Leneva-Baranduda Precinct Structure Plan, Baranduda, Victoria: Aboriginal Cultural Heritage Assessment

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Authors: Timothy Cavanagh, Kendal Houghton and Melanie Thomson
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Prepared by: Melanie Thomson, Timothy Cavanagh and Kendal Houghton
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Summary

This report documents the findings of an Aboriginal Cultural Heritage Assessment (ACHA) for the Leneva-Baranduda Precinct Structure Plan, Baranduda, Victoria (the study area). The purpose of the ACHA is to provide information on the Aboriginal archaeological and cultural heritage values of the study area and provide advice with regards to the *Aboriginal Heritage Act 2006*, specifically the statutory and non-statutory obligations under the Act.

The ACHA is based on detailed background research and a targeted field inspection. The primary intent with the assessment is to inform on legislative obligations with respect to future development, the potential risk associated with different landforms, and provide a predictive model of the study area with respect to potential cultural heritage values. It does not form a comprehensive archaeological investigation of the study area due to the limited scope of the assessment.

Archaeological studies have identified that the region of the study area has been a focus for prehistoric and historic exploitation. Two Aboriginal places have been recorded within the study area as a result of previous archaeological studies. Only 15% of the study area has been subject to archaeological survey, however, it exhibits a number of sensitive landforms that are likely to contain Aboriginal cultural heritage.

The study area is broken into five landform units, being floodplains, hill slopes, alluvial terraces, colluvial terraces and hill tops and ridge lines. Of these five units, three contain high to moderate archaeological potential – colluvial and alluvial terraces, and hill tops and ridge lines. One new Aboriginal Place was located in the alluvial terrace landform – a grinding stone situated on the ground surface, overlooking Middle Creek.

Disturbances across the study area are relatively few for the size of the study area. One residential development to the south of Baranduda Boulevard and west of Middle Creek comprises the largest area of ground disturbance. Other areas include intermittent development zones, such as homesteads, farm infrastructure and roads.

In considering development areas, a comprehensive cultural heritage investigation is recommended for the three landform units that contain high to moderate archaeological potential. The landform which constitutes the majority of the study area – floodplains – contains relatively low archaeological potential and may form the best option for future residential development. Some cultural heritage may be present in this zone in the form of low density artefact distributions or scarred trees, as reflected by Witters survey results (1978), but it is anticipated that these sites should be intermittent and form a ‘background scatter’ of low archaeological significance.

This CHA was completed by Timothy Cavanagh, Biosis Pty Ltd. Timothy is a fully qualified cultural heritage advisor as specified in the requirements of the *Aboriginal Heritage Act 2006*.

Based on the findings, Biosis Pty Ltd advises the following recommendations.

**Aboriginal Heritage Implications**

As a document that will serve to inform the design for the growth area precinct, there are two significant legislative considerations for future development. These are:

1. If any development design plans cover any part of an area of cultural heritage sensitivity (CHS), **AND** that development is listed as a high impact activity under Section 43 of the *Aboriginal Heritage Regulations 2007*, than that development will trigger a mandatory cultural heritage management plan
(CHMP). An exhaustive list of what constitutes high impact activity is listed in the *Aboriginal Heritage Regulations 2007*, and includes activities such as the subdivision of property into three lots or more.

2. If any development design plans do not include an area of cultural heritage sensitivity, then a mandatory CHMP is **NOT** triggered. However, it is recommended that either a voluntary CHMP or a cultural heritage due diligence assessment is undertaken to effectively manage risk.

Cultural heritage sensitive areas for the study area are shown as areas within 200 metres of named waterways; including all of Middle Creek. Also included is land within 50 metres of a registered cultural heritage place. If any development is planned that is high impact and falls within these 200 metre/50 metre zones, then a mandatory CHMP must be completed under the *Aboriginal Heritage Act 2006*.

For clarity, the following has been mapped on Figure 11:

- Legislated areas of cultural heritage sensitivity;
- Potential mandatory CHMP areas;
- Recommended voluntary CHMP areas;
- Recommended site inspection and risk evaluation areas (cultural heritage due diligence).

It is recognised that the large proportion of the legislated areas of cultural heritage sensitivity and areas of high archaeological potential are within areas of designated remnant native vegetation, particularly along the major waterway of Middle Creek. It is anticipated that these areas will form an opportunity to provide preservation of Aboriginal cultural heritage and the cultural landscape.

**Recommendations**

Based on the results of the ground survey, there is a potential for Aboriginal cultural heritage within the study area. The recommendations are relevant at this point in time based on the findings of this assessment and may be subject to change with future additions to areas of cultural heritage sensitivity.

**Recommendation 1**

It is recommended that the current assessment findings be provided to Traditional Owner groups, by the MPA and the City of Wodonga, in an attempt to gather cultural knowledge, oral histories and cultural values for the wider Growth Area prior to public exhibition of the PSP design.

This consultation should be undertaken in the form of strategic and targeted on-site consultation with Traditional Owners in regard to identifying likely locations for major infrastructure and corridors. This would potentially allow for some agreement in principle as to where impacts within the landscape would be appropriate.

**Recommendation 2**

A mandatory CHMP must be completed if any development designs in an area of cultural heritage sensitivity **AND** that the activity is listed as high impact under the *Aboriginal Heritage Regulations 2007*. This recommendation is non-negotiable if these two triggers are met under the *Aboriginal Heritage Act 2006*.

**Recommendation 3**

A voluntary CHMP is recommended in areas of high to moderate archaeological potential for any high impact activity that does not include an established area of sensitivity. Areas of archaeological potential were identified in the ground survey outside of the designated area of cultural heritage sensitivity (colluvial terraces, and hill crests), and there is a potential for unidentified subsurface archaeological material across the remainder of the study area.
A voluntary CHMP will effectively manage the risk of harming cultural heritage. Under Section 27 of the Aboriginal Heritage Act 2006, harming Aboriginal cultural heritage is unlawful, and applies if a person knowingly, recklessly or negligently harms Aboriginal cultural heritage.

Recommendation 4

For areas outside of the voluntary and mandatory CHMP areas, it is recommended that a detailed site inspection and risk assessment is undertaken. While these areas do not contain legislative obligations to complete an Aboriginal archaeological investigation, effective risk management should be prioritised to avoid any damage to Aboriginal Places that may exist in these areas.
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1. Introduction

1.1 Project Background

Precinct Structure Plan (PSP) 1105 covers approximately 720 hectares of rural land adjacent to the Beechworth-Wodonga Road, Baranduda. This current PSP area makes up the northern portion of the larger Leneva-Baranduda Growth Area (approximately 1970 hectares). The Metropolitan Planning Authority (MPA) are coordinating and managing the preparation of the Leneva-Baranduda PSP. The City of Wodonga is the Planning Authority and a stakeholder in the preparation of the PSP. A number of significant physical features and landforms have already been considered in preparation of the PSP design that will be relevant to Aboriginal cultural heritage values, including the Middle Creek corridor (part of the current WREN) and the view lines to the Baranduda Range, Bears Hill and other significant surrounding hills and ridge lines.

This report documents the findings of an Aboriginal Cultural Heritage Assessment (ACHA) for the Leneva-Baranduda Precinct Structure Plan, Baranduda, Victoria. The purpose of the ACHA is to provide information on the Aboriginal archaeological and cultural heritage values of the study area and provide advice with regards to the Victorian *Aboriginal Heritage Act 2006*, specifically the statutory and non-statutory obligations under the Act. This report is a preliminary assessment of the study area. The primary intent with the assessment is to inform on legislative obligations with respect to future development, the potential risk associated with different landforms, and provide a predictive model of the study area with respect to potential cultural heritage values. It does not form a comprehensive archaeological investigation of the study area due to the limited scope of the assessment.

1.2 Assessment Objectives

The following is the summary of the major objectives for the ACHA:

- Undertake relevant database searches and background research to identify known Aboriginal places, and identify landforms and environmental data that may influence Aboriginal archaeological locations.
- Review previous archaeological studies and Cultural Heritage Management Plans to develop a site prediction model relating an appropriate geographic region surrounding the PSP.
- Consult with relevant Aboriginal Traditional Owners groups and stakeholders to assist with collecting, documenting and reviewing oral histories and cultural values.
- Targeted inspection of selected areas within the PSP to identify and describe Aboriginal cultural heritage values. Following discussions with the MPA, it was agreed that the ACHA would be a landform based analysis rather than a comprehensive survey assessment of the study area;
- Provide details of identified Aboriginal places, areas of archaeological potential and cultural values, and illustrate on appropriate mapping for inclusion in the report.
- Evaluate the archaeological and cultural significance of Aboriginal heritage places and values, tangible and intangible.
- Develop detailed recommendations of Aboriginal cultural heritage to inform the proposed design within the PSP, inform the planning scheme and provide guidance on what further detailed assessment is required.
• Register all Aboriginal Places on the Victorian Aboriginal Heritage Register in line with OAAV requirements.

1.3 Location of the Study Area

The study area is located about 10 kilometres south of Wodonga between the Wodonga-Beechworth Road and the Kiewa Valley Highway. It is within the Parishes of Wodonga and Baranduda in the Shire of Wodonga. The Study Area comprises mostly open and wooded farming country and covers approximately 10 square kilometres.

The study area comprises a number of separately owned parcels of land that make up the current 720 hectare Leneva-Baranduda PSP. It is located within the Wodonga City Council Local Government Area and is bounded by Kiewa Valley Highway in the east, Baranduda township and Baranduda Range in the south, cleared farmed ranges to the west and Bear Hill in the north.

Current land use in PSP 1105 is predominantly rural in nature with two non-government schools in the south-east corner and a retirement village located at the southern end of Baranduda Boulevard. A small green waste and recycling operation is located to the east of the PSP at Whytes Road along with a water authority infrastructure facility.

1.4 Proposed PSP Design and Development for the Study Area

The Leneva-Baranduda Growth Area is located in the City of Wodonga in North East Victoria and covers an area of approximately 1970 hectares. It will ultimately form part of a significant expansion of the Wodonga Township. The Growth Area will contribute to a projected ultimate population of up to approximately 14,000 dwellings.

The Leneva-Baranduda Precinct Structure Plan (PSP 1105) is approximately 720 hectares and is identified for future urban development. The PSP will accommodate approximately 7,500 dwellings.

Important features of the PSP include:

• A sizeable proportion of land within the PSP is set aside under the Leneva Valley and Baranduda Native Vegetation Precinct Structure Plan (LVBNVPP) and identified as part of the Wodonga Environmental Retained Network Strategy (WREN). The majority WREN land is in Council's ownership and will be an important contribution to the overarching identity and character of the PSP.

• A number of significant physical features and land forms have been considered in preliminary and historical works within the PSP, namely:
  - Middle Creek, which runs through the PSP and will be an important element to the overarching identity and desired character of the PSP as well as pedestrian/cycling links and open space.
  - View-lines to the Baranduda Range, Bears Hill and other significant surrounding hills which will be important in creating a visual amenity and character.
  - Key road/pedestrian/cycle connections into the Wodonga Central Business Area (boulevard/green links) will be an important feature of the PSP.
  - Adjacent to the northern boundary of the growth area is the Baranduda Enterprise Park which consists of around 265 hectares of industrial land which will be a significant employment node (as well as the Central Business Areas).
- 100 hectare Baranduda Fields Recreation Precinct that will incorporate a significant proportion of regional and local recreation facilities (including sporting fields).
- Activity centre/convenience centre opportunities in the PSP, in particular, adjacent or in proximity to the Baranduda Fields Recreation Precinct and Baranduda Enterprise Park.

1.5 Cultural Heritage Advisor

The qualified Cultural Heritage Advisors (CHA) for this ACHA is Timothy Cavanagh and Melanie Thomson, Biosis Pty Ltd.

Timothy Cavanagh BA (Hons)

Timothy has over five years experience working as an archaeologist in Victoria, Western Australia and the Republic of Georgia. Prior to commencing with Biosis, Timothy received a BA (Hons) from the University of Queensland and the University of Melbourne, and is currently completing a Master of Philosophy in archaeology at the latter.

Timothy has experience in consultation, surveying, sub-surface testing, monitoring and excavating Aboriginal and historical sites. During his time working as an archaeologist in Victoria he has authored CHMP’s, due diligence and salvage reports in the Melbourne metropolitan region and regional Victoria. Other areas of specialisation include residue analysis, molecular analysis and identification of human remains. Timothy is a member of the Global Heritage Fund, the Australian Society of Historic Archaeology and the Australasian Institute of Maritime Archaeology.

Melanie Thomson BSc (Hons)

Melanie has over 15 years experience as an archaeologist, with application to cultural heritage management for various projects throughout Queensland, New South Wales and Victoria. Melanie has acquired extensive experience working as a consulting archaeologist for Biosis over the past five years as both a project archaeologist and project manager. During this time, she has developed skills in both Aboriginal and historical archaeological research, survey, excavation, monitoring, and reporting. She also has technical skills to undertake the analysis of Aboriginal stone tools and historical artefacts. Melanie specialises in assessing the Social Value of Cultural Landscapes in association with Aboriginal and Historical sites and recording and monitoring of Rock Art sites.

