The Horsley Drive Upgrade

Environmental Investigation Report

Appendix K – Cultural heritage assessment report (Aboriginal Heritage)

June 2017
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Summary

RPS has been engaged by Roads and Maritime Service (Roads and Maritime) to prepare a Cultural Heritage Assessment for the proposed upgrade of The Horsley Drive, Horsley Park in the Fairfield Local Government Area.

This assessment has been undertaken in accordance with the Stage 3 of the Procedure for Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime Services 2011), Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011), the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (Code of Practice) (DECCW 2010) and the Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRs) (DECCW 2010).

Kelleher Nightingale Consulting undertook an Aboriginal Archaeological Survey in August 2015 and as part of the Stage 2 PACHCI consulted directly with Deerubbin Local Aboriginal Land Council (DLALC). That survey, undertaken with Steve Randall of DLALC, identified ten sites within the relevant corridor of The Horsley Drive, comprising eight artefact scatters and two isolated finds. Areas of high archaeological potential were also identified in association with two of the artefact scatter sites. Consequently, Kelleher Nightingale recommended that if the detailed design was to impact on any of these areas that an Aboriginal Heritage Impact Permit would need to be sought and a Cultural Heritage Assessment undertaken. This would include salvage excavation at the two sites with noted archaeological potential and test excavation at a further three artefact scatter sites which contain moderate potential.

Consultation with Aboriginal people holding cultural knowledge relevant to the study area, as part of the PACHCI Stage 3, was commenced by Roads and Maritime in 2015. Details and documentation of the consultation process were undertaken by RMS and are provided in section 2 of this report. An Aboriginal Focus Group Meeting to discuss the methodology for this Cultural Heritage Assessment Report (CHAR) was held on 1 August 2016. No objections to the methodology were raised at that time. A second AFG was held on 13 December 2016 at which time the methodology and proposed management of salvaged artefacts were addressed. No further issues were raised and it was concluded that the preferred management of artefacts was reburial on Country.

As the detailed design may impact either directly or indirectly on some of the sites identified by Kelleher Nightingale, RMS has instructed RPS to prepare this CHAR. Recommendations for the management of the sites had been provided by Kelleher Nightingale Consulting (2015). The rationale for their assessment has been reviewed herein and RPS concurs with the approach.

Of the ten sites within the Proposal area boundary, three (#45-5-4681, #45-5-4683 and #45-5-4686) were subject to archaeological investigation by Hagund (2007) who determined that these sites required no further assessment. These locations were surveyed by Kelleher Nightingale as part of the PACHCI Stage 2 investigation (2015) who reached the same conclusion. Kelleher Nightingale also identified an additional two isolated find sites (#45-5-4677 and #45-5-4678) on a modified landform, the management for which they determined should be community collection as these locations did not contain subsurface archaeological potential. The final five sites were artefact scatters which contained high or moderate archaeological potential, and would therefore require salvage.

As concluded in KNC’s report, the following management of the ten sites is proposed:

- Salvage of five sites (Sites #45-5-4679, #45-5-4680, #45-5-4682, #45-5-4684 and #45-5-4685);
- Community collection of two isolated finds sites (#45-5-4677 and #45-5-4678);
- No further work required at three sites (Sites #45-5-4681, #45-5-4683 and #45-5-4686);
The methodology for the salvage of the five sites is proposed to be a two-staged approach. Details of that methodology are discussed in Section 8. Section 8 also contains a discussion of the three sites for which impacts include total loss of value, and the community collection of the isolated finds sites.

As a result of this investigation, it is recommended that an Aboriginal Heritage Impact Permit be sought from the Office of Environment & Heritage covering the management of all sites within the Proposal area.

RECOMMENDATIONS

The following recommendations have been made in relation to the proposed activity:

Recommendation 1

All relevant Roads and Maritime staff, contractors and subcontractors should be made aware of their statutory obligations for heritage under the National Parks and Wildlife Act 1974 and the Heritage Act 1977, which would be implemented as a cultural heritage induction prior to any construction works taking place.

Recommendation 2

It is not practicable to avoid five sites which are considered to contain archaeological potential: AHIMS #45-5-4682, #45-5-4679 which have been assessed to have high archaeological potential and moderate archaeological significance and #45-5-4684, #45-5-4685 and #45-5-4680, being of moderate archaeological potential and low-moderate archaeological significance.

Therefore, the portions of these sites within the Proposal area should be subject to community collection and salvage excavations under an AHIP.

The AHIP application should also propose community collection at #45-5-4677 and #45-5-4678.

Furthermore, three registered sites (#45-5-4681, #45-5-4683 and #45-5-4686) have been previously assessed by Haglund and are considered to contain low archaeological significance. An AHIP for these sites is required for the proposed works, but no further archaeological works are necessary.

Recommendation 3

It is recommended that this Cultural Heritage Assessment Report accompany an Application for an Aboriginal Heritage Impact Permit and that the methodology set out in Section 8 below be followed.

Recommendation 4

If any unrecorded Aboriginal objects are identified in the Proposal area during works, all works in the area must immediately cease the Roads and Maritime procedure for unexpected heritage items must be followed:

1. Stop work, protect item and inform Roads and Maritime environment staff
2. Contact and engage an archaeologist and Aboriginal Sites Officer where required
3. Complete a preliminary assessment and recording of the item – **Skip to step 8 if item is determined not to be heritage, or**
4. Formulate an archaeological or heritage management plan
5. Formally notify the regulator by letter, if required
6. Implement archaeological or heritage management plan
7. Review CEMPs and approval conditions
8. Resume work
Recommendation 5

In the unlikely event that suspected human skeletal remains are identified, the Roads and Maritime procedure for uncovering bones must be followed: Work must cease immediately in the vicinity of the remains and the area must be cordoned off; a qualified forensic or physical anthropologist must determine whether the remains are human or non-human – these specialist consultants can be sought by contacting the OEH Environment Line 131 555. Where it is instantly obvious that the remains are human, the Project Manager should contact the police by phone.

If the bones are identified as human, a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and the likely burial context (archaeological or forensic). Where the remains are forensic, the site becomes the jurisdiction of the NSW Coroner. If the remains are archaeological, the OEH must be notified and (for Aboriginal remains) the Roads and Maritime heritage advisor must contact the relevant Aboriginal parties, per the PACHCI.
## Abbreviation/ Term | Meaning
---|---
**Aboriginal Object** | “any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains” (DECCW 2010:18).

**Aboriginal Place** | “a place declared under s.84 of the NPW Act that, in the opinion of the Minister, is or was of special significance to Aboriginal culture” (DECCW 2010:18). Aboriginal places have been gazetted by the minister.

**Aboriginal Culturally Modified Tree** | “means a tree that, before or concurrent with (or both) the occupation of the area in which the tree is located by persons of non-Aboriginal extraction, has been scarred, carved or modified by an Aboriginal person by:
(a) the deliberate removal, by traditional methods, of bark or wood from the tree, or
(b) the deliberate modification, by traditional methods, of the wood of the tree” NPW Regulation 80B (3). Culturally Modified trees are sometimes referred to as scarred trees.

**Activity** | A project, development, or work (this term is used in its ordinary meaning and is not restricted to an activity as defined by Part 5 EP&A Act 1979).

**CHAR** | Cultural Heritage Assessment Report

**AHIMS** | Aboriginal Heritage Information Management System

**AHIP** | Aboriginal Heritage Impact Permit

**cal. years BP** | Calibrated years before present, indicates a radiocarbon date has been calibrated using the dendrochronology curves, making the date more accurate than an uncalibrated date.

**DECCW** | Department of Environment, Climate Change and Water (is now the Office of Environment and Heritage – OEH)

**Disturbed Land** | “Land is disturbed if it has been the subject of a human activity that has changed the land’s surface, being changes that remain clear and observable.” (DECCW 2010:18).

**Due Diligence** | “taking reasonable and practical steps to determine whether a person’s actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm” (DECCW 2010:18)

**EP&A Act** | Environmental Planning and Assessment Act 1979 (NSW)

**Impact Zone** | The area that will be directly impacted by the works.

**GDA** | Geodetic Datum Australia

**GIS** | Geographic Information System

**LALC** | Local Aboriginal Land Council

**LEP** | Local Environment Plan

**LGA** | Local Government Area

**NPWS** | National Parks and Wildlife Service

**NPW Act** | National Parks and Wildlife Act 1974 (NSW)

**NPW Regulation** | National Parks and Wildlife Regulation 2009 (NSW)

**OEH** | Office of Environment and Heritage (formerly DECCW)

**PAD** | Potential Archaeological Deposit

**Proposal area** | The Proposal area includes the design and construction footprint (the Impact Zone) in addition to a buffer outside the footprint which accounts for impacts such as vehicle movement, storage and site compound(s).

**RAPs** | Registered Aboriginal Parties

**PACHCI study area** | This refers to the broader area which was originally assessed by KNC during the PACHCI Stage 2 and by RPS during the Stage 2 addendum. This study area was also utilised for the purposes of archaeological assessment as part of the CHAR completed for the PACHCI Stage 3. Also referred to as ‘study area’.
1 Introduction

1.1 Background

RPS has been engaged by GHD on behalf of Roads and Maritime Services (Roads and Maritime) to prepare a Cultural Heritage Assessment Report (CHAR) to inform appropriate management measures for ten Aboriginal heritage sites identified by Kelleher Nightingale in 2015 (Kelleher Nightingale Consulting 2015).

This report has been prepared in accordance with the Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime Services 2011), Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011), the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (the Code of Practice) (DECCW 2010) and the Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRs) (DECCW 2010). It provides an outline of the proposed activity, the relevant statutory context, and the relevant environmental, historic and archaeological context, and a description of Aboriginal objects and places and the Aboriginal cultural heritage values of the study area, which includes the Proposal area. Appendix B contains an outline of the consultation undertaken by Roads and Maritime in accordance with the ACHCRs as part of the CHAR and the views of the relevant parties regarding the likely impacts of the proposed activity on Aboriginal cultural heritage. Recommendations to avoid, mitigate and manage impacts to Aboriginal cultural heritage are also included.

1.2 Proposal area

The Proposal area is The Horsley Drive between Cowpasture Road, Bossley Park in the east and Wallgrove Road, Horsley Park in the west (Figure 1.1). The Proposal area includes the design and construction footprint in addition to a buffer outside the footprint which accounts for impacts such as vehicle movement, storage and site compound(s) (Figure 1.2). The length of the Proposal area is approximately 2.4 kilometres.

The Horsley Drive is a 15 kilometre long arterial road which generally runs along an east-west alignment between Carramar and Horsley Park, connecting the Hume Highway to the east with Wallgrove Road to the west. It is a key link in the metropolitan Sydney network catering for the needs of the surrounding communities, commuters and businesses, and serving local freight movement.

The Horsley Drive between the M7 Motorway and Cowpasture Road is the main access in the Smithfield/Wetherill Park industrial area and a strategic freight link to and from the M7. The existing road, between the M7 interchange and Ferrers Road, is a three lane, undivided road with two lanes westbound and one lane eastbound. Between Ferrers Road and Cowpasture Road the road is four lanes and undivided. There is currently no east-west shared path connectivity, however cyclist/pedestrian activated traffic lights connect the Regional Park cycleway across the Horsley Drive east of Ferrers Road.

Previous investigations undertaken for the proposed upgrade covered a broader area than the Proposal area, as they were undertaken prior to the finalisation of the boundary of the proposal. This boundary is referred to as the PACHCI study area and has been used when referencing the known sites in the area and previous investigations undertaken, and is illustrated in Figure 1.1.
1.3 The Proposal

Roads and Maritime is planning a 2.4 kilometre upgrade of The Horsley Drive between the Wallgrove Road, Horsley Park and Cowpasture Road, Bossley Park. The start of planning for the upgrade was announced by the NSW Government in March 2015 to address traffic congestion, improve road safety and to meet a predicted increase in traffic volumes due to growth of the Western Sydney Employment Area. The upgrade would see this section of The Horsley Drive converted to a four lane divided road with provision for a six lane corridor for future traffic needs.

The existing daily traffic volumes on The Horsley Drive are between 32,000 and 40,000 vehicles per day, with between 18 and 22 per cent being heavy vehicles. These factors coupled with the existing standard of the road mean that there are high levels of traffic congestion, delays and low levels of travel time reliability. This affects commuters (including those using buses) but also has broader economic impact by limiting access to the Smithfield/Wetherill Park Industrial area, affecting the movement of freight.

Traffic on The Horsley Drive is expected to grow at an average of 2.5 per cent to 2.8 per cent per annum by 2031, with heavy vehicle numbers in line with overall traffic growth. Traffic analysis indicates that without an upgrade there will be severe capacity issues, long delays and extended queues on The Horsley Drive. It is expected that the provision of four lanes (two lanes in each direction) will adequately address near term demand to 2036. After 2036 six lanes (three lanes in each direction) will be needed. These predictions regarding capacity and the required upgrade are subject to future traffic and modelling.

1.4 Key Features

The key features of the proposal are shown in Figure 1.2 and include:

- Widening and upgrading of approximately 2.4 kilometres of The Horsley Drive from the M7 to Cowpasture Road to a four lane divided road with a wide median to allow for upgrade to six lanes if required in future
- Provision of a third lane from west of Ferrers Road to Cowpasture Road utilising the future third eastbound lane in the six lane corridor
- Upgrading The Horsley Drive western carriageway between the M7 and Wallgrove Road to provide an additional right turn into Wallgrove Road with provision for a second westbound lane if required in future
- Upgrading the Horsley Drive / Ferrers Road signalised intersection
- Upgrading the turning lanes at The Horsley Drive / Cowpasture Road North intersection
- Conversion of the existing The Horsley Drive/Cowpasture Road roundabout to a signalised intersection and tie-ins to Cowpasture Road and The Horsley Drive east of Cowpasture Road
- Extending turning lanes on The Horsley Drive eastern approach at the M7 interchange
- Realignment of a section of The Horsley Drive at the Ferrers Road intersection
- Widening and realigning of Ferrers Road at the intersection with The Horsley Drive
- Provision of a turning cul-de-sac opposite Ferrers Road intersection
- Provision of a new access road / shared path between the proposed turning cul-de-sac opposite Ferrers Road intersection to access WaterNSW land and meet the existing Western Sydney Parkland cycle way parallel to the Upper Canal
- An off-road shared path for cyclists and pedestrians on southern side of the road corridor and connection to M7 cycleway and parkland cycleway
- A footpath on northern side of the road corridor
■ A Bus priority lanes on the western approach and indented bus bays on the departure sides of the Ferrers Road intersection
■ Signalised crossings for pedestrians and cyclists at intersections
■ Improvements to flood immunity and drainage upgrades including replacing the existing box culverts with a single span concrete bridge to accommodate the proposed widening of The Horsley Drive over Eastern Creek,
■ Protection structure over Westons Tunnel to accommodate the proposed road widening over the heritage structure
■ Urban design elements including landscaping to integrate with the environment including Western Sydney Parklands
■ Adjustments to existing property access
■ Temporary access tracks, site compounds, stockpile sites, and construction sedimentation basins.

