



**CULTURAL  
HERITAGE  
MANAGEMENT  
AUSTRALIA**

Ellerton Drive Extension, Queanbeyan  
Aboriginal Cultural Heritage Archaeological  
Report (ACHAR)

Final Report

AUTHORS NAME: Dr Sophie Collins

CLIENT: Queanbeyan City Council

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## **Executive Summary**

### **Introduction**

Queanbeyan City Council is seeking development approval for the construction of an extension to Ellerton Drive, Queanbeyan. The extension will provide a link between East Queanbeyan at the current termination point of the existing Ellerton Dr and Karabar at Old Cooma Rd (see Figures 1 and 2). An Aboriginal Cultural Heritage Assessment was undertaken along the proposed route in 2012 and resulted in the identification of six new sites (ED1 (57-2-0907), ED2 (57-2-0908), ED3 (57-2-0909), ED4 (57-2-0918), ED5 (57-2-0919) and ED6 (57-2-0910) and several previously recorded sites (AHIMS nos 57-2-66/428/75/351/352) within the proposed corridor of the Ellerton Drive Extension. Queanbeyan City Council (QCC) is now seeking an AHIP to salvage these sites within the direct impact of the corridor ahead of the planned development.

Whilst the heritage assessment was undertaken in excess of 2 years previous to this AHIP application, it is important to note that the area of impact and development proposal remains unchanged from the 2012 project.

### **The Subject Area**

The proposed Ellerton Drive extension route transects a range of terrain from gentle sloped land that has been subject to extensive clearance, through to relatively untouched bush extending up steep hillsides. Beginning in the north with small modifications to the existing Ellerton Drives end, the route extends south through the suburb of Greenleigh with Queanbeyan East to the west and Curtis Land to the east. The route then continues to sweep south and southwest through Jumping Creek and environs, skirting the backyards of properties along Severne St, Woodman Place and Lonergan Drive. It then crosses the Queanbeyan River at a point to the west of the intersection between Barracks Flat and River Drives, and continuing west towards the intersection between Old Cooma Rd and the Edwin Land Parkway. The route extends over approximately 5km and is anticipated to be some 80m wide in total.

The route and area of impact are marked on Maps 1-7 included at the back of this document.

### **Aims of the Investigation**

The primary aims of this assessment were to identify and record any evidence of Aboriginal or historic cultural heritage or cultural values within the proposed development area, to assess the significance of this material, to determine the

potential impacts of the proposed activity upon any heritage sites in the area and to establish appropriate recommendations for the conservation and management of this evidence, in consultation with the Aboriginal community.

### **Project Methodology**

The investigation process began with an intensive background study including the archaeological, historic and environmental background of the area. This was followed by consultation with the Aboriginal community and a field survey conducted with the assistance of 5 representatives of the registered Aboriginal parties, in accordance with the requirements of the Office of Environment and Heritage (OEH) (in the Department of Premier and Cabinet, formerly the Department of Environment, Climate Change and Water).

The current assessment has been conducted in accordance with the OEH *Guide to Investigating Assessing and Reporting on Cultural Heritage in NSW* (2011a), and *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010), along with consultation with the Aboriginal community as per the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 policy* (DECCW 2010).

A field inspection was undertaken on the 2<sup>nd</sup> August 2012 and included representatives of the 5 registered Aboriginal parties; Buru Ngunawal Aboriginal Corporation, Ngambri Local Aboriginal Land Council, Ngunawal Aboriginal Heritage Corporation, King Brown Tribal Group and the Ngunawal Elders Council.

The survey involved walking the length of the proposed route as a single transect with the field team separated out at a distance of approximately 20m. Any areas of exposure/good visibility near the study area were also targeted. The total survey coverage (ground physically inspected for heritage sites) is therefore considered to be 100%. Allowing for the effects of dense grass and vegetation cover, the total effective survey coverage (i.e. the visible ground surface physically inspected) equated to just less than 1% of the study area.

### **Investigation Results and Significance Assessments**

Eight Aboriginal heritage sites had been previously identified within 100m of the proposed centerline of the road corridor (sites 57-2-66/428, 57-2-74, 57-2-75 and 57-2-615, 57-2-635, 57-2-352, 57-2-352). These comprised 7 open artefact scatters and an isolated find. Due to increased ground cover since the original identification of these sites, four sites could not be relocated during the current investigations (sites 57-2-66/428, 57-2-74, 57-2-75 and 57-2-615). The remaining 3 sites were relocated and their current status was re-recorded (sites

57-2-635, 57-2-352, 57-2-352). A further 6 sites were identified during the present study, including 4 open artefact scatters (sites ED1, ED3, ED5 and ED6) and two isolated finds (ED2 and ED4). Two of these sites form part of a larger site complex (ED4 and ED5). An isolated find (57-2-945) was located by OEH staff in 2015 and occurs 50m from the impact area.

The registered Aboriginal parties did not disclose any specific knowledge of traditional values/places within the current study area, however all parties emphasized the importance of Aboriginal sites and stone artefacts generally to traditional Aboriginal culture and to the broader community.

No previously identified historic/European sites occurred within the study area. No new historic sites were identified during the present investigations.

The predictive model indicated that for much of the investigation area, Aboriginal occupation would have generally been of low intensity. The areas around Jumping Creek and Environs are an exception to this, where the landforms present and proximity to permanent water sources lend themselves to more intensive occupation. Stone artefact evidence was identified throughout the study area and confirmed the site location predictions made in the predictive model. The lack of soil depth throughout the area prohibits the development of deposits of any depth with all identified sites able to be surface expressions only. The potential for further stone artefact evidence to occur throughout the study area is defined as follows:

- The northern portion of the route cuts through the steeply inclined ridges of Curtis Land, which is dissected by drainage lines that would have been cold and damp and unappealing for habitation. No sites were identified along this section of the route and it is assessed as being of very low archaeological potential.
- It is likely that further open artefact scatters occur beneath the vegetation and grass cover in those sections of the route that pass through the area around Jumping Creek. These areas are assessed as being of moderate archaeological sensitivity.

Other types of heritage sites are not anticipated in the to occur within the study area, with a very low to negligible potential for sites such as rock shelters, scarred trees, quarries and burials. Other traditional or historical Aboriginal values have not been identified during the present or any previous investigations of the area.

Sites 57-2-351, 57-2-352, ED1, ED2, ED3 and ED6 are assessed as being of low scientific significance and having low conservation values on the grounds that these sites show the same range of raw materials and artefact classes as have been identified elsewhere in the region. These sites do not represent rare or unusual examples. Further, each of these sites has been affected by various post-depositional processes and are consequently of relatively low integrity. None of these sites retain any potential for sub-surface deposits that may be of high research value.

Sites 57-2-66/428, 57-2-74, 57-2-75, 57-2-635, ED4 and ED5 are identified as forming a single large open artefact scatter extending across a broad ridge crest. This site is assessed as being of low-medium scientific significance and having a moderate conservation value. The site shows the same range of raw materials and artefact classes as have been identified elsewhere in the region, however its size is relatively unusual in the area. The potential also exists for the site to be much larger than what is currently visible. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value. This site was specifically identified as holding strong cultural value to the Aboriginal community.

### **Impact Assessment**

The impact area of the Proposal comprises a linear 4.6km with an approximate width of 80m and average depth of 600mm. It is anticipated that the original landscape along the route of the road will be completely destroyed within the 80m wide corridor. The sites identified during the current investigation range between 1m and 88m from the proposed centerline of the road corridor. As such, Aboriginal sites identified during the current investigation may be subject to varying levels of harm.

Sites 57-2-351/352, ED3 and ED6 lie within the impact zone of the proposed development and will therefore be subject to direct harm by the proposed works. This will result in a total loss of cultural values. Site 57-2-66/428/74/75/635/ED4/ED5 occurs immediately within the impact zone but also extends another 150m to the east of the development. As such, approximately 40m of the site will be subject to direct harm, while a further 20m beyond the bounds of the impact area will be vulnerable to indirect/inadvertent harm through general construction activities and vehicle movement. These activities will therefore result in a partial loss of site value. Sites ED1, ED2 and 57-2-945 occur in excess of 70m from the proposed centerline of the road corridor, as such, they may be vulnerable to inadvertent harm through general

construction activities and vehicle movement, which would result in a partial loss of site value.

Overall, it is assessed that provided the impacts are confined to the 80m corridor identified by the QCC, the overall impacts of the proposal on Aboriginal heritage will be low within a local context and very low within a regional context. However, mitigation measures can also be implemented to further reduce impacts to the sites identified within the impact zone and immediate surrounds.

### **Avoiding and/or Minimising Harm**

In September 2014, a second round of community consultation was undertaken (following a 2 year hiatus in the consultation process). A copy of the methodology included below was circulated to all Aboriginal community groups who registered an interest in the project.

### **Management Recommendations**

The nature of the proposed development is such that all Aboriginal sites located within the road corridor will be directly impacted with a handful of sites vulnerable to indirect impact through vehicle movement and general construction activities. The following therefore provides a series of management strategies for identified Aboriginal heritage within the area.

Of utmost importance in selecting suitable management strategies is recognition of the primary importance of Aboriginal heritage to the local Aboriginal community. All decisions made about the management of these sites must be made in consultation with the registered Aboriginal parties, in accordance with their views and wishes on what is culturally appropriate.

Wherever possible, the best means of minimizing harm is to avoid impact to sites altogether, by modifying the development proposal to avoid known site localities. In the case of Ellerton Dr, the Queanbeyan City Council is unable to modify the proposed route, due to the need to navigate particular types of terrain and to meet up with the two existing roads of Ellerton Dr and the Edwin Land Parkway. The following recommendations have therefore been made with the knowledge that site avoidance is not possible in this case.

- 1) Given that impacts cannot be avoided to identified sites, prior to any impacts occurring the proponent must obtain from the OEH a S90 Aboriginal Heritage Impact Permit (AHIP) for this evidence, in consultation with the registered Aboriginal parties. The AHIP should be obtained over the entire impact area to address s86(2) requirements of the NP&W Act and the mitigation measures detailed



below. As a condition of the AHIP the registered Aboriginal representatives and a qualified archaeologists should be engaged to:

- a) Site 57-2-66/428/74/75/635/ED4 (57-2-0918)/ED5 (57-2-0919)
    - i. Identify and mark the external boundary of the impact area at Site with a 5m buffer clearly marked on the ground;
    - ii. Salvage any artefacts that might be subject to impacts, including those identified along vehicle tracks that may be used in construction activities;
    - iii. Salvaged artefacts should be subject to detailed recording and analysis;
    - iv. Relocate salvaged artefacts to site 57-2-683 where previously salvaged artefacts are already located.
    - v. Identify boundaries of remainder of the site, and protect with barrier markers to ensure no indirect or inadvertent harm to the remaining portion of the site.
    - vi. Site boundaries must be removed with development works conclude.
  - b) Sites 57-2-352/352, ED3 (57-2-0909) and ED6 (57-2-0910)
    - i. Salvage any artefacts that might be subject to impacts, including those identified along vehicle tracks that may be used in construction activities;
    - ii. Salvaged artefacts should be subject to detailed recording and analysis;
    - iii. Relocate salvaged artefacts to suitable location nearby but out of area of impact.
  - c) Sites ED1 (57-2-0907), ED2 (57-2-0908) and 57-2-945
    - i. Boundaries of each site should be identified and marked on the ground with protective barriers to ensure no indirect or inadvertent harm comes to the sites.
    - ii. A buffer of at least 10m is recommended to allow for probability that the sites extend further across the landform than is visible in current areas of exposure.
    - iii. Protective barriers to be removed on conclusion of works.
- 2) All salvage work must be undertaken prior to any development impacts occurring. Archaeological investigations must only be undertaken by qualified archaeologists in accordance with the requirements of s1.6 of the Code of Practice for Archaeological



Investigation of Aboriginal Objects in NSW, and in consultation with the registered Aboriginal parties.

- 3) Relocation points for salvaged artefacts must be lodged with the OEH for inclusion in AHIMS.

In accordance with the request of the Aboriginal Community (see Appendix F), site inductions should include a cultural awareness element in which it is clearly stated that all vehicular travel must be limited to within the surveyed easement to minimize risks of impacting sites outside the easement and outlines the OEH penalties that can be imposed for knowingly or unknowingly impacting heritage sites.

#### Proposed Methodology for Salvage

As noted in the community consultation section of this report, the following methodology was circulated to all community groups who registered an interest in being consulted on the Ellerton Dr Extension project. The community response was predominantly supportive, with a stated preference that sites be salvaged as a whole, rather than just within the impact area, so that sites/artefacts may be analysed and interpreted as a whole, rather than piecemeal (refer section 2.0).

In accordance with Requirement 26 of the Office of Environment and Heritage's Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW, as well as the DECCW requirements for the recording of Attributes, the following methodology is proposed for artefact recording:

The following recommendations are made for sites that will be subject to direct impact by the proposed development - 57-2-351/352, ED3 and ED6:

- a) subject to detailed survey in order to identify ALL surface artefacts present;
- b) individual flags should be used to mark each artefact locality within each site, in order to allow a visual image of the nature and distribution of the artefacts within the area and to identify and mark the boundary of the site;
- c) individual artefact locations will be recorded;
- d) artefacts will be systematically collected with each artefact receiving a unique identifier (number/code);
- e) artefacts will be subject to detailed recording and analysis in accordance with all OEH guidelines and AHIMS site recording forms;

Site 57-2-66/428, 57-2-74, 57-2-75, 57-2-635, ED4/ED5 – identified as a single large open scatter – will be bisected by the proposed development. As such, approximately 40m of the site will be subject to direct harm, while a further 20m beyond the bounds of the impact area will be vulnerable to indirect/inadvertent harm through general construction activities and vehicle movement. These activities will therefore result in a partial loss of site value.

Salvage is therefore to be undertaken across the entire site (rather than impact area alone) and analysis and interpretation incorporates the assemblage as a whole. The reasoning for this approach is as follows.

Site 57-2-635 was first identified by Navin Officer during 2009 and comprised a scatter of at least 150 artefacts extending along the knoll of the same ridgeline as 57-2-0074, 0075 and 0066/428. The site was visible along an existing and well-used vehicle track with exposed shale bedrock and shallow soils, but was recorded to extend across the ridge crest and away from the vehicle track on either side. In November 2010, the artefacts along the vehicle track only were salvaged and relocated to beneath a tree approximately 15m from the track but within the identified bounds of the scatter (site 57-2-683). As such, by 2009, site 57-2-635 combined more than 3 other sites, each of which had been previously recorded as separate entities.

During CHMA's 2012 survey, at least another 10 artefacts were identified across the area, extending the bounds of the site even further to the north, with additional artefacts located within previously salvaged areas. Post depositional processes such as erosion have clearly exposed new artefacts in the area.

By limiting salvage to only those portions of the site likely to be impacted by the current development, we are further dividing up the data of the site and the information able to be gleaned from it. In so doing, we are diminishing the scientific value of the material.