1.6 Registered Aboriginal Parties

There was no Registered Aboriginal Party (RAP) or any RAP applicants in place for the study area at the commencement of this report.

The Dhudhurow Waywurru Nations Aboriginal Corporation (Dhudhurow Waywurru) and the Yaitmathang Indigenous Lands Incorporated (Yaîtmathîng) have both previously been RAP applicants for the area but have had their applications declined.

The regional OAAV was contacted regarding the appropriate Traditional Owner (TO) groups relevant to the current Study Area. Manager of the Hume regional OAAV, Francisco Almeida, provided a list of relevant TOs via email. These include:

- Dhudhurow Local Custodians (Traditional Owners, Victoria)
- Dhudhurow Waywurru Nations Aboriginal Corporation (Traditional Owners, Victoria)
- Yaitmathang Indigenous Lands Incorporation (Traditional Owners, NSW)
All of these identified TO groups have at one time been RAP applicants covering an area that encompasses the current study area. The members of these TO groups consist of individuals that once represented Mungabareena Aboriginal Corporation.

1.7 Owners/Occupiers of the Study Area

There are a total of 29 separate property parcels owned by 24 separate individuals or corporations. Each property has been assigned an individual ID number (see Figure 2) that will be used for reference purposes throughout the report.

1.8 Legislative Framework

This report has been prepared in accordance with the *Aboriginal Heritage Act 2006*, specifically the statutory and non-statutory obligations under the Act.

1.9 Limitations

The intention of this report is to inform on the statutory and non-statutory obligations under the *Aboriginal Heritage Act 2006*. It also provides a predictive model of the study area in respect to areas of high, moderate and low archaeological potential. This is provided in two parts, through a mathematical based model and a ground inspection model.

The report is broad scale in its scope and does not form a comprehensive archaeological survey of the study area. The site inspection was carried out over two days and the primary intent was to identify and inspect landforms within the study area. The site inspection did not actively seek to identify new Aboriginal Places or inspect previously registered Aboriginal Places based on the limited time and scope of the assessment.

Not all properties within the study area were accessed. This was due either to no consent for access being received, or the property containing similar landform values to other accessed areas.
Figure 1: Location of the Study Area - Leneva - Baranduda, Victoria

Acknowledgement: VicMap Data Copyright © The State of Victoria, Department of Environment and Primary Industries 2014

Matter: 19803,
Date: 30 March 2015,
Checked by: MT, Drawn by: SKM, Last edited by: lmilne
Location:P:\19800s\19803\Mapping\
Figure 2: Extent of the study area

Coordinate System: GDA 1994 MGA Zone 55

Acknowledgements: VicMap data © State of Victoria

Matter: 19803, Date: 23 April 2015, Checked by: MT, Drawn by: SKM, Last edited by: smitchell

Location: P:\19800s\19803\Mapping\19803_F2_Study_area

Biosis Pty Ltd
Ballarat, Brisbane, Canberra, Melbourne, Sydney, Wangaratta & Wollongong

Scale: 1:20,000 @ A3
2. Aboriginal Consultation

Statement on Community Values – ‘Country’

The term ‘country’ can be seen as enshrining the totality of Aboriginal cultural values associated with place, and an understanding of its meanings is essential to comprehension of Aboriginal heritage values.

Indigenous Australians have an enduring and inseparable relationship with Australia’s land and waterways. This is expressed in diverse associations, perspectives, life experiences and aspirations. It is expressed through the concept of ‘country’, which embraces all the values, places, resources, stories and cultural obligations associated with a geographical area. Indigenous Australians’ social or cultural attachment to a landscape or place may derive from a creation story, or from an historic affiliation such as a mission upbringing, and the associations may differ significantly from non-indigenous Australians’ associations.

(Council for Aboriginal Reconciliation, 1994)

Such significance of country and attachment to it may be historic and long-lasting. However, like all culture, Aboriginal culture is dynamic and constantly developing. New attachments to places, and new meanings of places and things, are of no less inherent cultural value than the ancient.

For Aboriginal people, the significance of individual features is often derived from their inter-relatedness within the cultural landscape. This means that features cannot be assessed in isolation, and that in-depth assessments need to consider a feature and its associations in a holistic manner. Aboriginal peoples have never drawn a distinction between the land and water; both are equal components of ‘country’. Places and landscapes associated with rivers can also be attributed with a range of values. This all means that establishing cultural values for an area requires a range of assessment methods with the close involvement and participation of Aboriginal people. Future detailed assessment should examine and include lands, waterways, landscape features and native plants and animals that are culturally significant to Aboriginal people, ideally those identified by the three Traditional Owner groups that identify with the land encompassed by the Future Urban Structure.

Consultation to date

There was no Registered Aboriginal Party (RAP) or any RAP applicants in places for the study area at the commencement of this report.

The regional OAAV was contacted regarding the appropriate Traditional Owner (TO) groups relevant to the current Study Area. Manager of the Hume regional OAAV, Francisco Almeida, provided a list of relevant TOs via email. These include:

- Dhudhuroa Local Custodians (Traditional Owners, Victoria)
- Dhudhuroa Waywurru Nations Aboriginal Corporation (Traditional Owners, Victoria)
- Yaitmathang Indigenous Lands Incorporation (Traditional Owners, NSW)

All of these identified TO groups have at one time been RAP applicants covering an area that encompasses the current study area. The members of these TO groups consist of individuals that once represented Mungabareena Aboriginal Corporation.
At this stage, Biosis did not involve Traditional Owner (TO) groups in any site inspections as the aim of the ACHA was to assess the archaeological potential of landforms throughout the study area prior to consultation with TO groups. This was discussed and agreed with the MPA and that all consultation would occur post-assessment via the provision of the DRAFT ACHA report. This is in line with recent advice provided by the Metropolitan OAAV regarding consultation.

Before submission of the assessment, representatives of the Dhudhuroa Local Custodians, the Dhudhuroa Waywurru Nations Aboriginal Corporation and the Yaitmathang Indigenous Lands Incorporation were contacted by Biosis and advised of the project scope and intent, along with a request for any information relating to cultural heritage values in the study area. At present, only one response has been received from the Dhudhuroa Local Custodians, who specified that they will be willing to engage in comment on the draft report once provided, and that they would expect engagement in any future cultural heritage management plans undertaken in the future.

In an attempt to gather cultural knowledge, oral histories and cultural values for the wider Growth Area prior to public exhibition of the PSP design, this report was provided to these TO groups in DRAFT for review and comment. It is expected that the TOs who have relevant knowledge, information and oral histories of the Study Area and surrounding region will be able to provide this without a site visit.
3. Background Research

3.1 Environmental Background

3.1.1 Geographic Region

A geographic region has been selected to represent a range of landforms and resources that would be accessible from the study area. Wodonga is situated within the foothills of the Great Dividing Range and Victorian Eastern Uplands geomorphological unit. The geographic region is located on the Northern Riverine Plain within the unnamed alluvial fans, aprons and terraces characteristic of Yackandandah Valley. The geographic region is bound by the House Creek to the west, the Ovens River to the east, the Baranduda Ranges to the south and to the north by the Murray River. This geographic region would have afforded abundant opportunities for Aboriginal people to access food, water and other resources. The study area would have been favourably situated with respect to resource exploitation.

3.1.2 Geology and Geomorphology

The study area is predominantly located on the Northern Riverine Plain in an area dominated by Alluvial Fans and Aprons (geomorphological unit 4.3) (State of Victoria Department of Environment and Primary Industries, 2015). This area is comprised of parts of the Murray Valley and Kiewa River floodplains in the north and the Baranduda Range to the south (Land Conservation Council, 1974). The Baranduda Range is part of the eastern physiographic region of metamorphic and granitic rock, where movements of faults have shaped the valley and range topography. This Range is part of the Sog Omeo Metamorphic Complex gneiss which was uplifted relative to the surrounding land during the early Ordovician period between 477 and 490 million years ago (Land Conservation Council, 1974). Soils within this area are characterized by weakly blanched gradational soils, formed by the gradual deflation of the Baranduda Range and typically contain Neogene ferruginous sediments in shallow areas.

The Baranduda Range adjoins the dissected landscapes of the Eastern Uplands which form drainage systems onto the Northern Riverine Plain. The geology of the floodplains formed by this drainage is comprised of moderately dissected ridge and valley landscapes (geomorphological unit 1.4.5) occur on the western most tip of the study area, while outlying ridges and hills (geomorphological unit 1.4.6) occur north of Middle Creek, known as Bear Hill. The geology of these areas is predominantly Qc1 Unnamed colluvium which is comprised of non-marine gully alluvium, colluvium, gravel, sand and silts deposited during the Holocene. The deposits associated with Middle Creek in the centre of the study area are Qa1 unnamed alluvium which is also comprised of non-marine fluvial, alluvium, gravel, sand and silt deposited during the Holocene. Soil profiles within the floodplain and associated with Middle Creek include sandy loams and yellow-brown gradational soils on alluvium.

The broader region would have provided some sources of unevenly distributed raw stone materials. These would have been available for use by the Aboriginal people for stone tool manufacture. The bands of quartz found in gneiss outcrops further west could have been extracted and used to manufacture stone tools. Other materials, such as quartzite and rhyolite, would also have to have been imported from outside the study area. Quartz river pebbles from Middle and Yackandandah creeks would also have been used to tool manufacture. Greenstone axes were traded into north-eastern Victoria for spear shafts (Aboriginal Affairs Victoria 1996, p.6).
3.1.3 Climate

The climate within the region of the study area has been relatively stable for the last 5,000 years with warm dry summers and mild wet winters. Prior to about 10,000 BP, particularly at the end of the Last Glacial Maximum, conditions were cooler and drier than today, but may have still resulted in relatively abundant resources on which Aboriginal people depended.

Victoria is within a Temperate Zone signified by a warm summer and cool winter, autumn and spring being the mildest seasons with short occasional rainfall. In the region, the mean maximum temperature in January is 31.8° C, falling to 12.6° C in July and annual rainfall is 714.5 millimetres a year (Australian Government Bureau of Meterology, 2015).

These climatic conditions, as well as historical climatic extremes such as seasonal drought, the strength of prevailing winds and variation in water abundance would have influenced Aboriginal occupation and historic settlement patterns due to the particular species of flora and fauna supported by these conditions and hence the practicality of harvesting food and material resources.

3.1.4 Flora

The geographic region is located within the Northern Inland Slopes and Victorian Riverina bioregions, which are characterised by foothill slopes and minor ranges which separate the High Country from the Murray River floodplain. These areas typically consist of a variety of texture contrast soils (Chromosols and Sodsols) giving rise to a wide variety of Eucalypt species, predominantly River Red Gum *Eucalyptus camaldulensis* and box species (State of Victoria Department of Environment and Primary Industries, 2015). Along the banks of Middle Creek the understorey would have included Slender Knot Weed *Polygonum minus*, Water Pepper *P. hydropiper* and Curled Dock *Rumex crispis* as well as rushes and riparian grasses. These together with tussock grasses form a continuous ground cover (LCC 1974; 59-60). Willows and introduced grasses are now common in the study area also.

Classification of native vegetation in Victoria follows a typology in which ecological vegetation classes (EVC) are the primary level of classification. An EVC contains one or more plant (floristic) communities, and represents a grouping of broadly similar environments. Classification of EVCs in this CHMP follows Department of Sustainability and Environment benchmarks.

The pre-1750 mapping of the area encompassing the study area would have previously supported several EVCs from both the Northern Inland Slopes and the Victorian Riverine bioregions (State of Victoria Department of Environment and Primary Industries, 2015). There EVC’s are outlined in the table below.

Table 1: Bioregions and EVCs within the study area

<table>
<thead>
<tr>
<th>Victorian Riverina</th>
<th>Northern Inland Slopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 Plains Grassy Woodland</td>
<td>55 Plains Grassy Woodland</td>
</tr>
<tr>
<td>22 Grassy Dry Forest</td>
<td>22 Grassy Dry Forest</td>
</tr>
<tr>
<td>251 Grassy Woodland / Valley Grassy Forest Mosaic</td>
<td>251 Grassy Woodland / Valley Grassy Forest Mosaic</td>
</tr>
<tr>
<td>175 Grassy Woodland</td>
<td>175 Grassy Woodland</td>
</tr>
<tr>
<td>190 Plains Grassy Woodland / Valley Grassy Forest / Grassy Woodland Complex</td>
<td>190 Plains Grassy Woodland / Valley Grassy Forest / Grassy Woodland Complex</td>
</tr>
<tr>
<td>47 Valley Grassy Forest</td>
<td>47 Valley Grassy Forest</td>
</tr>
<tr>
<td>56 Floodplain Riparian Woodland</td>
<td>56 Floodplain Riparian Woodland</td>
</tr>
</tbody>
</table>
Aboriginal people living in the vicinity of the area would have utilised the tree canopies of the local eucalypt species (including River Red Gum *Eucalyptus camaldulensis*, Swamp Gum *Eucalyptus ovate*, Grey Box *Eucalyptus microcarpa* and Yellow Box *Eucalyptus melliodora*) as part of their subsistence strategies. Tree bark was cut and used to form canoes and dishes and the burls were hollowed out to create bowls and water carriers (Gott & Conran, 1991). The flowers of some eucalypt species were soaked in water to allow the nectar to seep out, creating a sweet drink (Zola & Gott, 1992). The sap and leaves were also used for medicinal purposes: the sap to give relief from burns and the leaves as a steam bath (Gott & Conran, 1991).