1.5 Statutory Context

The following overview of the statutory framework is provided solely for information purposes for the client, it should not be interpreted as legal advice. RPS will not be liable for any actions taken by any person, body or group as a result of this general overview, and recommend that specific legal advice be obtained from a qualified legal practitioner prior to any action being taken as a result of the summary below.

Aboriginal cultural heritage (objects and places) in NSW are protected by the National Parks and Wildlife Act 1974. In some cases, Aboriginal heritage may also be protected under the Heritage Act 1977. The Environmental Planning and Assessment Act 1979 (EP&A Act), and other environmental planning instruments trigger the requirement for the investigation and assessment of Aboriginal cultural heritage as part of the development approval process.

National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 (NPW Act) protects Aboriginal heritage (places, sites and objects) within NSW. Protection of Aboriginal heritage is outlined in section 86 of the Act, as follows:

■ “A person must not harm or desecrate an object that the person knows is an Aboriginal object” s86(1).
■ “A person must not harm an Aboriginal object” s86(2).
■ “A person must not harm or desecrate an Aboriginal place” s86(4).

Penalties apply for harming an Aboriginal object or place. The penalty for knowingly harming an Aboriginal object (s86[1]) and/or an Aboriginal place (s86[4]) is up to $550,000 for an individual and/or imprisonment for two years; and in the case of a corporation the penalty is up to $1.1 million. The penalty for a strict liability offence (s86[2]) is up to $110,000 for an individual and $220,000 for a corporation.

Harm under the NPW Act is defined as any act that; destroys defaces or damages the object, moves the object from the land on which it has been situated, causes or permits the object to be harmed. However, it is a defence from prosecution if the proponent can demonstrate 1) that harm was authorised under an Aboriginal Heritage Impact Permit (AHIP) (and the permit was properly followed), or 2) that the proponent exercised due diligence in respect to Aboriginal heritage. The ‘due diligence’ defence (s87[2]), states that if a person or company has exercised due diligence to ascertain that no Aboriginal object was likely to be harmed as a result of the activities proposed for the study area (subject area of the proposed activity); then liability from prosecution under the NPW Act 1974 will be removed or mitigated if it later transpires that an Aboriginal object was harmed. If any Aboriginal objects are identified during the activity, then works should cease in that area and OEH notified (DECCW 2010:13). The due diligence defence does not authorise continuing harm.
Notification of Aboriginal Objects

Under section 89A of the NPW Act Aboriginal objects and sites must be reported to the Director-General of OEH within a reasonable time, unless it has previously been recorded and submitted to AHIMS. Penalties of $11,000 for an individual and $22,000 for a corporation may apply for each object not reported.

The investigation and assessment of Aboriginal cultural heritage is undertaken to explore the harm of a proposed activity on Aboriginal objects and places. There are a number of guidelines and procedural publications governing archaeological practice relating to Aboriginal cultural heritage. The publications relevant to this investigation and assessment include the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011), the *Code of Practice* (DECCW 2010) and the ACHCRs (DECCW 2010).

Under the Code, a number of requirements are set out by OEH to ensure a benchmark of standards for archaeological investigation of Aboriginal objects in NSW. It flows from s90 of the NPW Act, which states that the Director General can require certain information accompany an application for an AHIP. Therefore where there is a possibility that Aboriginal objects and/or places may be harmed; the requirements set out in the Code must be followed in order to comply with the requirements of the NPW Act.

The ACHCR codifies a staged process of consultation with Aboriginal people. These requirements flow from the fulfilment of the objects of the NPW Act, which seek, *inter alia*, to conserve objects places or features of significance to Aboriginal people. To this end, Aboriginal people are included in the consultation process to provide feedback on the cultural significance of Aboriginal objects and places in a study area.

**Heritage Act 1977**

Historic archaeological relics, buildings, structures, archaeological deposits and features are protected under the *Heritage Act 1977* and may be identified on the State Heritage Register (SHR) or by an active Interim Heritage Order. Certain types of historic Aboriginal sites may be listed on the SHR or subject to an active Interim Heritage Order; in such cases they would be protected under the *Heritage Act 1977* and may require approvals or excavation permits from the NSW Heritage Branch.

**Environmental Planning and Assessment Act 1979**

The EP&A Act provides a framework for environmental planning and assessment for New South Wales. The Act requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage.

**Aboriginal Land Rights Act 1983**

The purpose of this legislation is to provide land rights for Aboriginal people within NSW and to establish Local Aboriginal Land Councils (LALC). The land able to be claimed by Aboriginal Land Councils on behalf of Aboriginal people is certain Crown land that (s36):

(a) Is able to be lawfully sold, leased, reserved or dedicated.

(b) Is not lawfully used or occupied.

(c) Will not, or not likely, in the opinion of the Crown Lands minister, be needed for residential purposes.

(d) Will not, or not likely, be needed for public purposes.

(e) Does not comprise land under determination by a claim for native title.

(f) Is not the subject of an approved determination under native title.

Claims for land are by application to the Office of the Registrar, *Aboriginal Land Rights Act 1983*. 
Native Title Act 1993

The Commonwealth Government enacted the Native Title Act 1993 to formally recognise and protect native title rights in Australia following the decision of the High Court of Australia in Mabo and Ors v Queensland [No 2] (1992) 175 CLR 1 (Mabo).

Although there is a presumption of native title in any area where an Aboriginal community or group can establish a traditional or customary connection with that area, there are a number of ways that native title is taken to have been extinguished. For example, land that was designated as having freehold title prior to 1 January 1994 extinguishes native title, as does any commercial, agricultural, pastoral or residential lease. Land that has been utilised for the construction or establishment of public works also extinguishes any native title rights and interests for as long as they are used for that purpose. Other land tenure, such as mining leases, may be subject to native title, depending on when the lease was granted. There are no Native Title claims within the Proposal area.

1.6 Timeline of previous investigations within the PACHCI study area

The following timeline outlines the previous archaeological investigations relevant to this project:

Table 1.1 Timeline of relevant archaeological investigations

<table>
<thead>
<tr>
<th>Date</th>
<th>Consultant</th>
<th>Investigation</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Bobbie Oakley</td>
<td>Surface survey</td>
<td>Recommended test excavations</td>
</tr>
<tr>
<td>2007</td>
<td>Haglund &amp; Associates</td>
<td>Test excavations</td>
<td>Recommended archaeological salvage of specific sites</td>
</tr>
<tr>
<td>2015</td>
<td>Kelleher Nightingale Consultants</td>
<td>Stage 2 PACHCI</td>
<td>Identification of further sites; recommended salvage of five sites</td>
</tr>
<tr>
<td>2016</td>
<td>RPS Australia East Pty Ltd</td>
<td>Addendum to Stage 2 PACHCI</td>
<td>Agreed with recommendations of KNC; extension of area of #45-5-4685</td>
</tr>
<tr>
<td>2017</td>
<td>RPS Australia East Pty Ltd</td>
<td>Stage 3 PACHCI – Cultural Heritage Assessment Report (this document)</td>
<td>Recommended salvage of five sites under an Aboriginal Heritage Impact Permit (AHIP)</td>
</tr>
</tbody>
</table>

1.7 Authorship and Acknowledgements

This CHAR was prepared by RPS Heritage Manager Sydney, Deborah Farina, with the assistance of RPS Heritage Consultant, Alexandra Byrne. This CHAR was reviewed by RPS Senior Executive – Environment and Heritage, Erin Williams.
Figure 1.2: Finalised Concept Design with RMS Proposal Area and PACHCI Study Area

The Horsley Drive Upgrade

Legend

- Final Concept Design
- RMS Proposal Area/ AHIP Boundary
- PACHCI Study Area

Study Area Location
2 Aboriginal Consultation

The OEH acknowledges that Aboriginal people are the primary determinants of the significance of their heritage and that Aboriginal people should be involved in the Aboriginal heritage planning process and are the primary source of information about the value of their heritage and how this best protected and conserved, and must be afforded control in the way cultural information (particularly sensitive information) is used. Aboriginal community consultation is regarded as an integral part of the process of investigating and assessing Aboriginal cultural heritage (OEH 2011:2).

2.1 Aboriginal Cultural Heritage Consultation Requirements

Aboriginal community consultation has been undertaken for this assessment by Roads and Maritime and has followed the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010). The ACHCRs comprise a four stage Aboriginal consultation process and mandate specific timeframes for each stage. Stage 1 requires that Aboriginal people who hold cultural information are identified, notified and invited to register an expression of interest in the assessment. This identification process should draw on reasonable sources of information including: the relevant OEH Environment Protection and Regulation Group regional office, the relevant Local Aboriginal Land Council(s) (LALC), the Register of Aboriginal Owners, the Native Title Tribunal, Native Title Services Corporation, local council(s) and the relevant Local Land Services, as well as placing an advertisement in a local newspaper circulating in the general location of the activity. Aboriginal organisations and/or individuals identified should be notified of the activity and invited to register an expression of interest for Aboriginal consultation. Once a list of registered Aboriginal parties (RAPs) has been compiled from the expression of interest process they need to be consulted in accordance with Stage 2, 3 and 4 of the ACHCRs.

Roads and Maritime undertook the consultation for this project and all information included below has been provided by them for inclusion in this property.

A copy of the consultation log and relevant documentation as provided by RMS is provided in Appendix B.

Notification and registration of interest

On 9 February 2016, Roads and Maritime wrote to the following for the names of Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal cultural heritage within the PACHCI study area, and who may have an interest in the proposal:

- OEH, Parramatta Regional Operations Group
- Office of the Registrar, Aboriginal Land Rights Act 1983
- National Native Title Tribunal
- Native Title Services Corporation Limited
- Deerubbin Local Aboriginal Land Council
- Fairfield City Council
- Greater Sydney Local Land Services

Upon receiving the responses from these organisations, a request for expression of interest in the project was sent to all Aboriginal parties listed.
On 24 February 2016, Roads and Maritime also placed a public notice in the Fairfield Advance, the Blacktown Advocate, the Liverpool Leader and the Koori Mail inviting Aboriginal people and Aboriginal groups who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places for The Horsley Drive requesting expressions of interest from Aboriginal people who hold cultural knowledge relevant to determining the significance of the study area.

The following Aboriginal organisations registered an interest either in response to the letters or the advertisement.

**Table 2.1 Registration of interest**

<table>
<thead>
<tr>
<th>RAP</th>
<th>Date received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deerubbin Local Aboriginal Land Council</td>
<td>9/2/16</td>
</tr>
<tr>
<td>Kamilaroi-Yankuntjatjara Working Group</td>
<td>19/2/16</td>
</tr>
<tr>
<td>Dhinawan-Dhigaraa Cultural Heritage Pty Ltd</td>
<td>19/2/16</td>
</tr>
<tr>
<td>Peter Falk Consultancy</td>
<td>29/2/16</td>
</tr>
<tr>
<td>Duncan Falk Consultancy</td>
<td>29/2/16</td>
</tr>
<tr>
<td>Darug Land Observations</td>
<td>1/3/16</td>
</tr>
<tr>
<td>National Koori Management</td>
<td>2/3/16</td>
</tr>
<tr>
<td>Kulilila Site Management</td>
<td>2/3/16</td>
</tr>
<tr>
<td>Darug Aboriginal Cultural Heritage Assessments</td>
<td>4/3/16</td>
</tr>
<tr>
<td>Darug Tribal Aboriginal Corporation</td>
<td>4/3/16</td>
</tr>
<tr>
<td>Darug Aboriginal Land Care</td>
<td>4/3/16</td>
</tr>
<tr>
<td>Darug Custodian Aboriginal Corporation</td>
<td>8/3/16</td>
</tr>
<tr>
<td>Murri Bidgee Mullangari Aboriginal Corporation</td>
<td>8/3/16</td>
</tr>
<tr>
<td>Tocomwall</td>
<td>10/3/16</td>
</tr>
<tr>
<td>Rane</td>
<td>15/3/16</td>
</tr>
<tr>
<td>Aboriginal Archaeology Services INC</td>
<td>15/3/16</td>
</tr>
<tr>
<td>A1 Indigenous Services</td>
<td>15/3/16</td>
</tr>
<tr>
<td>Amanda Hickey Cultural Services</td>
<td>15/3/16</td>
</tr>
<tr>
<td>Corroboree Aboriginal Corporation</td>
<td>20/3/16</td>
</tr>
<tr>
<td>Widescope Indigenous Group</td>
<td>22/3/16</td>
</tr>
<tr>
<td>Gulaga</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Murramarang</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Nundagurri</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Cullendulla</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Gunyyuu</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Bilinga</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Gangangarra</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Walgalu</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Ngarigo</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Biamanga</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Walbunja</td>
<td>29/3/16</td>
</tr>
</tbody>
</table>
Provision of information regarding the proposal and proposed approach to the Aboriginal cultural heritage assessment

On 20 July 2016, Roads and Maritime provided further information regarding the proposal and the proposed approach to preparing the Aboriginal cultural heritage assessment to all registered Aboriginal parties (RAPs), in addition inviting all RAPs to attend an Aboriginal Focus Group (AFG) regarding the project. The focus group was held on 1 August 2016. All comments received were taken into consideration. Table 2.2 lists the RAPs who attended the AFG and Table 2.3 details comments received regarding the proposed methodology.

Table 2.2 RAPs who attended AFG on 1 August 2016

<table>
<thead>
<tr>
<th>RAP</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yerramurra</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Badu</td>
<td>29/3/16</td>
</tr>
<tr>
<td>Goobah</td>
<td>29/3/16</td>
</tr>
</tbody>
</table>

Table 2.3 Comments received for assessment methodology

<table>
<thead>
<tr>
<th>RAP / Name</th>
<th>Date received</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darug Aboriginal Land Care</td>
<td>30/7/16</td>
<td>No objections to the proposed methodology.</td>
</tr>
<tr>
<td>Aboriginal Archaeology Services</td>
<td>31/7/2016</td>
<td>Agreed with proposed methodology but added that consultation with RAPs on site should be undertaken regarding the possible significance of the site and any possible locations where excavation should be undertaken or expanded. Also stated that the preference for storage of artefacts was for high significance items to be out on display in a public building and low significance artefacts to be reburied on country.</td>
</tr>
<tr>
<td>Kamilaroi-Yankuntjatjara Working Group</td>
<td>24/8/16</td>
<td>Noted that it is difficult to comment on sites at locations where they have not been able to walk over and that studies by McDonald show that areas that have been subject to agricultural activities still have the potential to contain artefacts.</td>
</tr>
</tbody>
</table>
Cultural significance of Aboriginal objects and places

Roads and Maritime provided a number of options to the RAPs for them to provide information about the cultural significance of Aboriginal cultural heritage relevant to the project. When providing further information about the study area, proposed works and the proposed approach to the Aboriginal cultural heritage assessment, RPS requested cultural information and indicated that such information would be accepted at any point throughout the cultural heritage assessment. No specific cultural significance information has been received regarding the project to date.