Any salvage that does take place at site 57-2-66/428, 57-2-74, 57-2-75, 57-2-635, ED4/ED5 will be undertaken in accordance with the following methodology:

- a) subject to detailed survey in order to identify ALL surface artefacts present;
- b) individual flags should be used to mark each artefact locality within each site, in order to allow a visual image of the nature and distribution of the artefacts within the area and to identify and mark the boundary of the site;
- c) individual artefact locations will be recorded;

- d) artefacts will be systematically collected with each artefact receiving a unique identifier (number/code);
- e) artefacts will be subject to detailed recording and analysis in accordance with all OEH guidelines and AHIMS site recording forms;

Sites ED1, ED2 and 57-2-945 occur in excess of 70m from the proposed impact corridor and may only be subject only to inadvertent harm through general construction activities and vehicle movement. For these two sites, the following recommendations are suggested:

- a) subject to detailed survey in order to identify ALL surface artefacts present;
- b) individual flags should be used to mark each artefact locality within each site, in order to allow a visual image of the nature and distribution of the artefacts within the area and to identify and mark the boundary of the site;
- c) the physical boundaries of each site should be identified and marked on the ground with protective barriers to ensure no indirect or inadvertent harm comes to the sites.
- d) a buffer of at least 10m is recommended to allow for probability that the sites extend further across the landform than is visible in current areas of exposure.
- e) protective barriers are to be removed on conclusion of works.

#### *Artefact Analysis*

In order for artefact analysis to be undertaken at a high standard and to be comprehensive, CHMA would prefer that this process be undertaken in away from the field (i.e. in a lab/office).

Attributes analysed will include all those required by OEH guidelines and AHIMS site recording forms, as well as others identified as being highly significant.

#### *Return to Country*

In recognition of the broader community's wish to have cultural material left where it is or returned to country wherever possible, CHMA suggests that all artefacts salvaged during the current investigation be returned to country at an established relocation point.

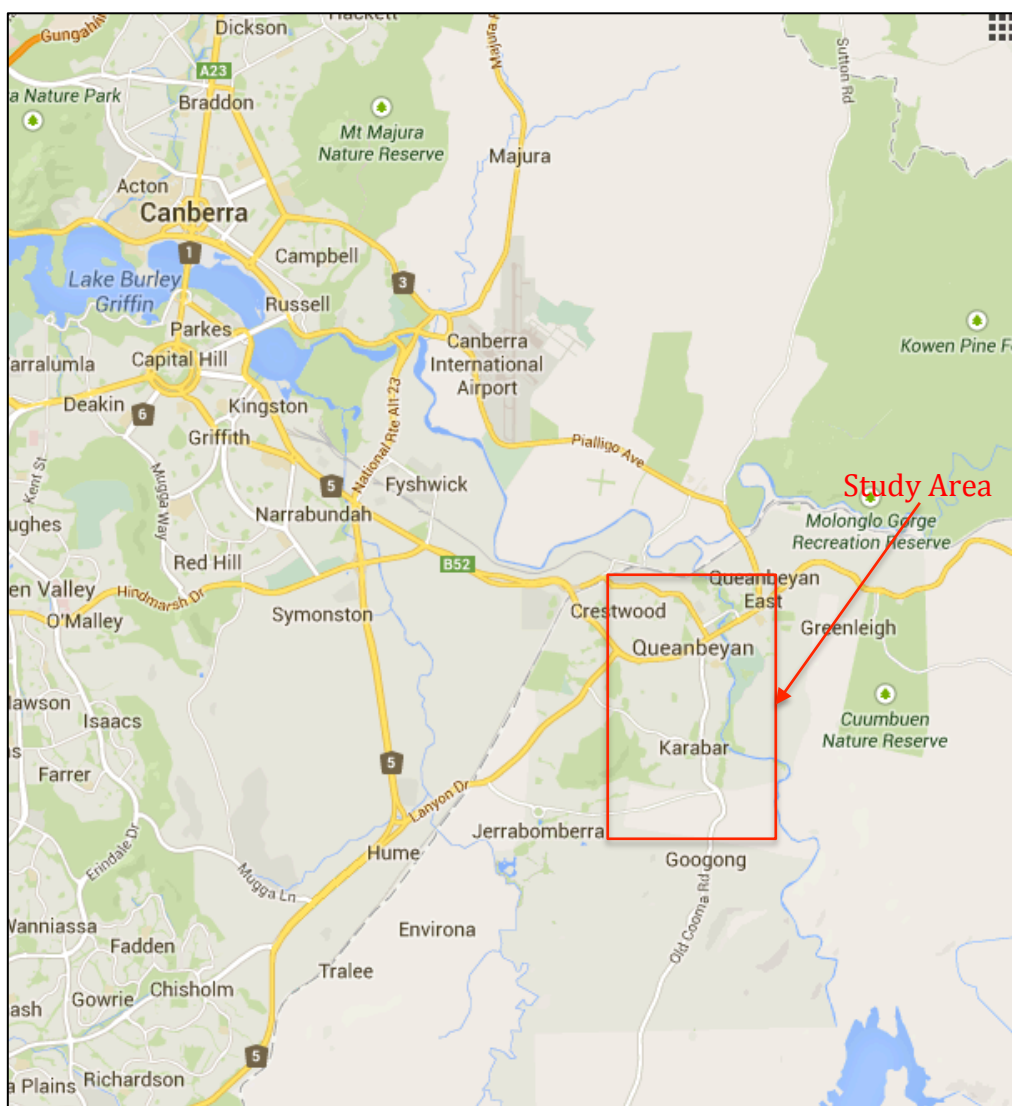
Navin Officer have already established a relocation point at 57-2-683, where the previously salvaged contents of site 57-2-635 are now located. This relocation point occurs well outside the development corridor for Ellerton Drive, but within relatively close proximity to the original depositional locations of these artefacts.

The most obvious place to relocate the salvaged artefacts during this program would therefore be with the rest of this site at 57-2-683.

**The AHIP application for impacts to these sites is therefore to undertake the above methodology for mitigation to impacts to sites caused by the Ellerton Drive Extension. The AHIP application area includes the entire impact area outlined for the Ellerton Drive extension plus the surveyed area (blue lines marked 80m either side of centerline) as illustrated in the Overview Map on pg 137 of this document.**

#### Unexpected Archaeological Finds Protocol

Following the completion of impact mitigation works (i.e salvation methodology outlined above), the possibility remains that unanticipated Aboriginal cultural heritage items may yet be discovered within the impact area. For any unanticipated finds, the protocol outlined in Appendix N must be followed.



**Figure 1. Location of the study area within the broader region.**





**Figure 2. Proposed route for the Ellerton Dr extension. Map produced by SMEC.**

## **1.0 Introduction**

### **1.1 Overview**

Queanbeyan City Council is seeking development approval for the construction of an extension to Ellerton Drive, Queanbeyan. The extension will provide a link between East Queanbeyan at the current termination point of the existing Ellerton Dr and Karabar at Old Cooma Rd (see Figures 1 and 2). An Aboriginal Cultural Heritage Assessment was undertaken along the proposed route in 2012 and resulted in the identification of six new sites (ED1 (57-2-0907), ED2 (57-2-0908), ED3 (57-2-0909), ED4 (57-2-0918), ED5 (57-2-0919) and ED6 (57-2-0910) and several previously recorded sites (AHIMS no's 57-2-66/428/75/351/352) within the proposed corridor of the Ellerton Drive Extension. Queanbeyan City Council (QCC) is now seeking an AHIP to salvage these sites within the direct impact of the corridor ahead of the planned development.

Whilst the heritage assessment was undertaken in excess of 2 years previous to this AHIP application, it is important to note that the area of impact and development proposal remains unchanged from the 2012 project.

### **1.2 Details of Proponent**

Queanbeyan City Council is responsible for a wide range of Queanbeyan Community Services, including aged care and disability, health and safety, roads and traffic, water supply and street lights throughout its area of jurisdiction. The Council is also responsible for building and planning within the area. The Council seeks to ensure 'quality services in a financially, socially and environmentally responsible manner to ensure a sustainable future' (QCC Mission Statement).

### **1.3 Project Brief**

The current development proposal for the extension of Ellerton Drive has been deemed necessary by Queanbeyan's Transport Plan (The Googong and Tralee Traffic Study 2031) by providing an important link in the regional transport. The traffic study found that without this extension, traffic at Cooma Street and Queens Bridge will be untenable (Queanbeyan City Council 2012). This document provides an Aboriginal Cultural Heritage Assessment Report of the areas affected by the proposed modifications, an assessment of heritage impacts and recommendations for impact mitigation.

### **1.4 The Development Proposal**

The total length of the road is approximately 4.6km and is anticipated to be a single carriageway with provision for cyclists. The width of the road corridor will be 80m (40m either side of the centerline) (Queanbeyan City Council 2012).

All sites within this corridor will be subject to either direct or indirect impact by the construction process, which will comprise the following:

- Each lane will measure approximately 3.5m wide plus a 2m wide shoulder
- Provision for cyclists will be made in the form of a 2.5m wide shared concrete path
- Due to the high slopes in the area there is expected to be substantial cut and fill at these points and expected drainage structures such as open drains which could add to the width of the formal road by a further 6m.
- Road pavement depths will be in the order of 600mm deep.

The proposed impact area is discrete, linear and relatively narrow in width (80m), however it is anticipated that the original landscape along the route of the highway will be completely destroyed within the 80m wide corridor.

The proposed development is to be assessed as a Development Application under a Part 5 Environmental Assessment under the EP&A Act 1979 (Queanbeyan City Council 2012).

All aboriginal heritage items located within this impact area will therefore be subject to either direct or indirect harms.

### **1.5 Aims of the Aboriginal Cultural Heritage Assessment**

The principal aims of this project are as follows:

- Review the available archaeological information for the study region;
- Undertake a field survey assessment within the bounds of the proposed modification area to be subject to impacts as defined in Figure 3;
- Record and plot the location of all Indigenous cultural heritage sites within the study area in accordance with the '*Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*' (DECCW 2010b);
- Identify areas of potential archaeological sensitivity within the study area;
- Gauge the potential for subsurface archaeological materials to be present in the study area;
- Identify the nature and degree of impacts likely to be caused to sites by the current proposal;
- Assess the significance of all Aboriginal cultural heritage sites or objects identified within the study area;
- Develop a set of management procedures for all heritage sites and areas of potential archaeological sensitivity identified within the study area.



## **1.6 The Subject Area**

The proposed Ellerton Drive extension route transects a range of terrain from gentle sloped land that has been subject to extensive clearance, through to relatively untouched bush extending up steep hillsides. Beginning with small modifications along the existing Ellerton Drives end, the path extends south through the suburb of Greenleigh with Queanbeyan East to the west and Curtis Land to the east. The route then continues to sweep south and southwest through Jumping Creek and environs, skirting the backyards of properties along Severne St, Woodman Place and Lonergan Drive. It then crosses the Queanbeyan River at a point to the west of the intersection between Barracks Flat and River Drives, and continuing west towards the intersection between Old Cooma Rd and the Edwin Land Parkway. The route extends over approximately 4.6km and is anticipated to be some 80m wide in total.

The route and area of impact are marked on Maps 1-7 included at the back of this document and incorporates Lot 49 DP754907, Lot 3 DP1097427, Lots 2 and 3 DP869366, Lots 52 and 52 DP835313, Lot 205 DP771021, Lot 141 DP718941, Lot 67 DP264406, Lots 1, 2 and 3 DP872684, Lot 4 DP800542, Lot 174 DP793880, Lot4 and 5 DP872684, all lots of DP15222 and DP15764.

## **1.7 Investigator and Contributors**

The Aboriginal Heritage Survey and this Aboriginal Cultural Heritage Assessment Report were undertaken and written by Dr Sophie Collins who is qualified to undertake the assessment. Relevant qualifications include a Bachelor of Arts (Hons), PhD and Post-Doctoral Fellowship from the Australian National University specializing in Aboriginal archaeology and the identification, analysis and interpretation of stone artefacts. Dr Collins has been a practicing consulting archaeologist for more than 13 years and has also worked in a heritage management role within the ACT Public Service.

The fieldwork assessment was undertaken with the assistance of several traditional owners who registered interest in the process through the Consultation process outlined in the following section. Fieldwork participants were:

- Wally Bell – Buru Ngunawal Aboriginal Corporation
- Geoffrey Murray – Ngambri Local Aboriginal Land Council
- Graeme Dobson – Ngunawal Aboriginal Heritage Corporation
- Carl Brown – King Brown Tribal Group
- Arnold Williams – Ngunawal Elders Council

## **1.8 Copyright and Ownership**

This report is the property of Queanbeyan City Council.



## **2.0 Record of Community Consultation**

Aboriginal consultation for this project was conducted in accordance with the Office of Environment and Heritage's *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRP) (NSW DECCW 2010a).

### **2.1 Initial Consultation**

In order to identify, notify and register Aboriginal people whom may hold relevant cultural knowledge for the Queanbeyan area, and in order to fulfill the requirements of section 4.1.2 of the ACHCRP project notifications and requests (dated 20<sup>th</sup> June 2012) for contact details for any known Aboriginal community groups or registered stakeholders in the area were sent to the following (a copy of letters sent is included in Appendix A and copies of responses are included in Appendix B):

- Sandie Jones of the Queanbeyan Office, NSW OEH
- The Ngambri Local Aboriginal Land Council
- The Registrar, *Aboriginal Land Rights Act 1983*
- The National Native Title Tribunal
- Native Title Services Corporation Limited
- The Queanbeyan City Council
- The Murrumbidgee Catchment Authority.

In addition advertisements for interested stakeholders were placed in the newspapers listed below in accordance with Sections 4.12-4.13 of the consultation requirements, inviting Aboriginal parties to register and interest in the project (copies of Ads are included in Appendix C):

- Koori Mail - 27<sup>th</sup> June 2012
- Queanbeyan Chronicle – 3<sup>rd</sup> July 2012
- Indigenous Times – 27<sup>th</sup> June 2012
- Canberra Times – 27<sup>th</sup> June 2012
- Queanbeyan Age – 29<sup>th</sup> June 2012

Following the provision of advice from Sandie Jones of OEH (dated 22<sup>nd</sup> June 2012) and Greg Packer of the Murrumbidgee Catchment Authority, a list of potential cultural knowledge holders was compiled and letters inviting expressions of interest were sent to the following list of representatives:

- Dorothy Carroll – Ngunawal Heritage Aboriginal Corporation
- Ngarigo Elders
- Buru Ngunawal Aboriginal Corporation
- Konanggo Aboriginal Cultural Heritage Services
- Yurwang Gundana Consultancy Cultural Heritage Services
- Yukembruck Merung Ngarigo Consultancy

- Gunjeewong Cultural Heritage Aboriginal Corporation
- Matilda House (Little Gudgenby Tribal Council)
- Ngunnawal Elders Corporation
- Carl Brown – King Brown Tribal Group
- Colleen Dixon – Ngunawal Aboriginal Heritage Corporation

Expressions of interest were registered by the following groups (see Appendix D):

- Buru Ngunawal Aboriginal Corporation
- Ngambri Local Aboriginal Land Council
- Ngunnawal Aboriginal Heritage Corporation
- King Brown Tribal Group
- Ngunnawal Elders Council – Mr Arnold Williams

A sixth expression of interest was provided over the phone by Rebecca Ingram of Cowra, representing the Karley Ngunnawal Descendents in response to the ad in the Koori Times. This expression of interest was received after the close date (23<sup>rd</sup> July 2012) for applications and therefore post-dated the offer of employment for fieldwork participation.

## **2.2 Fieldwork Participation and Consultation**

On the 1<sup>st</sup> of August phone calls were made to each of the groups who registered an interest in the project within the given timeframes. A member from each group was invited to participate in a day of fieldwork to survey the length of the proposed extension route. The community involvement was to aid in the identification of Aboriginal sites, to provide cultural knowledge on the area and to provide advice on the future management of any sites likely to be impacted by the proposed development. This offer of employment was confirmed in writing (see Appendix E).