In addition to the tree canopy, many species available in the understory were harvested for food and material resources. One of the most important plants was the bulrush (*Typha* sp.) as this grew commonly along swamp and river margins. The roots were collected in great summer, when they were abundant, and were used for making cord for nets, fishing lines, ropes, belts and bags, while the stems were used for nose pieces, spear shafts and necklaces (Aboriginal Affairs Victoria 1996, p.7). Bulrush nets were made by chewing the roots, and some of the larger nets are known to have been 100 metres long (Aboriginal Affairs Victoria 1996, p.4). Some species such as Golden Wattle *Acacia pycnantha* produces a sweet gum which was collected by seasonal notching of the bark in to stimulate the gum expulsion (Gott & Conran, 1991). Balls of the gum were collected and either eaten or carried around and dissolved in water with flower nectar to make sweet drinks. Species such as Black-anther Flax Lily *Dianella revolute* s.l. were split along the centre rib and twisted together to make strong ties (Zola & Gott, 1992).

Aboriginal people living along the waterways in north-eastern Victoria, were known to construct weirs made from interlaced tree branches and turf across dry creek beds close to their junction with the Murray. After the river flooded and began to recede these weirs were supported with wooden stakes to trap the fish behind them, enabling their easy capture (Aboriginal Affairs Victoria 1996, p.3).

Current EVC mapping indicates that remnant native vegetation is still present within the study area. As this EVC contains large eucalypt species there is potential for evidence of previous occupation by Aboriginal people such as scarred trees to be present within the boundary of the study area. This type of archaeological evidence will be identified during a standard assessment.

### 3.1.5 Fauna

When William Wyse, the Huon brothers and Robert Brown arrived in the Wodonga area in 1835-1836 they observed that the area teemed with wildlife such as the kangaroo, possum, emu, birds of many varieties and abundant fish (Jones H., 1998, p. 18). Since then a vast array of fauna classes have been recorded within the study area. Mammalian species such as the Eastern Grey Kangaroo *Macropus giganteus*, Sugar Glider *Petaurus breviceps*, Squirrel Glider *Petaurus norfolcensis*, Brush-tailed Phascogale *Phascogale tapoatofa*, Common Ringtail Possum *Pseudocheirus peregrinus*, Short-beaked Echidna *Tachyglossus aculeatus*, Common Brushtail Possum *Trichosurus vulpecula*, Common Wombat *Vombatus ursinus* and Swamp Wallaby *Wallabia bicolor* have all been recorded within the study area since European exploration and were prevalent across the surrounding region (GlobalBiodiversityInformationFacility, 2015). These species were hunted by Aboriginal people for their meat and the pelts were used to make clothing and other items. Strict fire regimes were utilised to clear land for containing larger animals such as kangaroos and wallabies to certain areas by encouraging particular vegetation on which the animals grazed (Aboriginal Affairs Victoria, 1996).

Middle Creek, a tributary of the Kiewa River, runs through then centre of the study area. This riverine environment would have provided species such as water birds, ducks and swans as part of the Aboriginal diet, as well as various species of fish, crayfish, turtles, water rats and eels which would have used the Middle Creek as habitat (Albury-Wodonga Development Corporation, 1982).

Prior to European settlement, the grassy woodlands of the geographic region would have provided extensive subsistence resources for Aboriginal people. However, the introduction of the rabbit, fox, cat, house mouse,
black rat and hare has greatly reduced the native fauna and these introduced species are now widespread across north-eastern Victoria.
Figure 4: Geomorphology and Victorian Aboriginal Heritage Register (VAHR) places of the geographic region.
Figure 5: Pre-1750 Ecological Vegetation Classes (EVCs) of the study area

Legend
- Study area
- Lot boundary

Ecological Vegetation Class
- 175 Grassy Woodland
- 190 Plains Grassy Woodland/Valley Grassy Forest/Grassy Woodland Complex
- 22 Grassy Dry Forest
- 251 Grassy Woodland/Valley Grassy Forest Mosaic
- 47 Valley Grassy Forest
- 55 Plains Grassy Woodland
- 56 Floodplain
- Riparian Woodland

Coordinate System: GDA 1994 MGA Zone 55

Acknowledgements: VicMap data © State of Victoria

Metres
Scale: 1:20,000 @ A3

Date: 22 May 2015
Checked by: MT, Drawn by: SKM, Last edited by: smitchell
Location: P:\19800s\19803\Mapping\19803_F5_1750EVCs

Biosis Pty Ltd
Ballarat, Brisbane, Canberra, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong
3.2 Aboriginal Heritage

For the purposes of this assessment, information about Aboriginal Victorian pre and post contact history has been sourced from nineteenth and twentieth century primary and secondary ethnographic/historical records.

3.2.1 Ethnohistory

Prior to European colonisation, the Victorian landscape was delineated by socio-dialectical groups who shared a common language and who as a group identified as owning particular areas of land, with individually owned tracts of country. This was a system of spatial organisation based on land tenure (Clark, 1990).

The *Waveroo* held land south of the Murray River including Wodonga, Baranduda, Tallangatta and as far south as Benalla (Barwick, 1984, p. 118; Clark, 1990).

Land ownership and access rights or responsibilities centred on the smaller named groups that formed the broader language grouping. These groups are often called ‘clans’ or ‘local descent groups’, however as (Wesson, 2000, p. 8) reasons, they are better described as ‘named groups’, as the membership structure of these groups, and their degree of division from other groups, could vary. In most instances, primary allegiance was owed to this named group, although this could vary according to context and location. Commonly, named groups were led by senior elders who exercised internal political and religious authority, as well as being recognised as their spokesperson when dealing with other groups (Atkinson & Berryman, 1983). Particularly influential group leaders could also assume authority over the leaders of other culturally affiliated groups (Wesson, 2000). The named group who occupied the study area were the *Duduroa*. This clan occupied the area between the Ovens River and the Kiewa River, south of the Murray (Barwick 1984, p.118), and encompassing the Buffalo, Ovens and King river systems (Clark, 1990, p. 311).

Social activity involving neighbouring named or socio-dialectical groups was usually held in warmer periods, held at the intersection of group boundary's and arranged by a person assigned of the responsibility of travelling between groups to organise the time, place, and events of the meeting. This person could speak a number of different dialects and acted as intermediaries in negotiations between the groups. Activities would include sports and dancing, with up to 500 men, women and children attending (Atkinson & Berryman, 1983).

The succession or inheritance of lands and named-group estates could occur in a number of ways. Individuals and groups could inherit lands from their father, their mother, through their birthplace, conception place, the burial place of their ancestors, and through totemic connections (Wesson, 2000). Access rights also crossed generations and marriage partners. Howitt (1904, p. 311) wrote that:

> The right to hunt and to procure food in any particular tract of country belonged to the group of people born there, and could not be infringed by others without permission. But there were places which such a group of people claimed for some special reason, and in which the whole of the tribe had interest. Such a place was the stone quarry at Mt. William near Lancefield, from which the material for making tomahawks was procured. The family proprietorship in the quarry had wide ramifications... when neighbouring wished for some stone they sent a messenger to Bill-billeri saying that they would send goods in exchange for it, for instance, skin-rugs.

People would often travel or reside in the territory of another named-group so that they could fulfil religious or family obligations, or exercise the privilege, granted to them by family or moiety associations, of exploiting the resources of another estate (Barwick, 1984). For daily activities and the exploitation of local estates, people are thought to have travelled in small residential units or extended family groups - often termed bands (Wesson, 2000).
Moiety Affiliation

A further level of social organisation was moiety affiliation. Membership to a named group is variably defined by a localised matrilineal or patrilineal descent group, with female member of the group partnering with men outside of their group (exogamous) and across moiety lines; however they maintained an identity of belonging to their father’s group. Men then had to adhere to certain duties such as providing food to their father-in-law. Social engagement could be influenced by appropriate conduct between family members, for example men had avoidance behaviours they had to adhere to in the presence of their mother-in-law, and there were other speech or special duties which were expected in family relationships (Atkinson & Berryman, 1983).

Religion

Knowledge of Aboriginal religion was recorded and maintained through visual and oral tradition which ensured the maintenance of social structures through generations. Such knowledge was not always readily shared with non-Indigenous social observers and as such limited written versions from early settlers, explorers or government employees exist for Victoria. Ceremonies were occasionally preformed to entertain Europeans however the meaning behind these performances was never fully explained (Robinson, 1840). Private ceremonies and locations, such as age initiations were actively kept secret (Presland, 1994).

Economy and Resource Utilisation

Certain individuals within Aboriginal groups had responsibilities assigned to them for the management of natural resources. Anthropogenic manipulation of the environment was observed by the first Europeans within northern Victoria, for example fire regimes which cleared tracks also aided in hunting and dissuaded settlers for entering Aboriginal territory (Atkinson & Berryman, 1983).

Canoes were cut from the bark of river red-gums and box trees in spring to early summer, hafted with stone axe heads, shaped over a fire, seasoned in the sun, then the end blocked with clay (Edwards, 1975). Hooped nets made from fibre were used to catch crayfish, yabbies and fish, while cross-line nets were strung low above the water for catching ducks or below the water to catch schools of fish (Gott & Conran, 1991). Line nets were also used to catch emus and kangaroos; a strategically placed group of people drove the animals towards the nets. Reed spears with hafted bone, carved barbs, stone pieces or hardened wooden points set into the head were used for catching larger marsupials. Oven mounds, an underground cooking pit, were then constructed to bake the game or large volumes of vegetables. (Atkinson & Berryman, 1983).

Many place names still in use across Victoria were originally derived from the local indigenous word describing a predominant topographical feature of the landscape. The name ‘Baranduda’ (‘Burranduda’ or Barandidja’) is said to mean “swamp water rat” (Jones P., 1992, p. 2)

3.2.2 Historical Accounts of Aboriginal People

Early relations between the Waveroo and the first white families to settle in the area during 1835-1836 were amicable. Jones reports that the Street family at Gundowring and the Kinchington’s at Kergunyah were friendly with local Aboriginal families. The local clan leader, Jillamatong, visited the Kinchington huts/tents to see the valley’s first white baby, George Street, who was born in September 1839 (Jones P., 1992) Gundowring, to the south-east of Baranduda, was a major gathering place for the Duduroa and the last great corroboree was held there in 1851, with Jillamatong dying the following year (Jones P., 1992). According to the Street family the local Aboriginals travelled from station to station gathering flour or tobacco, and Thomas Street learned many of their customs and language as a boy (Jones P., 1992).

When squatters arrived in the region and commenced settling, running stock and fencing runs, the traditional lands of the local Aboriginal populations were threatened and skirmishes were often reported. Barwick (1984) describes an occasion in 1838 when senior men and their families from every Kulin and Waveroo clan
were travelling throughout central and north-eastern Victoria to attend a series of male initiation ceremonies. Squatters and officials misinterpreted the travelling of messengers and assemblies of clans as planning for “concerted warfare”. Although various sources documented that planning for the ceremonies was underway in January 1838, in April 1838 William Faithfull's un-supervised convict servants disrupted a large gathering at Benalla and on April 11 1838 they shot some participants and were themselves speared. Several punitive expeditions followed, including George Faithfull and Peter Snodgrass' massacre of another ceremonial gathering near Wangaratta (Barwick, 1984). Local squatters were thought to have carried out private raids on a regular basis, though very few are recorded (Jones H., 1998). A police camp was established outside Albury in 1838 to protect the white populace from Aboriginal attack (Jones H., 1998). By 1862, 40 Aboriginal people from various clans from the Upper Murray to the Goulburn River were living under protection at Tangambalanga (Jones P., 1992). A camp was established there by the Chief Protector of Aborigines, George Augustus Robinson, and run by Thomas Mitchell.

Today, despite massive depopulation in the broader Albury-Wodonga area by the mid-1800s of its traditional inhabitants, the twin towns and the broader region have a significant Aboriginal presence. In 1972 the Families Resettlement Scheme encouraged Aboriginal people from around New South Wales to move there. Although few people today can trace their ancestry to the Albury-Wodonga region directly, strong cultural links are held with the land, along with a real concern that places and sites of cultural heritage significance be properly protected and managed.

3.3 Post Contact History

The rapid spread of European colonisation altered Victorian Aboriginal society. The increased presence of settlers on Aboriginal land resulted in dispossession from land and diminished access to resources. These factors combined with population decline from introduced diseases and conflict, transformed Aboriginal pre-contact society to be orientated around colonial activity; such as movement onto camps to the outskirts of towns or relying on European industry for livelihood.

Early explorers Hume and Hovell saw the smoke from Aborigines' fires in the Wodonga area during their explorations of 1824 (Jones 1996: 17). One large camp was reported to have been at Mungabareena (on the outskirts of Albury), where “up to 500 to 600 were often to be found” (Andrews, 1920, p. 35). William Howitt visited Albury in 1855 and recorded a camp of Aboriginal people on the Wodonga Flats and witnessed people swimming in the river. Howitt observed people camping in gunyahs or bark huts, using spears and tomahawks (Jones H., 1998, p. 21).