Review of draft Aboriginal cultural heritage assessment report

The draft version of the report, including the proposed salvage methodology, was provided to the RAPs for comment. During this time, an Aboriginal Focus Group was held in order to discuss any issues that the RAPs may have had with the cultural heritage assessment report and proposed works. Table 2.4 lists those who attended the AFG.

<table>
<thead>
<tr>
<th>Table 2.4 RAPs who attended AFG on 13 December 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RAP</strong></td>
</tr>
<tr>
<td>Aboriginal Archaeology Services</td>
</tr>
<tr>
<td>Rane Contracting</td>
</tr>
<tr>
<td>Widescope Indigenous Group</td>
</tr>
<tr>
<td>Murri Bidgee Mullangari Aboriginal Corporation</td>
</tr>
<tr>
<td>Muragadi</td>
</tr>
<tr>
<td>Darug Aboriginal Cultural Heritage Services</td>
</tr>
<tr>
<td>Kamilaroi Yankuntjatjara Working Group</td>
</tr>
<tr>
<td>Darug Custodians Aboriginal Corporation</td>
</tr>
</tbody>
</table>

During the AFG, representatives from several organisations stated that it was extremely difficult for them to make comment on cultural significance or possible impacts of proposed work when they had not been on site. As a result, a site visit was arranged in order to show interested parties the locations of the proposed works.

Three groups attended the site visit on Wednesday 11 January 2017, which was undertaken via vehicle (Table 2.5).

<table>
<thead>
<tr>
<th>Table 2.5 RAPs who attended the site visit on 11 January 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RAP</strong></td>
</tr>
<tr>
<td>Kamilaroi Yankuntjatjara Aboriginal Working Group</td>
</tr>
<tr>
<td>Widescope Indigenous Group</td>
</tr>
<tr>
<td>Corroboree Aboriginal Corporation</td>
</tr>
</tbody>
</table>
Comments received regarding the proposal and the draft report are provided in Table 2.6 below.

**Table 2.6 Comments from RAPs on the draft assessment report**

<table>
<thead>
<tr>
<th>RAP</th>
<th>Date received</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widescope Indigenous Group</td>
<td>24/11/2016</td>
<td>Steven Hickey stated that Widescope was satisfied with the draft report and recommendations (see Appendix B).</td>
</tr>
<tr>
<td>Kamilaroi Yankuntjatjara Aboriginal Working Group</td>
<td>11/01/2017</td>
<td>Phil Khan stated that he was satisfied with the proposed methodology, both during the site visit and via telephone.</td>
</tr>
<tr>
<td>Corroboree Aboriginal Corporation</td>
<td>13/01/2017</td>
<td>Marilyn Carroll-Johnson stated that Corroboree was satisfied with the proposal (see Appendix B).</td>
</tr>
</tbody>
</table>
3 Environmental Context

An understanding of the environmental context is important for the predictive modelling and interpretation of Aboriginal objects and places. The local environment provided resources for Aboriginal people, such as stone (for manufacturing stone tools), food and medicines, wood and bark (for implements such as shields, spears, canoes, bowls, shelters, amongst others), as well as areas for camping and other activities. The nature of Aboriginal occupation and resource procurement is related to the local environment and it therefore needs to be considered as part of the cultural heritage assessment process. The reporting of environmental context is a requirement under the Code of Practice.

3.1 Geology and Soils

Geology

Aboriginal people made stone tools using siliceous, metamorphic or igneous rocks and therefore understanding the local geology can provide important information regarding resources in the PACHCI study area. The nature of stone exploitation by Aboriginal people was dependent on the characteristics of the source, for example whether it outcropped on the surface (a primary source), or whether it occurred as gravels as a secondary source (Doelman, Torrence et al. 2008).

The most frequently occurring site types remaining in the landscape are stone tools, which occur on and beneath the ground surface, either as a scatter of artefacts or in isolation. While these objects can be found in any place or context, the presence of the raw material used for stone tool manufacture is a factor in the occurrence of such sites.

The underlying geology of the study area is the Triassic Wianamatta Group, made up of Bringelly Shale, Minchinbury Sandstone and Ashfield Shale. These geological profiles contain shale, with some sandstone beds. A small lens of basalt, dolerite and volcanic breccia is located to the east of the study area at Wetherill Park.

Sandstone was an important resource for Aboriginal people. Sandstone overhangs were utilised as shelters for short and long-term occupation and platforms were used both for the creation of art and for the maintenance of stone tools (creating “grinding grooves”). The presence of volcanic materials such as basalt and dolerite is important for use as ground edge tools (Attenbrow 2010:44). Furthermore, outcrops of stone types such as silcrete occur throughout the region, which were extensively exploited for the manufacture of stone tools.

Soils

The soil landscapes which occur across the study area are the Luddenham (to the east and centre of the study area), Picton (south and west of the intersection of The Horsley Drive and Ferrers Road) and Blacktown soils (centre-east, and west) (Bannerman and Hazelton 1990). In general, archaeological deposits occur in the topsoils. While disturbances such as farming can have an impact on the integrity of a site, the artefacts tend to remain present in topsoils such as the Luddenham and Blacktown soils, despite perhaps no longer being in situ.
### Table 3.1 Luddenham soil landscape (total soil depth up to 200cm)

<table>
<thead>
<tr>
<th>Dominant soil material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁ horizon (lu1)</td>
<td>Dark brown friable loam, silt loam or clay loam. Roots common, charcoal fragments occur occasionally. Up to 50cm depth.</td>
</tr>
<tr>
<td>A₂ horizon (lu2)</td>
<td>Clay loam to fine sandy clay loam with an apedal massive or weakly pedal structure. Occasionally hard setting when it occurs at surface. Shale rock fragments, charcoal fragments and roots present.</td>
</tr>
<tr>
<td>B horizon (lu3)</td>
<td>Medium clay with strong structure and smooth-faced, dense ped fabric. Shale rock fragments are common, roots are rare.</td>
</tr>
<tr>
<td>Deep subsoil (lu4)</td>
<td>Grey, mottled medium clay. Shale rock fragments and gravels are common.</td>
</tr>
<tr>
<td>B horizon (lu5)</td>
<td>A pedal massive brown sandy clay to light clay with dense earthy fabric. Up to 10% weathered shale fragments. Charcoal and other inclusions do not occur.</td>
</tr>
</tbody>
</table>

### Table 3.2 Picton soil landscape (total soil depth up to 200cm)

<table>
<thead>
<tr>
<th>Dominant soil material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁ horizon (pn1)</td>
<td>A pedal massive clay loam to fine sandy clay loam with porous earthy fabric, occurring as topsoil. In some locations stones may compose up to 60% of the volume; roots are abundant; charcoal fragments and other inclusions are rare.</td>
</tr>
<tr>
<td>B horizon (pn2)</td>
<td>Strongly pedal medium or light medium clay occurring as subsoil. Occasional red or grey mottles at depth. Few roots; up to 20% stones; hard nodules of manganese are the only inclusions.</td>
</tr>
<tr>
<td>B horizon (pn3)</td>
<td>Brown structured light to medium clay with porous peds and smooth-faced fabric, occurring as subsoil. Small weakly weathered platy stones up to 80% of the volume. Roots are rare and charcoal is absent.</td>
</tr>
</tbody>
</table>

### Table 3.3 Blacktown soil landscape (total soil depth is up to 200cm)

<table>
<thead>
<tr>
<th>Dominant soil material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁ horizon (bt1)</td>
<td>Friable brownish black loam to clay loam. Rounded iron indurated fine gravel-sized shale fragments and charcoal fragments may occur. To approx 30cm depth.</td>
</tr>
<tr>
<td>A₂ horizon (bt2)</td>
<td>Brown clay loam to silt clay loam which is hard setting on exposure. Iron indurated gravel-sized shale fragments are common. Charcoal fragments are rare.</td>
</tr>
<tr>
<td>B horizon (bt3)</td>
<td>Brown light to medium clay. Frequent red, yellow or grey mottles occur often becoming more numerous with depth. Fine to coarse gravel-sized shale fragments are common and often occur in stratified bands. Charcoal fragments are rare.</td>
</tr>
<tr>
<td>B₃ or C horizon (bt4)</td>
<td>Plastic light grey silty clay to heavy clay. Occurs as deep subsoil above shale bedrock (B₃ or C horizon). Red, yellow or grey mottles are common. Weathered ironstone concretions and rock fragments are common. Gravel-sized shale fragments may occur. Charcoal fragments are rare.</td>
</tr>
</tbody>
</table>
3.2 Topography and Hydrology

Access to a reliable water source is an important factor for past Aboriginal people, as with all people. The basis of the predictive model for Aboriginal heritage on the Cumberland Plain is that habitation sites are often located on elevated, level ground within 200 metres of permanent water. As such, the topography and hydrology of a site must be taken into account when researching the potential for such sites to occur.

Eastern Creek runs roughly north-south in the west of the study area, crossing The Horsley Drive approximately 270 metres east of the M7 Motorway. Another smaller tributary of Eastern Creek runs roughly south east, commencing approximately 390 metres north of the intersection of Eastern Creek and The Horsley Drive, before trending easterly, following the alignment of The Horsley Drive as far as Ferrers Road. Eastern Creek continues southwards through the study area and through the Sydney International Equestrian Centre.

The topography comprises gently rolling hills in the east of the study area with a ridge running north-south to the immediate west of the Upper Canal System. The topography changes eastward to flood plain and terraces along drainage lines. Ferrers Road runs along an elevated ridgeline which takes in views east all the way to the coast and west to the mountains. Such topography suggests both an ease of transit across the gentle slopes and an important high ground location for obtaining views.

The hydrology and topography of the study area indicates that it could have been conducive to Aboriginal habitation.

3.3 Flora and Fauna

The purpose of this section is to provide an indication of the types of flora and fauna resources which were likely to have been available to Aboriginal people in the past. It is based on broad-scale vegetation mapping for NSW (Keith 2006) and does not replace more detailed studies undertaken for the study area.

In addition to water, food and other resources for exploitation are indicators of past Aboriginal habitation. An overview of the likely flora and fauna resources within the study area that would have supported past Aboriginal communities is provided below.

The reconstructed vegetation communities native to the study area are the Coastal Valley Grassy Woodlands and the Cumberland Dry Sclerophyll Forests along water courses. The Coastal Valley Grassy Woodlands comprised eucalyptus species such as the forest red gum, rough-barked apple, ironbarks and spotted gum. The understorey comprised shrubs, vines, herbs, ferns and grasses such as kangaroo grass, purple wiregrass and threeawn speargrass (Keith 2006:86-87). This vegetation community also corresponds with the Lowland Grassy Woodland in the South East Corner Bioregion Community and protected under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (“EPBC Act”) (Department of Environment 2013:33). The Cumberland Dry Sclerophyll Forests have similar species to the Coastal Valley Grassy Woodlands, but with an abundance of ironbark eucalypts with an open subcanopy of paperbarks as well as shrubs and grasses (Keith 2006:126).

The faunal resources expected in such vegetation communities include large mammalian herbivores (i.e. kangaroos), smaller ground-dwelling mammals (e.g. bandicoots), arboreal mammals (e.g. possums and bats), woodland birds and reptiles (Department of Environment 2013:7). Other faunal resources would have included freshwater fish, shellfish and other aquatic life.

The reconstructed flora and fauna native to the study area indicates that sufficient food resources for exploitation by past Aboriginal communities were present. The vegetation also could have provided necessary wood, bark and vines for tools and implements.
3.4 Past land uses

Until the early 20th century, much of the land surrounding The Horsley Drive formed part of the Weston family’s Horsley Park estate. The Weston family used their property for agricultural purposes and the alignment of The Horsley Drive was once the carriageway leading from Cowpasture Road to Horsley Park homestead.

The land comprising the study area began to be subdivided from 1904 onwards, with smaller blocks ranging from two to 15 acres made available, suitable for poultry, orcharding, market gardening and light grazing. These land uses continued until relatively recently and still continue on some blocks. At present, the area still retains its semi-rural character.

3.5 Synthesis of Environmental Context

Although much of the PACHCI study area is semi-rural, there have nonetheless been considerable modifications to the natural landscape in the study area. The construction of roads and the Upper Canal are chief among those, as well as farming and other agricultural pursuits to the north and south of The Horsley Drive. To the west of the study area, the construction of the Sydney International Equestrian Centre for the 2000 Olympic Games modified a large area on the south of The Horsley Drive and west of Eastern Creek. In the east, the construction of a large car park and smaller buildings as part of the Western Sydney Parklands take up the south western corner of Cowpasture Road and the Horsley Drive. Quarrying was also known to occur in the vicinity of Prospect Hill from around the 1820s.

However, as noted above, the soils in the area can be quite deep, particularly in the vicinity of Eastern Creek. Consequently there is still a high potential for Aboriginal heritage deposits to remain.
4 Aboriginal Heritage Context

This section synthesises information pertaining to the history and ethnography of the PACHCI study area, as well as the regional and local archaeological context of the study area (refer to Figure 1.1 above). This information has been drawn upon in the archaeological assessment of the study area and in formulating the recommendations presented in this report.

4.1 Ethnographic Background

Pre contact

At the outset, it is of vital importance to acknowledge that all pre contact information regarding Aboriginal culture comes from early historical documents, which were produced for a number of reasons. These documents may therefore contain inaccuracies and/or bias in their reporting of events or other aspects of Aboriginal culture (L'Oste Brown 1998). While some historical documents may provide important information and insights into local Aboriginal customs and material culture at the time of non-Indigenous settlement and occupation of region, these documents must also be viewed with the acknowledgment of the potential for biases and inaccuracies.

The study area was the traditional home of the Warmuli clan, who were part of the Darug language group. There were two others located nearby, being the Gomerigal at South Creek and the Wawarawarry at Eastern Creek. These clans were considered the “woodland” clans, as opposed to the coastal clans. These tribal boundaries are considered to be indicative only and would have changed through time and possibly also changed depending on circumstances.

A variety of studies of the language grouping that made upon the greater Sydney region have been summarised in Attenbrow (2010). Language groups were not the main political or social units in Aboriginal life; instead land custodianship centred on the smaller groups that comprised the broader language grouping, particularly small extended family groups or clans. As it was normal practice to disallow internmarriage in close family bands, a number of groups would have travelled together making up larger units. These units are often referred to as bands.