Fieldwork was undertaken on the 2<sup>nd</sup> August 2012 and involved a representative from each of the registered groups. The field team comprised:

- Wally Bell – Buru Ngunawal Aboriginal Corporation
- Geoffrey Murray – Ngambri Local Aboriginal Land Council
- Graeme Dobson – Ngunawal Aboriginal Heritage Corporation
- Carl Brown – King Brown Tribal Group
- Arnold Williams – Ngunawal Elders Council

Attempts to contact Rebecca Ingram and her cousin Eva Cohen using the contact details provided were unsuccessful. Emails bounced back and numbers were unanswered.

The survey methodology and nature of the development proposal were discussed before fieldwork commenced. Community representatives were invited to express any concerns and highlight any areas of high cultural significance in the area. None were indicated. All management recommendations and assessments of significance made in this report incorporate the communities views and wishes.

### **2.3 Post Fieldwork Consultation**

A copy of this report was provided to each of the participating community groups as well as being sent via post to Rebecca Ingram, with a request to receive all comments and feedback by 16<sup>th</sup> September. Written responses were provided by Ngambri Local Aboriginal Land Council, Buru Ngunawal Aboriginal Corporation and the Ngunnawal Aboriginal Heritage Corporation and are included in Appendix F of the attached 2012 Archaeology Report.

### **2.4 AHIP Consultation – Second Round of Consultation**

A second stage of Consultation specific to the AHIP application was initiated in September 2014. This second stage occurred in accordance with DECCW requirements that Consultation be restarted if more than 2 years has lapsed between the initial consultation process and the AHIP application if communication has not been continuous over that period.

In order to identify, notify and register Aboriginal people whom may hold relevant cultural knowledge for the Queanbeyan area, and in order to fulfill the requirements of section 4.1.2 of the ACHCRP project notifications and requests (dated 12<sup>th</sup> September 2014) for contact details for any known Aboriginal community groups or registered stakeholders in the area were sent to the following (a copy of letters sent is included in Appendix G):

- Jackie Taylor of the Queanbeyan Office, NSW OEH
- The Ngambri Local Aboriginal Land Council
- The Registrar, *Aboriginal Land Rights Act 1983*
- The National Native Title Tribunal
- Native Title Services Corporation Limited
- The Queanbeyan City Council
- The Murrumbidgee Catchment Authority.

Due to the fact that each of these people/groups had been notified previously for the same job, CHMA advised the client they need only respond if anything had changed in the last 2 years. Responses are included in Appendix H.

Of particular relevance is the response from the National Native Title Tribunal dated 24<sup>th</sup> September 2014. This document lists three failed Native Title Claims,

one on Lot 87 DP41996, another on Lot 65 DP754907 and a third on Lot 113 DP821709. In all three cases, the court orders that ‘1. There be a native title determination that no native title exists....’ (see Appendix H)

Letters explaining the situation to previously registered expressions of interest were sent to the following groups:

Letters explaining the situation sent to previously registered expressions of interest including:

- Col/ Cheryl Williams for Ngambri Local Aboriginal Land Council
- Wally Bell - Buru Ngunnawal
- Carl Brown – King Brown Tribal Group
- Dorothy Carroll – Ngunnawal Aboriginal Heritage Corporation
- Arnold Williams – Ngunnawal Elders Council
- Rebecca Ingram – Karley Ngunnawal Descendents

Letters were both emailed and posted to all of the above with the exception of Carl Brown and Arnold Williams who does not have an email address.

Email for Rebecca Ingram bounced 13<sup>th</sup> September 2014. A copy of the letter sent is included at Appendix I.

In addition advertisements for interested stakeholders were placed in the newspapers listed below in accordance with Sections 4.12-4.13 of the consultation requirements, inviting Aboriginal parties to register and interest in the project (copies of Ads are included in Appendix J):

- Canberra Times – 16<sup>th</sup> September
- Canberra Chronicle – 16<sup>th</sup> September
- Queanbeyan Chronicle – 16<sup>th</sup> September
- Koori Mail – 24<sup>th</sup> September
- Indigenous Times – 17<sup>th</sup> September
- Queanbeyan Age – 19<sup>th</sup> September

16<sup>th</sup> September, CHMA received a response from OEH for an updated list of interested parties. Letters inviting expressions of interest to be involved in consultation were sent to:

By Mail only (no email address available):

- Matilda House – Little Gudgenby Tribal Council
- Colleen Dixon

By Mail and Email:

- Dean Bell – Yurwang Gunda Consultancy Cultural Heritage Services
- Cheri Carroll Turrise – Gunjeewong Cultural Heritage Aboriginal Corporation

- Robert Young – Konanggo Aboriginal Cultural Heritage Services

By Email Only

- Iris White – email bounced with permanent errors in address

An additional two registrations of interest were received via this process:

24<sup>th</sup> September – Cheri Carroll Turrise - Gunjeewong Cultural Heritage  
Aboriginal Corporation

30<sup>th</sup> September – Phone call - Antoinette House - Williams, Freeman and  
Simpson-Wedge Families

The Confirmed List of Registered Expressions of Interest for Ellerton Dr  
Extension at the conclusion of two rounds of advertising are:

- Cheryl Williams for Ngambri Local Aboriginal Land Council
- Wally Bell - Buru Ngunnawal
- Carl Brown – King Brown Tribal Group
- Dorothy Carroll – Ngunnawal Aboriginal Heritage Corporation
- Arnold Williams – Ngunnawal Elders Council
- Rebecca Ingram – Karley Ngunnawal Descendents
- Cheri Carroll Turrise – Gunjeewong Cultural Heritage Aboriginal  
Corporation
- Antoinette House – Little Gudgenby Tribal Group

## **2.5 Salvage Methodology Consultation**

On the 20<sup>th</sup> October 2014, CHMA's proposed methodology for the salvage of  
identified sites within the impact area of Ellerton Dr Extension were distributed  
to each of the registered parties in the following ways:

Methodology posted to:

- Carl Brown – King Brown Tribal Group
- Arnold Williams – Ngunnawal Elders Corporation
- Rebecca Ingram – Karley Ngunnawal Descendents

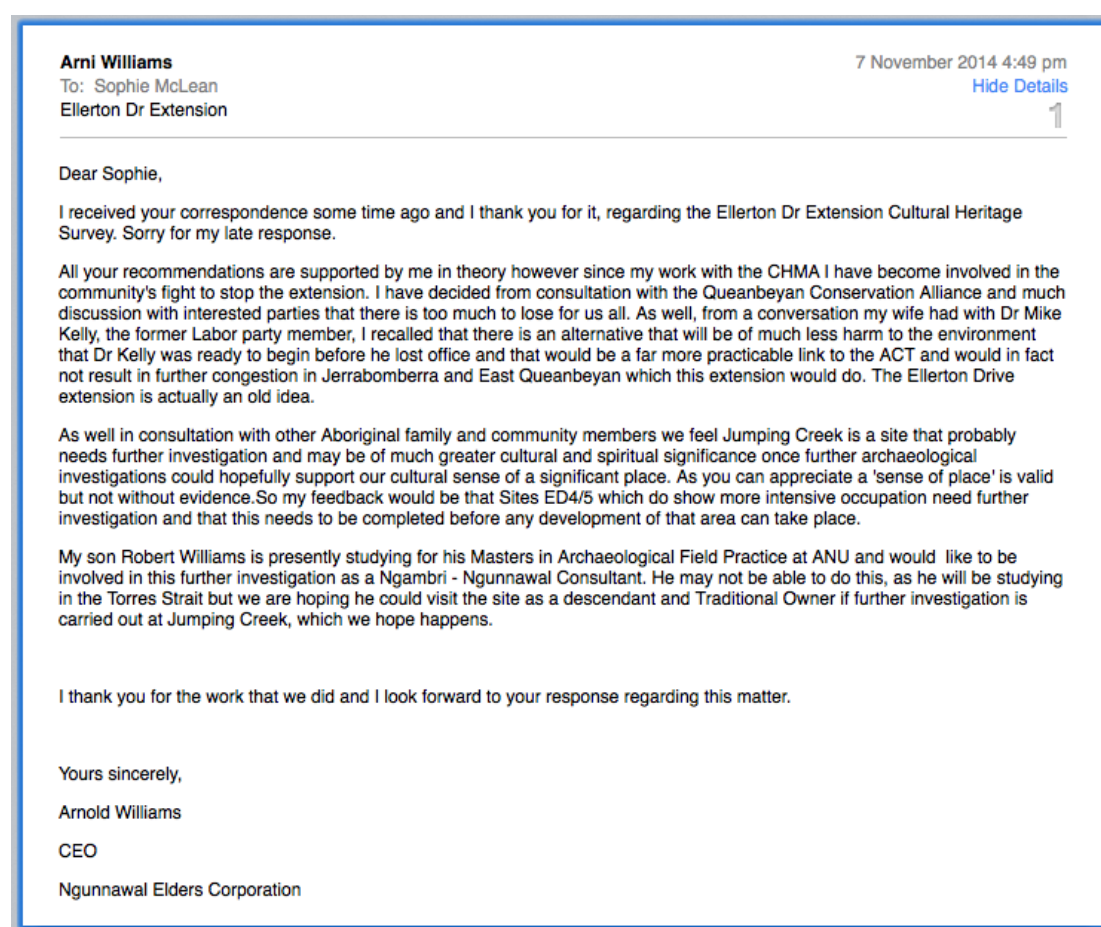
Methodology Emailed to:

- Cheryl Williams for Ngambri Local Aboriginal Land Council
- Wally Bell - Buru Ngunnawal
- Dorothy Carroll – Ngunnawal Aboriginal Heritage Corporation
- Cheri Carroll Turrise – Gunjeewong Cultural Heritage Aboriginal  
Corporation
- Antoinette House – Little Gudgenby Tribal Council

Written responses were received by Graeme Dobson (10<sup>th</sup> November)  
Ngunnawal Aboriginal Heritage Corporation (see Appendix K) and Arnold

Williams (Ngunawal Elders Corporation) (7<sup>th</sup> November). The methodology was supported by Ngunnawal Aboriginal Heritage Corporation, however written advice of which salvage option was not provided. A phone call to Wally Bell on 2<sup>nd</sup> March 2015 clarified that option 2 was his community's preference for salvage.

A number of concerns were raised by Arnold Williams, whose correspondence is below (see Figure 3). CHMA staff member Dr Sophie Collins immediately contacted the OEH (Christine Gant-Thompson) for advice regarding Arni's correspondence. On their advice, CHMA provided Arni with the email included in Figure 3, also on November 10<sup>th</sup>.



**Figure 3. Correspondence from Arni Williams**

Subsequent correspondence from Arni Williams has not been received. CHMA made a number of attempts at contacting Arni, including emails (dated 19<sup>th</sup> November (see Figure 4)), as well as leaving messages on both available home and mobile numbers (19<sup>th</sup> November 10.30am) and sending additional emails (also 19<sup>th</sup> November 2014).



In the absence of formal notification from the remaining registered parties, phone calls were made to each named representative on 19<sup>th</sup> November:

- 9.35am – Cheryl Williams – Ngambr LALC. No issues, fine to proceed
- 9.44am – Wally Bell – Ngunnawal. All looks good. No issues presented, followed up with written support (see Appendix K).
- 9.53am – Carl Brown – King Brown Tribal Group - happy with methodology, fine to proceed
- 10.02am – Cheri Carroll Turrise – no answer, left message
- 10.15am – Antoinette House – agrees with methodology

It was not possible to make contact with Cheri Carroll Turrise, despite a number of attempts. A message was left for her that morning, however no reply was received.

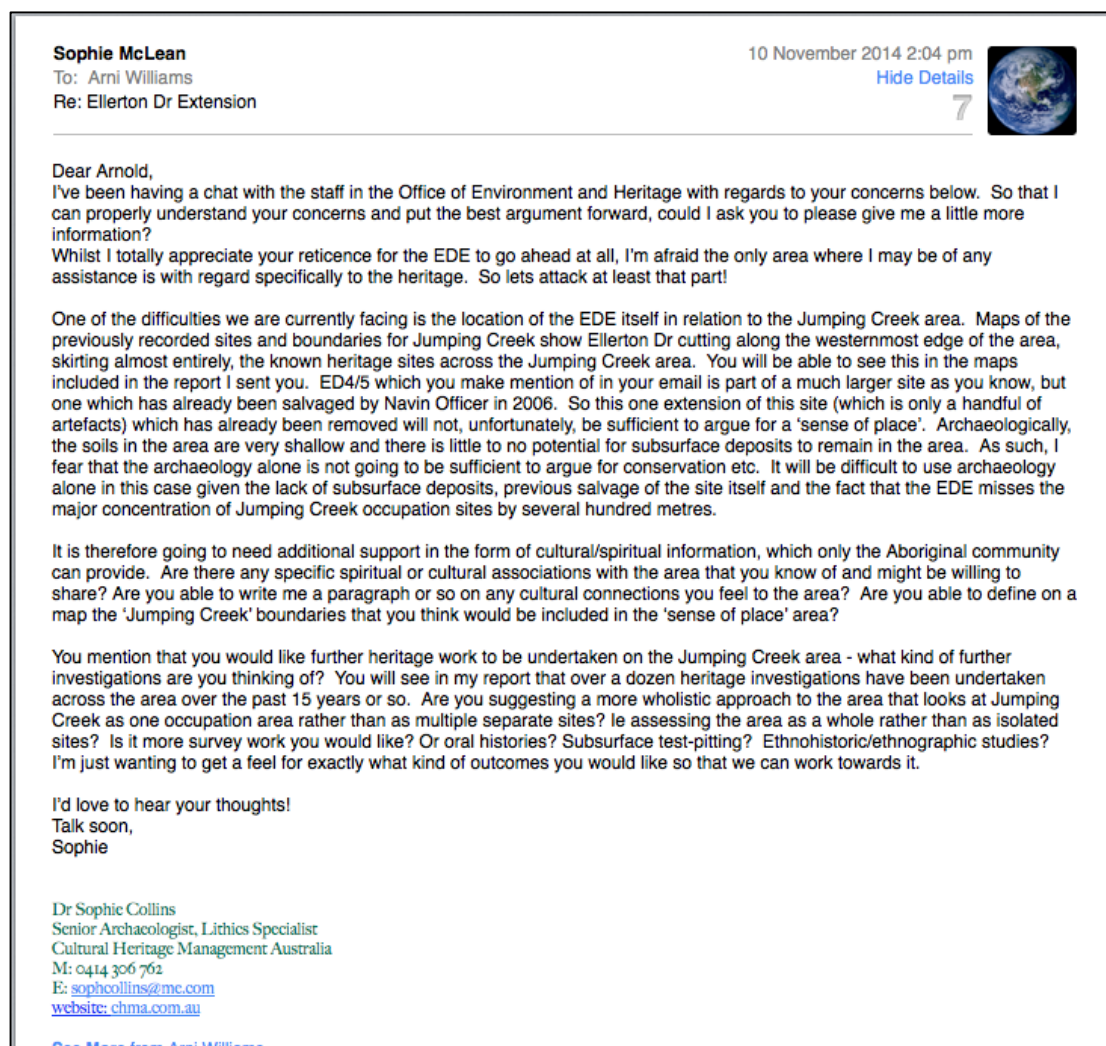


Figure 4. CHMA response to Arni Williams

## **2.6 Final ACHAR Consultation**

Final copies of this ACHAR were provided via email to all groups who had registered interest on the 17<sup>th</sup> December 2014. The 31<sup>st</sup> January 2015 was provided as the final date to receive comments, with extra time allowed for the Christmas/New Year break.

