recorded small amounts of detail regarding Aboriginal people within the broad region surrounding the study area. By the 1850s, European settlement of the region had impacted on Aboriginal people. They had been displaced from seasonal hunting and gathering grounds, suffered from European diseases, and their traditional economy had been altered to include European commodities (Lea-Scarlett 1986; Flood 1980; Butlin 1983). By the 1880s, when more serious ethnographers came into the region, the consequences of European settlement had already greatly altered the traditional Aboriginal way of life (Flood 1980: 26).

As far as can be ascertained, the Aboriginal groups living permanently in the Sutton region spoke different, but related languages (all most likely associated with the dominant Ngarigo language) (Cooke 1988: 33; Flood 1980: 194). Aboriginal people in the broader district are associated collectively within the Ngunawal boundaries (*Figure 6*). These people are thought to have lived in small, highly mobile, kin-based groups. Individual groups came together regularly to participate in trade, marriage and ceremonial gatherings. An early ethnographic account from Bennett (1834: 173) and later Bluett (1954: 5) records their diet as including flying squirrel, kangaroo, wallaby, wombat, koala, possum, emu, duck, swan, snake, goanna, platypus, ant eggs, insects, fish, mussels, yabbies, plant tubers, berries and seeds. Their material culture, which to some degree can be ascertained through the archaeological record, is suggested by Flood (1980) to have included stone and wooden artefacts, skin clothing and temporary bark dwellings.

7 Archaeological Assessment

This chapter provides the environmental, archaeological and historical contexts of the current activity area.

ENVIRONMENTAL BACKGROUND

The purpose of this section is to provide environmental contextual information for the study area.

Interactions between people and their surroundings are of integral importance in both the initial formation and the subsequent preservation of the archaeological record. The nature and availability of resources including water, flora, fauna and suitable raw stone materials for the manufacture of tools and other items have a significant influence over the way in which people utilise the landscape. Alterations to the natural environment also impact upon the preservation and integrity of any cultural materials that may have been deposited in a landscape, whilst current vegetation and erosional regimes affect the visibility and ability to detect archaeological sites and relics. For these reasons, it is essential to consider the environmental context as a component of any heritage assessment.

CLIMATE

The study area is positioned in a cool temperate climate with an approximate annual rainfall of 630mm. The region is dry in summer with most precipitation falling during the winter months. Winter brings heavy frosts which frequently freeze surface water (<http://www.bom.gov.au/nsw/>).

GEOLOGY, LANDSCAPE AND SOILS

The base geology and landscape values are assessed as part of the construction of a landscape. This assessment considers the natural range (diversity) of geological (bedrock), geomorphological (landform) and soil features, assemblages, systems and processes present within the study area.

The study area is located within the Yass River Valley which comprises part of the Southern Tablelands. As an average, the Sutton area is elevated at 615 metres above sea level and is dissected by the Yass River and several smaller water courses. The actual study area ranges in elevation from 613 metres above sea level (in the central western portion) to 602 metres above sea level (in the north eastern region, where McLaughlin's Creek enters the Yass River). The study area region is a broad open valley of undulating to low level hilly terrain (including some peaks and crests), large floodplain and terrace ground formed through alluvial valley soil deposits from the Yass River (Coventry and Walker 1977). Sutton Granodiorite (an igneous rock similar to granite), associated with a quartz reef, can be seen west of McLaughlin's Creek, near the southern portion of the study area (Abell 1991: 116). The underlying geology is of Late Ordovician Pittman Formation sediments (488.3 million years ago to 443.7 million years ago) that comprise quartz-rich sandstone, siltstone and shale (Abell 1991: 8). This valley setting is in contrast to the wider surrounding regions which are predominantly rolling or hilly

Ordovician period shale and slate country with medium to thin soil deposits. The study areas overall terrain is gently sloping, with flatter areas making up parts of the alluvial terraces.

Soils across the study area vary only slightly according to topography and include thin, gravel based lithosols (soil consisting chiefly of unweathered or partly weathered shale fragments,) in the higher regions, and podzols (rich alluvial loam) in the lower gently sloping terrain. Most of the soils across the study area are of deep, loose alluvial soil and silt (reddish to orange in colour). Flood plain terraces occur adjacent to the margins and flood zones of McLaughlin's Creek and Yass River. The soil depths vary typically between 300mm to 600mm, grading to light clay subsoil before a rock base (Fogarty 2011). Arbitrary surface scatters of quartz and shales are common in the region. Quartz geological rock type has the potential to provide raw materials suitable for stone artefact manufacture. In the lower stratigraphic layers of the study area's ground material, the soils merge with clays that overlay bedrock <http://mapdata.environment.nsw.gov.au/DDWA/>.

Approximately 12 kilometres east of the study area is the western side of Lake George. Lake George is a large, shallow body of water that when full extends to an area of 155 square kilometres and has a maximum depth of 7.3 metres (Coventry 1976: 249). Along the western edge of Lake George is the Lake George Scarp, which rises 200 metres almost vertically from the lake to reach a height of 892 metres above sea level. From there the land to the west (including the study area) reduces in elevation and is made up of low level, undulating country, with river valleys and flood plains.

HYDROLOGY

Besides the presence of two man-made dams within the study area, water resources are dominated by two medium gradient drainage features – an unnamed creek traversing along the study area's northern border and McLaughlin's Creek – and one major water feature, the Yass River. McLaughlin's Creek exists along the eastern margin of the study area and drains surface water in a general northerly direction to the Yass River, which then flows in a general north, north east direction. The unnamed creek and McLaughlin's Creek drainage lines would contain fast flowing water after precipitation with McLaughlin's Creek possibly holding permanent water in localised pools throughout the year.

FAUNA AND FLORA

The wider study region's habitat supports a range of faunal species which broadly include birds, mammals, reptiles and invertebrates. Information regarding rare and threatened fauna potentially occurring within the study area was obtained from the Yass Valley Towns and Villages Study (2010) and <http://www.cma.nsw.gov.au/>. In the nearby vicinity to the study area the Golden sun moth, Superb parrot, Key's matchstick grasshopper, Striped legless lizard and Southern lined earless dragon have been recorded. However, in its current ploughed and exotic, non-native state, it is likely that no natural grassland species exist within the study area that is capable of supporting these faunal species.

The pre-European vegetation of the study area is most likely to have been woodlands with some interspersed native grasslands (Shorthouse 2002). Since European settlement, surface ground layers and the associated flora within the study area have been substantially altered. Very few Eucalypt trees remain within the study area and various varieties of introduced grasslands dominate. Remnant mature native Eucalypt trees have the potential to contain Aboriginal cultural scars. However, no mature trees within the study area display signs of Aboriginal cultural scarring.

OVERVIEW OF HISTORICAL DISTURBANCES

This section considers the potential European heritage values for the study area. Its overall aim is to identify any European heritage values associated with the study area. In order to achieve this aim, the following tasks were undertaken:

- an appraisal of the contemporary literature relating to the study area;
- archival research to recover relevant documents including plans and records relating to the European development of the area; and
- a field investigation of the fabrics and features of the study area.

Early farming practices in the region focused heavily on the cultivation of lower lying areas (deeper alluvial soil) and animal grazing in all other areas. From the 1830s, the study area has been subjected to hard hoof animal grazing (predominantly sheep) and ploughing and cropping regimes. Over the next 180 years (after 1830) most of the study area has been ploughed and used for pasture cropping. Other ground disturbing activities are also associated with the European use of the study area. For example, tree clearing (the area has been entirely cleared of native vegetation), ploughing, animal grazing, tree planting, road construction and use, dam building, underground irrigation, house and shed construction and fencing activities.

These historical uses have impacted on most sections of the study area's surface and sub-surface ground layers, and in turn the potential integrity of Aboriginal sites. As such, the areas where significant impacts have occurred hold only a moderate Aboriginal archaeological potential. The impacts of ploughing would have only disturbed the upper 250 millimetres of soil horizons (i.e. 250 millimetres is the maximum plough depth). Therefore, deeper soil deposits may retain *in situ* Aboriginal archaeological sites. For this reason, the plough zone is considered as an area of significant disturbance, however, any artefacts existing below the top 250 millimetres of a plough zone should be considered as *in situ* and potentially of high archaeological significance. The identified patterns of land use have implications for the management recommendations associated with the need to either conserve or conduct sub-surface archaeological investigations within any Aboriginal archaeological sites or areas of PAD identified during the archaeological field survey.