It is believed that groups were delineated by physical boundaries within the landscape, such as watercourses and particular varieties of vegetation. Group members were usually united by common dialect, descent, history and a shared “Dreaming” ancestor, with each group led by influential individuals. In the Sydney area, spiritual attachment and allegiance to land was centred on the clan. Bands were economic, resource based groups carrying different emphasis to the cultural life of the local people (Attenbrow 2010:30).

Gatherings of a number of small bands occurred for ceremonial reasons or to share in seasonally abundant resources. These larger groupings could number many hundreds of individuals. Occasions for large gatherings included predictable seasonal events, such as bird migrations, but also one-off “windfall” events, such as a beached whale (Attenbrow 2010:30). Interactions between different types of social groups would have varied with seasons and resource availability. It has been noted that interactions between the groups inhabiting the multiple resource zones of the Sydney Basin, both coastal and inland would have varied, but were continuous. This is reflected in the relatively homogenous observable cultural features, such as art motifs, technology and resource use (Attenbrow 2010:149).
It is likely that groups in different resource areas would have had regular contact, although it is not known exactly how much each group’s territory was restricted by a particular resource. It is known that some specific technology was used to adapt to the conditions particular to an area. Aboriginal people in the mountains were frequently observed wearing cloaks of animal skins in contrast to coastal people, who were not noted to wear cloaks. Items such as grub catching hooks described by Barrallier in 1802, special “squirrel traps” in tree hollows and bird catching nets described by Collins in and around Menangle are evidence of specific locally adapted technology.

Nearby Prospect Hill was known by the local people as *Mar-rong* or *Mur-rong*, although its meaning is unknown (Dawes 2009).

**Post contact**

The earliest known European to explore the Prospect area was Captain Arthur Philip, who explored the area in April 1788. He described the view from a hill as “so beautiful that I called the hill Bellevue” (Library Committee of the Commonwealth Parliament 1914:133-134). However, there is some conjecture that this hill was Prospect Hill and not some other hill. Later commentators have inferred that the hill was Prospect Hill.

![Map by Lieutenant-Governor and Deputy Judge Advocate David Collins, c 1798, showing location of Prospect Hill in relation to the Proposal area (Collins 1798). Note the map is oriented west, not north.](image)

**Plate 4.1** Map by Lieutenant-Governor and Deputy Judge Advocate David Collins, c 1798, showing location of Prospect Hill in relation to the Proposal area (Collins 1798). Note the map is oriented west, not north.
Captain Watkin Tench also describes climbing the Hill in 1789, which he is credited with naming as “Prospect Hill”. Phillip Gidley King describes walking with Governor Philip to Prospect Hill in 1790:

“After dinner, I accompanied the governor from Rose-Hill to Prospect-Hill, which is about four miles distant: we walked through a very pleasant tract of country, which, from the distance the trees grew from each other, and the gentle hills and dales, and rising slopes covered with grass, appeared like a vast park. The soil from Rose-Hill to Prospect-Hill is nearly alike, being a loam and clay. It is remarkable, that although the distance between the two places is only four miles, yet the natives divide it into eight different districts.” (Hunter 1793 [1968]).

As Bennelong was Governor Philip’s guide and companion at this time, it is likely that King learned of the natives’ eight different districts from him. Bennelong had been captured in 1789 and brought to Sydney Cove on the orders of Arthur Philip, who had planned to learn about the language and customs of the local Aboriginal people. Bennelong learned English and became a companion of Arthur Philip, and a hut was built for him in 1791 on what is now known as Bennelong Point in Sydney. Bennelong is believed to have died at Kissing Point on 3 January 1813 (Dark 1966).

Philip also noted the soil was of good quality for farming, something that had eluded them in the infant colony at Sydney. He therefore began granting land to emancipated convicts in the area of Prospect-Hill. This of course led to fighting between the native inhabitants and the incoming settlers (Collins 1798).

One warrior, named Pelmulwuy, began a campaign of resistance against the incursion by the colonists into the Aboriginal people’s living and hunting grounds. Pemulwuy, also referred to in historical sources as Bimblewove and Bimbleway was a man from the Botany Bay area and according to another contemporary Aboriginal man, Colebe, his left foot had been clubbed, suggesting he was a carradhy or “clever man” (doctor/healer). In 1792 he began a guerrilla campaign of attacks on settlers, including one at Prospect:

“In the beginning of the month information was received that a much larger party of the natives than had yet been seen assembled at any one time had destroyed a hut belonging to a settler at Prospect Hill, who would have been murdered by them but for the timely and accidental appearance of another settler with a musket. There was no doubt of the hut having been destroyed, and by natives, though perhaps their numbers were much exaggerated; the governor, therefore, determined to place other settlers upon the allotments which had been reserved for the crown; by which means assistance in similar or other accidents would be more ready.” (Collins 1798).

Collins goes on to suggest that most of these attacks were “payback” for misconduct by the settlers on Aboriginal people, including the kidnapping of children (Kohen 2005).

Following sustained and repeated attacks on settlers, in 1801 Governor King imposed an edict that Aboriginal people found near the settlements of Parramatta, Georges River and Prospect could be shot on site. A reward was offered in November of that year for the capture, dead or alive, of Pemulwuy (Kohen 2005).

Pemulwuy was shot and killed in 1802, after which a delegation of Aboriginal people from the Parramatta and Toongabbie areas began making approaches to Governor for peace. King, in a letter to Lord Hobart on 30 October 1802 relates:

“The natives about Sydney and Hawkesbury continued to be as domesticated as ever, and reprobated the conduct of the natives in the neighbourhood of Parramatta and Toongabbee, who were irritated by an active, daring leader named Pemulwe, and in the few intercourses we had with some of his companions they expressed their sorrow for the part they were obliged to act by the great influence Pemulwe had over them… they requested that Pemulwe’s head might be carried to the Governor, and that as he (Pemulwe) was the cause of all that had happened and all anger being dropped on their part, they hoped I would allow them to return to Parramatta. Orders were immediately given to that effect and not to molest or ill-treat any native.” (Watson 1914:582-583)
Ironically, the suburb that has grown around Prospect Hill is now called “Pemulwuy”.

As with many places on the Cumberland Plain, as Sydney expanded, Aboriginal people were forced outwards. Some Aboriginal people found work as itinerant farm hands, however gradually the loss of their traditional lands and way of life led to a greater reliance on Government assistance for survival.

4.2 Recorded Aboriginal Heritage Context

Aboriginal Heritage Information Management System

A search of the Aboriginal Heritage Information Management System database was undertaken on 16 June 2016 using the following coordinates: GDA Zone 56 Eastings 299922 to 304922 and Northings 6250597 to 6255597, with a buffer of 50 metres. Thirty-four sites were identified within these search parameters (Table 4.1 and Figure 4.1); of these, ten are within or immediately adjacent to the boundaries of the Proposal area, including eight artefact scatters and two isolated finds (see Appendix A for AHIMS search results and site cards).

Table 4.1 AHIMS search results by site type and frequency (AHIMS 2016)

<table>
<thead>
<tr>
<th>Site type</th>
<th>Quantity</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artefact scatter</td>
<td>21</td>
<td>61.76%</td>
</tr>
<tr>
<td>Non specified artefact site</td>
<td>6</td>
<td>17.65%</td>
</tr>
<tr>
<td>Isolated find</td>
<td>2</td>
<td>5.88%</td>
</tr>
<tr>
<td>Scarred tree</td>
<td>2</td>
<td>5.88%</td>
</tr>
<tr>
<td>Ceremonial site with artefacts</td>
<td>2</td>
<td>5.88%</td>
</tr>
<tr>
<td>PAD</td>
<td>1</td>
<td>2.94%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Artefact sites, including both “non-specified artefact site”, “isolated find” and “artefact scatter”, are the most common site type that has been recorded in the area, making up over 85% of the total. One Potential Archaeological Deposit (PAD) has also been identified in the locality, in addition to two ceremonial/dreaming sites associated with artefacts. The only site type not related to stone artefacts in the local area is modified trees, of which there are two in the search parameters, outside the Proposal area. The presence of ceremonial sites and scarred trees indicates that the local area was used for more than transient purposes, but as a result of vegetation removal and land use practices such as farming, it is likely that scarred trees and other sites have been destroyed previous to the existence of preventative legislation. As such, the high percentage of artefact sites in comparison to other site types may be a result of disturbances.
Archaeological and Heritage Literature Review


This excavation report followed from a surface survey ahead of the widening of The Horsley Drive from a two lane dual carriageway to a four lane dual carriageway between Cowpasture Road and the M7 Motorway (Haglund & Associates Pty Ltd 2007). Haglund’s investigation was conducted under the former s87 of the National Parks and Wildlife Act 1974, which allowed disturbance for testing but not to destroy a site.

Six locations were selected along The Horsley Drive on the basis of their landform and potential to retain evidence of past Aboriginal land use. Site 1, comprising eight test pits, was located between Eastern Creek and the M7 Motorway on the north side of The Horsley Drive. Site 2, also comprising eight test pits, was to the east of Eastern Creek on the south side of The Horsley Drive. Site 3 was further east than Site 2, again on the south side of The Horsley Drive near a first order drainage line, and contained seven test pits. Site 4 was east of Sites 2 and 3, on the southern side of The Horsley Drive, on both sides of a drainage line and a total of 27 test pits were excavated. Site 5 was located on the south side of The Horsley Drive opposite the intersection with Ferrers Road, with 12 test pits excavated at this location. Site 6, comprising four test pits, was located to the west of the intersection of The Horsley Drive and Cowpasture Road, with the pits excavated on the south side of The Horsley Drive.

A total of 306 artefacts were identified in the six sites; Site 2 yielded the greatest quantity, with a count of 191; the Section 87(1) permit (#2328) indicates that the artefacts were to be deposited at the Australian Museum following the completion of the excavation report. The association of this site with Eastern Creek led Haglund to conclude that the significance and potential of sites identified along Eastern Creek was moderate to high.

The locations of the test pits completed at sites relevant to this report are shown in Section 8 below, in discussion with the proposed methodology for further investigation.


This investigation comprised an Aboriginal archaeological survey as part of The Horsley Drive Upgrade, between Walworth Road to Cowpasture Road, with Walworth Road being located approximately 170 metres to the west of Wallgrove Road. The survey was conducted in consultation with Steve Randall of Deerubbin Local Aboriginal Land Council in accordance with Stage 2 of the PACHCI (Kelleher Nightingale Consulting 2015).

A total of ten sites were identified as a result of the survey. One of these sites were considered to be of moderate-high archaeological significance (#45-5-4681), with two considered to be of moderate archaeological (#45-5-4679 and #45-5-4680); the remainder were considered to be of low archaeological significance (#45-5-4681, #45-5-4683, #45-5-4686, #45-5-4677 and #45-5-4678), or low-moderate significance (#45-5-4684 and #45-5-4685). Kelleher Nightingale noted that the significance of the sites was strongly linked to their integrity/intactness, with high archaeological potential identified at all sites with intact soil profiles.

The Western Sydney Parklands Trust engaged Dominic Steele Consulting Archaeology to undertake Aboriginal and non-Aboriginal heritage assessments for the development of a 21.4 hectare site within “Precinct 9” of the Parklands, located on The Horsley Drive and Cowpasture Road at Horsley Park, to be developed into a business park (Dominic Steele Consulting Archaeology 2012). This study area is located approximately 200 metres north of the study area.

The Aboriginal heritage assessment found that no previously recorded sites were present within the study area. The subsequent desktop and field assessment identified no specific areas of archaeological sensitivity and it was considered that the only potential was for isolated artefacts or very low density artefact scatters. The potential archaeological resource for the area was therefore assessed as having low archaeological significance due to the extensive disturbances at the site. A supporting letter was provided by Deerubbin Local Aboriginal Land Council which stated that they had no objections to the development of the sites on the ground of cultural heritage.


This assessment was undertaken by AMBS ahead of proposed redevelopment within the Sydney International Equestrian Centre at the south western end of the current study area. This assessment comprised a desktop assessment and pedestrian survey in the company of Aboriginal community representatives.

An area in the southern portion of the Equestrian Centre had previously been excavated by Jo McDonald Cultural Heritage Management in 2004, which concluded that areas in the vicinity of the AMBS study were likely to yield high densities of artefacts. The investigation identified two artefact scatters that were likely to be impacted by proposed works, one previously recorded (AHIMS #45-5-3684) and one identified during the AMBS survey (WR 2, now #45-5-4488). In addition, the proposed development area was within 100 metres of Reedy Creek (which joins Eastern Creek approximately 450 m south of the Western Motorway) and as such the areas of impact were assessed as to having moderate-high archaeological significance and research potential. It was also considered that the alluvial soils of Reedy Creek had the potential to contain stratified deposits, thereby potentially allowing a chronology of Aboriginal use to be developed for the area.

As a result of their investigation AMBS concluded that if impact to the area within 100 m of Reedy Creek could not be avoided, that test excavations should be undertaken prior to any works.

4.3 Predictive Model

A predictive model is created to provide an indication of Aboriginal objects likely to occur in the study area. It draws on the review the regional and local archaeological context, as well as, the environmental context. The predictive model is necessary to formulate appropriate field methodologies, as well as, providing information for the assessment of archaeological significance.

There are a number of factors which influence Aboriginal occupation of an area. These include essential subsistence resources such as food (flora and fauna), as well as freshwater. However, other resources such as stone raw materials, wood and bark, animal skins, reeds for uses such as basket weaving, string, clothing and similar were also used. Landscape features such as ridges, flat elevated areas, shelters and similar, may have also influenced Aboriginal occupation of an area. In addition, cultural activities may have also taken place at certain locations in the landscape for example corroborees, mythological places, initiation places and similar.
Predictive Model for the PACHCI Study Area

Potential Impact of Former Land Uses

As noted above, since colonisation much of the land surrounding The Horsley Drive was used for agricultural purposes. Information provided by McDonald extrapolated for the Cumberland Plain holds that ploughing, the most common form of impact through agriculture, disturbs the top 30 centimetres of the soil profile, leaving intact deposits beneath this level (Jo McDonald Cultural Heritage Management 1997). Recent archaeological investigations in the Pitt Town area, which had been subjected to intensive citrus orcharding, disturbed the top 40-50 centimetres of the soil profile in the areas where trees were located, with other areas showing a pattern of disturbance to around 20 centimetres depth (RPS Australia East Pty Ltd 2016: in prep).

Test excavations conducted by Leila Haglund in 2007 in the study area found that the soil depth capable of containing artefacts varied between very shallow (<10 centimetres) in the east to moderately deep (~40-70 cm) in the west (Haglund & Associates Pty Ltd 2007). Previous land uses therefore becomes an important factor in interpreting site context across the study area – in shallow soil, it may be that all artefactual material has been removed by previous land uses, whilst intact deposits are likely in areas of deeper soils below 40 centimetres.