On the 18<sup>th</sup> December a phone call was received from Antoinette House of Little Gudgenby Tribal Council, requesting that the name of her group be revised throughout the document – changed from ‘Williams Freeman and Sampson-Wedge Families’ to Little Gudgenby Tribal Council. This change has now been made throughout the document.

In addition to this change, Antoinette expressed dissatisfaction with Little Gudgenby Tribal Council having not been involved in the original survey of the area and requesting a second survey. It was explained to Antoinette by Dr Sophie Collins that a second survey would not be possible given the fact that it had already been undertaken, and that consultation had now been through stages including having previously received her approval for the methodology circulated. Antoinette argued that the issue was not about time or money but adequate consultation. Dr Collins outlined the consultation process as it has been undertaken so far (summarised below), highlighting the fact that the consultation process undertaken to date by Queanbeyan City Council has greatly exceeded OEH requirements in this regard:

- Two stages of consultation undertaken in which individual letters were provided to all registered groups in the area in accordance with all OEH requirements. Letters were sent to Little Gudgenby Tribal Council on the 22<sup>nd</sup> June 2012 for the first round of consultation, and again on the 20<sup>th</sup> October 2014 for the second round of consultation. A registration of interest for the original round of consultation was not received from Little Gudgenby Tribal Council.
- Advertisements were placed in both local and national newspapers in both 2012 and 2014, exceeding the OEH requirement for inclusion in one or two papers and instead including 6 newspapers including specialized Koori and Aboriginal papers.
- All six registered groups were invited to and accepted the offer to participate in the original survey.
- The second stage of consultation clearly stated in both the invitation to consult and newspaper advertisements that this was a second state of works and related to salvage of identified sites. At no point was a second survey indicated.



- Concerns regarding a second survey had not been raised by Little Gudenby during either of the previous two consultation periods regarding the salvage methodology or ACHAR.

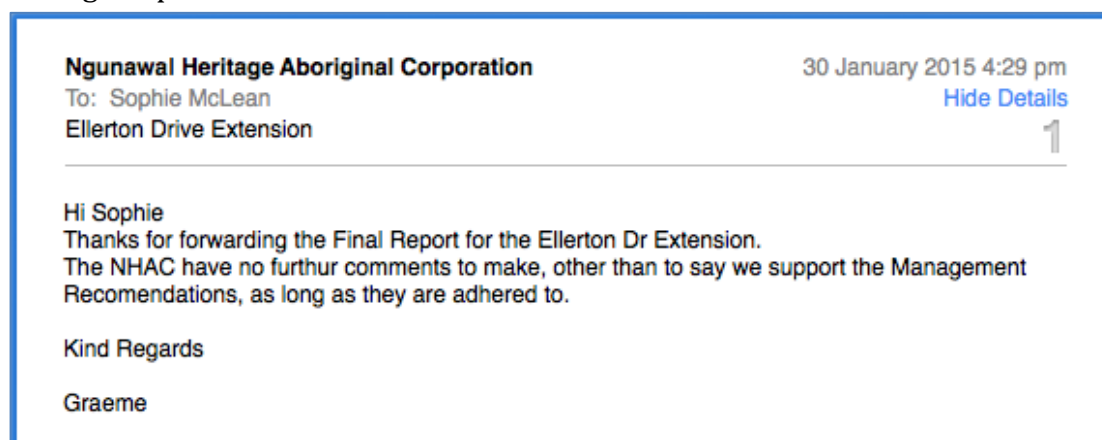
At the conclusion of the conversation, Antoinette understood that all obligations for consultation had been met and that the process had been undertaken to a very high standard. She accepted the position (however reluctantly), and no further concerns have been raised.

Ngunnawal Heritage Aboriginal Corporation emailed CHMA on 20<sup>th</sup> January. Their email supported the management recommendations outlined in this report with no further comments (see Figure 5).

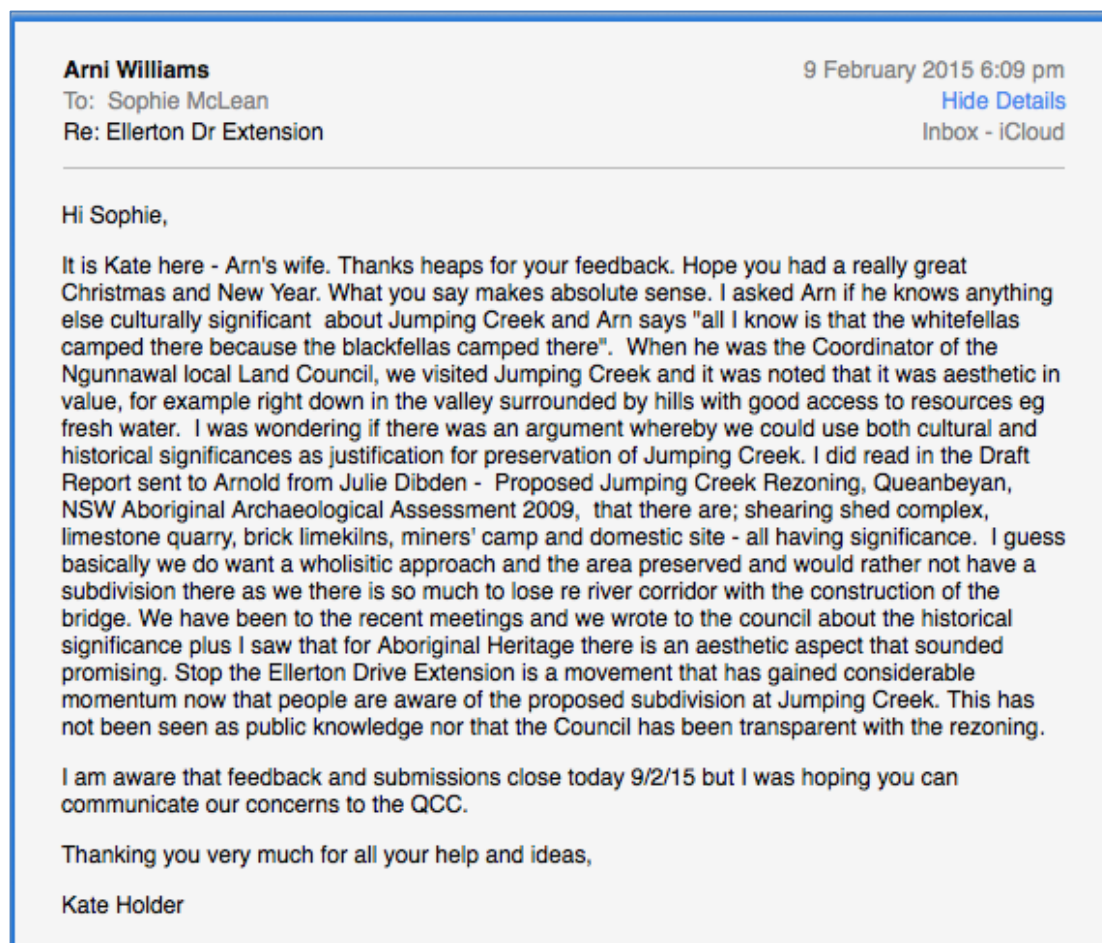
On the 9<sup>th</sup> February, further correspondence was received from Kate Holder (wife of Arni Williams) on behalf of Arni. A copy of her correspondence is included in Figure 6. Ms Holder re-iterates Arni's concerns that the cultural values of Jumping Creek might be impacted by development, however her focus is upon the subdivision of Jumping Creek as opposed to Ellerton Drive itself. She emphasizes the need for a holistic approach to the interpretation of the broader Jumping Creek area and for greater recognition of its Aboriginal cultural values. Whilst Ms Holder's concerns are valid and deserve due consideration, they do not pertain specifically to the Ellerton Drive development.

CHMA responded to Ms Holder, providing relevant information on the requirement for Aboriginal community consultation prior to any rezoning and development being undertaken at Jumping Creek and the opportunities the community would have to voice concerns about the process and or development.

No further comment has been received from any other registered interested Aboriginal parties.



**Figure 5. NHAC support for the management recommendations outlined in this report.**



**Figure 6. Correspondence from Kate Holder (Arnold William's wife)**

## **2.7 New Site Registration and Consultation**

On March 30<sup>th</sup> 2015, CHMA staff received notification of a newly registered site in close proximity to the study area along the existing portion of Ellerton Dr. The site was recorded by Paul House, a member of the Aboriginal community and on staff in the Office of Environment and Heritage. The site (labeled 57-2-0973) is recorded as an ochre quarry, but is in fact more of a pigment source, located in an eroding embankment on vacant land along Ellerton Drive (see Map 7).

Contact was immediately made with staff at OEH as well as with Paul himself, who agreed to meet us on-site with Aunty Matilda House on the 17<sup>th</sup> April. Dr Sophie Collins (CHMA), Tim Alexander (Queanbeyan City Council), Mr Paul House and Aunty Matilda House all met on site to define the boundaries of the quarry/source site and to discuss any possible issues arising from its location.

However, the source occurs in the private land immediately adjacent to the Ellerton Dr road reserve and outside of the proposed area of impact. Both Paul and Matilda were satisfied that the Ellerton Drive works would not impact upon the site. However, they expressed concern regarding the impacts the subdivision

development that is currently being established on the block might have on the site. CHMA staff directed Matilda to OEH for further advice on the issue.

### **3.0 Previous Archaeological Work**

#### **3.1 Heritage Register Searches and Previously Recorded Sites – for Initial Survey**

A search of the Office of Environment of Heritage Aboriginal Heritage Information Management System (AHIMS) was made on the 26<sup>th</sup> June 2012. The following search area was provided: Lat, Long from: 149.22802, -35.37699 to Lat, Long To:-35.35126, 149.27099 with a buffer of 50m. A total of 54 previously recorded sites were identified within this geographical range, the details of which are provided in Appendix L. A total of 8 sites were identified within 100m of the proposed route of the Ellerton Dr Extension. These are listed in Table 1. Several of these sites have been assigned multiple AHIMS numbers following recording by several archaeologists.

During the course of background archaeological research at the Queanbeyan Branch of the OEH it became apparent that a further 14 sites occurred within the broader study area that the AHIMS search had failed to identify. All Aboriginal sites previously recorded in the area are included on maps 1 to 7 (back of document), however none of them occur within 100m of the proposed Ellerton Dr alignment.

Sites identified in the broad search area comprise a single burial, one potential archaeological deposit, 10 isolated finds and 56 artefact scatters, all comprising open sites. Those sites occurring within 100m of the proposed footprint for Ellerton Dr Extension comprised 1 isolated find and 7 artefact scatters.

No Aboriginal heritage sites were found to be listed on the State Heritage Register, National Heritage List or Commonwealth Heritage List, under the *Environment Protection and Biodiversity Conservation Act 1999*, the *Queanbeyan Local Environmental Plan (LEP) (Draft 2011)* or under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* within the study area.

At the time of the initial survey, the draft Queanbeyan LEP (Draft 2011) had completed its public exhibition period and was with the Minister for Planning and Infrastructure for signing and gazetting, but was not in-force. No Aboriginal sites or conservation areas were listed on the LEP within the investigation area. The LEP is now in place and again no Aboriginal sites or conservation areas are listed within the study area.

A search of the Native Title Tribunal, undertaken on the 20<sup>th</sup> of June 2012, identified that no determinations of Native Title, registered Native Title Determination applications (Claimants) or Indigenous Land Use Agreements (ILUAs) apply to the study area.

### **3.2 Heritage Register Searches and Previously Recorded Sites – for AHIP Application**

In light of the requirement to undertake up to date site searches and for consultation to be re-started for this project (given that consultation was not continuous over the last 24 months), a new AHIMS site search was undertaken on 30th October. However, no additional sites were identified within the general region, with CHMA's 2012 investigation the latest in the immediate area. A copy of the recent extensive site search is included in Appendix M.

However, on 9<sup>th</sup> February 2015 (post-dating the second AHIMS search), CHMA received notification by Christine Gant-Thompson of the Office of Environment and Heritage, that a staff member had identified an isolated find within the vicinity of the Ellerton Dr study area. This site (57-2-945) is included in Table 1 and occurs more than 13m from the outer boundary of the 2012 surveyed area, and in excess of 30m from the identified area of impact for Ellerton Drive.

### **3.3 Limitations to Heritage Site Searches**

Importantly, it must be remembered that sites recorded on AHIMS are necessarily limited to areas where investigations have been carried out and sites have been recorded. Areas where sites are not recorded to exist may simply be due to a lack of archaeological investigation in the area or to unsuitable environmental conditions that prohibit the identification of sites (such as poor visibility).

In addition, the Aboriginal community may have chosen not to disclose the location of culturally significant sites in the area if these sites have not previously been under threat.

### **3.4 Previous AHIP Applications for the Study Area**

Several sites within the current study area (area for which an AHIP is required) have been previously awarded AHIPs. These sites and the relevant AHIP numbers are marked in Table 1.