IMPLICATIONS FOR LOCAL ABORIGINAL HERITAGE

The location of the study area is within a wider region of undulating plains and low level hills. Within this setting, there are several landscape elements that would have provided suitable locations for Aboriginal subsistence activities such as camping, food

gathering and tool making. For example, joining the north eastern portion of the study area is a major water course – the Yass River. In addition, an unnamed creek and McLaughlin's Creek (second and third order streams [using the Strahler stream order system (Speight 1990)]), run along the northern and eastern borders of the study area. Each of these water courses would have provided local native flora and attracted local native fauna in to the region, which would have been gathered and hunted by Aboriginal people. Random scatters of quartz (a traditional stone manufacturing material) are also evident within the study area. Eucalypt trees would have also been easily accessible for bark and wood removal to produce items such as canoes, shelter material, shields, boomerangs or containers. These subsistence resources and the slightly elevated regions above McLaughlin's Creek and the Yass River would have attracted past Aboriginal groups into the region. As second and third order streams, the unnamed creek, McLaughlin's Creek and their associated landscapes would probably not have been substantial enough to attract large scale Aboriginal occupation. The Yass River however, is a more substantial and permanent water source and would be capable of supplying large gatherings of Aboriginal people with subsistence resources. It is likely the study area was used for occasional hunting, gathering and other short to medium-term subsistence activities which would result in moderate to large rates of artefact discard.

Overall, the study area exhibits a combination of environmental elements which could have been exploited by Aboriginal groups. Soil profiles associated with the study area suggest that any sub-surface archaeological deposits would, in general, be no deeper than 600mm below surface level. The historical review suggests that all upper soil horizons (the top 250mm) within the study area have been heavily disturbed through past European farming practices. Aboriginal cultural heritage material may still exist within the disturbed zone, but would not be considered as *in situ*. Aboriginal cultural heritage material may exist *in situ* below the zone of disturbed soil and in areas where European ground disturbances have been minimal.

8 Local Archaeological Context

This chapter provides the findings of the desktop assessment and gives a description and approximate location of known Aboriginal artefacts/objects within the broad study region.

Information and details of local Aboriginal site locations and previously produced Aboriginal heritage reports have been provided by the OEH. Such material has helped to inform the current study on matters concerning local Aboriginal site patterning. The exact site location information has been kept broad in nature as it is restricted and should not be reproduced or distributed to the general public without prior knowledge and permission of the OEH.

ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM (AHIMS)

A search of the OEH AHIMS database found that no items, objects or sites of Aboriginal cultural heritage have previously been recorded within the study area (AHIMS search number 148950 dated 25 September 2014). A search incorporating a one kilometre radius of the study area reveals that nine stone artefact sites have been previously recorded in this area (AHIMS search number 148955 dated 25 September 2014, from

Longitude Latitude -35.1682, 149.2361 to -35.1473, 149.2691). A wider search covering a four kilometre radius of the study area shows 85 Aboriginal Archaeological sites (stone artefact sites and culturally modified trees) have been previously recorded in this area (AHIMS search number 148958 dated 25 September 2014, from Longitude Latitude -35.2059, 149.1899 to -35.1225, 149.3221).

It should be noted that the AHIMS database only documents Aboriginal sites and objects that have been reported to NSW OEH. Therefore, AHIMS is not a full indication of what sites exist within an area and unrecorded Aboriginal sites or objects may be present within a location. In addition, OEH does not guarantee that AHIMS is an accurate database record.

PREVIOUS ARCHAEOLOGICAL STUDIES

In order to evaluate the potential for Aboriginal sites to exist within the study area, consideration should be given to regional and local site patterning. This section provides a review of past research (mostly archaeological consulting reports) and an examination of locally identified sites.

Several heritage studies have been undertaken in the study region that attest to Aboriginal occupation of the broader area. Over the past thirty three years, twelve heritage studies have been undertaken within close vicinity to the study area. These localised studies are: Koettig (1981); Navin and Comber 1989); Hughes (1998 & 2000); Saunders (2003a, 2003b, 2003c, 2004, 2006, 2007 & 2009); McDonald (2010); and Oz Arc (2012). A summary of these reports is provided in *Table 2*.

Table 2: Summary of previous heritage studies within the study region.

Author and Date	Distance from current study area	Findings
Koettig 1981	Incorporates a lineal route 46 kilometres long and 200 metres wide for a dual carriageway road from Collector to the ACT border. The carriageway passes within 2.5 km east of the Sutton study area.	A survey was conducted covering a 200 metre wide lineal route of 46 kilometres from Collector (approximately 22 km north east of the study area) to Canberra. In the course of the survey 33 stone artefact scatters, one possible scarred tree, 12 isolated stone artefacts and three areas of potential archaeological deposits were identified. The stone artefact materials include predominantly quartz and chert with some silcrete and basalt present. The assemblage included cores, flakes, retouched pieces and several backed blades. All stone artefact sites were considered to be open campsites and were described as varying in size from just a few artefacts to quite dense distributions of artefacts. Four of the recorded sites (57-2-0027, 0028, 0029, 0030) were located in close proximity to Brooks Creek (south east of the current study area). All sites were located on elevated areas, low ridges and spurs, terraces and flats adjacent to creek lines.

Author and Date	Distance from current study area	Findings
Navin and Comber (1989)	This report presents the results of an archaeological survey for Aboriginal sites at a proposed hornfels quarry site approximately 3.5 kilometres west of Bywong. The quarrying site is approximately 3.4 kilometres east of the current study area.	This project involved an archaeological survey for Aboriginal cultural heritage material (predominantly on a rocky ridge line). The land surveyed was under proposal for development as hornfels quarry. No archaeological sites were identified during the survey and no archaeological constraints were placed on the development proceeding.
Hughes (1998)	Hughes conducted surface archaeological investigations on 324 acres two previously recorded sites. The site was approximately 4 km north west of the current study area.	Hughes study located one small, low density open stone artefact scatter and ten single isolated stone artefacts. The sites occurred predominantly on the base slope areas adjacent to creek lines or along creek lines. The stone artefacts were all quartz material except one which was chert.
Hughes (2000)	This report presents the findings of a survey for Aboriginal archaeological sites within a study area of 83 hectares. The area surveyed is approximately 3 kilometres south of the current study area.	This project involved an archaeological survey of an 83 hectare block of land proposed to be subdivided into thirteen smaller blocks. The survey resulted in the identification of one stone artefact site comprising three quartz artefacts, one of which was retouched. The site was positioned on the crest of a low, broad ridge about 150 metres east of and five metres above a minor drainage line. Archaeological constraints in the form of avoidance or obtaining of an archaeological Consent to Destroy permit were recommended.
Saunders (2003a)	Saunders conducted an archaeological survey on 16 hectares of land proposed as a two Lot sub-division. Her study area is at Bywong, approximately 7 kilometres south east of the Sutton study area.	No Aboriginal cultural heritage material was located during the archaeological assessment and no areas likely to contain Aboriginal cultural heritage material were recorded. The researcher predicted (from her own predictive model) that Aboriginal sites within the general area would likely be located are on crests and basal slopes.
Saunders (2003b)	This archaeological study was conducted due to the proposed development of two domestic building blocks along Macs Reef Road, near Sutton. The surveyed area was 13.5 hectares, located at approximately 4.5 kilometres south east of the current study area.	No Aboriginal cultural heritage material was located during the archaeological assessment and no areas likely to contain Aboriginal cultural heritage material were recorded. The researcher's predictive model suggested that if Aboriginal sites were present within the general area, they would likely be located on crests and basal slopes.
Saunders (2003c)	The archaeological study was conducted on land selected for a residential sub-division adjacent to the Village of Sutton as well as the study area of this current project. The surveyed area was 318 hectares, located directly opposite the current study area,	Thirteen Aboriginal archaeological sites were recorded during the survey, comprising ten stone artefact scatters and three isolated finds. Seven areas of high Aboriginal archaeological potential (PAD) were also identified. Quartz material dominated the assemblage, followed by silcrete, chert, volcanic, rhyolite, and chalcedony. Spur crests, upper slopes, basal slopes and drainage