Local settler, John Brown, is reported to have had good relations with the local Aboriginal clans people and was responsible for handing out blankets every Queen's Birthday. This appears to be in contrast to general relations between the white settlers and Aborigines. When squatters and stockmen arrived in the area and commenced fencing pastoral runs, the food supply was cut off and some incidences of shootings were recorded (Jones H., 1998, p. 18). Barwick (1984) describes an occasion in 1838 when Waveroo and Wiradjuri men travelled to Benalla and other locations to attend male initiation ceremonies. Squatters and officials misinterpreted the travelling of messengers and assemblies of men as a prelude for war.

When, in April 1838, William Faithfull's convict servants interrupted a ceremony at Benalla, and shot some participants, they were speared in retaliation. In further retaliation, George Faithfull and Peter Snodgrass killed a number of Aborigines at a gathering near Wangaratta (Barwick, 1984, p. 120). As a result of increased hostilities, a police camp was established outside Albury in 1838 (Jones H., 1998, p. 19).

In 1839 an Aboriginal Protectorate Scheme was established, with appointed Protectorates to provide religious instruction, rations, homes and medical care to Aboriginal people whilst recording population information; and to encourage Aborigines to adopt a European lifestyle (Atkinson & Berryman, 1983). Official inquiries into
the welfare of Aboriginal people were held in 1849 and again in 1858-1859. Although informants at the inquiries remarked on the rapid fall in the Aboriginal population, it was a number of years before any action was taken. The inquiry led to the formation of the Aboriginal Protection Board in 1860 which encouraged Aboriginal people to move onto reserves.

Aboriginal people remained in the Wodonga region throughout the 1840s and 1850s despite clashes with the white settlers (Jones H., 1998, p. 20). In 1862 the Border Post recorded a group of about sixty Aboriginal people who travelled around the region, although the local Aboriginal population appears to have been drastically reduced through contact with European diseases, shootings and poisonings by local white settlers as well as alcoholism. Those who remained were sent to various camps that had been set up by the Chief Protector of Aborigines, George Augustus Robinson. The camp closest to the study area was at Tangambalanga, now on Lake Hume, approximately 15 kilometres to the south-east. This was run by Thomas Mitchell, and by 1862, the official records show that only 60 Aboriginal people were listed as living east of the Goulburn River (Andrews, 1920, p. 36). Others who remained of the traditional families of the Albury-Wodonga area may have been sent to Lake Tyers in Gippsland or were sent to other missions across the state.

Today, despite massive depopulation in the Albury-Wodonga area by the mid-1800s of its traditional inhabitants, the twin towns have a significant Aboriginal presence. In 1972 the Families Resettlement Scheme encouraged Aboriginal people from around New South Wales to move there. Although few people today can trace their ancestry to the Albury-Wodonga region directly, strong cultural links are held with the land, along with a real concern that places and sites of cultural heritage significance be properly protected and managed.

### 3.3.1 VAHR Places

A search of the Victorian Aboriginal Heritage Register (VAHR) was undertaken on 10 April 2015 by Kendal Houghton, Biosis Pty Ltd. A total of 58 previously recorded Aboriginal places are present within the geographic region (Table 2).

**Two of these places are located within the study area:**

**Leneva 5 (VAHR 8225-0153)** is an artefact scatter of one quartz artefact located in agricultural farmland south of Martins Road. The single quartz core fragment was located eroding from on the northern bank of a dam which uses the natural slope of a medium rise as its bank. Estimated depth of the artefact was 15 centimetres.

**Boyes Road Baranduda 1 (VAHR 8225-0270)** is a scarred tree located in partially inundated agricultural farmland, northwest of Boyes Road in Baranduda. The tree was dead and in very poor condition at the time of recording. One scar was located on the main trunk, measuring 4.5 metres length and 0.4 metres wide at a height of approximately 1.9 metres, the total girth of the tree at the height of the scar measuring 3.82 metres.

The majority of the places within the geographic region are artefact scatters (71%) although a large number of scarred trees area also present (29%).

The most frequently occurring raw material type present within these artefact scatters is quartz. Given the close proximity of the majority of previously recorded artefact scatters to water sources such as Middle Creek and the Kiawa River, this indicates the potential use of local quartz pebbles from the creek and river banks for tool production. It also indicates the potential for artefact scatters to be present within the study area along the banks of Middle Creek where these quartz pebbles are commonly found.

Scarred trees recorded within two kilometres of the study area represent a wide variety of species. Stringy Bark and Blakely's Red Gum are present as well as various Box species and some recorded as Unknown. No pattern can be discerned indicating one species preference over another or linking scar typology (canoe, shield, container, etc) to a particular species.
Many of these previously recorded places were recorded by the Victorian Archaeological Survey in 1978. While recorded a large number of Aboriginal places in the area south of Wodonga, failed to record any of the isolated artefacts located during the survey on the VAHR (please see section 2.3.2 for further details). This indicates the potential for isolated artefacts to be present in area which may have been previously surveyed for archaeological potential.

Table 2: VAHR places within the geographic region, places within the study area shaded dark grey

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<th>VAHR No.</th>
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<th>Type</th>
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</tbody>
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3.3.2 Previous Archaeological Assessments

Aboriginal archaeological studies associated with specific developments and broad regional studies have been carried out within two kilometres of the study area (Table 3). Assessments which have been carried out within the study area highlighted in dark grey.

The majority of studies undertaken which include the study area are wide ranging regional studies of the broader Wodonga or north-eastern Victoria region. These studies have predominantly been in response to development proposals, and so are haphazardly located with regard to landform. Given the sporadic nature of archaeological survey in the Wodonga area and the limited survey coverage of the study area previously undertaken, there is high potential for as yet unrecorded Aboriginal places to be present within the study area outside of these previously investigated areas. However the surveys are valuable in contributing to predictive models for the location of unrecorded Aboriginal places to be made for the study area.

The small number of archaeological investigations carried out in the Baranduda area have been conducted in response to linear survey routes for fibre cable networks or roads projects (Hughes, 1978; Paton 1993; Kelly & Price, 2005), for broad areas intended for future residential developments (Witter 1978, Albury Wodonga Development Corporation 1982; Bell 2004; Debney 2004; Thomson, Cekalovic & Matthews 2003) or more specific developments (du Cros 1996, Bell 2010; Bell & Edwards 2011). A variety of different Aboriginal place types have been recorded as a result of these assessments, including scarred trees, artefact scatters and exposures of cultural material, including ochre, clay balls and bone fragments, in creek and river banks.

Scarred trees (culturally modified trees) have had slabs of bark removed for purposes of constructing canoes, shelters, shields and containers, and commonly date to within the last 500 years. According to Crosby (1980) the age of the oldest surviving trees in the Wodonga area is estimated to date to this age. Scarred trees in the Baranduda area are usually found close to permanent or ephemeral water courses such as Middle Creek which runs through the centre of the study area. Scatters of stone artefacts are also common to the region and usually contain quartz artefacts. Unsurprisingly therefore, the majority of these artefact scatters are located in close proximity to water courses, which are a major local source of quartz river pebbles.

Witter (1978) carried out a regional survey of the Upper Murray around Albury-Wodonga at Thurgoona in NSW and Baranduda in Victoria. The pedestrian survey carried out in Baranduda included a portion of the eastern study area. The survey was conducted in order to identify and assess Aboriginal archaeological places in the Baranduda and Thurgoona areas, which were scheduled for intensive residential development by the Albury-Wodonga Development Corporation. A major aim of the survey was to provide management recommendations for any endangered sites.

The study was greatly disadvantaged by heavy ground cover and the presence of natural quartz. Ground cover meant that many of the sites present in the landscape may have been obscured from view and could therefore not be recorded, while the occurrence of natural quartz made it more difficult to determine cultural artefacts from natural stone fragments. The processes of sheet erosion and gullying were also considered to bias the survey results due to the likelihood of shallow sites being churned up. Witter concluded that the Baranduda study area offered limited potential for the presence of cultural material in areas where ground cover was sparse, and identified that places of any antiquity were less likely to be found in the area due to lack of exposure of older land formations, and potential to confuse natural and cultural rock.
Plan 1: Location of isolated Aboriginal artefacts situated in the south east properties within the current study area (approximately outlined in red – parcel ID #13, 14, 15 and 28)

In total, the study located 13 surface artefact scatters, two scarred trees and 69 isolated artefact Aboriginal places (Plan 1), however, only the artefact scatters and the scarred trees have been recorded on the VAHR. Witter's report mapping clearly indicates a number of isolated artefacts within the eastern section of the present study area (Plan 1). Sub-surface testing of the registered artefact scatters was undertaken along the Kiewa River floodplain to determine the presence of any sub-surface material. Auger probes and test excavations were used to investigate two of the sites identified closer to the Kiewa River (VAHR 8225-0009 and -0017). An analysis of the stone assemblages showed that the predominant raw material was local quartz and that there were few formal tools. The ground tools, such as axes or milling stones, were made from non-local materials and were represented in the assemblage as fragments only. Implements used for chopping and grinding may have been well maintained by their Aboriginal owners and therefore removed or cached upon departure. No sub-surface testing was undertaken in association with any of the isolated artefacts or scarred trees. No sub-surface testing was carried out within the present study area boundary as part of this investigation.

Paton (1993) conducted six short archaeological surveys in Northern Victoria to assess suitability for the installation of a Fibre Optic Cable. The closest survey to the current study area was a 42 kilometres alignment between Baranduda and Yackandandah south of the study area. Two Aboriginal places were recorded in this
corridor survey, both were scarred trees, and twelve archaeological places in total were located throughout the survey of all six corridors. Paton attributed the relatively low number of sites to a high level of disturbance along the study corridors. Poor ground surface visibility and the lack of representation achieved by linear surveys were also identified as factors which may affect the amount of cultural material identified.

Bell (2002) carried out a heritage study for the proposed Albury Wodonga Bypass Route, running through the Albury-Wodonga region. One Aboriginal place (a scarred tree) was identified during the survey. Bell concluded from her study that the potential for locating Aboriginal archaeological material on the floodplains south of Wodonga by archaeological survey is relatively low due to the impacts on the landscape over the years. Most archaeological material is likely to have washed away or have been buried below the current ground surface, with the exception of scarred trees, most of which are unlikely to have survived land clearance and tree felling activities that took place after European settlement in north-eastern Victoria.

Debney and Cekalovic (2004) undertook an archaeological survey and sub-surface testing program in the Baranduda Range adjacent to the current study area between Avalon Road and Baranduda Boulevard. During pedestrian survey an area of archaeological potential was identified along an ephemeral waterway which extends into the present study area. Eighty shovel probes were excavated along the eastern edge of the water way at ten metre intervals. Two soil profiles were recorded within these excavated areas. The north-western shovel probes contained hard packed light yellow/brown silty topsoil overlaying orange/brown clayey sand. The south-western shovel probes contained brown sandy loam topsoils overlaying yellow clayey sand. Given that the waterway investigated extends into the present study area and that these excavations were undertaken within 50 metres of the boundary of the present study area, it is likely that these soil profiles will be present within the southern portion of the current study area. No cultural material was identified as part of these investigations.

Thomson, Cekalovic and Matthews (2003) undertook an archaeological survey of land in Leneva prior to rezoning. This survey included much of the western portion of the study area. Ground surface visibility during the pedestrian survey was poor due to thick vegetation coverage although patches of 100% visibility were recorded along tracks and in areas of sparse grass cover. Disturbance within the present study area was recorded as a result of vegetation removal, revegetation, dam construction and the construction of tracks and fences, although the exact locations of these disturbed area are not indicated within the report. It was also noted that several large older trees are still present across the study area, most likely left as shade trees for livestock during the land clearance which occurred after European settlement. Five Aboriginal places were recorded during the investigation (VAHR 8225-0149 to -0153), including Leneva 5 (VAHR 8225-0153) an isolated quartz core fragment (please see section 2.3.1 for details) present within the current study area. This place was recorded as having low scientific significance due to the minimal amount of archaeological material present, its condition and representativeness. The area as a whole was noted to have moderate potential to contain archaeological material within the sub-surface deposits of the study area.

Bell and Edwards (2011) undertook a cultural heritage management plan for a proposed residential and commercial development at North Leneva which included land in the north-west of the study area. All land included in the assessment was identified as farmland although no indication is given concerning the presence or extent of ground disturbance within the study area. A total of one 500mm² test pit and nine shovel probes were excavated during the complex assessment. The soil profile recorded during excavation was comprised of dark brown sandy silt overlaying brown sandy silt with ironstone inclusions between 100 millimetres and 300 millimetres, overlying brown clayey sand to approximately 400 millimetres and a to very wet brown clay base at approximately 500 millimetres. Although no Aboriginal cultural heritage was located during excavations, this soil profile is expected to be present within the western section of the study area.