**Table 1. History and details of previously recorded sites within 100m of the proposed Ellerton Drive Extension**

AHIMS Site no:	Site Name and Recorder	Grid Reference	Site Details	Landform	Condition	Proximity to Ellerton Dr Route
57-2-66	JC1 (complex with JC9 and JC10 (Boot and Heffernan 1989)	704312E 6083383N	Small artefact scatter – 7 artefacts including blade core, pebble flakes, flaked pieces and flake made from silcrete and volcanics.	Located on lower northern slopes of central ridge within 150m of Queanbeyan River. Underlying volcanic geology. Southeast aspect in Riverine/Forest environment.	Disturbed by track grading and vehicles.	3m
57-2-0428	Relocated Navin Officer 2004		Isolated quartz flake with strong potential to be part of a larger site with sub-surface deposits.			
	SU9/L1 Relocated (Dibden 2009)		Small scatter of 5 artefacts including flaked pieces and flakes made from tuff, quartzite, volcanics and chert.			
	JC1 (Navin Officer 2009)		Unable to be relocated			

AHIMS Site no:	Site Name and Recorder	Grid Reference	Site Details	Landform	Condition	Proximity to Ellerton Dr Route
57-2-74  Previous AHIP no: 297	JC9 (Complex including JC1 and JC10 Boot and Heffernan 1989)  JCV5 may be part of JC10 (Kuskie 1989) SU1/L1 (Dibden 2009)	704263E 6083335N to 704363E 6083285N	Large artefact scatter containing 65 artefacts including flakes, pebble flakes, flaked pieces, blade cores, blades, backed blades and pebbles made from silcrete, quartzite, chert, quartz and volcanics. Site area is approx. 120m x 3.5m Large scatter of 107 artefacts with contents as described by Boot and Heffernan (1989). Scatter of 81 artefacts with contents as described by Boot and Heffernan (1989).	Located on track, which leads from Lonergan Drive up to top of central ridge. Landform is thus a ridge crest and slope 50-60m from the Queanbeyan River in a Riverine environment with volcanic underlying geology. <a href="#">Site subject to AHIP: 297</a>  Located on a gently sloping spur (<2°) with west to southwesterly aspect and within 400m of Jumping Creek. Located on crest of gently inclined spur with open aspect and eroded to bedrock.	Disturbance by vehicles. A stone hatchet was removed and deposited with Ngunnawal LALC in June 1998.  Disturbance by vehicles and mining  Highly disturbed	Route runs through PAD

AHIMS Site no:	Site Name and Recorder	Grid Reference	Site Details	Landform	Condition	Proximity to Ellerton Dr Route
57-2-75	JC10 (Complex including JC1 and JC9 Boot and Heffernan 1989) Suggests may be part of JCV5 (Kuskie 1989) Possibly relocated as SU19/L2	704312E 6083285N	Site is an open scatter comprising several quartz flakes, flaked pieces and cores.  See JC5 details above  Open scatter of two volcanic flakes.	Located on centre of a ridge slope with southwesterly aspect, 30-40m from the Queanbeyan River in a riverine environment with volcanic underlying geology.  Located on a moderately inclined simple slope with southerly aspect.	Disturbed by slope erosion  Moderately disturbed	65m
57-2-110  Previous AHIP no: 294	Fairlane Estate 1 (Navin Officer 1991)	703762E 6082835N	Scatter of 6 artefacts including quartz, silcrete and chert. Site area is approx. 10m x 100m.  SITE DESTROYED Oct 1991 Under AHIP no:294	Located on a small ridgeline spur, 500m from Barracks Creek/Queanbeyan Rv in forest/riverine environment with volcanic underlying geology.	Disturbed by vegetation clearance, power-line easement, erosion, and track development.	85m



AHIMS Site no:	Site Name and Recorder	Grid Reference	Site Details	Landform	Condition	Proximity to Ellerton Dr Route
57-2-351	Thomas Royal Garden 1 (Saunders 2003)	704580E 6085280N	Isolated find – volcanic anvil stone, flaked and pitting on one surface.	Located on low-level footslope of steep-sided ridgeline spur. Occurs 200m from former tributary of the Queanbeyan Rv in dry open woodland/forest with sedimentary underlying geology.	Disturbed by informal public site use, trail bike riding and rubbish dumping.	2m
57-2-352	Thomas Royal Garden 2 (Saunders 2003)	704520E 6085260N	Scatter of 4 artefacts comprising flakes and a manuport (anvil?) made from quartz and porphyritic volcanics	Located in area of recent earthworks disturbance on low-level footslope of steep-sided ridgeline spur. Occurs 170m from former tributary of the Queanbeyan Rv in dry open woodland/forest with sedimentary underlying geology.	Disturbed by informal public site use, trail bike riding and rubbish dumping	Within impact area.
57-2-0615	Jumping Creek SU10/L1 (Dibden 2009)	704686E 6083528N	Scatter of 5 stone artefacts within an area of 900sqm	Located on a simple slope with eastern aspect and moderate inclination. Occurs 350m from Jumping Creek in cleared land that was once woodland.	Highly disturbed	37m

AHIMS Site no:	Site Name and Recorder	Grid Reference	Site Details	Landform	Condition	Proximity to Ellerton Dr Route
57-2-635  Previous AHIP no:3252	JCR2 (Navin Officer 2009)	704476E 6083278N to 704452E 6083299N to 704326E 6083344N to 704352E 6083376N	Scatter of at least 150 artefacts extending over an area of 180m x 30m and including flakes and a core made from tuff, silcrete, quartz and volcanic (however a sample of only 10 artefacts were taken).  SITE RELOCATED TO 57-2-683 Nov 2010 Under AHIP No:3252	Located on a knoll on the western edge of a ridgeline amongst shallow sandy loam.	Highly disturbed by erosion and vehicle tracks.	Edge of PAD 31m
57-2-945	Ellerton Drive 7 (OEH staff recording)	704497E 6083379N	An isolated find – quartz flake	Located 300m from Queanbeyan River (no other details provided)	Not recorded	90m

### **3.5 Summary of Ethnohistory of the Region**

The following is a summary of the available ethnohistoric data for the region. For a full discussion please see the archaeological report attached.

Regretably there is very little in the way of reliable direct observations of Aboriginal people by early travelers, explorers and settlers for the Queanbeyan region. Instead, the majority of ethnohistorical data for the region comprises ‘the reminiscences of long-time residents of the district in their later years’ (Kuskie 1989:10). Consequently, the reliability of these records is compromised by factors such as personal bias, the length of time between the writer’s experience and time of writing, ethnocentric views and the changes already effecting Aboriginal society as a consequence of European contact. Nevertheless, these sources do provide information regarding population size, distribution and movement, material culture, subsistence behaviour and interactions with Europeans.

Reconstructions of clan boundaries based on ethnohistorical and linguistic evidence (Flood 1980) indicate that three Aboriginal ‘clans’ occupied the Queanbeyan area: the Ngunawal, Ngarigo and Walgalu. Groups were delineated by physical landscape boundaries, such as water courses/mountain ranges or particular varieties of vegetation (BIOSIS 2007).

The Ngunawal are depicted as occupying the area from Queanbeyan to Goulbourn and west to Tumut and Gundagai. The Walgalu are thought to have occupied the Namadgi region to the southwest of Queanbeyan and the Ngarigo occupied the lands to the south of Queanbeyan and on to the Monaro Tablelands. Given the fluidity of Aboriginal clan boundaries it is likely that much of Queanbeyan was occupied by all three groups at various times over the last several thousand years.

Gatherings of numbers of small groups such as ‘bands’ occurred for ceremonial reasons or to exploit seasonally available resources. These gatherings could number up to many hundreds of individuals; the gathering of up to 500 individuals in the highlands near Uriarra in the ACT occurred annually to exploit the seasonal availability of Bogong Moths.

Ceremonial gatherings are known to have occurred in the Queanbeyan area with local documentary records describing annual visits by Aboriginal people as late as the 1850s. Wright (1923) mentions the current showground reserve as one of several sites used by Aboriginal people to camp and hold corroborees (BIOSIS 2007) and is suggested to have been a traditional favoured camping ground and gathering place (Williams and Feary 1989). The showground area was the site of

‘The Last Aboriginal Corroborre’ held in the Queanbeyan district, lasting ‘many weeks’ and attended by ‘many hundreds’ including participants from the coast and regions of the lower Lachlan and Murrumbidgee rivers (Williams and Feary 1989).

Also associated with the showground reserve is the burial discovered in 1866, which comprised Aboriginal remains, a spear, carved shield and other implements discovered by a Queanbeyan resident. The remains of a second burial of an Aboriginal person in a sitting position were also identified in 1935 when workmen dug a trench 80m south of the showground (Queanbeyan Age in Williams and Feary 1989).

Records indicate that a wide range of resources were exploited. Possums were available all year round within the wooded ranges of the ACT region: their skins were used for warmth (Bluett 1954). Smooth river cobbles were recorded as being used to grind up roasted Bogong moths during the production of ‘moth cakes’ (Flood 1996). A localized method of fishing was recorded by Shumack (1967:151) who described Aboriginal people working together to drive fish to the end of a waterhole where they could be speared en masse. Other observed activities include woodworking, food preparation and skin scraping activities with the use of a range of implements including digging sticks, bark vessels, hafted axes and a variety of flaked artefacts (Flood 1996:25-27). Wooden implements such as clubs, boomerangs and shields are recorded, as well as hammocks, nets, ropes, string bags, bone awls as well as the construction of bark huts (Flood 1980:25-26).

Food resources observed ethnographically include possum, kangaroos, wallabies, emus, reptiles, flying squirrel, fish, mussels, Bogong moths, yams, berries and wide range of seeds and plants (Bennett 1834:173; Bluett 1954:5).

Estimates of Aboriginal population sizes when the Queanbeyan area was first settled by Europeans are difficult to establish, due to a general lack of comment by the early explorers regarding native sightings. Lea-Scarlett attributes this to the native population purposefully avoiding the European settlers (1968:21). Observations made by Alan Cunningham, an early explorer of the region who was struck by the absence of signs of native occupation tend to support Lea-Scarlett’s argument.

Wright estimated a population of approximately 400-500 Aborigines practicing a traditional lifestyle in the area in 1850. However, inevitably, the traditional patterns of land use and resource exploitation would have been impeded by the arrival of European settlers in the early 1800s, restricting access to various

resources and introducing diseases such as smallpox and influenza (Flood 1980). So great was the European impact on traditional Aboriginal society that within a few years, most aspects of traditional life had disintegrated and only a small group, including a number of children of mixed descent, remained by 1862 (Lea-Scarlett 1968).

A newspaper article from 1872 recorded only five or six ‘full-blooded’ Aboriginal people remaining in the area (Goulburn Herald 9 November 1872 in BIOSIS 2007:19). In January 1897, Nellie Hamilton, the last full-blooded Aboriginal person in the district, died in Queanbeyan.

### **3.6 Summary of Archaeological Background of the Region**

The following is a summary of the available ethnohistoric data for the region. For a full discussion please see the archaeological report attached.

#### **3.6.1 Previous investigations within the Queanbeyan Region**

A large number of archaeological investigations have been undertaken in the Queanbeyan area beginning in the mid 1970s. The vast majority of these have been surveys undertaken as part of impact assessments and are therefore biased towards development/impact driven assessments that focus on site specifics. However a small number of research programs have also been undertaken (e.g. Kuskie 1989). Archaeological excavations in the area have been sporadic and represent a tiny portion of the heritage work conducted in the region.

One of the earliest studies in the area was undertaken by Smith (1975) who surveyed 1700ha of the Queanbeyan River valley in preparation for the Googong Reservoir. The survey identified nine isolated finds, an open campsite (comprising 81 artefacts on a low ridge within 90m of the Queanbeyan River) and a possible stone arrangement (comprising two low stone cairns approximately 0.6m apart).

Four-hundred hectares at Jerrabomberra Park Housing Estate was surveyed in 1984 by Lewis. The area included spur crests, low gradient slopes and a section of Jerrabomberra Creek to the south of Queanbeyan. The investigation identified two open scatters comprising a total of 15 artefacts (several made from quartz) and both occurred on low gradient mid slopes.

An area of 100ha was surveyed around the London Bridge karst area around Burra Creek in 1989 (Boot and Cooke) including alluvial flats and creek banks plus the two major ridgelines running parallel to Burra Creek. A total of five isolated finds and one open scatter were identified, in addition to excavations undertaken at two limestone caves (Douglas Cave and Burra Shelter).

Assemblages at both caves included a handful of stone artefacts manufactured from chalcedony, milky quartz and chert and including flakes, flaked pieces, cores and 'chips'. The assemblages were argued to indicate sparse Aboriginal occupation of the caves during the last 1000 years.

In 1991 Access Archaeology identified nine artefact scatters and three isolated finds across the proposed 210ha 'Poplars' development area, located to the west of Jerrabomberra. All sites were located on spur crests and low gradient slopes above Jerrabomberra Creek.

A handful of studies have also been undertaken in Kowen Forest district, located approximately 4km north of the study area, beginning in 1985 when English surveyed the Molonglo Gorge and Kowen Forrest for his thesis, locating twenty-seven sites, dominated largely by low density scatters occurring on elevated, level ground in close proximity to creek lines and river pools.

A total of thirty-four artefact scatters and thirty-five isolated finds were also identified during archaeological survey through the Kowen forest district (Bulbeck and Boot 1990). The study found at sites were dominated by flakes, flaked pieces and cores made from quartz, quartzite and silcrete and were mainly concentrated along the major creeks, rather than along the Molonglo River.

Dividing the landscape into prevailing slope characteristics, Bulbeck and Boot determined archaeological site densities using artefacts per hectare (1990 see also Hamm 2007:20). Highest artefact densities thus occur on strongly dropping land near permanent water (approx 93 artefacts per ha) followed by low spurs dropping to permanent water (approx 80 artefacts per ha). Ridges extending from NSW-ACT ridgeline and flat land near permanent water generally result in approximately 31 artefacts and 21 artefacts per hectare respectively.

A third survey in the Kowen Forrest area (AASC 1995) identified a possible scarred tree and an additional nine artefact scatters and three isolated finds.

In 1995 Klaver undertook a summary of all archaeological sites identified along the proposed route of the Queanbeyan bypass. She concluded that patterns of site occurrence in Queanbeyan are 'largely restricted to open scatters of stone artefacts, isolated artefacts and scarred trees. There is an apparent trend for Aboriginal archaeological sites to be located on ridgelines and spurs, particularly where they lead to permanent water or along river flats. Approximately 65 percent of recorded Aboriginal activity (including artefact scatters, isolated finds and scarred trees) occurs on ridgelines and spurs. Approximately 21 percent of



site activity occurs on gentle slopes and the remaining 14 percent occurs on flats and creek sides. Relatively unusual but extremely large sites have also been documented in the alluvial sand deposits adjacent to the Molonglo River' (Klaver 1995:12).

Three isolated finds and two small low density open scatters were identified during a survey of 130ha at the proposed 'Weetalabah' subdivision located immediately east of 'The Ridgway' (previously surveyed by Lance 1984 but without identifying any sites) (Williams and Barber 1993; Saunders 1999).

In 2001(a) Saunders undertook an archaeological survey of 73 ha located approximately 2.5km to the east of the proposed Ellerton Dr extension, on portion 125 Wanna Wanna Rd. The survey identified only three Aboriginal sites, all of which were located on basal slopes and comprised two isolated finds and a scatter of two artefacts. Artefacts included flakes and a flaked piece made from fine-grained siliceous stone and quartz.

Also in 2001 (b) Saunders surveyed a 216ha property bordering the Queanbeyan River ('Talpa Crest'). The survey identified 14 sites and 2 potential archaeological deposits including 7 open artefact scatters and 7 isolated finds. Three of the open sites identified were extensive and two contained an estimated 100-500 artefacts. Flakes and flaked pieces occurred most commonly, along with a handful of cores, blades and hammer stones. Quartz and quartzite dominated the assemblages along with small proportions of chert, silcrete, volcanic and metamorphosed tuff and sedimentary materials.

A number of investigations have also been undertaken through the Cuumbeun Nature Reserve which lies less than 1km to the east of the current study area. The primary surveys conducted through the Cuumbeun Nature Reserve were undertaken by Saunders (2000) and Dearling and Grinsberg (2002). Saunders' investigation was for the Eastern Gasline Project, during which she identified two stone artefact sites located on sloping ground above Scabbing Flat Creek (Site OC2 contained 25 artefacts which were salvaged prior to the pipeline installation; Site OC1 was avoided).

Dearling and Grinsberg (2002) completed a study of three national parks within the Queanbeyan region as part of a larger management plan for a number of Nature Reserves within the South West Slopes Region. Within the Queanbeyan area they explored the Cuumbeun Nature Reserve, Stony Creek Nature Reserve and Wanna Wanna Nature Reserve. Three transects were surveyed through the Cuumbeun Nature Reserve covering a total area of 4.25ha. The survey focused primarily on all major tracks within the reserve but included a number of off

track locations as well. Three stone artefact scatters and an isolated find were recorded, with two sites located on upper slopes and two on ridge crests. Scatter sizes ranged between 3 and 37 artefacts and comprised flakes, broken flakes and microblades made from chert and quartz.

In 2007 Hamm undertook a survey of a 15.2km telecommunications cable route located between Wright's Park in Queanbeyan and the boundary of the Headquarters Joint Operations Centre (HQJOC) base at Bungendore, NSW. The survey route passed through Stony Creek Nature Reserve, Cuumbeun Nature Reserve, Diary Station Creek, Wanna Wanna Nature Reserve, Burbong Molonglo Rv Crossing and Jumping Creek.