Author and Date	Distance from current study area	Findings
	approximately only 50 metres to the west.	line margins were the most common landscapes to find Aboriginal sites within the study area. Most of the artefacts located on crests and slopes were on or within a compacted light yellow soil (exposed through erosion) up to 200mm below the current surface level.
Saunders (2004)	Archaeologically surveyed for a 3 lot rural residential subdivision, the study area was 20 hectares. This study area is located approximately 4.5 kilometres south of the current study area.	The archaeological survey resulted in the identifying and recording of three new stone artefact sites (two low density artefact scatters and an isolated stone artefact) and one area of PAD. Silcrete, quartz, chert and a metamorphosed tuff were the four stone materials present within the sites recorded. The landscape position of the sites was on low level rise and a disturbed low gradient basal slope. Soil depths across the study area were minimal and only a low chance for sub-surface deposits to exist was recorded.
Saunders (2006)	A proposed rural residential subdivision, the study area for the project was 80 hectares along Macs Reef Road, Bywong. The study area for this project is approximately 4.6 kilometres south east of the current study area.	Saunders field survey of the study area was conducted on foot and resulted in the recording of seven new Aboriginal archaeological sites. The Aboriginal sites comprise six low density artefact scatters and one isolated artefact. The site positions were recorded as located on a spur crest, an upper slope, a mid slope, a basal slope, along a river flat, on a river margin and on a small drainage line. Of the 43 artefacts recorded 42% were of silcrete, 28% were quartz, 16% quartzite, 7% volcanic, and 2.3% were chert, tuff and Chalcedony.
Saunders (2007)	Conducted for a rural residential subdivision, Saunders study area is 16.3 hectares along Newington Road, Bywong. The study area for this project is approximately 8.6 kilometres south east of the current study area.	No Aboriginal cultural heritage material was located during the archaeological assessment and no areas likely to contain Aboriginal cultural heritage material were recorded. Saunders suggests that the study areas topography and past land use impacts give the study area a low potential to reveal Aboriginal cultural material.
Saunders (2009)	This Aboriginal cultural assessment was conducted on an abandoned rubbish tip area along Macs Reef Road, Bywong. The study area size was 9.25 hectares, and its location is approximately 4.6 kilometres south east of the current study area.	Approximately 5.4 hectares of the 9.25 hectare study area was heavily disturbed ground with no Aboriginal archaeological potential. No Aboriginal cultural heritage material was located during the field survey and no areas of PAD. Saunders puts this result down to the high level of ground disturbance, no nearby water source, and visibility constraints due to leaf litter and dense vegetation.
McDonald (2010)	The area of study for this project comprises 142 hectares of land near Womboin proposed to be rezoned as rural residential.	McDonald's survey was for a proposed subdivision of land. She identified eleven new aboriginal sites during the field work for this project. All of the sites were stone artefact scatters

Author and Date	Distance from current study area	Findings
	McDonald's field work was conducted approximately 10 kilometres south east of the current study area.	located predominantly on raised areas near the main point of drainage for the area, Black Joes Creek. Quartz was the dominant stone material used in the assemblages viewed by McDonald, with silcrete, chert and mudstone also present.
Oz Ark (2012)	A three kilometre linear route was surveyed for Aboriginal cultural heritage material. The survey area was 1.5 kilometres east of Sutton (within the Yass River valley area).	The archaeological assessment revealed no items of Aboriginal cultural heritage material and no areas likely to contain Aboriginal cultural heritage material. The researchers predicted that Aboriginal sites would exist within the general region, most likely in close proximity to water on slightly elevated land.

ARCHAEOLOGICAL POTENTIAL OF THE STUDY AREA

A number of subsistence food resources would have been available to past Aboriginal groups visiting the study area. Aquatic animals (frogs, yabbies and several bird species) and flora (aquatic plant tubers and berries) would have been associated with parts of the study area. Native dry land grasses would have provided seeds. A range of native fauna would also have been attracted to the water and been hunted there by Aboriginal people.

The type and nature of Aboriginal sites previously recorded within a few kilometres surrounding the study area can be used to predict the site types that are likely to occur within the study area. The results of the documentary review show that most Aboriginal sites within the region occur along the margins of water courses, on ridges or on and around low rises and raised flatter regions – usually within close proximity to water courses. All sites recorded within the study region have been either isolated stone artefacts or stone artefact scatters (one possible scarred tree was also recorded). The pattern of recorded sites is dictated by the location of previous archaeological survey work, however several other observations can be made:

- Aboriginal sites do not necessarily appear within close proximity to a permanent water source, although larger artefact scatters are often recorded within 100-150m of a major water course;
- most sites within the study region are positioned along water course margins. However, sites may also be located on elevated flat or slightly undulating landforms away from water;
- some sites occur on the crest or immediate slopes of low level rises;
- small tributaries (minor ephemeral water courses) with associated flood zones or marshy areas are likely to be associated with Aboriginal archaeological sites;

- the majority of registered sites are related to stone artefacts and are composed predominantly of quartz and chert – although silcrete, quartzite, basalt and tuff materials have also been recorded; and
- Locating burials is rare, however early European recordings and ethnographic studies suggest that Aboriginal people in this region used either burial in the ground, piled rocks, burial in caves or burial in the hollow of a tree.

Much of the material used by Aboriginal people to produce subsistence equipment (such as wood, bone, shell and fibre material) are highly perishable and do not often survive in the archaeological record. Material culture that has survived, often found in locations where Aboriginal people camped, are generally stone artefacts and scarred trees. Therefore, quartz and chert stone artefacts are the most likely artefact types to be located within the study area. Any Aboriginal archaeological sites within the study area are likely to have been impacted upon (disturbed) due to gold mining activities and past European farming practices (such as tree clearing, ploughing, fencing activities, vegetation planting and animal grazing, and underground irrigation), the development of transport infrastructure (such as dirt roads), shed and house construction, and dam building.

9 Field Assessment

ABORIGINAL CONSULTATION

As the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH 2010) states that “Consultation with the Aboriginal community is not a formal requirement of the due diligence process”, Aboriginal community consultation for this project has not been undertaken.

SURVEY METHODOLOGY

This Due Diligence assessment involved a site investigation. Based upon the background research, known Aboriginal site patterning, existing ground disturbances across the study area and consultation with the land owner, it was decided that the field survey should encompass a pedestrian survey methodology. The field based site assessment was undertaken on 23/11/2014 by Alister Bowen (BHM Archaeologist).

The field survey aimed to inspect all ground locations within the study area that may be disturbed by the proposed development, as well as the Environmental Management Area outlined in *Figure 4*. The methodology involved pedestrian transects across the areas proposed for development, with particular attention given to areas where ground surface visibility existed, areas deemed to hold archaeological potential (such as mature eucalypt trees, slightly raised flat regions, low gradient slopes, and elevated ground), any ephemeral drainage lines, the margins of

McLaughlin's Creek, and where McLaughlin's Creek enters the Yass River. Prior to entering the field, a survey route was devised based upon current aerial photography and terrain modelling from Google Earth. All surveyed areas and items of interest were recorded on a topographic map of the study area (using a GPS and GDA 94 coordinates), along with levels of visibility, erosion, soil conditions, evidence of disturbance and the extent of any PAD areas.

Traverses were conducted across the study area (navigating according to topography), but generally in a north east, south west direction. Ideal transect lines were set, however, to obtain access to particular areas of interest, routes were sometimes random. Recent ploughing in the southern portion of the study area allowed up to 90% ground visibility. However, thin grass cover over much of the northern portion of the study area allowed for only approximately 20% ground visibility (*Figure 7*). Where larger areas of ground exposure were encountered (most of the ploughed areas in the south of the study area), an intensive search was conducted with the survey transects spaced two metres apart (*Figure 8*). This follows the methodology set out in Burke and Smith (2004: 65) which states that a single person can effectively visually survey an area of two linear metres. In areas where limited ground exposure existed, an assessment of archaeological potential was undertaken. In some areas of thick ground cover the surveyor transects were spaced appropriately to capture areas of exposed ground. Areas of ground exposure were common, with ground visibility recorded as good and at between 0% and 90%. Weather on the day of the site survey was sunny with a near cloudless sky and light winds from the north. The survey was completed within eight hours.