Although not located within two kilometres of the study area, but still relevant to this study area, Thomson (1996) undertook a survey of North East Victoria with the primary objective being to assess the relationship
between site occurrence/form and landform. A 20 kilometre area from the head of Ovens River to the Murray River east of Yarrawonga was chosen as a sample transect along which the survey was undertaken, as all major landforms are represented within the strip. A total of 111 Aboriginal places were recorded, comprising 69 scarred trees, ten artefact scatters, and 32 isolated artefact Aboriginal places. The results of Thomson's analysis highlight several factors which are helpful in determining a predictive model for site location:

- Swamps which are inundated with water for much or all of the year have the highest concentration of scarred trees, as well as high densities of both isolated artefacts and artefact scatters above any other landform;
- River flats and terraces in the Warby Ranges have significantly higher site densities than other areas, with the exception of swamps. Stratified deposits can also be expected on is landform;
- Marshes in the Murray Basin Plains zone, outwash plains of the Warby Ranges and the channel zone of the Riverine Plains, all show a high frequency of artefact locations; and
- Sites are rare on all other landforms.

The most common site types were scarred trees; these were mostly found on grey box. Thomson concluded that any locations with natural stands of grey box must be considered highly sensitive. Thomson concluded from the results of this survey “that Aboriginal people used all parts of the north east Victorian landscape, but with a higher concentration of subsistence activity in the lowland valleys” (Thomson, 1996).

### Table 3: Aboriginal archaeological assessments within two kilometres of the study area

<table>
<thead>
<tr>
<th>Report No.</th>
<th>Author &amp; Year</th>
<th>Title</th>
<th>Location and Assessment Type</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Hughes, P.J.: 1978</td>
<td>An Archaeological Survey Of The Route Of The Jindera To Dederang Transmission Line</td>
<td>60km linear alignment, 50m wide, between Jindera and Dederang: Pedestrian survey</td>
<td>Identified 20 Aboriginal places: 3 surface scatters and 17 scarred trees.</td>
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<tr>
<td>36</td>
<td>Zobel, D.: 1984</td>
<td>Aboriginal Occupation Of The North East Study Area, Districts 1, 2 &amp; 4</td>
<td>Regional study of North Eastern Victoria: Desktop assessment</td>
<td>26 scarred trees, 25 surface scatters, 13 isolated artefacts 10 art sites, 2 mounds, 2 rock shelters, 2 burials, 1 quarry and 1 stone arrangement</td>
</tr>
<tr>
<td>52</td>
<td>Crosby, E.: 1980</td>
<td>Archaeological Surveys For The Albury-Wodonga Development Corporation</td>
<td>Various study area along the Albury-Wodonga region: Pedestrian survey</td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>Witter, D.C.: 1978</td>
<td>Archaeological Study Of Baranduda And Thurgoona</td>
<td>Two study areas: Thurgoona (NSW) and Baranduda (Victoria): Pedestrian survey and test excavation</td>
<td>Results for Baranduda: 62 isolated artefacts, 3 scarred trees and nine artefact scatters.</td>
</tr>
<tr>
<td>231</td>
<td>Flood, J.: 1976</td>
<td>Man &amp; Ecology In The Highlands Of S.E. Australia: A Regional study of Southeastern</td>
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<td>-</td>
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<tr>
<td>Report No.</td>
<td>Author &amp; Year</td>
<td>Title</td>
<td>Location and Assessment Type</td>
<td>Results</td>
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<td>---------------------------------------------------------------------------------------------------</td>
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<tr>
<td>432</td>
<td>Albury-Wodonga Development Corporation: 1982</td>
<td>Aboriginal Archaeology Of The Albury-Wodonga Region</td>
<td>Regional desktop study</td>
<td></td>
</tr>
<tr>
<td>599</td>
<td>Paton, R.: 1993</td>
<td>An Archaeological Investigation Of Several Short OFC Routes In Northeast Victoria</td>
<td>Various OFC routes across north eastern Victoria, including between Baranduda and Yackandandah: Pedestrian and vehicle survey</td>
<td>Identified 2 scarred trees between Baranduda and Yackandandah</td>
</tr>
<tr>
<td>935</td>
<td>Du Cros, H.: 1996</td>
<td>An Archaeological Survey Of Proposed Primary School Site At Baranduda Victoria</td>
<td>Kiewa River Valley and river floodplain: Pedestrian survey</td>
<td>No Aboriginal places identified</td>
</tr>
<tr>
<td>1074</td>
<td>Clark, I.: 1997</td>
<td>Land Conservation Council Box-Ironbark Forests &amp; Woodlands Special Investigation Chapter 2: Aborigin</td>
<td>Northeastern Victoria: desktop assessment</td>
<td>4201 Aboriginal places although locations not identified</td>
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<td>1887</td>
<td>Buckley,K &amp; Hughes,P: 2000</td>
<td>Working Toward An Aboriginal Heritage Management System For The North East Rfa Region Of Victoria</td>
<td>North east RFA regional Victoria: Desktop assessment</td>
<td>326 Aboriginal places, predominantly scarred trees, artefact scatters and rock art, 19 Aboriginal places</td>
</tr>
<tr>
<td>2090</td>
<td>Gunn, R,G.: 2002</td>
<td>Mudgegonga-2 And The Rock Art Of North-East Victoria</td>
<td>Previously recorded rock art sites at Rocky Ridge, Mt Pilot, Mt Porcupine, Koetong Creek, Mudgegonga and Beechworth: Desktop assessment</td>
<td>14 rock art sites</td>
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<td>2536</td>
<td>Cekalovic, H &amp; Matthews, L.: 2003</td>
<td>An Archaeological Survey And Sub Surface Testing At Whenby Grange Housing Development, Woodonga, Victoria</td>
<td>72ha of farmland south of Wollongong, Pedestrian survey and shovel probes</td>
<td>3 scarred trees and 2 artefact scatters</td>
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<tr>
<td>2710</td>
<td>Bell, J.: 2004</td>
<td>Archaeological And Heritage Assessment, South West Bandiana</td>
<td>36ha of farmland at the base of Bear's Hill, Bandiana: Pedestrian</td>
<td>Four areas of cultural sensitivity</td>
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<tr>
<td>Report No.</td>
<td>Author &amp; Year</td>
<td>Title</td>
<td>Location and Assessment Type</td>
<td>Results</td>
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<td>2711</td>
<td>Bell, J.: 2004</td>
<td>Archaeological And Heritage Assessment, 'Housing Block', Bandiana</td>
<td>11.8ha of farmland at Bandiana: Pedestrian and vehicle survey</td>
<td>Highly disturbed landscape</td>
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<td>2789</td>
<td>Debney, T.: 2004</td>
<td>Preliminary Cultural Heritage Assessment Of Department Of Defence Property, South West Bandiana, Victoria</td>
<td>132ha of property at Bandiana</td>
<td>Six areas of cultural sensitivity</td>
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<td>2790</td>
<td>Debney, T &amp; Cekalovic, H.: 2004</td>
<td>Archaeological Survey And Sub-Surface Testing For Baranduda Range Stages 8 And 9, Baranduda, Victoria</td>
<td>Baranduda: Pedestrian survey and subsurface testing</td>
<td>No Aboriginal places identified</td>
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<td>3350</td>
<td>Cekalovic, H.: 2006</td>
<td>Archaeological Investigation Of Site Aav 8225-0155, Whenby Grange, Wodonga, Victoria.</td>
<td>Site inspection of VAHR8225-0155: 2 mechanical grader scrapes 200m long, 3m wide, 200mm deep</td>
<td>Identified 224 subsurface artefacts associated with VAHR8225-0155</td>
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<tr>
<td>4188</td>
<td>Kelly, T &amp; Price, C.: 2005</td>
<td>Streets Road Development Area Wodonga Victoria</td>
<td>Streets Road, Wodonga: Pedestrian survey</td>
<td>Identified 1 artefact scatter ad 1 area of cultural sensitivity</td>
</tr>
<tr>
<td>4334</td>
<td>Phillip Hughes And Kristal Buckley</td>
<td>Development Of A Model For Aboriginal Cultural Heritage Management In The Victorian Regional Forest Agreement Region</td>
<td>Regional desktop modelling</td>
<td>-</td>
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<tr>
<td>10815</td>
<td>Brown, O.: 2009</td>
<td>Proposed Baranduda Grove Housing Subdivision</td>
<td>Residential subdivision at Baranduda: Pedestrian survey and auger probes</td>
<td>No Aboriginal places identified</td>
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<tr>
<td>10957</td>
<td>Bell, J.: 2010</td>
<td>Riverside Estate Residential Development, Murray Valley</td>
<td>270ha at Killara: Complex CHMP</td>
<td>Identified 3 scarred trees and 5 artefact</td>
</tr>
<tr>
<td>Report No.</td>
<td>Author &amp; Year</td>
<td>Title</td>
<td>Location and Assessment Type</td>
<td>Results</td>
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<tr>
<td>11048</td>
<td>Bell, J.: 2010</td>
<td>Highway, Killara</td>
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<td>Identified 2 artefact scatters</td>
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<td>11878</td>
<td>Edwards, A. &amp; Bell, J.:</td>
<td>Proposed Yarralumla Drive Extension Wodonga</td>
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<td>3795</td>
<td>Kaskadanis, C.: 2007</td>
<td>An Archaeological Investigation, Proposed School Site, Former Bandiana Military Camp, Wodonga South</td>
<td></td>
<td>No Aboriginal places were recorded</td>
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<td>3355</td>
<td>Debney, T.: 2006</td>
<td>Preliminary Cultural Heritage Assessment Of Property On Murray Valley Hwy, Southwest Bandiana, Victoria</td>
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<td>No Aboriginal places were recorded</td>
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<td>4648</td>
<td>Pardoe, C.: 2014</td>
<td>Conflict And Territoriality In Aboriginal Australia: Evidence Form Biology And Ethnography</td>
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<td>12875</td>
<td>Edwards, A. &amp; Bell, J.: 2014</td>
<td>Kiewa River Cycle Path, Bandiana Ca 4b, Sec. 21, Parish Of Wodonga</td>
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<td>No Aboriginal places were recorded</td>
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<td>712</td>
<td>Thomson, C.: 1996</td>
<td>An Archaeological Survey Of North East Victoria</td>
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<td>A total of 111 sites were recorded</td>
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<td>11531</td>
<td>Bell, J. &amp; Edwards, A.:</td>
<td>Proposed Residential Subdivision, Whytes Road,</td>
<td></td>
<td>Previously recorded artefact scatter 8225-</td>
</tr>
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</table>
### Regional History

Following official exploration missions by Grimes and Flemming in 1802, Hume and hovel in 1824 and Mitchell in 1836, the unauthorised settlement from Tasmania in 1835 and the New South Wales Overlanders in from 1836, widespread but dispersed settlement of northern Victoria occurred by squatters establishing sheep and cattle runs.

In 1836 Paul and Charles Huon established the Wodonga run, gazetted in July 1848, at 41,000 acres. The run was transferred to William Huon in 1849 and abandoned in 1881 (Spreadborough & Anderson, 1983, p. 78). While many pastoral runs changed hands frequently, the Wodonga run remained in the Huon family until 1881 when the lease was cancelled (Dunlop, 1976, p. 24).

The town of Wodonga was originally named Belvoir (until 1870 when it was renamed Wodonga), and sales of suburban lots took place in 1854 (Dunlop, 1976, p. 74). The only links between Wodonga and the coastal ports were by bridal track and a poorly formed road. A ford near present day Albury made crossing the Murray River possible, but calls for a bridge to be constructed between Albury and Wodonga were being made in the 1850s. Lobbying for a direct railway between Sydney and Melbourne, (rather than a branch line from Echuca), began in the 1860s, but limited Colonial finances delayed construction for a decade (Dunlop, 1976, p. 39).

An 1853 Act of Parliament established the Central Road Board, with one of its early projects being a bridge over Wodonga Creek (Dunlop, 1976, p. 41). Crossing the Murray River at this time was still dependent on the use of a punt, or if conditions were too dangerous, a flat-bottomed boat, but often conditions prevented this too, and communication between the towns of Albury and Wodonga was broken completely for weeks at a
time. Construction of a bridge over the Murray, linking Albury and Wodonga, commenced on 16 August 1860, and the bridge, named the Union Bridge, was opened on 2 September 1861 (Dunlop, 1976, p. 43).

Coaches began running throughout north-eastern Victoria around 1858, extending from the Warby Ranges to the river ports of Howlong, Wahgunyah, Albury and Wodonga, which expedited the delivery of mail to and from the Wodonga area. A telegraph line was constructed between Melbourne and Wodonga, and reached Wodonga in 1858 (Dunlop, 1976, p. 48). This allowed messages and information to be imparted within minutes.

The railway line between Melbourne and Wodonga was opened on 21 November 1873, with the rail link between Albury and Wodonga opening nearly a decade later on 14 June 1883 (Boyes n.d.: 3). The Wodonga population increased during the 1920s when hundreds of World War I veterans arrived to build the Hume reservoir. Wodonga was chosen as the site of major camps and workshops during World War II. A post-war building boom occurred when the Bonegilla migrants' camp was opened in 1947. In 1950 more than 8,000 people lived there and it was thought to have handled 320,000 migrants before closing in 1971 (Martin 1981: 130).

The construction of the Wodonga rail bypass and new Wodonga Station in 2010, resulted in the closure of the old Wodonga station, good shed and rail yards, and the abandonment of the section of broad and standard gauge lines from West Wodonga to the Wodonga Creek Bridge. As a result, the station site has been proposed for redevelopment. Associated with the change was the complete conversion of the North Eastern railway broad gauge (1.60 metres/ 5' 3'') in Victoria to standard gauge (1.435 metres / 4' 8½'').