Predictions

Cumberland Plain Predictive Model

As noted above, based on the observations and outcomes of several archaeological investigations throughout the Cumberland Plain, McDonald developed the following predictive model for Aboriginal archaeological sites (Jo McDonald Cultural Heritage Management 1997):

- The size (density and complexity) of archaeological features varies according to permanence of water (i.e. ascending stream order), landscape unit and proximity to lithic resources. On major creek lines such as Eastern Creek there is potential for archaeological evidence of more permanent or repeated occupation. Sites will be complex and may even be stratified.
- In the middle reaches of minor tributaries, such as the ephemeral stream in the vicinity of #45-5-4684, archaeological evidence for sparse but focussed activity (e.g. one-off camp locations, single episode knapping floors) is expected;
- Ridgetop locations between drainage lines will usually contain limited archaeological evidence, although isolated knapping floors or other forms of one-off occupation may be in evidence in such a location;
- Most sites on the Cumberland Plain have been dated to the late Holocene and it has been argued (Kohen 1986) that most date to the last 1,000 years. It is reasonable to assume that occupation of this area had commenced by c.14,000 years ago (Kohen 1981) and continued until the arrival of white settlers, however, many sites will date to the last 3,000 years

Following a thorough program of excavations at Rouse Hill by McDonald, the above basic predictive model for the Cumberland Plain was augmented to show (McDonald, 2009):

- Most areas – even those with sparse or no surface manifestations of cultural material – contain sub-surface archaeological deposits;
- Where open sites are found in aggrading and stable landscapes, some are intact and have the potential for structural integrity. Sites in alluvium possess potential for stratification.
- While ploughing occurs in many areas of the plan, this only affects the deposit up to 30 cm deep, and even then ploughed knapping floors have been located which are still relatively intact.
- Contrary to earlier models for open sites, many sites contain extremely high artefact densities with variability appearing to depend on the range of activity areas and site types present.
The complexity of the archaeological record is also far greater than was previously identified on the basis of surface recording and more limited test excavation. Intact knapping floors, backed blade manufacturing sites, heat treatment locations, a number of apparently specialised tool types and general camp sites were all found.

Two Early Bondian dates (between 5,000 – 3,000 BP) provide a context for some backed blade manufacture.

Gross patterning is identifiable on the basis of environmental factors: sites on permanent water are more complex (i.e. they represent foci for larger groups or are used repeatedly by smaller groups over a longer period of time) than sites on ephemeral or temporary water lines (McDonald, 1996:115).

PACHCI study area

In addition to the general predictive model for the Cumberland Plain, the following predictive model has been developed for the study area based on land use, landforms present within the study area, AHIMS data and previous archaeological investigations:

- Complex and/or high density sites are likely to be in the vicinity of a watercourse (#45-5-4682, #45-5-4679, #45-5-4684).
- Intact deposits are likely to be identified below the plough zone, thought to be at depths greater than 30 centimetres, within areas of deeper soil.

4.4 Synthesis of Heritage Context

The results of the AHIMS search and the previous archaeological assessments suggest that the local area has yielded a number of artefact sites in the past during archaeological studies undertaken on both the northern and southern side of The Horsley Drive. Artefact sites can occur both in situ and in disturbed contexts, on all landforms. As such, artefact sites are considered the most likely site type to occur within the PACHCI study area. Due to extensive land clearing and the notable absence of sandstone outcropping within the study area; modified trees and sites such as rock shelters and grinding grooves are rare or entirely absent in the local archaeological context. It is assessed as highly improbable for these site types to occur within the PACHCI study area.

A predictive model has been developed for the study area based on the heritage context. It is predicted that the Cumberland Plain model established by McDonald will apply, specifically that complex and/or high density artefact sites are likely to be in the vicinity of a watercourse. The higher order watercourses, such as Eastern Creek, would likely correlate with increases in artefact density and frequency of subsurface deposits. Where soil depths exceed 30-40 centimetres, intact deposits are likely to be identified beneath the plough zone.
Figure 4.1 PACHCI study area with AHIMS

REMOVE FROM PUBLISHED VERSION
5 Addendum PACHCI Stage 2 Results

An archaeological survey of additional areas to those inspected by Kelleher Nightingale in 2015 was undertaken to record any Aboriginal objects visible on the ground surface, to identify any areas of archaeological potential and assess the likelihood of harm to any Aboriginal object. The archaeological survey was undertaken in accordance with Stage 2 of the PACHCI and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Department of Environment Climate Change & Water 2010).

5.1 Methodology

The archaeological survey aimed to record any Aboriginal objects visible at or on the ground surface and to identify any areas of archaeological potential. The archaeological survey included the following components:

- Development of a sampling strategy.
- Documentation of survey coverage.
- Documentation of survey results.
- Documentation of the significance of identified Aboriginal objects.

The archaeological survey was conducted on foot and targeted sensitive landform features.

The area surveyed was recorded in survey units (Figure 5.1). Each survey unit was mapped and recorded in accordance with landforms, study area boundaries and changes in survey conditions (such as visibility and exposure). The mapping of survey units was undertaken on the basis of GPS recorded data and with reference to aerial and topographic information. The recording of survey units was undertaken using representative photographs and field notes, which included observations of soils, visibility and exposure, vegetation cover, levels of ground disturbance and similar observations. The field notes provided the basis for the reporting of survey coverage and calculating survey effectiveness as discussed in the results section below.

Sampling Strategy

The purpose of a sampling strategy is to provide a framework for conducting an archaeological survey in a way which can be quantified and thus can be compared to other archaeological surveys in the local landscape and for regional comparison (Burke and Smith 2004).

The sampling strategy for this assessment targeted all landforms in the study area that have the potential to be impacted by the road upgrade. Where possible, the assessment focused on sensitive landforms identified to be of moderate to high potential to contain evidence of Aboriginal occupation.

Survey Coverage

The survey methodology aimed to provide adequate coverage of the study area and included coverage of all landforms.

The survey coverage was noted for each survey unit; in particular, visibility and ground surface exposure was noted to ensure comparability of survey results and to contextualise survey results. In general, areas with high visibility and ground surface exposure have been significantly disturbed, exposing archaeological material on the ground surface. Conversely, areas with low visibility and ground surface exposure particularly due to native vegetation coverage, are generally more intact (undisturbed) landscapes, while the identification of archaeological material in such areas is generally low, there is potential for intact archaeological deposits.
Table 5.1 Ground surface visibility rating

<table>
<thead>
<tr>
<th>GSV rating</th>
<th>Overall rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 9%</td>
<td>Low</td>
<td>Heavy vegetation with scrub foliage, debris cover and/or dense tree cover. Ground surface not clearly visible.</td>
</tr>
<tr>
<td>10 – 29%</td>
<td>Low</td>
<td>Moderate level of vegetation, scrub or tree cover. Small patches of soil surface visible resulting from animal tracks, erosion or blowouts. Patches of ground surface visible.</td>
</tr>
<tr>
<td>30 – 49%</td>
<td>Moderate</td>
<td>Moderate levels of vegetation, scrub and/or tree cover. Moderate sized patches of soil surface visible possibly associated with animal tracks, walking tracks and erosion surfaces. Moderate to small patches across a larger section of the study area.</td>
</tr>
<tr>
<td>50 – 59%</td>
<td>Moderate</td>
<td>Moderate to low level of vegetation, tree and/or scrub. Greater amounts of areas of ground surface visible in the form of erosion scalds, recent ploughing, grading or clearing.</td>
</tr>
<tr>
<td>60 – 79%</td>
<td>High</td>
<td>Low levels of vegetation and scrub cover. High incidence of ground surface visible due to recent or past land-use practices such as ploughing, grading and mining. Moderate level of ground surface visibility due to sheet wash erosion, erosion scalds and erosion scours.</td>
</tr>
<tr>
<td>80 – 100%</td>
<td>High</td>
<td>Very low to nonexistent levels of vegetation and scrub cover. High incidence of ground surface visible due to past or recent land use practices, such as ploughing, grading and mining. Extensive erosion such as rill erosion, gilgai, sheet wash, erosion scours and scalds.</td>
</tr>
</tbody>
</table>

Documentation of Aboriginal significance

RAPs were asked about the cultural significance of the study area and where applicable and/or appropriate, the significance of Aboriginal objects and/or areas of Aboriginal archaeological potential. RAPs were provided the opportunity to comment on the archaeological survey methodology and draft Archaeological Assessment. No issues were raised.

Survey Results

The pedestrian survey was conducted on 24 June 2016 by RPS Heritage Consultant, Alexandra Byrne, in consultation with Deerubbin Local Aboriginal Land Council Technical Officer, Steve Randall and Jeffrey Nelson of Roads and Maritime. A total of ten survey units covered the additional areas (see Figure 5.1)

RPS assessed the Aboriginal cultural heritage sensitivity of the study area based on landform, land use and disturbance. The visual inspection noted extensive disturbance and identified nil to low archaeological potential in SU1, SU2, SU3, SU4, SU7, SU8, SU9 and SU10; while there is always the limited possibility isolated artefacts or artefacts which have been transferred to an area as part of imported fill may be present, it is considered that the scientific value of any such finds, should they exist, is low.

An area of moderate subsurface archaeological potential was identified at SU5, which is adjacent to an area already indicated by Kelleher Nightingale to contain Aboriginal heritage sensitivity (#45-5-4685). Following the visual inspection it was considered that the sensitivity area indicated around #45-5-4685 by KNC should be extended to include SU5. No other Aboriginal objects or areas of sensitivity were identified during the Stage 2 PACHCI Addendum survey.
5.2 Summary of identified sites

The following sites have been identified within the PACHCI study area:

Table 5.2 Sites within Proposal area boundary.

<table>
<thead>
<tr>
<th>Site name</th>
<th>AHIMS ID</th>
<th>Identified</th>
<th>Site type (according to AHIMS)</th>
<th>Location (inside or outside study area boundary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Horsley Drive IF 1</td>
<td>45-5-4677</td>
<td>Kelleher Nightingale 2015</td>
<td>Isolated find</td>
<td>Inside</td>
</tr>
<tr>
<td>The Horsley Drive IF 2</td>
<td>45-5-4678</td>
<td>Kelleher Nightingale 2015</td>
<td>Isolated find</td>
<td>Inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 7</td>
<td>45-5-4679</td>
<td>Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Partially inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 8</td>
<td>45-5-4680</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Partially inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 1</td>
<td>45-5-4681</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 2</td>
<td>45-5-4682</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Partially inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 3</td>
<td>45-5-4683</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 4</td>
<td>45-5-4684</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Partially inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 6</td>
<td>45-5-4685</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Inside</td>
</tr>
<tr>
<td>The Horsley Drive AFT 5</td>
<td>45-5-4686</td>
<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Artefact scatter</td>
<td>Inside</td>
</tr>
</tbody>
</table>

Of these ten sites, the previous investigations undertaken by Haglund (2007), KNC (2015) and RPS (2016) concluded that five of these sites required salvage excavation, two required surface collection and three required no further archaeological work. A brief outline of the previous archaeological investigations at each of the 10 sites and the conclusions reached regarding the required mitigation is provided below.

Table 5.3 Sites within Proposal area which have previously been subject to archaeological assessment.

<table>
<thead>
<tr>
<th>Site name</th>
<th>AHIMS ID</th>
<th>Details of assessment by Haglund 2007/KNC 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Horsley Drive IF 1</td>
<td>45-5-4677</td>
<td>Identified by KNC on a modified landform at the entrance of the Western Sydney Parklands. KNC concluded that there was no subsurface potential at this site.</td>
</tr>
<tr>
<td>The Horsley Drive IF 2</td>
<td>45-5-4678</td>
<td>Identified by KNC on a modified landform at the entrance of the Western Sydney Parklands. KNC concluded that there was no subsurface potential at this site.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 7</td>
<td>45-5-4679</td>
<td>Registered by KNC (2015) as an artefact scatter in the AHIMS, however the report indicates that there is some subsurface potential at this location.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 8</td>
<td>45-5-4680</td>
<td>Identified by Haglund (2007) and registered by KNC (2015) as an artefact scatter in the AHIMS, however the report indicates that there is some subsurface potential at this location.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 1</td>
<td>45-5-4681</td>
<td>Identified by Haglund (2007) and subject to archaeological excavation during this programme. Haglund concluded that there was no further archaeological investigation required at this site.</td>
</tr>
<tr>
<td>Site name</td>
<td>AHIMS ID</td>
<td>Details of assessment by Haglund 2007/KNC 2015</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The Horsley Drive AFT 2</td>
<td>45-5-4682</td>
<td>Identified by Haglund (2007) and registered by KNC (2015) as an artefact scatter in the AHIMS, however the report indicates that there is some subsurface potential at this location.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 3</td>
<td>45-5-4683</td>
<td>Identified by Haglund (2007) and subject to archaeological excavation during this programme. Haglund concluded that there was no further archaeological investigation required at this site.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 4</td>
<td>45-5-4684</td>
<td>Identified by Haglund (2007) and registered by KNC (2015) as an artefact scatter in the AHIMS, however the report indicates that there is some subsurface potential at this location.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 6</td>
<td>45-5-4685</td>
<td>Identified by Haglund (2007) and registered by KNC (2015) as an artefact scatter in the AHIMS, however the report indicates that there is some subsurface potential at this location.</td>
</tr>
<tr>
<td>The Horsley Drive AFT 5</td>
<td>45-5-4686</td>
<td>Identified by Haglund (2007) and subject to archaeological excavation during this programme. Haglund concluded that there was no further archaeological investigation required at this site.</td>
</tr>
</tbody>
</table>
Figure 5.1: PACHCI Stage 2 Addendum Survey Units

The Horsley Drive Upgrade

Legend

- PACHCI Stage 2 Addendum Areas
- RMS Proposal Area/ AHIP Boundary
- PACHCI Study Area
6 Assessment of Significance

In order to develop appropriate heritage management outcomes, it is necessary for the significance of Aboriginal objects and places to be assessed. Aboriginal heritage may be significant for cultural and/or archaeological reasons. Aboriginal people are best placed to assess cultural significance and are therefore, consulted in the heritage management process. Archaeological significance is assessed against archaeological criteria outlined in the *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales* (DECCW 2010).

6.1 Cultural Significance Assessment

Aboriginal objects or places may hold cultural significance. In line with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011), assessing cultural significance involves:

- Identifying the values of the PACHCI study area.
- Assessing the significance of values.

Cultural Value

Cultural heritage value refers to the spiritual, traditional, historical or contemporary associations and attachments a place has for Aboriginal people (OEH 2011:8). There is not always consensus about the cultural value of a place as people experience places and events differently, and in some instances cultural values may be in direct conflict. Cultural significance can only be determined by Aboriginal people, and is identified through Aboriginal community consultation.