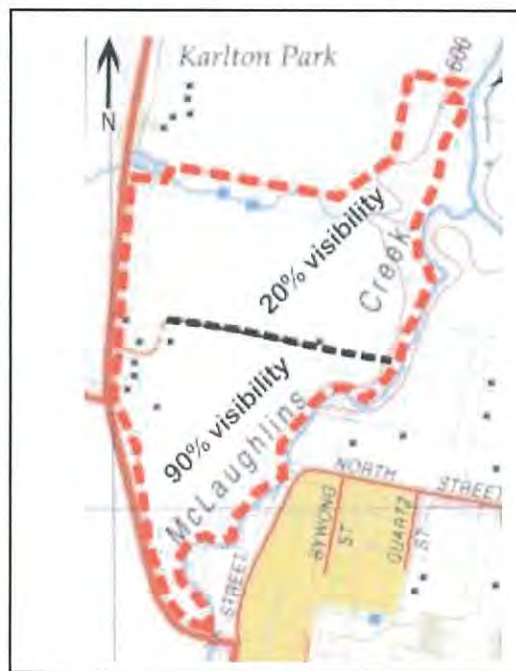


Figure 7 Showing two distinctly separate areas of high and moderate ground visibility within the study area.

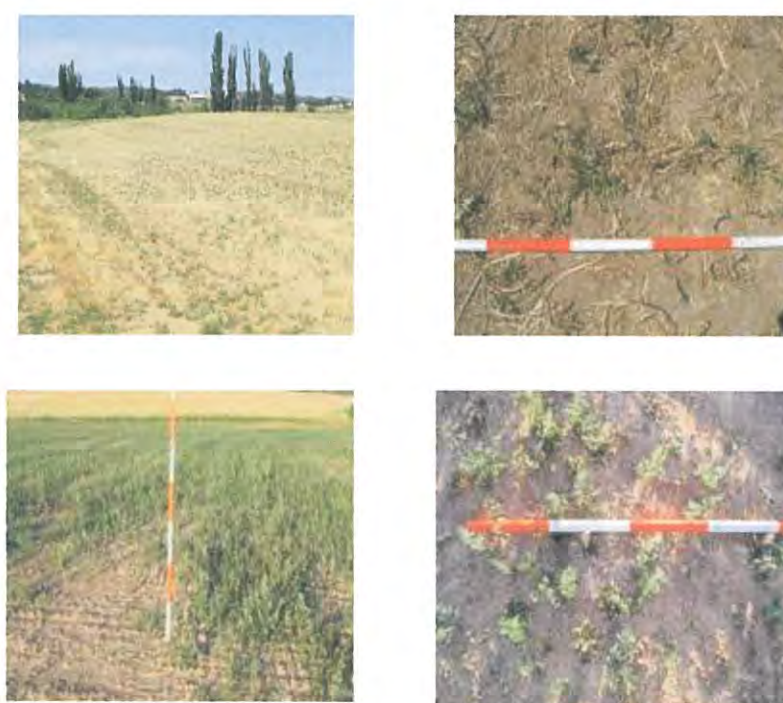


Figure 8 Showing four typical areas of ground exposure within the study area. The top photos represent the study areas northern portion and the bottom photos are of the southern portion.

GAPS ANALYSIS

Ground visibility (though exposed patches and ploughed ground) was consistently good across the southern portion of the study area, varying between 0% and 90%, and between 0% and 20% in the northern portions. However, grasses, weed growth, and domestic and commercial constructions obscured ground surface visibility in several places within the study area. This limited the effectiveness of identifying surface (or sub-surface) archaeological features within some portions of the study area.

SURVEY RESULTS

Ten historical sites (i.e., European sites older than 50 years) and six previously unrecorded Aboriginal archaeological sites were located within the study area. The historical sites are two domestic dwellings, one sheep shearing shed, one chicken coop, one grain silo and five rural sheds. The Aboriginal sites consist of three very low density stone artefact scatters and three isolated stone artefacts. In order to provide an understanding of the landforms encountered and the ground surface condition, a summary of several of the survey transects is provided in *Table 3*.

Table 3: Example of survey transects, distance and notes.

Transect	Landform	Length in metres	Field notes
1	Creek line, flood plain, mid-slope, upper slope.	388	Ground exposures examined along access road leading to McLaughlins Creek. Disturbed ground through ploughing, but allowed for good ground visibility. Good views across the region at high point. Some erosion noted again giving good ground visibility, definite ploughing of ground visible.
2	Slight ground slope, low level undulating terrain.	182	Definite ploughing of ground in all areas with good ground exposure. Animal stock water trough with irrigation line. Tree plantings (pine). Predominately gently sloping ground with some nearly flat areas. Relatively steep escarpment/slope to the east
3	Mid-slope, in undulating terrain; low level hill crest, large dam.	223	Ground disturbance from ploughing and road making activities. Old water-well noted, good ground visibility along fence line. Ground visibility good generally, especially on ploughed areas.
4	Lower altitude plain, mid-slope, upper-slope; small rise.	408	Along the eastern fence line, some boggy ground encountered with thick grass cover near McLaughlins Creek line.
5	Gently sloping land to east and south, mid-slope of a larger hilly landscape to the west.	356	Clusters of young gum trees adjacent to study area. Gently sloping ground to the east and south. All ploughed ground, good views of surrounding region, natural quartz scatters visible.
6	Upper slope, hill crest, Mid-slope.	187	Steep ground close to McLaughlins Creek. Ground slopes towards an unnamed creek which enters McLaughlins creek, built dams to the north west, areas of erosion exposures visible.

Visibility refers to the amount of ground visible upon which artefacts could be seen. The presence of vegetation, leaf litter and other variables can obscure visibility, which is expressed as a percentage (NPWS 1997: 18). An exposure is defined as an area in which ground surface disturbance (usually in the form of erosion, but in this case also ploughing) results in the removal of surface vegetation and soils and

permits the detection of archaeological material that was formerly contained within a sub-surface context. The level of exposure is also determined as a percentage (NPWS 1997:18).

Approximately 50% of the study area was exposed ploughed land that gave excellent ground visibility. The rest of the study area was also plough lands, but with a grass ground cover that afforded approximately 20% ground visibility (see Figure 7 and 8 above). In addition vehicle tracks, areas of disturbance and natural erosion afforded some good levels of ground visibility across the study area (see Table 4 and 5).

The survey targeted locations with good ground exposure and moved quickly over areas where grass or other cover prohibited a visual observation of surface ground soils.

Table 4: *Survey visibility and exposures for the various landforms in the north of the study area.*

	Landform	Visibility	Exposure
1	Sloping/Undulating land	20%	5%
2	Basal Slope	5%	5%
3	Mid Slope	15%	15%
4	Upper Slope	25%	12%
5	Hill Crests	15%	12%
6	Valleys and Creeks	5%	5%

Table 5: *Survey visibility and exposures for the various landforms in the south of the study area (newly ploughed).*

	Landform	Visibility	Exposure
1	Sloping/Undulating land	90%	90%
2	Basal Slope	65%	55%
3	Mid Slope	80%	75%
4	Upper Slope	90%	90%
5	Hill Crests	90%	90%
6	Valleys and Creeks	35%	30%

HISTORICAL HERITAGE

Ten historical sites were identified during the survey of the study area. These sites consist of two domestic dwellings, one sheep shearing shed, one chicken coop, one grain silo and five rural sheds. See *Figure 9* for location details.

To be considered historically significant and eligible to be listed on the State Heritage Register, an historical item must meet one or more of the following criteria:

- a) An item is important in the course, or pattern, of NSW's cultural or natural history;
- b) An item has strong or special associations with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history;
- c) An item is important in demonstrating aesthetic characteristics and/or/ a high degree of creative or technical achievement in NSW;
- d) An item has strong or special association with a particular community or cultural group in NSW for social, cultural, or spiritual reasons;
- e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history;
- f) An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history; and
- g) An item is important in demonstrating the principal characteristics of its class of NSW's
 - Cultural or natural places; or
 - Cultural or natural environments.