The last evidence of the former change of gauge which characterised the Victorian/New South Wales border crossing, along with the necessary change of trains prior to the introduction of the national standard gauge line, can still be found in tracks of both widths, at the station, reflecting this significant aspect of Australia's railway development.

The rural Wodonga region was described as:

> …comprising undulating well watered, pastoral and agricultural country, and rural industries comprise grazing of sheep, cattle and horses, the fattening of cattle and lambs for market, the growing of wheat, oats, tobacco and grapes for winemaking, and some timber-getting in the well-timbered part. (Australian Places Gazetteer, Wodonga 2003: 2)

In particular, the high country of the north-east was used as grazing country by early cattlemen and Wodonga became the greatest cattle market in Australia. They built their huts and cattle yards throughout the region (Priestly 1984: 207). Dairy herds were numerous along the flats of the Murray River with a number of butter, cheese and bulk milk factories built to process their products (Angus & Forster 1974:6). Other industries included sheep run mainly for their wool and cereal cropping such as wheat, oats and barley (Angus & Forster 1974: 6).

Gold was discovered in the Wodonga area in the summer of 1845-46 at Reid's Creek, when a race was being excavated for a water wheel which was to operate a flour mill at Yackandandah (Dunlop 1976: 31). Until the discovery of gold in the area, the only link between Wodonga and the coastal ports was a road. A ford near present day Albury made crossing the Murray River possible, but calls for a bridge to be constructed between Albury and Wodonga were being made in the 1850s. The only other means was via the Murray punt. This system however, was unreliable in poor weather conditions. The Union Bridge replaced the Murray punt at Albury in September 1861. Settlers in the north-east welcomed the permanence of the iron road, the railway, when it reached Wodonga in 1873 (Priestly 1984: 52). To inland Victorians, the railway meant 'cheap and expeditious communications with the seaboard' (Priestly 1984: 56).
Coaches began running throughout north-eastern Victoria around 1858, extending from the Warby Ranges to the river ports of Howlong, Wahgunyah, Albury and Wodonga, which expedited the delivery of mail to and from the Wodonga area. A telegraph line was constructed between Melbourne and Wodonga, and reached Wodonga in 1858 (Dunlop 1976: 48). This allowed messages and information to be imparted within minutes.

The Wodonga population increased during the 1920s when hundreds of World War I veterans arrived to build the Hume Reservoir. Dairying was an important industry during the Depression of the 1930s, when Wodonga was chosen as the site of major camps and workshops during World War II. A post-war building boom occurred when the Bonegilla migrant's camp was opened in 1947. In 1950 more than 8,000 people lived there and it was thought to have handled 320,000 migrants before closing in 1971 (Martin 1981: 130). Today, Wodonga is a thriving city with development in the region ever increasing.

3.3.4 Land Use History

The study area is located within the Wodonga and Baranduda squatters' runs. Squatters who settled in the Wodonga area ran sheep or cattle, and provided they stocked their run and took out an annual renewable licence (or after 1848, a fourteen year lease) squatters were secure in their tenure against all except the Crown (Dunlop 1976: 24). Often squatters would not take out a licence until they were sure they wanted to stay in the area, so records of the taking out of licences are not necessarily reliable as to who took up a particular run first.

Baranduda was originally part of the Wodonga run. The run was taken up in 1836 by Paul and Charles Huon who built a hut where ‘Cambourne’ is now located; however according to a Dr Arthur Andrews, Charles Huon also built an out-station at Baranduda in 1836 or 1837 and lived there for some years (Jones 1992: 3). Its location remains unknown. The Huon Creek and Huon Creek Road north west of the study area were named for the Huon family.

In the 1840s, English immigrant Frederick Street took up the Baranduda run, after having managed the Kergunyah Station in 1838 and the Gundowring run until 1852. The Baranduda run had been listed since the 1840s under the names of John Thompson, John Aitken and Francis and Richard Cobham. However these men appear to have held only temporary links with the run (Jones 1992: 5). Frederick Street (namesake of Frederick Street Road which forms part of the study area boundary) is listed as holding the lease from 1844 but he is known to have managed the Gundowring run for the Barber family until 1852. The run comprised approximately 15,000 acres, extending from the Yackandandah Creek and Kiewa River up Middle Creek and the Leneva Valley to the boundary of the Wooragee run (Jones 1992: 5). The study area would have been inside the run boundary, with the natural boundary of the Baranduda Range hills forming the boundary with the more southerly Yackandandah runs. Street was the gazetted leasee on 26 August 1852 and in the next year was reported to own 5,160 sheep (Jones 1992: 5). At the same time he purchased a Pre-emptive Right located to the east of the study area, around Whyte’s Road, Kiewa River and Yackandandah Creek.

Street settled on the Baranduda run, building a homestead on the Yackandandah Creek about 300 metres from its junction with the Kiewa River, south east of the study area. It is known that they planted elms and oaks, pear trees and garden flowers, though there is no evidence of buildings apparent today (Jones 1992: 5).

As the Beechworth and Yackandandah goldfields succeeded the Streets benefited greatly by supplying milk and meat to the miners and they subsequently increased their herd numbers of sheep and cows on the run. When Crown lots were offered for sale Frederick Street purchased many, increasing his holdings through the 1860s and 1870s so that the family controlled most of the original run (Jones 1992: 5). When Frederick Street died in 1880 he passed 1,000 acres to each his seven sons, including Philmon, who inherited the old Baranduda homestead and built a new homestead on the site.
In 1858 mail coaches began running between Wodonga and Yackandandah, by route of Baranduda. Horses were changed at Baranduda at the Royal Mail Station south east of the study area originally on Staghorn Flat near the bridge over Yackandandah Creek.

In the late 1860s and early 1870s Baranduda became a point of settlement for a number of German migrants who had overlanded from South Australia. The Schubert family selected land at Baranduda in 1869 and were followed by other families soon after (Jones 1992: 10). The Post Office located on the Yackandandah Road and run by the Schubert family.

Farming around Baranduda originally centred around beef cattle during the squatter's era, but during the gold rush interest in dairying increased in order to supply the goldfields and meet the increasing demand in Wodonga. The Yackandandah Creek provided a permanent water supply for stock, while Middle Creek was subject to seasonal inundation and was often limited to waterholes (Jones 1992: 31). The increase in these already large numbers is likely to have caused extreme podding along the various waterways within the run – including Middle Creek which runs through the centre of the study area. As waterways were not fenced to enable stock watering without the investment of an irrigation system, there was little to protect the edges of waterways becoming severely podded. As previously discussed artefact scatter are often located on the edges of swamps and waterways and this podding may have resulted in the redeposition of sediments and artefacts within the stratigraphic profile disturbing the original location of artefacts. It was not until 1989 that the bed and banks of Middle Creek for approximately 100 links in either direction were designated Crown Land, affording the area some modicum of protection from grazing damage.

When the first squatters arrived the land was covered with bush, and scrub was cleared by ring-barking and grubbing the roots. Clearing was also undertaken by a number of sawmills that developed on the Yackandandah Creek and Kiewa River (Jones 1992: 31). This land clearance is likely to have impacted on cultural places present within the study area, particularly scarred trees which may have been removed, however the presence of at least one scarred tree of significant age within the study area indicates that some large eucalypts were not cleared, likely to provide shade for stock during the warmer months.

The construction and maintenance of roadways such as Baranduda Boulevard within the study area and the various thoroughfares which form the study area boundary may have also caused disturbance to any cultural material present, depending on the construction method used. This information and the likelihood and extent of any disturbance is best obtained through visual inspection.

The study area is currently split between private ownership utilizing the land for residential and agricultural purposes, private enterprise which utilise the land for agricultural and pastoral business purposes and government entities such as the City of Wodonga, the Department of Finance, and the Crown which maintains land in municipal reserves. Several sections of the study area have been designated Reserve Forest, protecting them for residential development and by extension any developmental impacts on cultural heritage places which may be present.
3.4 Conclusions and Place Prediction Model

The study area is located within the private and publicly owned land south of Wodonga between the townships of Leneva in the north and Baranduda in the south. The study area is situated on the Northern Riverine Plain in an area dominated by Alluvial Fans and Aprons and is intersected by Middle Creek and its tributaries and various other tributaries of the Kiewa River. This area essentially contains two major landform types: the alluvial floodplains of the Kiewa Valley in the northern section, abutted by Bear Hill, and the foothills of the Baranduda Range in the south.

The study area is dominated by Qc1 Unnamed colluvium and Qa1 unnamed alluvium across the alluvial plains areas of Sog Omeo Metamorphic Complex gneiss associated with the Warby Ranges. This environment typically contains shallow soil profiles with sporadic surface outcropping of poor quality quartz along areas exposed along waterways such as Middle Creek. It is possible that Aboriginal people utilised these local sources of quartz for the manufacture of stone artefacts, although the presence of quartz pebbles within the waterways south of Wodonga indicates a more likely source for such material.

The climate has remained relatively stable over the last 5,000 years with an average rainfall of between 700 and 800 millimetres per annum, creating an ideal environment for the plant and animal resources used by Aboriginal people in the region.

A variety of previously recorded Aboriginal places are located within two kilometres of the study area (n=35). The majority of these places are artefact scatters (71%) while scarred trees are also present (29%). There are two previously recorded places within the study area, one artefact scatter and one scarred tree. Leneva 5 (VAHR 8225-0153) is an artefact scatter of one quartz core fragment located eroding the northern bank of a dam which uses the natural slope of a medium rise as its bank. Boyes Road Baranduda 1 (VAHR 8225-0270) is a scarred tree located in partially inundated area northwest of Boyes Road. The tree contains one large scar located on the main trunk. Both places were located during pedestrian survey and have not been investigated for sub-surface components, although the artefact associated with VAHR 8225-0153 was located eroding out of a bank at an approximate depth of 15 centimetres. Artefacts associated with scatters in the geographic region contain a majority of quartz artefacts, likely sourced from local outcrops or river quartz pebbles. Given the location of Middle Creek within the study area it is possible that quartz artefacts in this region may have been sourced locally from river quartz pebbles. Previous archaeological research in the Baranduda area indicates that greater densities of sites will occur within 1-2 kilometres of permanent water (in association with either Middle Creek or the Kiewa River), indicating the potential for Aboriginal places to be present within the study area in these locations.

The study area has been partially subject to previous archaeological investigations. Witter (1978) undertook a survey which included part of the study area west of the Kiewa Valley Highway. In total, the study located 13 surface artefact scatters and two scarred trees, (none of which were located within the study area) which were subsequently registered on the VAHR. The survey also recorded 69 isolated artefacts, 14 of which are clearly mapped within the present study area (please see section 2.3.1 for further details), however these isolated finds were NOT registered on the VAHR indicating the potential for previously recorded Aboriginal places to be present within this previously surveyed section of the study area.

Upcher and Smith (1994) point out that as the study area is located at the base of the Baranduda Range on the alluvial floodplain of the Kiewa Valley, a number of ephemeral drainage lines are present that would have flowed seasonally, providing valuable water during winter and spring. Creeks and more deeply incised drainage lines are also likely to have provided more reliable water. Aboriginal places may be found in association with these drainage lines though this would be dependant on whether they have been modified following European settlement. Aboriginal places that might be expected to occur along the drainage lines would be surface artefact scatters, cultural exposures in banks and isolated artefacts. Upcher and Smith
(1994) also point out that sites may be obscured by lenses of alluvium, and the potential for any Aboriginal places to remain in situ would depend on the nature of the farming. Ploughing, cropping and extensive grazing could all disturb or destroy such sites.

**Place Prediction Model**

Based on the above review of the geographic region, including its environment, recorded Aboriginal places, previous archaeological assessments and information on the activities of Aboriginal people, an Aboriginal place prediction model has been developed.

There is a high likelihood for the following Aboriginal place types to be found within the study area:

- **Artefact scatters** consisting of one or more stone artefacts are associated with tool production, domestic activities and resource procurement. Based on regional assessments and previous archaeological surveys artefact scatters and isolated finds are most likely to occur within the floodplains of the Kiewa River which runs east of the study area, on the lower slopes and plains at the base of the Warby Ranges and particularly within close proximity of swamps and water courses such as Middle Creek which intersects the study area. One artefact scatter (VAHR 8225-0135) has been previously recorded within the study area. The scatter consists of a single quartz core found eroding out of the northern bank of a farm dam at a depth of approximately 15 centimetres. The bank where the artefact was found has not been excavated but rather utilises the natural slope of a medium rise. Given the lack of disturbance associated with this area and the presence of the artefact within a naturally occurring landform there is potential for additional material to be present within the study area associated with this previously recorded place. The study area has been previously subject to archaeological survey by Witter (1978) which recorded isolated artefacts within the study area. For reasons unknown, these isolated artefacts were not recorded in the VAHR and the material was not collected. Given the variable amount of disturbance across the landscape, the study area is considered to have moderate potential to contain artefact scatters in areas which have not been subject to disturbance, even if the area has been previously survey for archaeological content.