An Aboriginal Focus Group (AFG) was conducted by Roads and Maritime on Monday 1 August 2016 at Parramatta RSL (refer to Table 2.2 in Section 2.1 above). All RAPs were invited to attend. Two RAPs attended. A brief presentation of the archaeological work to date was given by Deborah Farina, Heritage Manager Sydney of RPS and Roads and Maritime sought an opinion on any cultural significance attached to the PACHI Stage 3 study area. Gordon Morton of Darug Aboriginal Cultural Heritage Assessments (DACHA) stated that there were known areas of cultural sensitivity in the vicinity, but none known within the Proposal area. Details regarding the RAPs invited and in attendance at the AFG are provided in Appendix B.

RPS provided the draft cultural heritage assessment report to the RAPs on 23 November 2016 and on 13 December, an AFG was held in order to address any comments or concerns held by these organisations (refer to Section 2.1 above). At the AFG a number of groups stated that they would like a site visit in order to assist in their assessment of the cultural value of the study area. This site visit was undertaken on 11 January 2017 and the deadline for comments was extended until 18 January 2017. No further comments regarding cultural significance were provided, however it was noted that the area was rich in Aboriginal cultural material. Details are provided in Section 2 and Appendix B.

6.2 Archaeological Significance Assessment

Archaeological significance is determined by assessing Aboriginal objects against archaeological criteria. The assessment of archaeological significance is used to develop appropriate heritage management and impact mitigation strategies. The archaeological significance of the study area has been assessed according to the criteria outlined in the Code of Practice, which are summarised below.
Table 6.1 Ground surface visibility rating – Archaeological significance assessment criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This criterion examines the frequency of the identified site types with others previously recorded in the local or regional landscape.</td>
</tr>
<tr>
<td>Representation</td>
<td>All sites are representative of a site type, however, some sites may be in better condition, or demonstrate more clearly a particular site type. Representation is based on the understanding of extant sites in the local or regional landscape and the purpose of this criterion is to ensure a representative sample of sites area conserved for future generations.</td>
</tr>
<tr>
<td>Integrity</td>
<td>This refers to site intactness. A site with contextual integrity can provide information relating to chronology, social systems, tool technology, site formation processes, habitation, frequency of use as well as other occupation indicators. Moderate to high levels of disturbance will generally result in low integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>Relates to inter-site relationships that are whether a site can be linked to an archaeological complex, or where sequence of activities can be discerned. For example, a quarry (stone extractions site), may be linked to an adjacent heat treatment pit and knapping floor, these site thus could be linked as part of a stone tool production sequence.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Refers to the contents of the site, such as, the variety and nature of features and/or of artefacts present. For example, rock art sites with many motifs may be ranked highly in terms of complexity, or artefact scatters with a wide variety of raw materials and/or or tool types may be more complex than surrounding sites.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>This criteria is used to identify whether a site has the potential to contribute new information which to the interpretation of Aboriginal occupation in the area.</td>
</tr>
</tbody>
</table>

Assessment of Archaeological Significance

This section assesses the archaeological significance of the archaeological resource as a whole, and each site to be excavated individually.

PACHCI study area

Table 6.2 Significance of archaeological resource across the study area.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>Based on Haglund’s 2007 test excavations the overall rarity of the archaeological resource is assessed at low-moderate. Most of the areas are considered to have moderate potential for subsurface artefacts which is of low rarity. However, the areas around Eastern Creek have the potential for stratified deposits, which is considered rare in the local area and region.</td>
</tr>
<tr>
<td>Representation</td>
<td>The sites excavated by Haglund were representative of artefact sites previously excavated across the Cumberland Plain to a moderate-high degree.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The eastern portion of the study area has been subjected to a greater amount of disturbance. This, in combination with the shallow soils, has detrimentally affected the integrity of any sites in that area. The integrity in the eastern portion of the study area is considered to be low. However in the western portion of the study area, aside from the construction of The Horsley Drive and dwellings there has been a limited amount of earthmoving in the study area. Owing to the deeper soils in the vicinity of Eastern Creek, this results in higher integrity of the sites. The integrity of the western portion of the study area is therefore considered moderate.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the sites is not yet established.</td>
</tr>
</tbody>
</table>
The Horsley Drive Upgrade
Cultural Heritage Assessment Report

Criterion | Assessment
---|---
Complexity | At present the complexity of the sites are considered **low**, however this may change with further archaeological excavation.
Research Potential | There is **high** research potential, particularly in the vicinity of Eastern Creek. The results may demonstrate a connection between other sites previously excavated along Eastern Creek and thus in the Cumberland Plain generally.

### 6.3 Statement of significance for sites which do not require salvage excavation

It is a requirement of the relevant guidelines and Code of Practice that the archaeological significance of all sites within the Proposal area must be assessed. The following five tables provide the significance assessments for five sites within the Proposal area which do not require archaeological salvage.

#### Table 6.3 Archaeological significance of #45-5-4677

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is not considered to be locally or regionally rare based on the nature of the site, being an isolated find, and the modified landform on which it occurs.</td>
</tr>
<tr>
<td>Representation</td>
<td>The site is considered to be representative of artefact sites in the local context.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The site is located on a modified landform and therefore has very low integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the site is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Being within a modified landform with no subsurface potential, the site has very low complexity.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with the rarity criterion above, this site demonstrates low research potential based on its nature and the modified landform on which it occurs.</td>
</tr>
</tbody>
</table>

**Statement of significance**

Based on the rarity, representativeness, integrity and research potential this site is assessed as being of **low** archaeological significance.

#### Table 6.4 Archaeological significance of #45-5-4678

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is not considered to be locally or regionally rare based on the nature of the site, being an isolated find, and the modified landform on which it occurs.</td>
</tr>
<tr>
<td>Representation</td>
<td>The site is considered to be representative of artefact sites in the local context.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The site is located on a modified landform and therefore has very low integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the site is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Being within a modified landform with no subsurface potential, the site has very low complexity.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with the rarity criterion above, this site demonstrates low research potential based on its nature and the modified landform on which it occurs.</td>
</tr>
</tbody>
</table>

**Statement of significance**

Based on the rarity, representativeness, integrity and research potential this site is assessed as being of **low** archaeological significance.
### Table 6.5 Archaeological significance of #45-5-4681

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is not considered to be locally or regionally rare based on the data retrieved during previous investigations and the level of disturbance at the site.</td>
</tr>
<tr>
<td>Representation</td>
<td>The site is considered to be representative of artefact sites in the local context.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The site is located on a disturbed landform and therefore has low integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the site is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Being a site which contained subsurface deposit in a disturbed landform, the site has low-moderate complexity.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with the rarity criterion above, this site demonstrates low research potential based on its nature and the disturbances noted during previous archaeological investigations.</td>
</tr>
<tr>
<td>Statement of significance</td>
<td>Based on the rarity, representativeness, integrity and research potential this site is assessed as being of low archaeological significance.</td>
</tr>
</tbody>
</table>

### Table 6.6 Archaeological significance of #45-5-4683

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is not considered to be locally or regionally rare based on the data retrieved during previous investigations and the level of disturbance at the site.</td>
</tr>
<tr>
<td>Representation</td>
<td>The site is considered to be representative of artefact sites in the local context.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The site is located on a disturbed landform and therefore has low integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the site is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Being a site which contained subsurface deposit in a disturbed landform, the site has low-moderate complexity.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with the rarity criterion above, this site demonstrates low research potential based on its nature and the disturbances noted during previous archaeological investigations.</td>
</tr>
<tr>
<td>Statement of significance</td>
<td>Based on the rarity, representativeness, integrity and research potential this site is assessed as being of low archaeological significance.</td>
</tr>
</tbody>
</table>

### Table 6.7 Archaeological significance of #45-5-4686

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is not considered to be locally or regionally rare based on the data retrieved during previous investigations and the level of disturbance at the site.</td>
</tr>
<tr>
<td>Representation</td>
<td>The site is considered to be representative of artefact sites in the local context.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The site is located on a disturbed landform and therefore has low integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the site is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Being a site which contained subsurface deposit in a disturbed landform, the site has low-moderate complexity.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with the rarity criterion above, this site demonstrates low research potential based on its nature and the disturbances noted during previous archaeological investigations.</td>
</tr>
<tr>
<td>Statement of significance</td>
<td>Based on the rarity, representativeness, integrity and research potential this site is assessed as being of low archaeological significance.</td>
</tr>
</tbody>
</table>
6.4 Statement of significance for sites to be salvaged

It is concluded that the significance of the archaeological resource within the PACHCI study area is **moderate**, based on its rarity, representativeness, integrity of the western portion and research potential. The archaeological significance of each site within the Proposal area which requires salvage is provided in the tables below.

**Table 6.8** Archaeological significance of #45-5-4682

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is considered to be locally and regionally rare at a <strong>moderate</strong> level based on the depth of deposit and number of artefacts retrieved during test excavations. This is particularly so given the extensive disturbance across the Cumberland Plain and locally.</td>
</tr>
<tr>
<td>Representation</td>
<td>The site is considered to be representative of artefact sites in the local context.</td>
</tr>
<tr>
<td>Integrity</td>
<td>Test excavations demonstrated the site is intact to a <strong>moderate</strong> level and potentially stratified. It is therefore assessed that this site has a <strong>high</strong> degree of integrity.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of the site is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Being within the alluvium of Eastern Creek, this site has potential to contain a complex range of artefacts.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with the rarity criterion above, this site demonstrates high research potential based on its relatively low disturbance and high level of artefacts retrieved during test excavations.</td>
</tr>
</tbody>
</table>

**Statement of significance**

Based on the rarity, representativeness, integrity and research potential this site is assessed as being of **moderate** archaeological significance.

**Table 6.9** Archaeological significance of #45-5-4679

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site is on the opposite side of The Horsley Drive from #45-5-4682 and is potentially part of the same site.</td>
</tr>
<tr>
<td>Representation</td>
<td>This site is representative of an artefact scatter with potential for subsurface artefacts.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The integrity of this site is not yet established.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>This site is connected by landform to #45-5-4682. How it relates to other sites and landscapes in the region is not yet established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>The complexity of this site has not yet been established.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>As with site #45-5-4682 above, this site has <strong>high</strong> research potential based on its landform, low disturbance and proximity to Eastern Creek.</td>
</tr>
</tbody>
</table>

**Statement of significance**

Based on its representativeness, connectedness and research potential, this site is assessed as being of **moderate** archaeological significance.

**Table 6.10** Archaeological significance of #45-5-4684

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site does not satisfy this criterion.</td>
</tr>
<tr>
<td>Representation</td>
<td>This site is representative of background scatter indicating transient use by past Aboriginal communities.</td>
</tr>
<tr>
<td>Integrity</td>
<td>There is some disturbance to this site and</td>
</tr>
<tr>
<td>Connectedness</td>
<td>Connectedness has not yet been established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>The complexity of this site has not yet been established.</td>
</tr>
</tbody>
</table>
Based on Haglund’s results, there is low-moderate research potential attached to this site owing to its proximity to a first order stream and the low level of disturbance observed. There is also some scope for comparative information to be gathered regarding use of first order streams close to major creeks.

This site is assessed as having low-moderate archaeological significance based on its representativeness and research potential.

### Table 6.11 Archaeological significance of #45-5-4685

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>This site does not satisfy this criterion.</td>
</tr>
<tr>
<td>Representation</td>
<td>This site is representative of other artefact scatters in the area and across the Cumberland Plain.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The integrity of this site has not yet been established.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of this site has not yet been established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>The complexity of this site has not yet been established.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>There is some research potential for this site based on its proximity to a first order stream and the test excavations identifying an artefact in a highly disturbed area. Away from the disturbances of the road corridors of The Horsley Drive and Cowpasture Road, it is assessed that this site has low-moderate research potential.</td>
</tr>
</tbody>
</table>

This site is assessed as having low-moderate archaeological significance based on its representativeness and research potential.

### Table 6.12 Archaeological significance of #45-5-4680

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarity</td>
<td>Whilst this site is unusual in that ten surface artefacts were identified in a highly disturbed context, it is not considered rare.</td>
</tr>
<tr>
<td>Representation</td>
<td>This site is representative of other artefact scatters in the area and across the Cumberland Plain.</td>
</tr>
<tr>
<td>Integrity</td>
<td>The integrity of this site has not yet been established.</td>
</tr>
<tr>
<td>Connectedness</td>
<td>The connectedness of this site has not yet been established.</td>
</tr>
<tr>
<td>Complexity</td>
<td>The complexity of this site has not yet been established.</td>
</tr>
<tr>
<td>Research Potential</td>
<td>There is some research potential for this site based on it is assessed that this site has low-moderate research potential.</td>
</tr>
</tbody>
</table>

This site is assessed as having low-moderate archaeological significance based on its representativeness and research potential.
7 Impact Assessment

This section contains management and mitigation measures relating to Aboriginal cultural heritage. These measures have been produced in consultation with RAPs.

In general, the conservation of Aboriginal objects and places and Aboriginal heritage values is the recommended heritage outcome. Conservation is considered to be a deliberate response to avoid impacts to Aboriginal cultural heritage. Where conservation is not practicable, measures to mitigate impacts to Aboriginal cultural heritage are recommended.

7.1 Summary of Proposed Activity

The proposed activity is the upgrade of The Horsley Drive through widening and realignment. Roads and Maritime is planning a 2.4 kilometre upgrade between the Wallgrove Road, Horsley Park and Cowpasture Road, Bossley Park. The start of planning for the upgrade was announced by the NSW Government in March 2015 to address traffic congestion, improve road safety and to meet a predicted increase in traffic volumes due to growth of the Western Sydney Employment Area. The upgrade would see this section of The Horsley Drive converted to a four lane divided road with provision for a six lane corridor for future traffic needs.

7.2 Impact Assessment

Impact on Aboriginal Heritage Values

The Aboriginal heritage values of the PACHCI study area, including the RMS Proposal area, have been established through consultation with RAPs. RAPs have been invited to comment on the Aboriginal heritage values of the study area. The impact of the proposed activity on Aboriginal heritage values has been assessed following review of the draft version of this report and an Aboriginal Focus Group held in December 2016, in addition to a site visit undertaken in January 2017 (refer to Section 2). Management and mitigation measures to ensure the conservation of these values include community collection and salvage of registered sites within the Proposal area boundary, for which an Aboriginal Heritage Impact Permit will be required.

Impact on Archaeological Significance

It is anticipated that all of the sites within the PACHCI study area will be subject to partial or total impact as a result of this upgrade, resulting in total and partial loss of value, as show in Table 7.1 below.

It is therefore recommended that the sites be subject to community collection and/or salvage excavation where necessary, prior to any works taking place. The proposed mitigation strategy for each site which falls partially or totally within the Proposal area is shown in Table 7.2 below, with further discussion for each site provided in Section 8.