Figure 9 Showing location and number for historical sites within the study area.

Historical Site 1

This building is a shearing shed with a garage type extension. The original structure was approximately 5 metres by 11 metres (outer dimensions). The extension section has been added to the south side of the shed and measures approximately 4 metres by 5 metres. The entire structure is a simple timber frame with a corrugated iron exterior (*Figure 10*). Its grid reference location is GDA 94 0705024E 6107345N.



Figure 10 Picture on left shows the shearing shed and extension (facing north east). Picture on right shows the shearing shed and extension (facing north).

Historical Site 2

Building 2 is a general storage shed for the property. The outer perimeter measures approximately 7 metres by 11 metres. It is in good condition and has a timber and metal frame with a corrugated iron exterior (*Figure 11*). Its central grid reference location is GDA 94 0705022E 6107282N.



Figure 11 Facing west showing the general storage shed numbered as '2' within the study area.

Historical Site 3

The oldest structure within the study area, this building is a semi-open farm equipment storage shed (*Figure 12*). Its measurements are approximately 33 metres by 6 metres and it is constructed with a rough timber frame and corrugated iron outer. The timber used in the frame is not milled, but is instead rough cut from the environment and notched, split or otherwise modified where necessary. Although the structures roof is sound, it is in a generally dilapidated state. One dividing wall in the central eastern section of the structure is of thick split log and contained several wire Romboïd nails that allows some indication of the construction period (*Figure 13*).

There are two problems in accurately dating nails recovered from historical sites in Australia. First, although a manufacture date can be roughly established from physical features, builders often held an initial prejudice against new nail types. This has created a time gap from when historical records demonstrate a nail was available in Australia, to when it was actually used in Australian structures. Second, due to the high price and scarcity of nails, builders often took nails from abandoned structures to re-use, creating a confusing chronological marker (Varman 1993: 182). Nonetheless, nails have proved to be one of the most common artefacts recovered from historical sites in Australia and are an important means of gathering historical archaeological information to help date sites (Michael 1974: 99; Middleton 2005: 55, 61). Wire Romboïd nails were the dominant nail used in Australia between 1890 and 1930 (Varman 1980: 108). This sheds central grid reference location is GDA 94 0705049E 6107293N.



Figure 12 Facing north east showing the oldest of the study areas structures.



Figure 13 Showing split log wall (on left) and a 1890-1930 wire Romboïd nail (on right).

Historical Site 4

This structure is of a relatively modern construction period, although most likely older than fifty years, and has been used as a storage shed for bailed hay or Lucerne. Its outer perimeter measures approximately 7 metres by 12 metres and the construction materials are predominantly steel and corrugated iron (*Figure 14*). This shed's central grid reference location is GDA 94 0705100E 6107303N.



Figure 14 Facing north east to the show hay shed historical site 4.

Historical site 5

Constructed in the style of a two car garage, this structure has a milled timber frame and corrugated iron covering (*Figure 15*). The structure is in good condition and currently in use as a general storage shed. The shed's outer perimeter measures approximately 6 metres by 13 metres and its central grid reference location is GDA 94 0705049E 6107274N.



Figure 15 Facing south west to view the structure recorded as building 5 within the study area.

Historical Site 6

A semi open one roomed storage shed. This structure is a mix of rough cut timber, milled timber, corrugated iron and asbestos sheeting (*Figure 16*). It appears to be a storage building, but may have once acted as a one roomed residential dwelling. It is not yet in a dilapidated state. However, sections of the roof have come off and the building is in generally poor condition. It's outer perimeter measures approximately 3 metres by 8 metres and it's grid reference location is GDA 94 0705047E 6107266N.



Figure 16 Facing south west showing the one roomed construction numbered as Historical Site 6 within the study area.

Historical Site 7

Historical site 7 is a free standing, single story, timber framed, asbestos clad cottage with a corrugated iron roof and brick hearth and chimney (*Figure 17*). The outer perimeter measures approximately 8 metres by 5 metres and it is in good usable condition. Going by architect Robin Boyd's five principle Australian house designs, Historic Site number 7 could be called 'The Primitive Cottage', consisting of a simple rectangle shape with no veranda (Connah 1988: 72). It's cheap, functional design is similar to those built for military personnel accommodation between the two World Wars. The dwellings grid reference location is GDA 94 0705048E 6107263N.



Figure 17 Facing south west showing the rectangle shaped construction numbered as Historical Site 7 within the study area.

Historical Site 8

This site is represented by two currently occupied separate domestic dwellings that are most likely contemporary with each other. Sometime time after their initial construction they have been joined to each other through the use of a simple frame and roof design. The external measurements of the building are approximately 11 metres by 22 metres. The structure is a very similar design to Historical Site 7 in that it is a free standing, single story, timber framed, asbestos clad cottage with a corrugated iron roof and brick hearths and chimneys (*Figure 18*). The building is in good usable condition. Again by using architect Robin Boyd's five principle Australian house designs, Historic Site number 8 could be called a 'Primitive Cottage', as it consists of a simple rectangle shape (Connah 1988: 72). It's cheap, functional design is similar to those built for military personnel accommodation between the two World Wars. The dwellings grid reference location is GDA 94 0705039E 6107235N.



Figure 18 Facing north west showing two joined cottages numbered as Historical Site 8 within the study area.

Historical Site 9

The historical features for this site is represented by an abandoned metal grain silo approximately 5 metres in diameter and 9 metres tall (*Figure 19*). The entire structure is constructed of metal and is in good condition, although appears not to have been in use of several years. The constructions grid reference location is GDA 94 0705061E 6107197N.



Figure 19 Facing south east to view the grain silo recorded as Historical Site 9.

Historical Site 10

Represented by a dilapidated chicken pen, this historical feature measures approximately 3 metres by 5.5 metres. It has been constructed with timber cut rough from the tree (notched or modified as required), some milled timber pieces and a corrugated iron exterior (*Figure 20*). The structure doesn't appear to have been in use for many years. Its grid reference location is GDA 94 0705084E 6107189N.



Figure 20 Facing south looking at the dilapidated chicken pen located within the study area.

The background research outlined in Chapter 5 identified that each of the constructions discussed above have been built sometime after the mid 1920s – as evidenced from the Parish maps and backed up by the use of rhomboid nails at the site. None of the structures located within the study area could be considered rare or unique in any way. In addition, none of the structures hold historical significance that is applicable to the assessment criteria set out in the 1977 Heritage Act that would warrant a listing on the State or local heritage register. As such the study area holds no features of historical significance and no heritage constraints are imposed on the sites 1 to 10 listed above.

BORIGINAL HERITAGE

Six previously unrecorded Aboriginal archaeological sites, all stone artefact sites, were identified during the survey of the study area. These sites consist of three very low density stone artefact scatters and three isolated stone artefacts. Two of the isolated artefacts are in Environmental Management area, where no ground disturbance is proposed. The sites are called SR 1 to SR 6 (SR standing for Sutton Road). Three PADs were also identified; two of the PADs are in areas where ground disturbance is proposed within the study area and all three are in zones of moderate archaeological sensitivity (Figure 21). A heritage assessment of the identified sites and PADs will now be undertaken.



Figure 21 Showing the study areas Aboriginal site and PAD locations marked on a topographic map (left) and an aerial photograph (right) of the study area.

Site SR 1

This site is located on a relatively flat section of exposed ground (in a wider gently undulating plains landscape) on a dirt track, within a gate opening (see *SR 1 location in Figure 21*). It consists of a single flaked silcrete artefact that, due to its location, is not considered to be *in situ* (*Figure 22*). Its grid reference location is 0705120E 6107349N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). Ground surface visibility in this area was excellent at approximately 90%. An area of approximately ten metres surrounding the site was carefully searched for further evidence of Aboriginal cultural heritage material with no results returned.



Figure 22 Left picture shows the isolated silcrete flake at SR 1. Right picture shows the landscape where the artefact is located (at range pole, picture taken facing east).