- **Scarred trees** represent cultural modifications of trees to obtain the bark for use as shelters, canoes and shields. Despite widespread removal of native forest during historical land clearance current EVC mapping indicated small pockets of remnant native vegetation within the study area. Although the study area has been subjected to previous land clearance to open the landscape for grazing after European settlement, the Thomson, Cekalovic and Matthews (2003) identified several large trees present within the study area, most likely left as shade trees for livestock during land clearance. One scarred tree has been previously recorded within the study area (VAHR 8225-0270) indicating that some of these large trees of sufficient antiquity have the potential to be scarred trees.

Additionally, the following Aboriginal place types may also be present within the study area, although the likelihood of encountering them is limited by the factors discussed below.

- **Burials of human remains** can occur where the subsurface deposit is suitable for digging, with soft soil and sand being the most probable. As the soils within the study area are predominantly shallow, they would not be suitable as locations for hum burials. There is therefore low potential for burials to be located within the study area.

- **Earth features/mounds** can include evidence of occupation such as charcoal, burnt clay, lithic material, animal bones and shells. They are usually identified in preserved landscapes where the material has been covered by successive deposits of alluvium and elevated ridges or rises, or within proximity to water sources. These places are often floodplains of major waterways where the deposition and redeposition of sediments accumulates between periods of inundation. As the study area is located on the floodplain of the Kiewa River and is intersected by Middle Creek which was
subject to seasonal inundation, there is moderate potential for earth mounds to be present in undisturbed areas of the study area.

- Quarry consists of negative flaking scars on rocky outcrops where Aboriginal people procured their lithic resources. No Aboriginal quarries have been recorded within the vicinity of the study area and the analysis of regional the geology and geomorphology outlined in Section 2.1.1 indicates the most likely source of raw material for stone tool manufacture is quartz. The majority of artefact scatters found within two kilometres of the study area contain quartz artefacts, likely sources from outcrops along local river banks or quartz pebbles from the river beds. As the study area is intersected by Middle Creek and several unnamed tributaries, it is likely that the local source of material would have been quartz river pebbles and there is therefore very low potential for quarries to be located within the study area.

- Middens contain the remains of consumed shellfish and other faunal remains and are located in coastal areas or associated with inland waterways. These deposits often occur in a sub-surface context or can be seen eroding from the banks of waterways. No middens have been previously recorded within the geographic region and the study area is located within a floodplain of the Kiewa River which would have been subject to periodic inundation which would have dispersed any midden material present. There is therefore low potential for midden material to be present within the study area.

- Stone features are places where Aboriginal people have positioned stones deliberately to form shapes or patterns, or where naturally occurring stone features were utilised by Aboriginal people. The purpose of these arrangements is often unknown. Stone feature have not been previous recorded within the region and the area does not typically contain the large stones utilised as part of these installations. However as the purpose of these places is unknown, the motivation to relocated stones with which to form these places can not be directly determined. Subsequently there is low potential for stone features to be present within the study area.

Spatial Prediction Model

Further to the Aboriginal place prediction modelling, spatial modelling for Aboriginal heritage in the study area is mapped in Figure 6. To assess the potential of environmental features and landforms for Aboriginal cultural material, this spatial predictive modelling was undertaken in ArcGIS using Spatial Analyst tools to compare, analyse and overlay numerous environmental and topographic datasets. Four main datasets were considered during the modelling process. These include:

1. Proximity to natural water sources
2. Existence of remnant vegetation
3. Local high points
4. Slope classes

All of these layers are weighted and ranked according to an equivalent but arbitrary scale of 0-3, with ‘3’ being areas most likely to support Aboriginal places and ‘0’ being very unlikely to support Aboriginal places. Once all of the four component layers are added together into a single layer, zones of high, moderate and low archaeological potential were developed. Areas of high potential scored between 6-10 (red on Figure 6), moderate potential scores between 3-6 (yellow on Figure 6) and low potential scored between 0-3 (blue on Figure 6). The results of the predictive modelling are shown on Figure 6. In this figure, areas with a low cumulative score have a lower likelihood of containing Aboriginal places, blue being the lowest and red being the highest level of sensitivity.
It is important to note that the purpose of this model is to make some broad predictions about the study area based on generalisations in order to inform more detailed and targeted investigations. It cannot account for more specific phenomena which might actively contribute or detract from the areas suitability for Aboriginal places, such as areas which had ceremonial significance.

1. **Natural Water Sources**

The model uses the VicMap Hydro 1:25,000 vector watercourse lines and waterbody polygons datasets and applied the following processes:

- The watercourses and waterbodies are filtered to remove any man-made waterways as designated by the ‘Origin’ field of the VicMap data.
- The watercourses and waterbodies are buffered by 200m.
- The watercourses and waterbodies are merged into a single dataset.
- The water dataset is converted to a raster of grid size 25m x 25m.
- The raster cells are reclassified to an overall ‘hydro score’ by assigning a score of 5 to rivers, swamps, lakes and sections of streams mapped as an area rather than a centre line; a score of 4 to streams, 3 to pondages and 0 to all other areas.

2. **Modelled remnant vegetation**

The model uses the DEPI modelled EVCs polygon dataset from 2005 as displayed on the Biodiversity interactive mapper. The following processes are applied:

- The polygons are converted to a raster of 25m x 25m cell size.
- The raster cells are reclassified to a 'Veg score' value by assigning a score 3 to all areas containing remnant vegetation and 0 to all other areas.

3. **Local high points**

- The DEM described above is converted into a flow accumulation model, showing the total catchment area for water flow at each point in the landscape
- Areas of 0 flow are extracted into a separate layer. As they have no other land flowing into them, this means they stand above all other land in the immediate area
- The 0 flow areas model is filtered so only a significant amount of connected land is considered to represent hills and ridgelines.

4. **Unsuitable slopes**

- A slope model was created using a 1 arc second (~30mx30m cell size) Digital Elevation Model (DEM) acquired from Geoscience Australia.
- The slope model is reclassified into slope categories according to Speight's slope classes.
- Any slopes classified as being very steep or greater are assigned a negative value as these slopes are likely to be too steep to support Aboriginal places.
The prediction model acts as a guideline for designing further research strategies and identifies key points for consideration during the targeted inspection.

The results of the desktop assessment indicate the potential for unidentified Aboriginal cultural heritage material to be present within the study area.
Figure 6: Predictive Model for Aboriginal archaeological potential

Coordinate System: GDA 1994 MGA Zone 55

Acknowledgements: VicMap data © State of Victoria

Biosis Pty Ltd
Ballarat, Brisbane, Canberra, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Legend
- Study area
- Lot boundary
- Predicted Aboriginal archaeological potential
  - Low
  - Moderate
  - High

Scale: 1:20,000 @ A3

Matter: 19803, Date: 03 June 2015, Checked by: MT, Drawn by: JMS, Last edited by: smitchell
Location: P:\19800s\19803\Mapping\19803_F6_PredictiveModel

Metres
4. Targeted Inspection of the Study Area

A targeted inspection was undertaken on Wednesday 15 and Thursday 16 April by Timothy Cavanagh, Biosis Pty Ltd. It informs the results of the background research, identifies landforms and their archaeological potential based on the ground conditions and our original predictive model.

4.1 Methods

During the targeted inspection a targeted pedestrian survey of identified parcels across the study area was carried out. Field notes were taken recording the general condition and character of the study area, vegetation type, topography and areas of archaeological potential. Landforms and views of the study area were also recorded using digital photography.

It was not the aim of the study area inspection to identify Aboriginal archaeological places. If sites are encountered, then these will be recorded appropriately, as prescribed by OAAV (2008). Rather than discussing each individual numbered parcel of land, the inspection results are discussed by landform, which is a much more information approach considering that archaeological potential is often directly linked to these features.

The study area was divided into a number of landform units based on geology, geomorphology and contours. The extent of each landform would be refined following the results of the site inspections. The following table describes each of the landforms considered across the study area.

Table 4: Types of landforms across the study area

<table>
<thead>
<tr>
<th>Landform Unit</th>
<th>Land Use</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Valley/Floodplain</td>
<td>Grazing/residential</td>
<td>Low-lying grassed river floodplain divided into paddocks. Low alluvial rises.</td>
</tr>
<tr>
<td>Hill Slopes</td>
<td>Grazing</td>
<td>Steep to moderately sloped hill sides descending to the valley floor.</td>
</tr>
<tr>
<td>Alluvial Terraces</td>
<td>Reserve/grazing</td>
<td>Focused around Middle Creek, composed of creek sediment buildup.</td>
</tr>
<tr>
<td>Hill Tops/Ridges</td>
<td>Grazing/residential</td>
<td>Hill crests forming flat margins.</td>
</tr>
<tr>
<td>Colluvial Terraces</td>
<td>Grazing</td>
<td>Mid to lower slope breaks on hills forming flat areas above the floodplain.</td>
</tr>
</tbody>
</table>

4.2 Results

The study area largely consists of open grazing paddocks across a floodplain that ascends to hills to the north and south. Much of the vegetation has been removed from the area except for tree strands that have been allocated as dedicated vegetation offsets or isolated old gums remaining in the paddock that serve as shade trees for the livestock.

Most of the study area was accessed from Baranduda Boulevard, a major thoroughfare that bisects the study area into north and south portions. The survey was opportunistic in its sampling, taking indicative photos (see
Figure 8 for location of photos taken) of the major landform units identified in the desktop assessment and the areas of varying archaeological potential as mapped on the predictive model shown on Figure 6.

Old homesteads, sheep locking docks, stockyards and other historical building remnants are dotted throughout the study area. The floodplains landform in which the majority of these buildings occurred showed little variation other than slight bumps, rises and depressions where natural drainage points formed. To the middle-north of the study area is a vegetation offset zone that contains a number of large old gum trees near an alluvial terrace overlooking Middle Creek. No culturally scarred trees were located in this area, but it is considered that there is moderate potential for scarred trees to occur in this zone based on the presence of old growth trees adjacent to a major watercourse.

Plate 1: Floodplain with historic building

Plate 2: Floodplain with natural depression in drainage area
Plate 3: Alluvial terrace to the left of Middle Creek

Plate 4: Old gum tree near Middle Creek

One grinding stone was located on top of an alluvial rise (see Figure 7 for location). Situated on the surface and comprised of granite, it contains a grinding surface on the ventral side and a series of potentially cultural markings on the dorsal. Grinding stones are typically associated with long-term use of certain areas.
Steep slopes marked the middle north of the study area, providing limited chance of archaeological material. To the east and west of the northern portion of the study area are the mid and lower slope breaks, formed from colluvial material. These colluvial terraces form areas of archaeological potential due to their flat margins, elevation above the floodplains and weather break from the upper hills.
Hill tops and ridges were present to the very north, the central east and the south-west. These zones would have provided vantage points across the landscape and form natural focal points. It is expected that some Aboriginal material may be present here, although it should be noted that these locations were generally unfavourable as camping spots due to their exposed nature.
Plate 9: Looking south to the ridge lines

Of the five landforms identified, three evidenced high archaeological potential. These landforms, hill tops, ridges and alluvial/colluvial terraces would have served either as camping spots or vantage points, providing access to fresh water from the drainage points and Middle Creek, and also access to the abundant resources of the flood plains.

The following section breaks down the five identified landforms into their archaeological potential, disturbances and other factors such as visibility.
Figure 7: New and previously recorded Victorian Aboriginal Heritage Register (VAHR) places

Legend
- Newly recorded VAHR Place
- VAHR Places
- Study area
- Lot boundary

 Coordinate System: GDA 1994 MGA Zone 55

Acknowledgements: VicMap data © State of Victoria
4.2.1 Landforms

The following section describes in detail each landform identified during the ground survey and provides information on their archaeological potential. The definitions of archaeological potential are described here:

Low Archaeological Potential: This level of potential refers to areas where land use would have been sporadic and opportunistic. Any cultural heritage within these areas is likely to be in the form of isolated artefacts or low density artefact scatters reflecting single use and discard events. Occasional isolated scarred trees may also be present in this category (see Boyes Road Baranduda 1 VAHR 8225-0270).

Moderate Archaeological Potential: A moderate level of archaeological potential designates areas that would have been used on an intermittent or seasonal basis. They include outlying areas adjacent to zones in which more permanent camps would have been established, places near minor waterways and drainage lines, and places used as thoroughfares from one resource point to the next. Cultural heritage may include artefact scatters of medium to high density and isolated scarred trees.

High Archaeological Potential: High archaeological potential designates areas in which resource exploitation would have been focused. Examples of this include permanent or seasonal camp sites adjacent to major waterways, high points in the landscape and areas allowing easy access to major resource points. Cultural heritage in these zones may include artefact scatters of medium to high density, specific stone tool types such as grinding stones or axes, earth mounds, scarred trees and rarely, human remains.