The survey identified a total of 15 sites, 6 of which occurred within the Cuumbeun Nature Reserve and comprise 4 artefact scatters (between 2 and 28 artefacts per scatter) and two isolated finds. All sites were found on simple slopes associated with either ridge crests or creek flats with the largest site found comprising 28 artefacts located on the western margin of Scabbing Flat Creek. Assemblages included unretouched flakes, retouched flakes, backed artefacts, a core and debris manufactured from chert, silcrete and quartz. Hamm observed that these 'sites are expected in their current topographical setting, given previous modeling' (2007:39), with larger sites predominantly located near permanent water and above existing food zones such as river terrace features or spurs). Technologically, the assemblages are defined as maintenance and reduction sites with quartz and silcrete most commonly used while chert and volcanics tended to be comparatively rare.

Hughes (2003) undertook an archaeological assessment of a rural subdivision at Bernallah located approximately 1km east of Wanna Wanna Rd and approximately 2.5km east of the proposed Ellerton Dr extension. The study area comprised 47ha of dissected hilly terrain drained by the west flowing headwater tributary systems of Jumping Creek (and associated valley). The landscape is described as a dissected plateau with elevations from between 100m and 750m. Vegetation comprised dry/schlerophyll woodland/forest with quartz outcrops occurring locally. Much of the area had been subject to extensive clearing with much of the soil A horizon having been stripped. A single site was located (previously identified by Dibden) comprising 7 artefacts manufactured from quartz, volcanic and chert and located 100m from the convergence of two creek lines.

In 2003 and 2004 archaeological surveys were conducted of the majority of the proposed Defense Headquarters Joint Operations Command site, which is located to the north east of Queanbeyan and south of the Kings Highway. The

2003 survey (Navin Officer 2003) identified 18 Aboriginal sites comprising 9 small, low-density artefact scatters, 9 isolated artefacts and several PADs. The subsequent survey (Navin Officer 2004) located a further 3 low density artefact scatters (two with associated PADs) and an isolated find. Artefact assemblages comprised flakes, flaked pieces, cores and blades manufactured from quartz, silcrete, chert, volcanics, tuff and quartzite. All of the sites were located on spur crests.

Williams (2006) subsequently undertook an extensive subsurface testing program in the identified PADs and including a stone procurement site. The investigation utilized 870 auger probes and 58 hand excavated pits. In excess of 3000 artefacts were recovered overall, with quartz and silcrete dominant raw materials. A wide range of artefact classes was identified, including flakes, cores and a number of backed artefacts. Site locations were consistent with general regional models for the area, tending to occur on elevated, reasonably level and well drained landforms within close proximity to water (Williams 2006).

In 2007 Saunders undertook a survey of 272 ha of land, approximately 2km west of the proposed Ellerton Dr extension, along Sugarloaf Rd, Carwoola. A total of 4 artefact scatters (3 with associated PADs) and 4 isolated finds occurred within the open and gently undulating valley of Anthill Creek catchment, with the majority of sites located less than 120m from the Creek.

The Queanbeyan showground has also been recorded as a ‘ceremonial site’ of regional importance (NPWS 57-2-0064) on the basis of historical records of Aboriginal tradition. A nearby burial was also uncovered in 1935 while a small artefact scatter was recorded by Cooke in 1987 (Saunders 1997).

### 3.6.2 Previous Investigations in the Current Study Area

There have been several archaeological investigations previously undertaken along or in the immediate vicinity of various sections of the proposed route of the Ellerton Dr extension.

The northernmost section of the alignment passes between the existing suburb of Greenleigh and the proposed Curtis Land, which lies to the west. Curtis Land was originally surveyed by Saunders (2003) and included a 70ha area marked for the proposed residential subdivision. Two Aboriginal sites were recorded (Sites 57-2-351 and 57-2-352) during the survey. These sites were found outside the study area along the western boundary of Curtis Land towards the present residential boundary. The sites comprised an isolated find and a small scatter of four artefacts, both of which were located on the basal slope of a spur. Site 57-2-351 lies within 200m of the current study area, while in 2007 a

recommendation was made by BIOSIS for the relocation of site 57-2-352 ahead of residential development.

Curtis Land is bordered to the east by the Cuumbeun Nature Reserve and to the south by the 'rugged undeveloped land of the Faunce Hill ridgeline complex; (Saunders 2003:2). Due to the steep gradient of much of the area and absence of permanent water sources (Queanbeyan Rv occurs 1.25km to the west and Scabbing Flat Creek 1km to the east), Saunders assessed the archaeological potential of the remainder of the study area as being low.

A number of investigations have also been undertaken further south along the route, towards Jumping Creek. South Jumping Creek was initially surveyed by Winston-Gregson (1989) who identified 8 open artefact scatters and to manuports on the eastern side of the Queanbeyan River. Identified artefacts comprised worked river cobbles and microliths made from chert, silcrete and quartzite, with all sites located on ridgetops, indicating their probable use as access routes.

Also in 1989, Boot and Heffernan surveyed a 100ha area of land known as JCDPS and identified a total of 20 sites, four of which contained between 50 and 200 stone artefacts. Assemblage composition included a wide variety of artefact classes and raw materials including flakes, retouched flakes, flaked pieces, cores, backed blades and blade cores (plus thumbnail scrapers) made from quartz, silcrete, quartzites, chert, volcanic rock and mudstone. The vast majority of artefacts are recorded as being unmodifieddebitage and flaked pieces and were manufactured on local stone.

Boot and Heffernan (1989) divided the landscape into landform elements and location within the property in order to identify patterns in grouping of site density and distribution (Dibden 2009) as well as distribution of artefact type and raw materials. The largest and most dense sites were identified around the confluence of Jumping Creek and its northern boundary and extend away from the river to the flats and adjacent lower slopes. Additional smaller and lower-density sites occurred along the central ridge and lower slopes of ridges running along the northwestern boundary of the study area, while isolated artefacts were recorded on ridge crests on the study area's southern boundary.

Comparisons with the results of other local surveys indicated that Jumping Creek contained high archaeological potential when compared with other areas (Boot and Heffernan 2009).

Five of the sites identified by Boot and Heffernan (1989) fall within 1km of the proposed route of the Ellerton Drive Extension: Sites JC1, JC2, JC3, JC9, and JC10.

In the same year, Peter Kuskie (1989) undertook fieldwork in the Jumping Creek area as part of his honours degree (ANU). Kuskie recorded 20 Aboriginal sites, which included 4 additional sites as well as 16 previously recorded sites. Two sites recorded by Boot and Heffernan (1989) could not be relocated, while the section of the southwest end of the Jumping Creek area that contained Boot and Heffernan's site JC20 was not included in Kuskie's study area. Artefact types recorded by Kuskie included anvils, manuports, hammerstones, flakes, blades, backed blades, blade cores and thumbnail scrapers manufactured from silcrete, quartzite, quartz, chert, volcanic, sedimentary, mudstone and jasper. Quartz, quartzite and volcanic dominated the assemblages, with proximity to raw materials argued to be the primary determinant of intersite variability (Kuskie 1989).

Kuskie observed an absence of artefacts in several surveyed areas; in particular the steep slopes of the eastern and northern ridges, the area east of Jumping Creek (south of site JCV14) and grassed areas at both creek confluences. By comparison, sites were found to cluster on ridge crests, spurs and knolls as well as alluvial terraces and gentle footslopes. Slope gradient was found to be a primary locational determinant, with the majority of sites occurring on gradients of less than 3-5°. Occupation was also noted to be slightly more intense in areas where shale does not outcrop and where water is nearby.

Following Boot and Heffernan (1989), Kuskie (1989) indicates that site densities are high at Jumping Creek when compared to the local area, even taking into account differences in sampling and survey strategies, visibility and so on. However he also identifies a need for further investigations before quantitative statements are possible.

In 2003, 8ha around the Jumping Creek area were surveyed for rezoning by Navin Officer. The area surveyed overlapped in parts with that previously assessed by both Boot and Heffernan (1989) and Kuskie (1989). The Navin Officer study re-affirmed the results of these previous studies, relocating two out of three previously recorded sites in the study area (JC2 and JCV6) and identifying an additional two Aboriginal sites: JC21 and JC22 plus a PAD associated with site JCV6. Both new sites were artefact scatters.

The Jumping Creek Estate was again reassessed as part of a desktop study (Saunders 2007). The study concluded that despite being rich in Aboriginal sites, the recent archaeological investigations in the broader Queanbeyan region

indicated that these sites were not unique in the region and that their original significance assessment could be reduced in light of these newer finds.

In 2009 Navin Officer were engaged to undertake a heritage assessment before carrying out badly needed remediation and erosion works on an eroding hillside of Jumping Creek. The study relocated four existing artefact scatters (JC12, JC14, JCR1 and JCR2), however sites JC13 and JC1 were unable to be relocated. The study determined that sites JC12 and JC14 were in fact part of the one large, low density scatter extending over the crest and upper slopes of a spur. The scatter comprised at least 24 artefacts extending over a large area, consisting of flakes and flaked pieces made from silcrete, volcanics and quartz.

A program of artefact salvage was recommended for all three of the relocated sites, which was undertaken in November 2010 with the contents of all three sites salvaged and reburied together at location 57-2-683. This new location for artefacts recovered from sites JCR1, JCR2 and JC12/14 is within 100m of the proposed route of the Ellerton Dr extension.

The portion of the Ellerton Dr Extension that runs between Jumping Creek and environs and the intersection with the Old Cooma Rd runs along the northern boundary of the Gale Precinct. This portion of land is bordered to the south by Wickerslack Lane, to the east by the Queanbeyan River and to the west by Old Cooma Rd.

Gale Precinct was surveyed in 1990, by Navin Officer, and resulted in the identification of eight low density open artefact scatters, three isolated finds and a possible scarred tree, with assemblages primarily manufactured from chert, fine grained volcanics, quartz and silcrete. All sites (with the exception of the scarred tree) were located on the crests of main ridgelines with larger scatters on or adjacent to the main ridge and smaller sites located on spur lines. These locations are argued to indicate the use of ridges as access routes through the area. None of these sites occur within 100m of the proposed road corridor.

Finally, a number of surveys have been previously carried out within the area of the Old Cooma Rd, where the proposed route of the Ellerton Dr extension terminates. A 1993 survey of the CSR Ready Mix Quarry along Cooma Rd and to the southwest of the current study area failed to identify any archaeological sites, despite excellent survey coverage.

A survey for a 16ha subdivision along the Old Cooma Rd was undertaken by AASC (2001) and resulted in the identification of a single isolated find and a small open artefact scatter. Due to the high levels of visibility in the area and the



relatively steep terrain though unsuitable for occupation across the study area, the remainder of the study area was assessed as being of low archaeological sensitivity.

Between 2001 and 2002 approximately 7.5km of the Old Cooma Rd was surveyed in two sections (Saunders 2001, 2002). Only a single isolated find was identified, on low gradient basal slopes adjacent to a drainage line. Two potential archaeological deposits were also identified on the flats and basal slopes adjacent to Jerrabomberra and Guises Creeks.

In 2009 Navin Officer undertook a survey of a proposed realignment of the Old Cooma Rd. During the survey five aboriginal sites were identified including three isolated finds and two artefact scatters (OCR1-5). However none of these sites occur within 100m of the proposed Ellerton Dr extension.

Extending just beyond the current study area to the west and connecting with the proposed Ellerton Dr extension where it meets with Old Cooma Rd, Dearling (2007) undertook a recent survey for the Edwin Land Parkway. During the course of the study a total of five Aboriginal sites were identified but all occurred in areas of high disturbance with little to no remaining soil depth. Two of the sites identified occur within 200m of the proposed route of the Ellerton Dr extension (Sites ELP4 and ELP5).

## **4.0 Environmental Context**

The route and area of impact are marked on Maps 1-7 included at the back of this document and incorporates Lot 49 DP754907, Lot 3 DP1097427, Lots 2 and 3 DP869366, Lots 52 and 52 DP835313, Lot 205 DP771021, Lot 141 DP718941, Lot 67 DP264406, Lots 1, 2 and 3 DP872684, Lot 4 DP800542, Lot 174 DP793880, Lot 4 and 5 DP872684, all lots of DP15222 and DP15764. Road corridors between Lot 2 DP8669386 and the Queanbeyan River, through Lot 1 DP711905 and roads within DP15222 and DP15764.

The proposed route of the Ellerton Dr extension traverses several environmental landscapes. For ease of reference, the route is divided into three sections: the northern portion of the route which cuts down through the suburb of Greenleigh with Queanbeyan East to the west and Curtis Land to the east, the centre portion which extends south west and through Jumping Creek and environs and the western portion which runs from Jumping Creek, across the Queanbeyan River and west towards the intersection with Old Cooma Rd/Cooma St.

The study area lies within the outer limits of the city of Queanbeyan, with the majority of the study area falling within the Canberra Lowlands (BIOSIS 2007). The Canberra Lowlands encompass a large portion of the Canberra region and are characterized by 'subdued relief and undulating terrain' (BIOSIS 2007:12) caused by the underlying shale and siltstone of the Canberra Formation and interbedded sediments of the Deakin Volcanics (Jenkins 2000 in BIOSIS 2007:120).

A summary of the environmental landscapes traversed by Ellerton Dr Extension is included in table 2 with accompanying Figures 7 and 8. Additional detail is provided below.

### **4.1 Topography**

The northern most portion of the route is characterized by prominent spur lines with level or gently inclined crests and slopes to the east. The landscape is dominated by moderate to high gradient slopes ( $>20^\circ$ ), separated by incised drainage lines to the northeast and east, with elevations of between 630m to 750m asl (Saunders 2003). The portion of the route around Curtis Land lies within a transitional zone between the Canberra Lowlands to the west and the Cullarin Upland in the east, which comprises a dissected plateau with gradual northward slope and approximately 1000m to 750m asl elevation (BIOSIS 2007:12) (see Figures 7 and 8).

The Queanbeyan River lies 1.5km to the west of the study area at its furthest point (the northern portion of the route), however the proposed route curves to the southwest to meet with/cross over the river near and converges with the proposed route and feeds into the Molonglo River approximately 2km to the north. A number of minor tributaries of the Queanbeyan River also extend across the area with Bywong Creek (an ephemeral tributary of the Queanbeyan River) running to the east of this northern portion of the proposed route.

Further south the land becomes more undulating, towards Jumping Creek and Environs. This area comprises a riverine corridor with several large, level alluvial terraces, ridgelines and associated gently sloping foot slopes. The Queanbeyan River flows along the southwestern edge of the Jumping Creek area, with the tributary of Jumping Creek following down into the Queanbeyan River corridor (Hamm 2007). The proposed route of Ellerton Drive crosses the Queanbeyan River at this western boundary to Jumping Creek and Environs.

The altitude of the Queanbeyan River is 575m above sea level, and is known to have flooded several times during recorded history (and including very recent times). These floods of the Queanbeyan River caused severe local flooding of Jumping Creek leaving the surrounding areas inundated. Much of the Jumping Creek area is known to become waterlogged after rain (Kuskie 1989).