Site SR1 is positioned in an area of proposed disturbance. As ground disturbing activities are to be conducted in the location of SR1, an AHIP will be required to conduct an artefact collection before ground disturbance takes place. See also management and mitigation measures in Chapter 10.

Site SR 2

Site SR 2 is located in the central eastern portion of the study area, within a plough zone (see *Site SR 2 location in Figure 21*). This site consists of two flaked stone artefacts, one quartz flake and one silcrete flake that are not considered to be *in situ* (*Figure 23*). The artefacts are positioned on a large and gently sloping plateau overlooking the flood plain associated with McLaughlins Creek (approximately 85 metres west of McLaughlins Creek). Its grid reference location is 0705311E 6107237N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). Ground surface visibility in this area was excellent at approximately 70% to 90%. An area of approximately ten metres surrounding the site was carefully searched for further evidence of Aboriginal cultural heritage material with no results returned.



Figure 23 Left picture shows the quartz and silcrete flakes at site SR 2. Right picture shows the landscape where the artefacts are located (at range pole, picture taken facing east).

As site SR2 is positioned in an area of proposed disturbance an AHIP will be required to conduct an artefact collection before ground disturbance takes place. In addition, although the site is in a disturbed context with no evidence of further surface level artefacts, the site exists in a PAD area and it is possible that *in situ* artefacts exist below the plough zone (which is approximately 250 mm deep). Therefore, sub-surface archaeological investigations should be conducted in this location before further ground disturbance takes place. See also management and mitigation measures in Chapter 10.

Site SR 3

Only 35 metres south west of SR 2, and still within the plough zone, a further three stone artefacts were located on the same gently sloping plateau that overlooks the flood plain associated with McLaughlins Creek. The site is approximately 50 metres west of McLaughlins Creek (see Site SR 3 location in Figure 21). This site initially consisted of three flaked stone artefacts, one quartz flake, one chert flake and one silcrete flake and due to the plough zone is not considered to be *in situ* (Figure 24). Its grid reference location is 0705261E 6107215N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). Ground surface visibility in this area was excellent at approximately 70%. When a ten metre radius surrounding the site was carefully searched for further evidence of Aboriginal cultural heritage material a further three stone artefacts, two quartz flakes and one silcrete flake, were identified. The approximate site boundary is therefore a ten metre radius surrounding the grid coordinates 0705261E 6107215N.



Figure 24 Left picture shows the chert, quartz and silcrete flakes at site SR 3. Right picture shows the landscape where the artefacts are located (at range pole, picture taken facing east).

Site SR3 is positioned in an area of proposed disturbance. As further ground disturbing activities are to be conducted in the location of SR3, an AHIP will be required to undertake an artefact collection before ground disturbance takes place. In addition, although the site is in a disturbed context with no evidence for the existence of further surface level artefacts, it is possible that *in situ* artefacts exist below the plough zone (which is approximately 250 mm deep). Therefore, sub-surface archaeological investigations should be conducted in this locality before further ground disturbance takes place. See also management and mitigation measures in Chapter 10.

Site SR 4

On flat ground (in a wider undulating plains landscape) with excellent surface visibility (approximately 90%), and roughly 240 metres west of McLaughlins Creek, two flaked silcrete artefacts were located within a ploughed zone of the study area (see Site SR 4 location in Figure 21). The two flaked silcrete artefacts are, due to their plough zone location, not considered to be *in situ* (Figure 25). The sites grid reference location is 0705107E 6107194N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). An area of approximately ten metres surrounding the site was carefully searched for further evidence of Aboriginal cultural heritage material with no results returned.

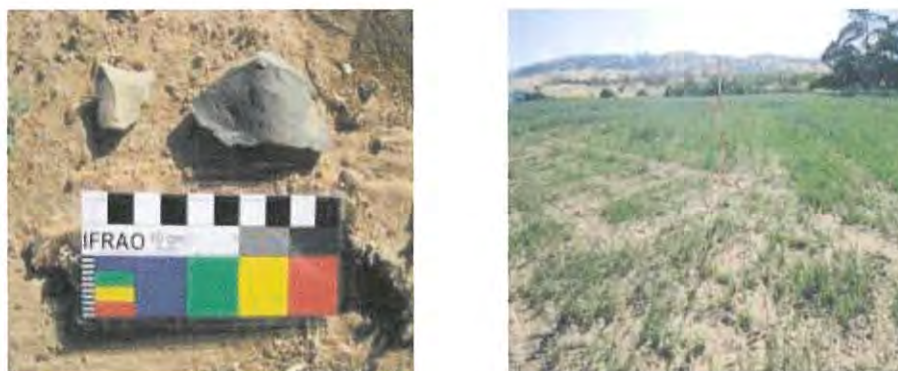


Figure 25 Left picture shows the two silcrete flakes at site SR 4. Right picture shows the landscape where the artefacts are located (at range pole, picture taken facing east).

Site SR 4 is positioned in an area of proposed disturbance. As ground disturbing activities are to be conducted in the location of SR4, an AHIP will be required to conduct an artefact collection before ground disturbance takes place. See also management and mitigation measures in Chapter 10.

Site SR 5

Within approximately 20 metres of McLaughlins Creek on gently sloping flood plain ground within a ploughed zone of the study area, an isolated flaked quartz artefact was located (*see Site SR 5 location in Figure 21*). Due to its plough zone location, the artefact is not considered to be *in situ*. Ground surface visibility within the region of the artefact was good at approximately 65% (*Figure 26*). The artefacts grid reference location is 0705149E 6106951N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). An area of approximately ten metres surrounding the site was carefully searched for further evidence of Aboriginal cultural heritage material with no results returned.

Site SR4 is positioned in the environmental reserve zone of the study area where no ground disturbing activities are planned. As ground disturbing activities are not to be conducted in the location of SR5, an AHIP is not required. It is recommended that the site be left undeveloped and undisturbed. In addition, the sites location should be marked on any future development plans as an area of cultural heritage sensitivity and no ground disturbing activities should occur within 10 metres of the sites boundary.



Figure 26 Left picture shows the isolated quartz flake at site SR 5. Right picture shows the landscape where the artefact was located (at range pole, picture taken facing east).

Site SR 6

Approximately 42 metres west of McLaughlins Creek on gently sloping flood plain ground, within a ploughed zone of the study area, an isolated silcrete core artefact was located (*see Site SR 6 location in Figure 21*). Due to its plough zone location, the artefact is not considered to be *in situ*. Ground surface visibility within the region of the artefact was very good at approximately 80% (*Figure 27*). The artefacts grid reference location is 0705089E 6106860N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). An area of approximately ten metres surrounding the site was carefully searched for further evidence of Aboriginal cultural heritage material with no results returned.



Figure 27 Left picture shows the isolated silcrete core at site SR 6. Right picture shows the landscape where the artefact was located (at range pole, picture taken facing south).

Site SR6 is positioned in the environmental reserve zone of the study area where no ground disturbing activities are planned. As ground disturbing activities are not to be conducted in the location of SR5, an AHIP is not required. It is recommended that the site be left undeveloped and undisturbed. In addition, the sites location should be marked on any future development plans as an area of cultural heritage sensitivity and no ground disturbing activities should occur within 10 metres of the sites boundary.

PAD 1

Approximately 40 metres west of McLaughlins Creek, in the northernmost portion of the study area, a PAD was located (PAD 1) (*see Figure 21 and Figure 28*). This PAD covers an area of approximately 120m by 20m on a raised terraced area overlooking the confluence of an unnamed creek, McLaughlins Creek and the Yass River. There was approximately 5% ground visibility on the PAD's surface at the time of inspection. The soils in this area have been ploughed and therefore the PAD holds only a moderate level of archaeological sensitivity. The entire PAD's ground surface was heavily scrutinised for evidence of Aboriginal cultural heritage with no result. The whole of the PAD area is positioned in the environmental reserve zone of the study area where no ground disturbing activities are planned and as such will not be subject to ground disturbing elements of the proposed development. However, if ground disturbing activities are to be conducted in PAD 1's location, then sub-surface archaeological investigations are to be carried out before ground disturbance takes place. PAD 1's central grid reference location is: 705577E 6107710N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94). It is recommended that the PAD be left undeveloped and undisturbed. In addition, the PAD location should be marked on any future development plans as an area of cultural heritage sensitivity and no ground disturbing activities should occur within 10 metres of its boundary.