It is important to note that the archaeological potential of the landforms is not an absolute reading of the study area. It serves as an informative guide to the type and density of cultural heritage that may be found in certain areas, but does not preclude the possibility of sites of high significance being located in areas of low potential, or vice versa. An isolated scarred tree may be located in an area of low archaeological potential, but it may contain high significance either scientifically or culturally.
<table>
<thead>
<tr>
<th>Landform – Hill Tops and Ridges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Notable disturbances</strong></td>
</tr>
<tr>
<td><strong>Disturbance level</strong></td>
</tr>
<tr>
<td><strong>Visibility</strong></td>
</tr>
<tr>
<td><strong>Notable exposures</strong></td>
</tr>
<tr>
<td><strong>Area of exposure</strong></td>
</tr>
<tr>
<td><strong>Aboriginal sites</strong></td>
</tr>
<tr>
<td><strong>Archaeological Sensitivity</strong></td>
</tr>
</tbody>
</table>

**Photo(s)**

Plate 10: Hill crest in background

Plate 11: Hill crest overlooking valley floor
<table>
<thead>
<tr>
<th>Landform – Colluvial Terraces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Notable disturbances</strong></td>
</tr>
<tr>
<td><strong>Disturbance level</strong></td>
</tr>
<tr>
<td><strong>Visibility</strong></td>
</tr>
<tr>
<td><strong>Notable exposures</strong></td>
</tr>
<tr>
<td><strong>Area of exposure</strong></td>
</tr>
<tr>
<td><strong>Aboriginal sites</strong></td>
</tr>
<tr>
<td><strong>Archaeological Sensitivity</strong></td>
</tr>
</tbody>
</table>

**Photo(s)**

Plate 12: Colluvial terrace

Plate 13: Colluvial terrace looking east
<table>
<thead>
<tr>
<th>Landform – Alluvial Terrace</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Notable disturbances</strong></td>
</tr>
<tr>
<td><strong>Disturbance level</strong></td>
</tr>
<tr>
<td><strong>Visibility</strong></td>
</tr>
<tr>
<td><strong>Notable exposures</strong></td>
</tr>
<tr>
<td><strong>Area of exposure</strong></td>
</tr>
<tr>
<td><strong>Aboriginal sites</strong></td>
</tr>
<tr>
<td><strong>Archaeological Sensitivity</strong></td>
</tr>
</tbody>
</table>

**Photo(s)**

- **Plate 14**: Overlooking Middle Creek
- **Plate 15**: Alluvial terrace to the left of Middle Creek
### Landform – Hill Slopes

<table>
<thead>
<tr>
<th>Description</th>
<th>Steep to moderate descending hill slopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notable disturbances</td>
<td>Minimal. Some clearing and grazing.</td>
</tr>
<tr>
<td>Disturbance level</td>
<td>Low. Nature of the landform makes it difficult to develop.</td>
</tr>
<tr>
<td>Visibility</td>
<td>Approximately 10% (low) overall due to vegetation cover.</td>
</tr>
<tr>
<td>Notable exposures</td>
<td>Some soil exposures.</td>
</tr>
<tr>
<td>Area of exposure</td>
<td>Approximately 5% overall</td>
</tr>
<tr>
<td>Aboriginal sites</td>
<td>None.</td>
</tr>
<tr>
<td>Archaeological Sensitivity</td>
<td>Low to moderate. Landform is not conducive to archaeological sites on steep slopes. Moderate slopes may contain some potential.</td>
</tr>
</tbody>
</table>

**Photo(s)**

Plate 16: Hill slopes running down to Middle Creek

Plate 17: Slopes leading down to plain
### Landform – Floodplains

<table>
<thead>
<tr>
<th>Description</th>
<th>Valley floor with small undulations, rises and depressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notable disturbances</td>
<td>Minimal. Some clearing and grazing. Some residential housing.</td>
</tr>
<tr>
<td>Disturbance level</td>
<td>Low to moderate. Vast tracts only used for grazing.</td>
</tr>
<tr>
<td>Visibility</td>
<td>Approximately 10% (low) overall due to vegetation cover.</td>
</tr>
<tr>
<td>Notable exposures</td>
<td>Some soil exposures, around base of trees.</td>
</tr>
<tr>
<td>Area of exposure</td>
<td>Approximately 5% overall</td>
</tr>
<tr>
<td>Aboriginal sites</td>
<td>Two. One isolated artefact and one scarred tree</td>
</tr>
<tr>
<td>Archaeological Sensitivity</td>
<td>Low. Landform is not conducive to archaeological sites. Low density artefact scatters may be present throughout.</td>
</tr>
</tbody>
</table>

#### Photo(s)

Plate 18: Broader floodplains

Plate 19: Plains with residential housing
Figure 8: Landforms and locations where photographs were taken in the study area
4.2.2 Ground surface visibility and ground surface exposures

Ground surface visibility was relatively low due to the dense grass and vegetation litter covering much of the study area, estimated at 5-10%. This reflects the typical ground conditions encountered during previous archaeological surveys within the study area (Debney and Cekalovic, 2004; Thomson, Cekalovic and Matthews, 2003).

4.2.3 Disturbance

Areas that can be considered disturbed include the roads and road reserves throughout the study area, the housing infrastructure in the new residential area to the south of Baranduda Boulevard near Middle Creek, various farmers dams created within the paddocks for livestock use, and the homestead sites and their associated infrastructure. These areas would have created significant ground disturbance during their construction and either destroyed or removed, from context, any Aboriginal archaeological deposits.

Laser levelling is also likely to have occurred across a number of properties within the study area. While these areas could not be specifically identified during the site inspections, the process would have also disturbed subsurface deposits. These are most likely to have occurred in the floodplain landforms.

Apart from these major disturbances, soil disturbance is gauged to have been relatively mild (livestock activity, ploughing, landscaping) and it is considered that the majority of the study area remains undisturbed.

4.2.4 Archaeological potential

There is archaeological potential throughout the study area, particularly within the alluvial terraces fronting onto Middle Creek that have not been subject to repeated fluvial action. Deposits here are likely to have significant silt accumulations, and the ground survey identified these areas as relatively undisturbed. The availability of stone along Middle Creek indicates that raw material for knapping would have been readily accessible to past inhabitants. During the targeted inspections, an isolated grindstone was located on top of an alluvial terrace above Middle Creek, further highlighting the archaeological potential of this area, confirming the site predacative model mapping and the sensitivity of the alluvial terrace landform. There is also a potential for scarred trees in this area due to the vegetation offset areas which would have protected old native trees from destruction. Any future impact to these areas should involve subsurface testing to substantiate the presence of further archaeological material.

Other areas of archaeological potential include the hill crests and colluvial terrace landforms. While no archaeological material found in these landforms, they form natural focal points for past Aboriginal activity, and other previously recorded sites in the wider region are recorded on these features. The hill crests allow for natural vantage points across the landscape, and the colluvial terraces are likely camping spots that provided natural shelter via the ascending hills whilst still allowing ready access to the resource rich flood plains. As such, it should be considered that these areas and areas within the immediate proximity may contain the potential for Aboriginal heritage, likely containing stone artefacts where food may have been immediately treated after capture/gathering.

Across much of the floodplain, there is lower archaeological potential. Broadly, the lack of landscape features that might have attracted past Aboriginal activity (natural rises offering dry ground, vantage points) are absent. In addition to this, the fluvial reworking of the upper sediment layers on the floodplains caused by past flooding events would tend to remove from context any in situ archaeological deposits. There is, however, still potential for subsurface archaeological material to occur, particularly in areas where land use has been restricted to pastoral grazing. This is evidenced by the presence of the two previously recorded Aboriginal places in the study area, both located in the floodplains landform.
The predictive model findings, shown in Figure 6, act as an effective tool in identifying broad scale archaeological potential. One zone of high archaeological potential was ground-truthed and the archaeological potential confirmed by the presence of a new Aboriginal place in the form of a grinding stone. The areas identified in the modelling generally correspond to the landforms of greater archaeological sensitivity (hill crests, alluvial and colluvial terraces) clearly defined as a result of the targeted inspections. The inputs from the predictive model in Figure 6 (proximity to water courses, remnant vegetation, local high points and slope classes) have been combined with the results of the ground inspection to provide the revised predictive model in Figure 9.

The only ‘outlier’ to the archaeological potential model is the presence of individual remnant tress that are scattered throughout the study area, which are not picked up with the predictive modelling or captured as part of any one landform unit. These features can, and do, occur across the entire study area in varying numbers.

4.2.5 Conclusion

The study area is broken into five landform units, being floodplains, hill slopes, alluvial/colluvial terraces, terraces, hill tops and ridge lines (Figure 8). Of these five units, three contain high to moderate archaeological potential – colluvial/alluvial terraces, hill tops and ridge lines that generally align with the archaeological potential identified in the initial prediction model. One new Aboriginal place was located in the alluvial terrace landform – a grinding stone situated on the surface overlooking Middle Creek.

Disturbances across the study area are relatively few for its size. One residential development to the south of Baranduda Boulevard and west of Middle Creek comprises the largest area of ground disturbance. Other areas include intermittent development zones, such as homesteads, farm infrastructure and roads.

In considering development areas, a comprehensive cultural heritage investigation is recommended for the three landform units that contain high to moderate archaeological potential. The landform which constitutes the majority of the study area – floodplains – contains relatively low archaeological potential and may form the best option for future residential development. Some cultural heritage may be present in this zone in the form of low density artefact distributions or scarred trees, as reflected by Witter's (1978) survey results, but it is anticipated that these Aboriginal places should be intermittent and form a 'background scatter' of low archaeological significance.
Figure 9: Revised predictive model for Aboriginal archaeological potential, based on the site survey

Acknowledgements: VicMap data © State of Victoria

Legend
- Study area
- Aboriginal archaeological potential
  - High potential
  - Moderate potential
  - Low potential

Scale: 1:20,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

Metres

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Date: 11 August 2015
Checked by: MT, Drawn by: LDM/JMS, Last edited by: lharley
Location:P:\19800s\19803\Mapping\19803_F9_Predictive_updated
Figure 10: Places accessed during field survey
5. Legislative Considerations

Aboriginal Heritage Implications

As a document that will serve to inform the design for the growth area precinct, there are two significant legislative considerations for future development. These are:

3. If any development design plans cover any part of an area of cultural heritage sensitivity (see Figure 4), AND that development is listed as a high impact activity under Section 43 of the Aboriginal Heritage Regulations 2007, than that development will trigger a mandatory cultural heritage management plan (CHMP). An exhaustive list of what constitutes high impact activity is listed in the Aboriginal Heritage Regulations 2007, and includes activities such as the subdivision of property into three lots or more.

4. If any development design plans do not include an area of cultural heritage sensitivity, then a mandatory CHMP is NOT triggered. However, it is recommended that either a voluntary CHMP or a cultural heritage due diligence assessment is undertaken to effectively manage risk.

Cultural heritage sensitive areas for the study area are shown as areas within 200 metres of named waterways; including all of Middle Creek. Also included is land within 50 metres of a registered cultural heritage place. If any development is planned that is high impact and falls within these 200 metre/50 metre zones, then a mandatory CHMP must be completed under the Aboriginal Heritage Act 2006.

Recommendations

Based on the results of the ground survey, there is a potential for Aboriginal cultural heritage within the study area. The recommendations are relevant at this point in time based on the findings of this assessment and may be subject to change with future additions to areas of cultural heritage sensitivity.

Recommendation 1

It is recommended that the current assessment findings be provided to Traditional Owner groups, by the MPA and the City of Wodonga, in an attempt to gather cultural knowledge, oral histories and cultural values for the wider Growth Area prior to public exhibition of the PSP design.

This consultation should be undertaken in the form of strategic and targeted on-site consultation with Traditional Owners in regard to identifying likely locations for major infrastructure and corridors. This would potentially allow for some agreement in principle as to where impacts within the landscape would be appropriate.

Recommendation 2

A mandatory CHMP must be completed if any development designs in an area of cultural heritage sensitivity AND that the activity is listed as high impact under the Aboriginal Heritage Regulations 2007. This recommendation is non-negotiable if these two triggers are met under the Aboriginal Heritage Act 2006.

Recommendation 3

A voluntary CHMP is recommended in areas of high to moderate archaeological potential for any high impact activity that does not include an established area of sensitivity. Areas of archaeological potential were identified in the ground survey outside of the designated area of cultural heritage sensitivity (colluvial terraces, and hill crests), and there is a potential for unidentified subsurface archaeological material across the remainder of the study area.
A voluntary CHMP will effectively manage the risk of harming cultural heritage. Under Section 27 of the Aboriginal Heritage Act 2006, harming Aboriginal cultural heritage is unlawful, and applies if a person knowingly, recklessly or negligently harms Aboriginal cultural heritage.

Recommendation 4

For areas outside of the voluntary and mandatory CHMP areas, it is recommended that a detailed inspection and risk assessment is undertaken. While these areas do not contain legislative obligations to complete an Aboriginal archaeological investigation, effective risk management should be prioritised to avoid any damage to Aboriginal places that may exist in these areas.
Figure 11: Legislated areas of Cultural Heritage Sensitivity and assessment type recommendations

Legend
- Study area
- Lot boundary
- Area of Cultural Heritage Sensitivity
- CHMP Requirements
  - Potential mandatory CHMP
  - Voluntary CHMP recommended
  - Site inspection and risk evaluation recommended

Acknowledgements: VicMap data © State of Victoria

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Coordinate System: GDA 1994 MGA Zone 55

Scale: 1:20,000 @ A3

Matter: 19803, Date: 11 August 2015, Checked by: MT, Drawn by: SKM, Last edited by: lharley

Location: P:\19800s\19803\Mapping\19803_F11_CultSens
Bibliography