Table 7.1 Impact assessment

<table>
<thead>
<tr>
<th>AHIMS #</th>
<th>Harm</th>
<th>Degree of Harm</th>
<th>Consequence of Harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>45-5-4677</td>
<td>Direct</td>
<td>Total</td>
<td>Total loss of value</td>
</tr>
<tr>
<td>45-5-4678</td>
<td>Direct</td>
<td>Total</td>
<td>Total loss of value</td>
</tr>
<tr>
<td>45-5-4679</td>
<td>Direct</td>
<td>Partial</td>
<td>Partial loss of value</td>
</tr>
<tr>
<td>45-5-4680</td>
<td>Direct</td>
<td>Partial</td>
<td>Partial loss of value</td>
</tr>
<tr>
<td>AHIMS #</td>
<td>Harm</td>
<td>Degree of Harm</td>
<td>Consequence of Harm</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------</td>
<td>----------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>45-5-4681</td>
<td>Direct</td>
<td>Total</td>
<td>Total loss of value</td>
</tr>
<tr>
<td>45-5-4682</td>
<td>Direct</td>
<td>Partial</td>
<td>Partial loss of value</td>
</tr>
<tr>
<td>45-5-4683</td>
<td>Direct</td>
<td>Total</td>
<td>Total loss of value</td>
</tr>
<tr>
<td>45-5-4684</td>
<td>Direct</td>
<td>Partial</td>
<td>Partial loss of value</td>
</tr>
<tr>
<td>45-5-4685</td>
<td>Direct</td>
<td>Total</td>
<td>Total loss of value</td>
</tr>
<tr>
<td>45-5-4686</td>
<td>Direct</td>
<td>Total</td>
<td>Total loss of value</td>
</tr>
</tbody>
</table>

**Table 7.2 Proposed archaeological program per site**

<table>
<thead>
<tr>
<th>AHIMS #</th>
<th>Previous work undertaken</th>
<th>Proposed mitigation</th>
<th>Further detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>45-5-4677</td>
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<td>Salvage excavation</td>
<td>Section 8.1-8.2</td>
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<tr>
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<td>Salvage excavation</td>
<td>Section 8.1-8.2</td>
</tr>
<tr>
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<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>Salvage excavation</td>
<td>Section 8.1-8.2</td>
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<td>Haglund 2007/Kelleher Nightingale 2015</td>
<td>No further work required</td>
<td>Section 8.6</td>
</tr>
</tbody>
</table>
8 Salvage Strategy

This section contains a draft strategy for salvaging five sites located within the PACHCI study area relating to Aboriginal cultural heritage. This salvage strategy has been produced in consultation with RAPs.

In general, the conservation of Aboriginal objects and places and Aboriginal heritage values is the recommended heritage outcome. Conservation is considered to be a deliberate response to avoid impacts to Aboriginal cultural heritage. Where conservation is not practicable, measures to mitigate impacts to Aboriginal cultural heritage are recommended.

Salvage excavation is proposed for the following sites:

- AHIMS #45-5-4679
- AHIMS #45-5-4680
- AHIMS #45-5-4682
- AHIMS #45-5-4684
- AHIMS #45-5-4685

As the sites identified are all close to the current alignment of The Horsley Drive, there is no practical way to upgrade The Horsley Drive without harming the sites. As no cultural information has been received regarding the sites and no scientific significance is attached the sites, salvage is recommended so that archaeological information regarding the sites can be retrieved prior to their destruction. Figure 8.1 indicates their locations, including the boundaries of the areas of Aboriginal heritage sensitivity, within which salvage excavation is required.

8.1 Re Salvage methodology

The aim of the archaeological salvage excavation is to obtain a statistically viable data set for the interpretation of the Proposal area as part of the wider cultural and archaeological landscape.

Following the recommendations of the test excavations carried out by Haglund (2007) and the Stage 2 PACHCI report completed by Kelleher Nightingale (2015), the below methodology has been established with the intention of establishing the extent of sites identified by these studies, using a two phase approach which allows for a better understanding of the distribution and density of artefacts at a site.

Aims

The aim of the archaeological salvage excavation is to obtain a statistically viable data set for the interpretation of the Proposal area as part of the wider cultural and archaeological landscape. RPS proposes a two-phase approach with the identification of areas of high archaeological research potential within the Proposal area and the archaeological salvage of areas with the potential to contribute to an understanding of the specific use of the Proposal area in the context of the wider cultural and archaeological landscape.

The specific aims of the archaeological salvage excavation include:

- To define areas of high archaeological research potential.
- To use methods consistent with that of the archaeological salvage of the Rouse Hill Development Area ensuring comparability of data and allowing for the interpretation of the artefact assemblage at a landscape scale.
- To record the distribution of material.
- To assess artefact density.
Methods

Community collection will be undertaken at all sites recommended for salvage excavation, prior to the commencement of ground disturbance. The community collection will be undertaken as follows:

- Collection will be undertaken at the sites over the area identified on the relevant figures in this report
- Previously recorded Aboriginal objects will be identified and retrieved (if possible) during the proposed survey and surface collection
- The location of each artefact location will be photographed. GPS coordinates will be taken for each isolated finds and artefacts scatters. Topographic and landform information will likewise be recorded and information updated if required
- Any observed Aboriginal objects are to be collected and bagged appropriately according to landform and surface collection unit
- An Aboriginal Site Card and an Aboriginal Site Impact Recording form is to be completed and lodged with OEH for any previously unidentified objects and/or sites within the permit area

RPS proposes a two-phase approach to archaeological salvage excavations:

Phase I

RPS proposes to undertake Phase I excavations within the areas shown in Figures 5-10, in which one by one metre trenches will be spaced 20 metres apart on an offset grid targeting all landforms identified within the Proposal area boundary including crest, upper slope, mid slope, lower slope and flat.

The methods for Phase I of archaeological salvage excavations include:

- Hand excavation.
- Excavate 1 x 1 metre trenches spaced 20 metres apart on an offset grid
- Excavate according to stratigraphic unit or 100 millimetre spit as appropriate.
- Record the location of the test excavation unit using a non-differential GPS.
- Complete context sheet for each unit. Note excavation unit ID, landform, depth of excavation, dominant soil material and inclusions, taphonomic processes and disturbance.
- Draw and photograph at least one section for each soil profile identified. Where the soil profile is consistent, it is not necessary to draw a section from each test excavation unit.
- Excavate to B-horizon. For each soil profile identified, excavate into the B-horizon to confirm deposit is sterile.
- Wet sieve all material using a 3 millimetre and 5 millimetre aperture nested wire-mesh sieves.
- Short-term storage of artefacts at RPS, Level 13, 255 Pitt Street, Sydney.

Phase II

Haglund’s 2007 test excavations identified the area around #45-5-4682 as requiring further investigation. RPS proposes the open area excavation of all sites identified following Phase I excavations to be of high archaeological research potential.

The methods for Phase II of archaeological salvage excavations include:

- Hand excavation.
- Excavate an open area from original trench by adding 1 metre x 1 metre squares as appropriate.
- Excavate according to stratigraphic unit or 100 millimetre spit as appropriate.
- Record in situ artefacts as required.
Complete context sheet for each 1 x 1 metre square. Note excavation unit ID, landform, depth of excavation, dominant soil material and inclusions, taphonomic processes and disturbance.

Draw and photograph at least one section for each open area. Where the soil profile is consistent, it is not necessary to draw every section of the open area.

Record the location of the open area using a non-differential GPS.

Wet sieve all material using a 3 millimetre and 5 millimetre aperture nested wire-mesh sieve.

Recover artefacts for analysis ensuring label with provenance is attached.

Recover charcoal, bone or shell as appropriate for radiocarbon dating. Note archaeological deposit must be intact.

Short-term storage of artefacts at RPS’s Sydney office at Level 13, 255 Pitt Street, Sydney.

**High archaeological research potential**

RPS defines areas of high archaeological research potential as an area demonstrating:

- The use of a discrete area for a specific activity, where the spatial extent of that activity may be defined.
- A moderate to high density of artefacts with more than 30 artefacts per square metre representing a high density of artefacts.
- Dense stratigraphic lenses or layers indicating the potential for intact deposit.
- Diverse artefact assemblages such as an assemblage containing assorted raw materials or artefact characteristics, or an assemblage containing bone (non-human).
- Cultural features such as hearths.
- Cultural value as identified through consultation.

RPS proposes to end the excavation of an open area when:

- The excavation has recovered a statistically viable sample of artefacts from that area.
- The excavation has defined the spatial extent of that activity or feature.
**Figure 8.1** PACHCI study area and RMS Proposal area with AHIMS and areas of Aboriginal sensitivity

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8.2 Detailed excavation methodology

Site # 45-5-4682

This site is located on the southern side of the Horsley Drive to the immediate east of Eastern Creek. This site was subject to test excavations in 2007 by Haglund and retrieved 191 artefacts. Haglund’s recommendation for management was to conduct further investigations and Kelleher Nightingale agreed with this recommendation in their Stage 2 PACHCI report in 2015, which indicated an area of archaeological potential earmarked for further investigation.

Soils in this site were demonstrated to be moderately deep (~70 centimetres), with some displaying stratification. It is proposed that initially 1 m x 1 m trenches be hand excavated on an offset grid pattern with each trench excavated in arbitrary 10 cm spits, unless stratigraphic relationships become apparent, after which point the trenches will be excavated stratigraphically.

Due to the nature of Haglund’s original investigations and the size of the area considered to contain archaeological potential by Kelleher Nightingale, RPS has recommended that Phase I excavations be completed in order to establish the extent of the site. As noted above in the general salvage methodology, should artefacts reach a density of 30 per square metre, Phase II of the excavation methodology will be triggered. The initial trench will then be extended to one metre by one metre in each direction to ascertain extent.

Given the number of artefacts that were retrieved in 2007, it is proposed that trenches be placed throughout the area of sensitivity identified by Kelleher Nightingale in their Stage 2 PACHCI, broadly covering the terrace and slope land forms.

The area of the archaeological sensitivity measures approximately 24,871 m$^2$ in total, however only 4,404 m$^2$ is within the Proposal area while the remainder of the site lies outside the impact zone of the proposed works. A minimum of 12 Phase 1 trenches are proposed within the Proposal area, with a maximum of 20 to be completed. The proposed locations of the Phase I trenches at this site are shown in Plate 8.1, subject to change where environmental conditions, disturbance or accessibility require their relocation.

Plate 8.1 Test pit locations for #45-5-4682 by Haglund in 2007 (Haglund, 2007:11).
Figure 8.2 Site 45-5-4682

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Site #45-5-4679

This site is located on the northern side of The Horsley Drive directly opposite site #45-5-4682. No previous test excavation has been undertaken at this site; the proposed program will follow the same excavation methodology as in #45-5-4682. It comprises an artefact scatter of three fragments identified by Kelleher Nightingale in 2015. Owing to its location adjacent to Eastern Creek, it is expected to be similar in character and potential to #45-5-4682.

The area of the archaeological sensitivity measures approximately 18,756 m² in total, however only 8,355 m² is within the Proposal area while the remainder of the site lies outside the impact zone of the proposed works. A maximum of 21 Phase I trenches are proposed, with a minimum of 15 to be completed. The proposed locations of the Phase I trenches at this site are shown in Plate 8.1, subject to change where environmental conditions, disturbance or accessibility require their relocation. Phase II excavations are expected and will follow the methodology outlined above.

Site #45-5-4684

This site, which was excavated by Haglund, is located on the southern side of The Horsley Drive and is associated with an ephemeral tributary of Eastern Creek. Haglund’s excavations focused only on the southern side of The Horsley Drive however Kelleher Nightingale extended the area of sensitivity to include the same landform on the northern side of The Horsley Drive.

Plate 8.2 Trench locations for Area 4 (#45-5-4684) (Haglund, 2007:22)

Soils were observed to be moderately deep (~30-50 centimetres) to basal clay, with little sign of cultivation or serious disturbance (Haglund & Associates Pty Ltd 2007: 18). Haglund concluded that the disturbance, location near a watercourse and soil depth in this area warranted further investigation and salvage. A total of 47 artefacts were identified across the 27 test pits, including backed artefact fragments.

Haglund states that this information may provide comparative data regarding Aboriginal use of the area away from the major creeks, particularly as there appears to be little disturbance and therefore any artefact assemblage could be considered as relatively intact. Further data from this location may provide useful comparative information with Sites #45-5-4682 and #45-5-4679. It should be noted that the current area of sensitivity has been extended to the same landform on the northern side of The Horsley Drive. Additional trenches in these areas will add to the information already collected by Haglund.

The area of archaeological sensitivity measures approximately 12,330 m², with 2,705 m² within the Proposal area. A maximum of 17 Phase 1 trenches are proposed, with a minimum of 10 to be completed. The proposed locations of the Phase I trenches at this site are shown in Plate 8.2, subject to change where environmental conditions, disturbance or accessibility require their relocation.
Figure 8.3 Site 45-5-4679

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**Figure 8.4** Site 45-5-4684

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Site #45-5-4685

This site is located near the south-western intersection of The Horsley Drive and Cowpasture Road. Test excavations were conducted here by Haglund in 2007 as “Area 6”. It was also assessed as part of the Stage 2 PACHCI Addendum by RPS in 2016 and as a result extended its area of sensitivity owing to the continuation of the landform into that additional area.

**Plate 8.3 Trench locations for Area 6 (Haglund, 2007:33).**

It was noted that most areas where test pits were located did not have any identifiable topsoil, and that pieces of blue metal and shale were found in all pits, likely because of their proximity to the roadway. Soils were noted to have been disturbed, with Haglund positing intensive agriculture as the likely agent. Haglund concedes that there may be greater potential away from the road corridor.

Kelleher Nightingale’s investigation in 2015 assessed the area as having moderate archaeological potential based on the low levels of visible ground disturbance away from the road corridor and the presence of a first order stream to the west of the site. The area of archaeological sensitivity measures approximately 18,319 m², 15,789 m² of which is within the Proposal area. A maximum of 37 Phase I trenches are proposed, with a minimum of 25 to be completed. The proposed locations of the Phase I trenches at this site are shown in Plate 8.3, subject to change where environmental conditions, disturbance or accessibility require their relocation.

Site #45-5-4680

This site was identified by Kelleher Nightingale in 2015 and designated the site name of THD 8. An artefact scatter of ten flakes and fragments was identified in an exposure on the south eastern intersection of The Horsley Drive and Cowpasture Road, approximately 100 metres south of the two-lane roundabout (Kelleher Nightingale Consulting 2015:20).

The area of sensitivity is located between Cowpasture Road to the west, The Horsley Drive to the north and a housing subdivision to the east. A high level of disturbance is anticipated through the construction and use of each of these, however given that ten artefacts were located on the surface and that the area is close to a watercourse, it is possible for intact deposits to be beneath the disturbance layer.