Figure 28 Looking south to view the southern end of PAD 1.

PAD 2

Approximately 130 metres west of McLaughlins Creek, in the north eastern portion of the study area, a PAD was located (PAD 2) (*see Figure 21 and Figure 29?*). This PAD covers an area of approximately 160m by 20m on a raised terraced area overlooking the confluence of an unnamed creek and McLaughlins Creek. There was approximately 5% ground visibility on the PAD's surface at the time of inspection. The entire PAD's ground surface was heavily scrutinised for evidence of Aboriginal cultural heritage with no result. This PAD area is positioned within a ploughed zone of the study area and in an area of proposed future ground disturbance. Due to the ploughed soils this PAD can only hold moderate level of archaeological sensitivity. However, as ground disturbing activities are to be conducted in the location of PAD 2, sub-surface archaeological investigations should be conducted before ground disturbance takes place. See also management and mitigation measures in Chapter 10. PAD 2's central grid reference location is: 705420E 6107455N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94).



Figure 29 Looking north to view the southern portion of PAD 2.

PAD 3

Approximately 60 metres west of McLaughlins Creek, in the central eastern portion of the study area, a PAD was located (PAD 3) (see *Figure 21 and Figure 30*). This PAD covers an area of approximately 100m by 25m on a raised terraced area overlooking McLaughlins Creek. At the time of inspection the ground was ploughed and there was excellent ground visibility at approximately 90% on the PAD's surface. The entire PAD's ground surface was heavily scrutinised for evidence of Aboriginal cultural heritage with two sites (SR 2 and SR 3) becoming identified. The soils in this area have been ploughed and therefore the PAD holds only a moderate level of archaeological sensitivity. As this PAD is in an area of proposed future ground disturbance, sub-surface archaeological investigations are required before ground disturbance takes place. See also management and mitigation measures in Chapter 10. PAD 3's central grid reference location is: 705322E 6107233N (Sutton 8727-1S, 1:25,000, 2nd edition, 2002. GDA 94).



Figure 30 Looking east to view a portion of PAD 3. The tree line indicates the position of McLaughlins Creek.

The management and mitigation measures developed below are to be carried out if ground disturbing activities are to be conducted within 10 metres of sites SR 1 to SR 6 or any of the identified PADs 1, 2 or 3.

10 Recommendations and Management and Mitigation

This section relates to the recommendations that have been made in light of the findings from the background research, the archaeological field assessment, the type of development proposed, and the relevant NSW legislation protecting Aboriginal and European heritage.

A total of six separate stone artefact sites – SR 1 to SR 6 – and three areas of PAD, have potential to be impacted upon by the proposed land development. Avoidance of these archaeological sites and PADs represents the best heritage outcome as it means no impact on the identified heritage features.

Based on the results of the present survey and previous regional archaeological knowledge, any as yet unidentified archaeological sites within the study area will

most likely consist of low density stone artefact scatters of quartz, chert and silcrete. As this site type is common to the region, the potential sub-surface Aboriginal cultural material contained within the identified sites and PADs is unlikely to pose an absolute constraint to development.

If avoidance of sites SR 1 to SR 6 and three areas of PADs cannot be used as a strategy, then further heritage assessment will be required in the form of artefact collection and sub-surface investigations. Sites SR 1, SR 5 and SR 6 are single isolated finds that are not *in situ* and not considered to be associated with sub-surface deposits. Site SR 4, although containing two stone artefacts, is at distance from McLaughlins Creek (approximately 240 metres), is not *in situ* and is also not considered to be associated with sub-surface deposits. Therefore, sites SR 1, SR 4, SR 5 and SR 6 should be collected in accordance with an approved AHIP (sites SR 5 and SR 6 are in the Environmental Management Area and only require collecting if disturbance is to occur).

Sites SR 2 and SR 3 are associated with PAD 3. The ground in this area has been ploughed and the artefacts are not considered to be *in situ*. However, as these sites and the PAD are positioned in an archaeologically sensitive location – i.e., on a flat area above and in close proximity to McLaughlins Creek – the artefacts should be collected (in accordance with an approved AHIP) and archaeological sub-surface test excavations conducted in accordance with an approved archaeological management plan (at SR 2 and SR 3 and strategically across PAD 3). The aim of the sub-surface testing program is to obtain information about the nature and extent of sub-surface Aboriginal objects, to better understand the site's characteristics, and to assist in developing an appropriate site management strategy – if required. Any archaeological test excavation procedures must be conducted in accordance with Requirements 15 and 16 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010).

PAD 1 is positioned in the environmental reserve zone of the study area where no ground disturbing activities are planned. For this reason no action needs to be taken in regard to PAD 1's potential archaeological deposits. If ground disturbing activities are to be conducted in PAD 1's location, then sub-surface archaeological investigations are to be carried out before ground disturbance takes place.

PAD 2's surface area has been ploughed and therefore any potential artefacts within the top 250 millimetres of soil could not be considered to be *in situ*. However, as the PAD area is positioned in an archaeologically sensitive location – i.e., on a flat area above and in close proximity to McLaughlins Creek – archaeological sub-surface test excavations should be conducted in accordance with an approved archaeological management plan. The aim of the sub-surface testing program is to obtain information about the nature and extent of sub-surface Aboriginal objects that may exist within the PAD area, to better understand their characteristics and significance, and to assist in developing an appropriate site management strategy – if required. Any archaeological test excavation procedures must be conducted in accordance with Requirements 15 and 16 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010).

A summary of newly located sites and PADs can be seen below in Table 6.

Table 6: Summary of new sites and PADs identified within the study area

Site Type and Name	Stone Artefact Numbers	Site Dimensions	Landscape Location	Grid Reference (GDA 94, Grid Zone 55H)
Site SR 1	1	1m x 1m	Slightly Undulating Plain	0705120E 6107349N
Site SR 2	2	1m x 1m	Gently Sloping Terrace Plateau	0705311E 6107237N
Site SR 3	6	10m x 10m	Gently Sloping Terrace Plateau	0705261E 6107215N
Site SR 4	2	1m x 1m	Slightly Undulating Plain	0705107E 6107194N
Site SR 5	1	1m x 1m	Flood Plain	0705149E 6106951N
Site SR 6	1	1m x 1m	Flood Plain	0705089E 6106860N
PAD 1	0	120m x 20m	Creek Terrace	0705577E 6107710N
PAD 2	0	160m x 20m	Creek Terrace	0705420E 6107455N
PAD 3	8	100m x 25m	Creek Terrace	705322E 6107233N

During the archaeological field inspection of the study area, no historical sites or features of historical significance were identified. Therefore, no archaeological constraints have been placed on any European built structures within the study area.

Within the study area, archaeological constraints are only relevant for the identified site areas SR 1 to SR 6 and PADs 1, 2 and 3. No archaeological constraints have been imposed for the remainder of the study area. If disturbance to the identified Aboriginal cultural heritage sites within the study area cannot be avoided, then an AHIP is required to collect the artefacts before disturbance occurs.

Should any previously unrecorded Aboriginal or historical period heritage sites or objects be identified during the course of the proposed development, then work in the vicinity of the item should cease and the site be reported to OEH in order to determine the appropriate course of action.

Summary

Archaeological constraints are relevant for the newly identified archaeological sites SR 1, SR 2, SR 3, SR 4, SR 5 and SR 6, and PAD areas 1, 2 and 3. Although no ground disturbing activities have been proposed for sites SR 5, SR 6 and PAD 1, it should be noted that these sites are not to be impacted/disturbed in any way during the course of the development. In brief:

- The site SR 5, SR 6 and PAD 1 are positioned within the Environmental Reserve Area of the study area and are not proposed to be impacted by the proposed development.
- Sites SR 1 and SR 4 should be collected.
- Sites SR 2 and SR 3 should be collected and undergo an archaeological sub-surface testing program.
- PADs 2 and PADs 3 should undergo an archaeological sub-surface testing program.
- An AHIP from OEH Queanbeyan will be required for the recommended artefact collections.

No archaeological constraints have been imposed for the remainder of the areas surveyed within the study area.