The topography along the final leg of the Ellerton Dr extension is generally undulating, with a large north/south trending ridgeline cutting through the southeastern portion of this leg. The crest of this ridge is generally broad and flat. The northeastern portion of this leg of the route passes through suburban areas between Barracks Flat Drive to the west and Doeburl Place to the east. The land to the south of the study route is dissected by a number of minor drainage lines with intermittent flow, draining to Barracks Creek to the west (Navin Officer 1990). Towards Old Cooma Rd the terrain becomes gently to steeply undulating with east/west trending ridgelines and eroded gullies running between them.

## **4.2 Geology**

The underlying geology of the area comprises the Ordovician metasediments from the Pittman Formation and the dacitic tuff of the Colinton Volcanics. The northern portion of the route is dominated by the Pitman Formation, which is characterized by quartz rich sandstone, siltstone and shale with minor occurrences of chert and calcareous sandstone (Abell 1991:7). Small outcrops of bedrock are visible along the mid and upper slopes with sparsely distributed natural quartz.

Further south and towards the Queanbeyan River and Jumping Creek area Towards the Queanbeyan River lies the metamorphosed sedimentary rocks of the Colinton Volcanics, while limestone deposits ('white rocks') run along the eastern bank of the Queanbeyan River. Outcrops of these 'white rocks' occur in several places along the eastern bank of the river (Navin Officer 1990). Hornfels are associated with some of the limestones and local outcrops of quartz and ironstone are known to occur along with quartzite and possibly chert associated with the Pittman Formation (Kuskie 1989:16).

Soils in the area vary in accordance with underlying geology. Soils along the northern portion of the route are generally lithosols, and are thus thin and stony with little if any pedological differentiation (Saunders 2003; Jenkins 2000 in BIOSIS 2007). Alluvial, colluvial and residual soils are all noted to occur within the Jumping Creek area (Kuskie 1989:16). Residual soils are very thin and cover much of the area and are generally restricted to ridge crests and slopes. Colluvial soils are deposited on lower slopes and alluvial terraces in the area having been washed down from the ridges, while alluvial soils occupy the channel areas of the creeks and alluvial terraces and range in thickness up to 2m and tend to be silty sands (Kuskie 1989:16). Along the southwestern portion of the route, west of the River and towards Cooma St, soils are primarily adamellite and are shallow in depth (20-30cm).

Moving further to the west towards the Edwin Land Parkway, soils form part of the Florey Landforms, which tend to be found in valley floor or lower slope contexts and on gently sloping terrain. The upper layers of the soil tend not to exceed 50mm and overly a grayish compacted and very hard clay layer (Dearling 2007:8).

Suitable raw materials for exploitation throughout the proposed route therefore include quartz, limestone, shale, volcanics, quartzite and chert. In addition, a wide array of river pebbles occurs in various creek lines (including Jumping Creek) and the nearby Queanbeyan River.

#### **4.3 Vegetation**

Vegetation throughout the study area has been extensively modified by European activities to the extent that little original vegetation remains. Much of the area would once have supported a continuous cover of dry sclerophyll forest, dominated by Eucalypts (Kuskie 1989) and grading into savanna woodland. At present, the northern portion of the route around Curtis land and Environs, comprises low open dry Eucalypt woodland/forest regrowth with a predominance of stringy bark, a sparse low shrub layer and a ground layer of mainly native tussock grass (Saunders 2003).

Further south towards Jumping Creek and to the west towards Cooma St vegetation varies from open or medium density woodland to grassland. Very few mature trees are present, with considerable new growth and understory regeneration present, comprising wattles and Eucalypts. Towards the River and around Jumping Creek are a number of introduced species and weeds including grasses, poplars, willows and blackberries.




#### **4.4 Climate**

The climate of the Queanbeyan region is generally cool and dry with local variations across the city. In summer, average maximum daytime temperatures reach 29.3° celcius. In winter the evenings are cold and frosty with average minimum temperatures recorded at -0.1° celcius. Mean annual rainfall for the area is 630mm, which is distributed relatively evenly throughout the year. These conditions are noted to be mild and 'very suitable for year-round hunter-gatherer habitation of all parts of the region' (BIOSIS 2007:14).



#### **4.5 Current Land Use**



The entire length of the proposed Ellerton Dr extension has been subject to extensive modification by European activities. This includes widespread clearance of original vegetation and introduced pastures for grazing which has been practiced throughout the area for the last 180 years. Additional disturbance includes the construction and grading of fire trails, intensive bike trails and recreational 4WD activity. Clearance of the area for the collection of timber for wood burning fires has continued until the recent past with an abundance of tree stumps and general absence of old growth trees. The most significant disturbance occurs either side of the Queanbeyan River around the Jumping Creek and Gale Precinct areas due the historic quarrying/mining of limestone, with rock and brick kilns present in some areas. A gravel quarry, which has been used as a landfill site, also occurs where the proposed Ellerton Dr extension joins the Edwin Land Parkway at the intersection with Cooma St/Old Cooma Rd.

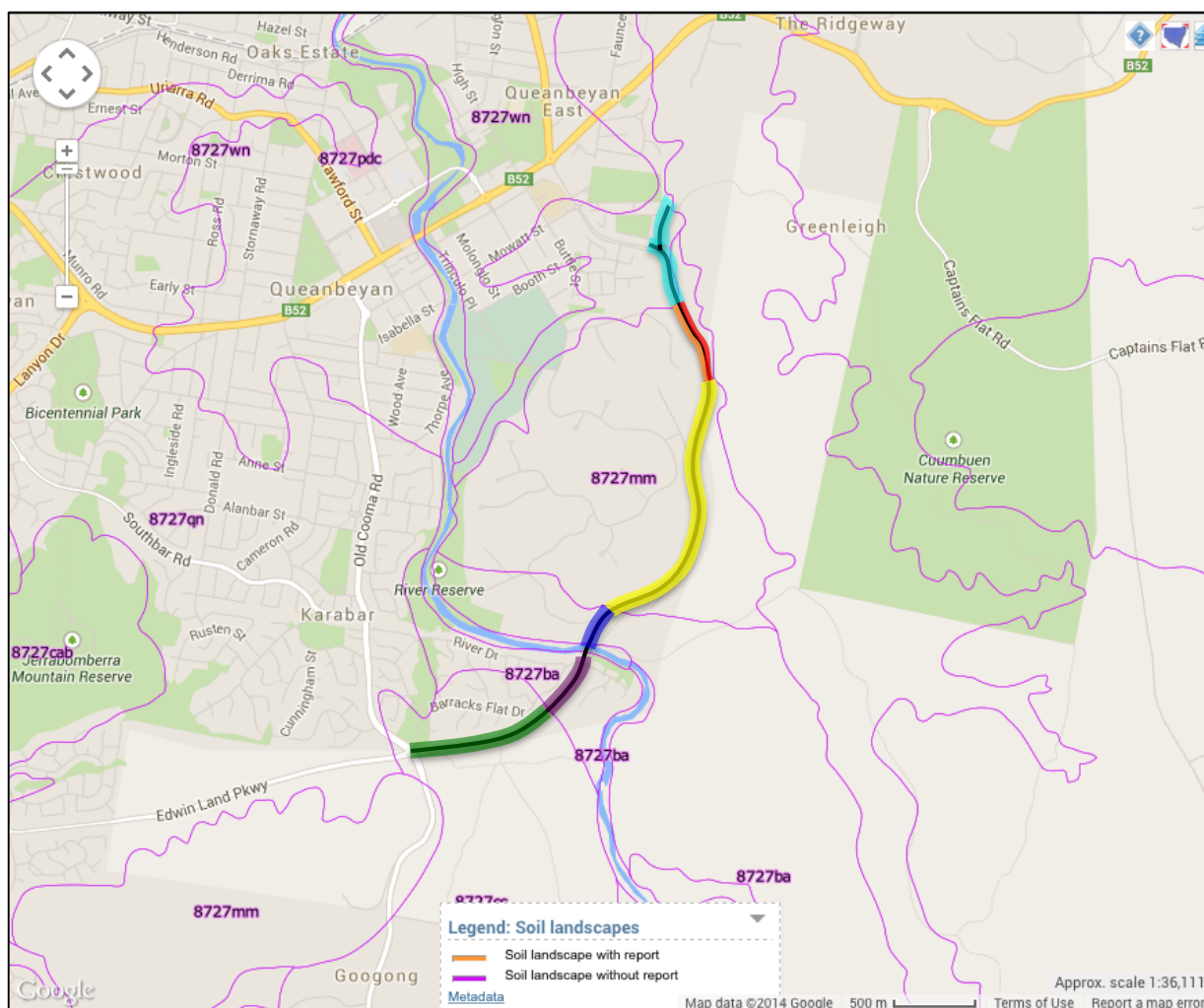
**Table 2. Summary Table of Geology, Landscape, Soils and Vegetation within various portions of the study area. Colour coded portions are illustrated in Figures 5 and 6.**

Portion of Route (ref Figure 5)	Geology	Landscape	Soils	Erosion	Vegetation
1. 	Pittman Formation – Ordovician metasediments	Low-lying hills of between 30-90m relief, with moderately inclined slopes of 10-25%. Elevation of 560-750m.	Soils are shallow (<40cm), comprising lithosols on crests and upper slopes. Rock outcrops occur in localised areas.	Vestigial landscape, demonstrating sheet and gully erosion	Extensively cleared, now comprising open forest (dry sclerophyll) to woodland (savanna)
2. 	Pittman Formation – Ordovician metasediments	Rolling to steep hills and low hills. Local relief is <200m with elevations of 600-1000m. Locally steep slopes.	Soils are shallow on crest and side slopes with cobble hillslopes and surface expressions of parent rock. Soil depths increase on sideslopes and within drainage lines.	High to very high erosion present	Partially cleared land on lower slopes, open forest (dry sclerophyll) to woodland (savanna)
3. 	Pittman Formation – Ordovician metasediments	On eastern side of the study area: rugged and steep hills (>20%) and mountains with a local relief of <300m and elevations of 750-1350m.	Soils are shallow on upper slopes and crests, which are also cobble strewn and include occasional scree slopes. Soils on midslopes	Steep stony slopes subject to large scale sheet erosion.	Minimal clearing, mostly original open forest (dry sclerophyll) to woodland

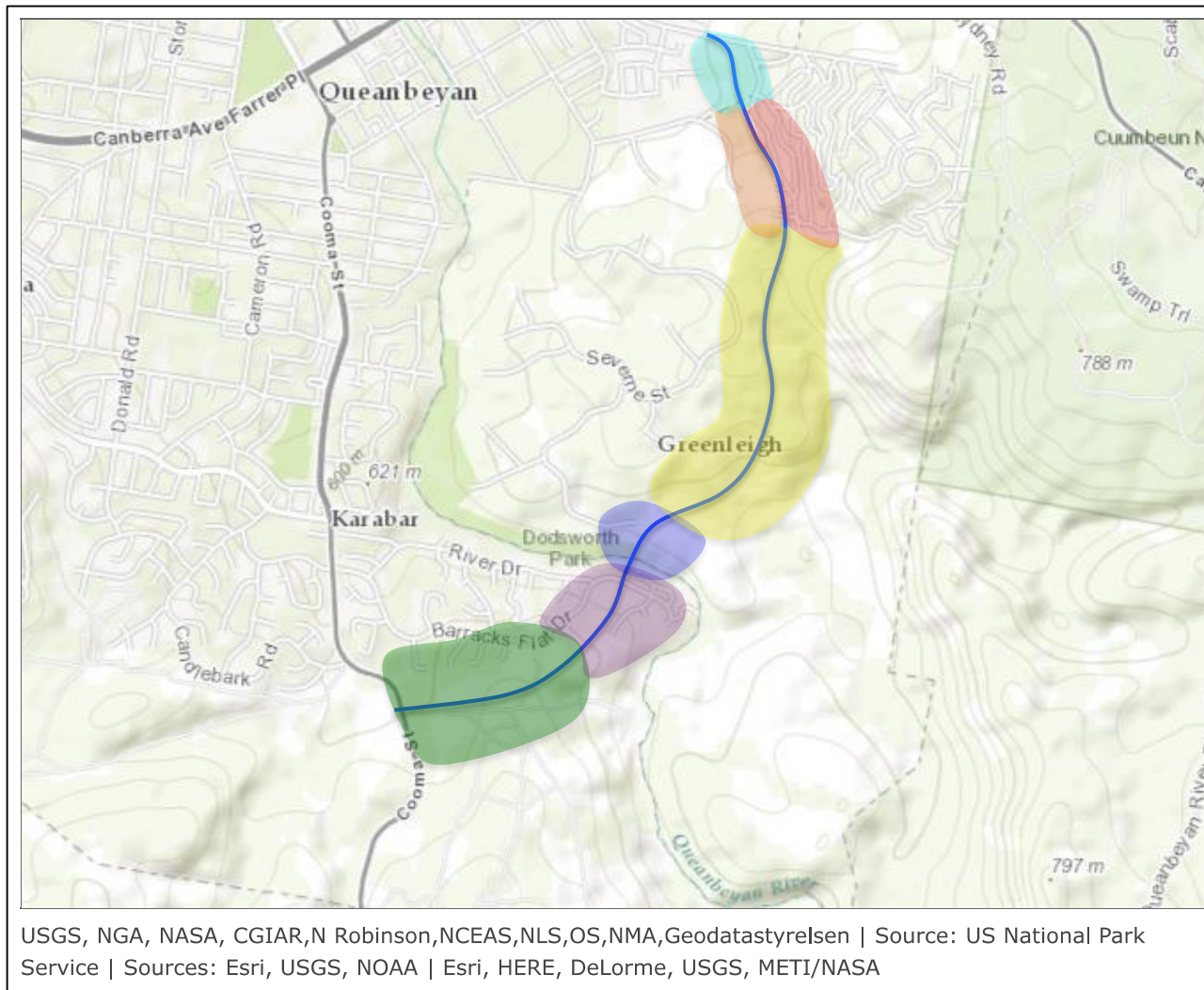


Portion of Route (ref Figure 5)	Geology	Landscape	Soils	Erosion	Vegetation
			are also shallow (<20cm) but increase in depth on colluvial lower slopes. Shallow soils reveal rock outcropping		(savanna)
4. 	Pittman Formation – Ordovician metasediments	Rolling to steep hills and low hills. Local relief is <200m with elevations of 600-1000m. Locally steep slopes.	Soils are shallow on crest and side slopes with cobble hillslopes and surface expressions of parent rock. Soil depths increase on sideslopes and within drainage lines.	High to very highly eroded	Partially cleared land on lower slopes, open forest (dry sclerophyll) to woodland (savanna)
5. 	Colinton Volcanics - Silurian volcanics	Gently undulating to rolling hills and alluvial fans, with a local relief of <90m and elevation of 720-770m. Area is characterized by long, gently to moderately inclined hillslopes, footslopes and fans (5-30%), with localised terraces.	Shallow lithosols and earthy sands on crests and upper slopes, increasing in depth on midslopes and lower slopes. Moderately deep soils (<1m) occur along minor drainage lines and on some lower slopes	Mass movement of soils in some cases through terracing. Areas of localised sheet erosion.	Almost entirely cleared woodland
	Colinton	Gently undulating to rolling	Shallow lithosols and earthy	Mass movement of	Almost entirely

Portion of Route (ref Figure 5)	Geology	Landscape	Soils	Erosion	Vegetation
6. 	Volcanics - Silurian volcanics	hills and alluvial fans, with a local relief of <90m and elevation of 720-770m. Area is characterized by long, gently to moderately inclined hillslopes, footslopes and fans (5-30%), with localised terraces.	sands on crests and upper slopes, increasing in depth on midslopes and lower slopes. Moderately deep soils (<1m) occur along minor drainage lines and on some lower slopes	soils in some cases through terracing. Areas of localised sheet erosion.	cleared woodland
7. 	Colinton Volcanics - Silurian volcanics	Rolling low hills overlying granitic rock, local relief of 30-120m, slopes of 10-32%. Rock outcrops are common (20-50%) on slopes and crests.	Shallow, well drained soils on crests and upper slopes, increasing to moderately deep on mid to lower slopes.	Relatively stable, sheet erosion is common	Extensively cleared open forest.