The area of archaeological sensitivity measures approximately 6,836 m², with 2,521 m² within the Proposal area, and a maximum of 11 Phase I pits are proposed, with a minimum of 5 to be completed. The proposed locations of the Phase I trenches at this site are shown in Figure 8.6, subject to change where environmental conditions, disturbance or accessibility require their relocation. It should be noted that a drainage channel runs adjacent to Cowpasture Road at this site, and the area of sensitivity may potentially comprise a modified landform.
Figure 8.5 Site 45-5-4685

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Figure 8.6 Site 45-5-4680

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8.3 Research questions

The test excavations conducted by Haglund in 2007 was aimed at establishing whether any of the six excavated locations held heritage potential and to attempt to ascertain the character and significance of that heritage. The test excavations concluded that:

- Site #45-5-4682 held the greatest potential for stratified deposits and required further salvage.
- Aboriginal activity was detected in all areas excavated, but more notably in the vicinity of Eastern Creek.
- Most of the artefacts recovered belonged to the Bondaian technology, i.e., the last 5,000 years.
- Greater potential exists away from the disturbance caused by construction of The Horsley Drive.
  - Following from this information gathered by Haglund, the above excavation methodology is aimed at answering the following research questions:

  - Are any of the sites stratified?
  - Do any of the sites contradict the predictive model?
  - Do any of the sites contain characteristics that contradict the above significance assessment?
  - Do any of the sites contain material that does not fall within the technologies of the mid-late Holocene?
  - Is there any patterning of artefacts across the PACHCI study area that can be extrapolated to infer land use by past Aboriginal communities?
  - Is there discernible comparative information from sites near first order streams and sites near Eastern Creek?
  - Is there any archaeological evidence to support the hypothesis that sites #45-5-4679 and #45-5-4682 were a single site prior to the construction of The Horsley Drive?

8.4 Analysis and reporting

Analysis

RPS proposes to record and analyse all artefacts recovered during the archaeological salvage. RPS will analyse artefacts to determine artefact distribution and density and artefact and raw material variability.

At a minimum, RPS would record:

- Artefact type.
- Attributes.
- Raw material.
- Length, width and thickness.
- Photographic recording of diagnostic and selected artefacts.

The classifications used for artefact recording will be consistent with that of the Office of Environment and Heritage.

Table 8.1 Artefact classifications

<table>
<thead>
<tr>
<th>Artefact type</th>
<th>Classification</th>
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<tbody>
<tr>
<td>Adze</td>
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<tr>
<td>Anvil</td>
<td>Distal fragment</td>
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<tr>
<td>Axe</td>
<td>Proximal fragment</td>
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<tr>
<td>Core</td>
<td>Backed blade</td>
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<tr>
<td>Core tool</td>
<td>Blade</td>
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The Horsley Drive Upgrade
Cultural Heritage Assessment Report

### Table 8.2 Artefact attributes

<table>
<thead>
<tr>
<th>Artefact type</th>
<th>Platform surface</th>
<th>Platform type</th>
<th>Termination</th>
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<td>Cortex</td>
<td>Focal</td>
<td>Feather</td>
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<td>Flake tool</td>
<td>Flake scar</td>
<td>Shattered</td>
<td>Hinge</td>
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<tr>
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<td>Faceted</td>
<td>Bipolar</td>
<td>Step</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indeterminate</td>
<td></td>
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</tr>
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</table>

### Reporting

The final report will provide the outcomes of the archaeological salvage of the Proposal area addressing the research questions. The final report will be prepared within one year of the archaeological salvage of the Proposal area and submitted to the Office of Environment and Heritage.

#### 8.5 Management of salvaged Aboriginal objects

During the Aboriginal Focus Group held on 13 December 2016, the management of Aboriginal objects salvaged during the proposed archaeological programme was discussed and it was concluded that reburial on Country was the preferred option among the RAPs.

Reburial must be undertaken in accordance with Requirement 26 “Stone artefact deposition and storage” in the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW. A location for the reburial must be agreed upon and the following conditions met:

- A full catalogue, including photographic and drawn records for diagnostic stone artefacts, must be made.
- The catalogue must be in printed form, but may also include an electronic database in the form of a table containing all records.
- All stone artefacts must be either individually bagged or bagged in appropriate and identifiable units (e.g. excavation or collection units) that can be referenced back to the catalogue.
- The stone artefacts must be stored must be stored in good quality, double bagged plastic zip-lock bags.
- The stone artefacts must be externally labelled using permanent marker and an independent label on robust material (e.g. Tyvek) written with permanent marker must be placed inside each bag.
- The collection must be placed in a suitable impervious and permanent container, which must be labelled as above, or engraved.
- A full record of the final location must be made, including:
  - Grid coordinates derived as set out in Requirement 8 (refer to the Code)
  - A site plan or mud map referring to permanent features
  - Depth of burial
  - Full photographic record of the deposition.
8.6 Previously excavated sites

As well as the archaeological salvage of the five sites in Section 8 above, there are five other sites within the Proposal area that have been investigated and found to no longer retain any further research potential. Three of these sites were excavated in 2007 by Haglund and two were identified by Kelleher Nightingale in 2015. Those investigated by Haglund are discussed below, while those identified by Kelleher Nightingale are discussed in Section 8.7.

The following sites have been excavated by Haglund and found to contain no further information to add to the knowledge of land use by past Aboriginal communities within the Proposal area:

- #45-5-4681
- #45-5-4683
- #45-5-4686

#45-5-4681

This site was located on the western side of Eastern Creek and on the north side of The Horsley Drive. Haglund notes that the land had previously been cleared and ploughed and was then used as a tomato plantation. Irrigation pipes, fence posts, trellises, ditches and former road construction were other disturbances noted (Haglund & Associates Pty Ltd 2007: 5).

A total of eight pits were excavated in areas between tomato rows and along the cleared strip between the Horsley Drive frontage fence and the tomato crop. These trenches were variable in depth, with those between the tomato rows at 20 centimetres and outside the tomato rows between 20 centimetres and 58 centimetres. Black plastic fragments were noted throughout down to the basal clay, indicating extensive disturbance. A total of 47 artefacts were identified, with one of the eight trenches yielding 23 artefacts. Approximately two thirds of the assemblage comprised debitage, with the remainder comprising artefacts including three confirmed backed artefacts and one completed geometric microlith (lunate shape) (Haglund & Associates Pty Ltd 2007:10).

#45-5-4683

This site was located on the southern side of The Horsley Drive, to the west of #45-5-4684, in a cleared paddock 70 metres to the west of a first order drainage line. Although sediments were relatively deep (~30 centimetres – 50 centimetres) few disturbances were observed and no buried surfaces were noted. A total of nineteen artefacts were retrieved from seven trenches.

Haglund concluded that the assemblage at this site represented a low density background scatter, indicating transient use of the site. It was further concluded that little research potential remained at the site.

#45-5-4686

This site was located on the southern side of the Horsley Drive, opposite the intersection with Ferrers Road. The site was situated on a northward running ridge with upper slopes off the ridge. The site was completely cleared and was once the site of a dwelling and outbuildings that had previously been demolished. As a result, demolition rubble, fill piles and exposed clay was noted on the site. On the western slopes of the ridge thick kikuyu covered the ground’s surface, with a graded gravel road on the eastern slopes.
A total of twelve test pits were excavated along The Horsley Drive frontage. Depths of deposit varied, with a minimum of eight centimetres recorded on the slopes and 45 centimetres recorded on the ridge. Evidence of ploughing was noted and all pits contained unspecified historical material. Only one basalt fragment was identified in the twelve pits. It was concluded that the former land uses have caused extensive disturbance and little research potential remained.

8.7 Community collection sites

Two isolated find sites were identified by KNC in 2015 in highly disturbed contexts. Little to no topsoil was noted in the vicinity of these sites and it was assessed that these sites did not hold any potential for subsurface artefacts to be present. Those sites are:

- #45-5-4677
- #45-5-4678

It is recommended that these artefacts are collected by the RAPs prior to any works commencing. Community collection involves the collection of Aboriginal objects by RAPs and Cultural Heritage Consultants. The primary aim of this community collection is to identify and record previously unidentified or cultural material (if present). During the survey and community surface collection, previously identified Aboriginal sites will be re-located with records updated if necessary. The recommendation of community collection is based on consideration of the recommendations of, and comments received from, RAPs regarding previous archaeological and cultural heritage investigations within the Proposal area.

The community collection is proposed for the sites #45-5-4677 and #45-5-4678 prior to soil investigations and post any vegetation clearance. The survey and community surface collection will be undertaken across the site as identified in previous AHIMS investigations. All RAPs will be afforded the opportunity by Roads and Maritime to participate in the community collection.

The aims of community collection are to:

- Conduct survey and collection of the two sites before vegetation clearance activities have been undertaken.
- Undertake analysis of any newly identified Aboriginal objects following collection.
- Consult with RAPs.

The community collection will be undertaken as follows:

- Collection will be undertaken at the sites over the area identified on the relevant site cards.
- Previously recorded Aboriginal objects will be identified and retrieved (if possible) during the proposed survey and surface collection.
- The location of each artefact location will be photographed. GPS coordinates will be taken for each Isolated Find with each Artefact Scatter identified as a GPS location. Topographic and landform information will likewise be recorded and information updated if required.
- Any observed Aboriginal objects are to be collected and bagged appropriately according to landform and surface collection unit.
- An Aboriginal Site Card and an Aboriginal Impact Record form is to be completed and lodged with OEH for each previously unidentified object and / or site.

Upon completion of community collection, any Aboriginal objects will be subject to archaeological analysis and temporarily stored at the RPS Sydney office until they are deposited with the Australian Museum (refer Section 8.7). The results of the community collection and the analysis of any Aboriginal objects are to be included in any report following excavation.
Collected artefacts will be held by the consulting archaeological company until the excavation report is completed.
9 Conclusions and Recommendations

9.1 Conclusions

This report has considered the environmental and heritage context of the PACHCI study area and provided a summary of the findings of an archaeological test excavation program in 2007 and a Stage 2 PACHCI and Addendum report for the study area. It has considered the Aboriginal heritage values of the Proposal area, the archaeological significance of both the archaeological sites as a collection and individually, as well as the impact of the proposed activity on Aboriginal heritage values. It has been concluded that:

- Five sites are of low-moderate significance and retain at least a moderate potential for research.
- These five sites are all partially within the Proposal area and will therefore be subject to impact as a result of proposed works. Salvage excavations under an AHIP are recommended.
- A further three sites lie within the Proposal area and do not retain potential for research; impact to these sites will require an AHIP, however due to the nature of the sites, no further mitigation is considered necessary.
- Two isolated finds are also within the Proposal area and should be subject to community collected by RAPs prior to proposed works, perhaps concurrently with the salvage excavations.

Table 9.1 Summary

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<th>Consequence of Harm</th>
<th>Proposed mitigation</th>
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<td>Low</td>
<td>Total loss of value</td>
<td>Community collection</td>
</tr>
<tr>
<td>45-5-4678</td>
<td>Low</td>
<td>Total loss of value</td>
<td>Community collection</td>
</tr>
<tr>
<td>45-5-4679</td>
<td>Moderate</td>
<td>Partial loss of value</td>
<td>Community collection/Salvage excavation</td>
</tr>
<tr>
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<td>Moderate</td>
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<td>Community collection/Salvage excavation</td>
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<td>Nil-low</td>
<td>Total loss of value</td>
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</tbody>
</table>

9.2 Recommendations

The following recommendations have been formulated with consideration of the Aboriginal cultural heritage of the Proposal area, and the impact of the proposed activity. They have been prepared in accordance with the relevant legislation and guidelines.

Recommendation 1

All relevant Roads and Maritime staff, contractors and subcontractors should be made aware of their statutory obligations for heritage under the National Parks and Wildlife Act 1974 and the Heritage Act 1977, which may be implemented as a cultural heritage induction prior to any construction works taking place.
Recommendation 2

It is not practicable to avoid five sites which are considered to contain archaeological potential: AHIMS # 45-5-4682, #45-5-4679 which have been assessed to have high archaeological potential and moderate archaeological significance and #45-5-4684, #45-5-4685 and #45-5-4680, being of moderate archaeological potential and low-moderate archaeological significance.

Therefore, the portions of these sites within the Proposal area should be subject to community collection and salvage excavations under an AHIP.

The AHIP application should also propose community collection at #45-5-4677 and #45-5-4678.

Furthermore, three registered sites (#45-5-4681, #45-5-4683 and #45-5-4686) have been previously assessed by Haglund and are considered to contain low archaeological significance. An AHIP for these sites is required for the proposed works, but no further archaeological works are necessary.

Recommendation 3

It is recommended that this Cultural Heritage Assessment Report accompany an Application for an Aboriginal Heritage Impact Permit and that the methodology set out in Section 8 be followed.

Recommendation 4

If any unrecorded Aboriginal objects are identified in the Proposal area during works, all works in the area must immediately cease the Roads and Maritime procedure for unexpected heritage items must be followed:

1. Stop work, protect item and inform Roads and Maritime environment staff
2. Contact and engage an archaeologist and Aboriginal Sites Officer where required
3. Complete a preliminary assessment and recording of the item – **Skip to step 8 if item is determined not to be heritage, or**
4. Formulate an archaeological or heritage management plan
5. Formally notify the regulator by letter, if required
6. Implement archaeological or heritage management plan
7. Review CEMPs and approval conditions
8. Resume work

Recommendation 5

In the unlikely event that suspected human skeletal remains are identified, the Roads and Maritime procedure for uncovering bones must be followed: Work must cease immediately in the vicinity of the remains and the area must be cordoned off; a qualified forensic or physical anthropologist must determine whether the remains are human or non-human – these specialist consultant can be sought by contacting the OEH Environment Line 131 555. Where it is instantly obvious that the remains are human, the Project Manager should contact the police by phone.

If the bones are identified as human, a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and the likely burial context (archaeological or forensic). Where the remains are forensic, the site becomes the jurisdiction of the NSW Coroner. If the remains are archaeological, the OEH must be notified and (for Aboriginal remains) the Roads and Maritime heritage advisor must contact the relevant Aboriginal parties, per the PACHCI.
10 References


DECCW (2010). Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 Part 6 National Parks and Wildlife Act. Sydney, Department of Environment Climate Change and Water NSW.,


Department of Environment Climate Change & Water (2010). Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Department of Environment, Climate Change and Water NSW.


Hunter, J. (1793 [1968]). *An Historical Journal of the Transactions at Port Jackson and Norfolk Island, including the journals of Governors Phillip and King, and of Lieut. Ball; and the voyages from the first sailing of the Sirius in 1787 to the return of that Ship's company to England in 1792*. Adelaide, Libraries Board of South Australia.


Library Committee of the Commonwealth Parliament (1914). Historical Records of Australia, Series 1, Governors’ despatches to and from England, Commonwealth of Australia.


Appendix A

AHIMS Search Results and Site Cards
REMOVED FROM PUBLISHED VERSION
Appendix B

Aboriginal Community Consultation
REMOVED FROM PUBLISHED VERSION