SUB-SURFACE SAMPLING STRATEGY

If archaeological test pitting goes ahead, it is recommended that:

- SR 2 and SR 3: A minimum of four test pits, 1 metre by 1 metre in size, should be hand excavated at each of the identified stone artefact sites SR 2 and SR 3.
- PAD 3: One fifty metre long transect line should be placed within PAD 3, with hand excavated test pits, 1 metre by 1 metres in size, excavated at ten metre intervals along each transect line.
- PAD 2: A minimum of two fifty metre long transect lines should be placed within PAD 2, with hand excavated test pits, 1 metre by 1 metres in size, excavated at ten metre intervals along each transect line.
- Smaller 0.5 metre by 0.5 metre test pits may be excavated to define an identified archaeological site boundary.
- It is also recommended that if desired by the excavation team, up to four 0.5 metre by 0.5 metre test pits be excavated randomly within the study areas at the discretion of the excavation team – undertaken to capture archaeological samples of specific landforms within the study area.

This technique will ensure that the landforms identified as potentially holding archaeological deposits are adequately tested as part of the sub-surface investigation program. To obtain an appropriate sample of each identified area of interest, the proposed sub-surface testing strategy should excavate a minimum of twenty four test pits with the study area, with a further four 0.5 by 0.5 meter random test pits done if deemed necessary by the excavation team.

It is recommended that copies of this report be provided to the Yass Valley Council and the OEH Queanbeyan Branch for their records and to support any forthcoming permit applications.

UNEXPECTED DISCOVERIES PROTOCOL

This section represents a contingency plan to manage any unexpected Aboriginal Cultural Heritage issues that may be encountered during the construction phase at the Study Area. This contingency plan should be kept on site during the construction works. The plan provides guidance to construction workers so that they may meet their obligations with respect to heritage in accordance with the various OEH 2010 guidelines.

CONTINGENCY FOR THE DISCOVERY OF ABORIGINAL CULTURAL HERITAGE

There is a low potential for previously unknown Aboriginal cultural heritage to be discovered during the proposed activity. The potential for any previously unknown Aboriginal cultural heritage to be uncovered is most likely limited to isolated stone artefacts and low to medium density stone artefact scatters. Such sites are generally of low archaeological significance and if handled correctly, should pose minimal disruption to construction activities.

A person who discovers or suspects they have discovered Aboriginal cultural material during construction activities within the study area covered by this due diligence assessment (see *Figure 1 and 2*) should immediately notify the person in charge of the activity. The person in charge of the activity should then suspend any ground disturbing works at the location of the discovery and within 25 metres of the extent of the suspected site.

The person in charge of the activity must then contact a Cultural Heritage Advisor within two days who shall notify the OEH Queanbeyan Branch (on 62297188) within a period of three working days. The Cultural Heritage Advisor, after consultation with the appropriate RAO group, will be able to evaluate the Aboriginal cultural material to determine if it represents part of a known site or is a new site. A Cultural Heritage Advisor will then be engaged to update and/or complete site records and advise on possible management strategies.

Within a period of three working days a decision/recommendation will be made by the Cultural Heritage Advisor, in consultation with the RAO representative, regarding the process to be followed to manage the cultural material, and how to proceed with the works. These recommendations should be submitted to the OEH Queanbeyan Branch for review and endorsement.

In instances where salvage of discovered Aboriginal cultural heritage is required, decisions about how to proceed with salvage excavation must be made on a case-by-case basis by the Cultural Heritage Advisor, in consultation with the RAOs and the OEH Queanbeyan Branch.

The methodology of any salvage excavation must be appropriate to the site type(s) discovered and the nature, extent and significance of the site(s). Any salvage

excavation undertaken following the unexpected discovery of Aboriginal cultural heritage should abide by the regulations set out in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (2010)* and be undertaken in accordance with appropriate archaeological procedure.

Construction work may recommence within the area of exclusion:

- when the appropriate protective measures have been taken;
- where the relevant Aboriginal cultural heritage recording forms have been completed;
- where all parties agree there is no other prudent or feasible course of action; and
- once any relevant dispute has been resolved.

The Cultural Heritage Advisor and the RAO representatives should ensure that the above steps are followed and that legal obligations and requirements are complied with at all times.

It should be noted that any Cultural Heritage Advisor engaged to investigate any Aboriginal cultural heritage should retain custody of Aboriginal cultural heritage for a period of up to three months for analysis. If a longer period is required for analysis, then the Cultural Heritage Advisor should inform the RAOs and make appropriate arrangements. Aboriginal material should then be individually bagged and labelled with reference to provenance, and be handed to the OEH Queanbeyan Branch or RAO representatives together with copies of the catalogue, assessment documentation, management plan and results of the analysis.

CONTINGENCY FOR THE DISCOVERY OF HISTORICAL CULTURAL HERITAGE

There is a low potential for previously unknown historical cultural heritage to be discovered during the proposed activity. The potential for any previously unknown historical cultural heritage to be uncovered is most likely limited to the underground remains (footings or post remains) of a domestic dwelling and associated artefacts.

If items of an historical nature are uncovered during the construction phase of the Study Area the following procedures must be followed:

- During construction activities, a person who discovers or suspects they have discovered cultural material of an historical nature should immediately notify the person in charge of the activity. The person in charge of the activity should then suspend any ground disturbing works at the location of the discovery and within 25 metres of the extent of the suspected site.
- The person in charge of the activity must then contact the OEH Queanbeyan Branch of the discovery (on 62297188).
- A Cultural Heritage Advisor should be employed to survey the site remains and evaluate their significance.

- If the items are considered to be historically significant the Cultural heritage Advisor should produce a written management procedure for the site and have it approved by the OEH Queanbeyan Branch.
- On completion of the management recommendations, the Study Area developments may continue.

CONTINGENCY FOR THE DISCOVERY OF HUMAN REMAINS

If any suspected human remains are discovered during the construction activity works, all activity in the vicinity must cease immediately. The remains must not be touched and should be left in place and protected from harm or damage. The NSW Police and the NSW Coroner's Office must be notified immediately. If there are reasonable grounds to believe the remains could be Aboriginal, the OEH Queanbeyan Branch should also be notified.

The following five step contingency plan describes the actions which should be taken in instances where human remains or suspected human remains are discovered. Any such discovery within the study area must follow these steps.

1. Discovery:

- if suspected human remains are discovered all activity in the vicinity must stop to ensure minimal damage is caused to the remains;
- the remains must be left in place, and protected from harm or damage; and
- a buffer zone of 50 metres should be established and remain in place around the suspected skeletal remains until they have been assessed.

2. Notification:

- once suspected human skeletal remain have been found, the NSW Coroner's Office (02 85847777) and the NSW Police must be notified immediately (02 62980555);
- all details of the location and nature of the human remains must be provided to the relevant authorities;
- if it is confirmed by these authorities that the discovered remains are Aboriginal skeletal remains, the person responsible for the activity must report the existence of the human remains to a suitably qualified Cultural Heritage Advisor and the OEH Queanbeyan Branch;
- no media is to be contacted in regards to the discovery of human remains; and
- no photographs of human remains are to be taken without appropriate approval of the RAO.

3. Impact Mitigation or Salvage:

- A suitably qualified Cultural Heritage Advisor should consult with the relevant RAOs with an interest in the Aboriginal human remains, carry out an assessment, and determine an appropriate course of action. This course of action should be submitted (in the form of a Cultural Heritage Management Plan) to the OEH Queanbeyan Branch for review and endorsement);
- An appropriate impact mitigation or salvage strategy as determined by the Cultural Heritage Advisor, RAOs, and OEH Queanbeyan Branch should be implemented (this will depend on the circumstances in which the remains were found, the number of burials found, the type of burials and the outcome of consultation with the RAOs);
- On the completion of the prescribed works, the relevant authorities (OEH Queanbeyan Branch) should inform the Site Supervisor (or Project Personnel) that construction works may recommence in the area where the burial was located. If there are further constraints to construction works the Site Supervisor should be informed.

4. Curation and Further Analysis:

- The treatment of salvaged Aboriginal human remains must be in accordance with the direction of the RAOs and the OEH Queanbeyan Branch.

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