**Figure 7. Proposed Ellerton Dr Extension landforms and soil divisions (see legend in Table 2) (image modified from espade available at <http://www.environment.nsw.gov.au/eSpadeWebApp/> accessed 17<sup>th</sup> November 2014. Information based on Jenkins 2000)**



**Figure 8. Topographic Map showing landforms within each survey unit (refer to Table 2)**

## **5.0 Regional Character and Predictive Modeling**

The results of previous investigations within the study area and in the surrounding landscapes as well as the predictive models previously posed by archaeologists in the area (e.g. Flood 1980, Boot and Heffernan 1898, Boot and Bulbeck 1990) indicate that Aboriginal open site occupation and patterning is fundamentally guided by topography, water and cold air drainage, with continual site visitation (and thus development of larger sites) dependent upon each of these three factors being met. The most commonly recorded sites in the ACT and NSW are isolated finds and open artefact scatters, with archaeological deposits, scarred trees, stone quarries and axe grinding grooves also occurring. Rarer sites include rock art sites, stone arrangements, burials, ceremonial sites and carved trees.

The current study area comprises a range of landform types, including gently undulating low-lying hills and alluvial fans, through to moderate and steeply inclined hills, crests, upper, mid and lower slopes (see Table 3). These are combined with several different types of geologies, proximities to permanent water sources and so on. Combining the observed patterning of site type and distribution from previous investigations in the broader region with the environmental information for the area established in the previous section, allows a number of predictions to be made about the potential site patterning within the study area. Table 3 provides a summary of this information, with a more detailed explanation provided in section 4.1 below.

### **5.1 Predictive Model of Site Type Distribution for the Study Area**

#### *Artefact Scatters and Isolated artefacts*

Stone artefacts are the most commonly identified markers of Aboriginal culture in the archaeological record and may occur either on the surface of the ground and/or within subsurface deposits. Stone artefacts most commonly comprise unretouched flakes and flaked pieces, which generally represent the byproducts of tool manufacture. Retouched flakes and typological tool forms as well as cores generally occur less commonly. This is due not only to variations in mobility and resource exploitation patterns, but also to the fact that a single core or the manufacture of a single 'tool' may result in the prior production of dozens of unretouched flakes and flaked pieces.

Isolated artefacts are defined as single stone artefacts. Where isolated finds are closer than 50 linear metres to each other they should generally be recorded as an artefact scatter. Artefact scatters are usually identified as a scatter of stone artefacts lying on the ground surface. For the purposes of this project, artefact

scatters are defined as at least 2 artefacts within 50 linear metres of each other. Artefacts spread beyond this can be best defined as isolated finds.

It is recognised that this definition, while useful in most instances, should not be strictly prescriptive. On some large landscape features for example, sites may be defined more broadly. In other instances, only a single artefact may be visible, but there is a strong indication that others may be present in the nearby sediments. In such cases it is best to define the site as an Isolated Find/Potential Archaeological Deposit (PAD).

Artefact scatters can vary in size from two artefacts to several thousand, and may be representative of a range of activities, from sporadic foraging through to intensive camping activity. In rare instances, campsites which were used over a long period of time may contain stratified deposits, where several layers of occupation are buried one on top of another.

Previous archaeological research in the region has identified the following pattern of distribution and densities for stone artefacts:

- The majority of artefact scatters are located in close proximity to a watercourse, on relatively level and well-drained ground.
- Larger open artefact scatters (representing more intensive activity, such as regular camp areas), tend to be located on level, elevated landscape features, close to (within 200m) of major water courses
- The most common areas are the elevated basal slopes of hills, the level spines of spurs (around the termination point of the spur), or on elevated sand bodies;
- Site and artefact densities are also comparatively high on the spines of major ridgelines. These ridge lines are thought to have been utilised as favoured travelling routes through the landscape, and these sites are generally assumed to be representative of this activity;
- Site and artefact densities also tend to be comparatively lower in areas away from water courses;
- Site and artefact densities are comparatively lower moderate to steeply sloping terrain.

Given the range of topographical units traversed by the proposed route of the Ellerton Dr extension, artefact densities are predicted to fluctuate along the route. Artefact densities are predicted to be low towards the northern portion of the route in response to the steep to moderately sloping terrain and distance from permanent water sources. However, artefact densities are predicted to increase with proximity to the Jumping Creek area and the Queanbeyan River



given the more undulating topography and the availability of permanent water and raw material sources.

- Open campsites are anticipated near streams, on level and elevated ground and on low gradient basal slopes.
- Large open campsites are most common within 100-150m of major drainage lines, often with a preference for confluences of major streams.
- Small, low-density open artefact scatters and isolated finds may occur away from major creek lines.

### *Scarred Trees*

Scarred or carved trees are the product of the deliberate removal of bark by Aboriginal people for either domestic or ceremonial purposes. These site types can therefore occur anywhere where trees are of a sufficient age. In an Aboriginal context, however, they are most likely to occur in areas suitable for habitation – such as flat, elevated landform units near water.

The identification of Aboriginal scarring can prove difficult given the ability for bark to be removed naturally through fire and branch as well as the removal of bark by Europeans throughout the entire historic period. As such, rigorous identification criteria must be utilized to exclude any natural or European causes of scarring. The following criteria are advocated by Irish (2004) to assess the validity of an Aboriginal scarred tree:

- Aboriginal scars generally do not extend to the ground,
- Scars are generally regular in outline, with parallel or concave edges and demonstrating symmetry. Regrowth should also be regular,
- Ends of scars should have a definite shape: pointed, rounded or square
- The presence of axe marks evidences human production, however European and Aboriginal workmanship is differentiated by the use of a steel vs. a stone axe. Steel axes produce sharper and more clearly defined cuts.
- The tree must be of an appropriate age to have been modified by Aboriginal people (i.e. around 150 years is considered appropriate)
- The tree must be native to the region (i.e. excludes historic plantings).

Given the extensive clearing and predominance of regrowth noted throughout the study area, it is unlikely that scarred trees will have survived and be present in the study area.

### *Stone Quarry and Procurement Sites*

Stone quarries or procurement sites occur as exposures of stone material which have been exploited by Aboriginal people as sources of raw material for the manufacture and maintenance of stone tools. Quarry sites are more readily

identifiable in the landscape as areas where extraction and preliminary flaking activities have been undertaken on site. Procurement sites tend to be more subtle and may not always leave material evidence of having been exploited. River cobbles are one such example, where small, portable cobbles may be procured and reduced away from the source, leaving no trace of their exploitation on site.

The presence of quarry sites is therefore directly dependent upon the surface exposure of suitable stone. Given the nature of the geology of the study area, quarries are unlikely to be recorded in the study area. However, it is inevitable that procurement sites occur throughout the area in the forms of cobble beds in or near the Queanbeyan River and associated tributaries.

#### *Grinding Grooves*

Grinding grooves are the product of the manufacture and maintenance of edge ground tools. Most commonly these tools are manufactured from stone, however bone and shell were also ground in some cases. These sites may occur as a single groove or as multiple grooves revisited and utilized over an extended period of time.

Grinding grooves are always located on fine grained, homogenous, sandstone exposures and as such, their presence is dependent upon the occurrence of a suitable rock surface and accompanying water source. They may occur on either horizontal or vertical surfaces and in both open site and rockshelter contexts. The absence of sandstone exposures in the study area makes this site type unlikely in the current investigation.

#### *Burials*

Several Aboriginal burials are known to exist within the wider region (including the Queanbeyan Showground). The visibility of burials is generally dependent upon their being exposed or disturbed via natural erosion or human activity and as such, they are rarely identified on field surveys.






Soil depth is essential for burials to occur: given the skeletal soils observed over much of the area, burials are unlikely in the current study area.

#### *Rock Shelters*

Rock shelters will occur from any form of rock overhang, with evidence of occupation provided by a range of archaeological features such as surface artefacts, shell, bone and charcoal deposits, paintings and stencils or the presence of a sub-surface deposit.

The absence of any large vertical stone exposures in the study area makes this an unlikely site type during the current investigations.

**Table 3. Areas of predicted archaeological sensitivity (refer to Figure 7 for colour coding of portions of route)**

Portion of Route	Landscape	Proximity to Water/resources	Potential for in situ and/or Subsurface Deposits	Types of Sites Likely	Predicted archaeological sensitivity
	Low-lying hills with gentle slopes – suits occupation	>1km from water, detracts from long term settlement. - chert, siltstone and quartz rich sandstone, quartz available, suits sporadic/expedient use of materials	No potential for sub-surface deposits. Soils very shallow, area cleared and eroded.	Low density open artefact scatters and isolated finds symptomatic of transient movement through area	Low
	Rolling to steep hills and locally steep slopes – provides travel routes, ill suited to occupation	>1km from water, detracts from long term settlement. - chert, siltstone and quartz rich sandstone, quartz available, suits sporadic/expedient use of materials	No potential for sub-surface deposits. Soils very shallow, area cleared and eroded.	Isolated finds, very low density artefact scatters symptomatic of transient movement through the area.	Low
	Rugged and steep hills, bedrock outcropping, ill suited to occupation	>1km from water, detracts from long term settlement. - chert, siltstone and quartz rich sandstone, quartz available, suits sporadic/expedient use of materials	No potential for sub-surface deposits. Soils very shallow, area cleared and eroded.	Isolated finds symptomatic of isolated discard through travel	Very low
	Rolling to steep hills and locally steep slopes – provides travel routes, ill suited to occupation	Between 1km – 600m, detracts from long term settlement. - chert, siltstone and quartz rich sandstone, quartz available, suits sporadic/expedient use of materials	No potential for sub-surface deposits. Soils very shallow, area cleared and eroded.	Isolated finds, low density artefact scatters symptomatic of transient movement through the area.	Low
	Gently undulating to rolling hills and alluvial fans, long gently inclined slopes, well drained soils. Ideal for occupation	Between 50-600m from Queanbeyan River, - at interface of two geological zones, potential for a range of raw materials to be present	Soils very shallow, though potential exists for deposits in high depositional environments such as sand terraces.	Med-high density open artefact scatters, symptomatic of short to medium term occupation. Possibility exists for burials within sand terraces.	Medium to High

Portion of Route	Landscape	Proximity to Water/resources	Potential for in situ and/or Subsurface Deposits	Types of Sites Likely	Predicted archaeological sensitivity
	Rolling low hills over granitic rock, suitable for occupation	>380m from River, - quartz locally available	Soils very shallow, sheet erosion. No potential for subsurface deposits.	Isolated finds, low density artefact scatters symptomatic of transient movement through the area.	Low to moderate given presence of local quartz and suitability of topography for occupation.

## **6.0 Archaeological Survey**

Archaeological survey of the proposed development footprint for the Ellerton Dr Extension was undertaken on the 12<sup>th</sup> August 2012.

### **6.1 Survey Methodology**

The survey proceeded on foot, in a single linear transect along the length of the route. The discrete denture of the study area allowed a very high level of survey coverage to be achieved. The seven members of the survey team were placed at 20m intervals to provide a transect width of approximately 150m (10m visibility either side). This strategy allowed 100% coverage of the area.

### **6.2 Surface Visibility**

Surface visibility refers to the extent to which the actual soils of a ground surface are available for inspection. There are a number of factors that can affect surface visibility, including vegetation cover and the presence introduced materials. This survey encountered relatively poor surface visibility. The main impediment was grass cover and leaf litter, as well as some confined areas of introduced gravel. Surface visibility has a direct bearing on the ability of a survey team to detect some types of sites including artefact scatters and isolated artefacts. Due to the heavy rains experienced across the region over the last 12 months or more has caused much of the study area to be covered in thick grass and the development of huge areas of blackberries, which are impenetrable in some areas (particularly around Jumping Creek and Environs).

The primary sources of visibility during the current study comprised worn tracks from vehicles and bikes, wombat burrows, areas of erosion caused by wind and water along drainage lines and small areas of ground disturbance by machinery and kids building recreational bike paths and jumps.

Survey of the area proceeded in accordance with the 7 different units previously identified within the area in accordance with underlying geology and soil landscapes. Visibility, vegetation, geology, landforms and soils for each survey unit are presented in Table 4. Each survey transect is illustrated in Figures 7 and 8 (pp 47 and 48) in accordance with the unit colours defined below.

### **6.3 Effective Survey Coverage**




The combination of survey coverage and surface visibility is referred to as effective survey coverage. Table 4 below presents an analysis of surface visibility and survey coverage across the study area. This allows the level of effective survey coverage to be assessed. The thorough survey coverage but poor levels of surface visibility have led to a relatively low level of effective



survey coverage for this project (i.e. approximately 3% across the entire study area).



Low levels of effective survey coverage occur commonly in heritage assessments, particularly where greenfields are involved. In most undeveloped areas of the region grasses or pasture-improved paddocks cover much of the ground surface and erosion scalds or areas of disturbance such as dam constructions provide the primary areas of visibility. It is only in rare situations such as where fires or large-scale disturbances have caused the exposure or upheaval of soils that levels of visibility become dramatically increased. However, these higher levels of visibility are generally accompanied by lower levels of archaeological integrity due to the accompanying movement of soil and the corresponding alteration or destruction of the archaeological context. Consequently, while low levels of visibility often make it difficult to identify sites on the surface, it can mean that any sites lying beneath have an improved integrity. The predictive model is designed to offset some of the draw backs associated with low levels of visibility on site.



**Table 4. Effective Survey Coverage and Relevant Environmental Units and Constraints for Archaeological Survey of Ellerton Dr Extension**

Survey Unit no.	Beginning and end points of Survey Unit (Eastings/Northings)	Length and area of Survey Unit	Landforms	Soils	Land Surface and Vegetation	Survey Coverage	Visibility	Effective Survey Coverage
1 - 	E704639 N6085490 to E704761 N6085200	320m (l) x 140m (w) = 44,800m <sup>2</sup>	Moderately inclined basal slopes of mountains to the east.	Shallow lithosols, with shale and quartz outcropping evident.	Limited cleared vegetation, open forest to woodland. Some disturbance by adjacent developments.	100%  (Survey transect width exceeded with of study area)	0.05%  Dense ground cover, leaf litter	0.005 x 44,800m <sup>2</sup> = 224m <sup>2</sup>
2 -  	E704761 N6085200 to E704941 N6084737	491m (l) x 140m (w) = 68,740m <sup>2</sup>	Rolling to steep hills and low hills along western edge of study area. With rugged steep hills of the	Soils comprise shallow, red podzolic soils along basal slopes and drainage lines within study area. Steep stony	Minimal clearing, dense scrub, dry sclerophyll forest to woodland	100%  (Survey transect width exceeded with of study area)	0.05%  Dense ground cover, leaf litter	0.005 x 68,740m <sup>2</sup> = 3,437m <sup>2</sup>

			Cuumbeyan Nature Reserve	slopes present to east.				
3 - 	E704941 N6084737 to E704493 N6083471	1470m (l) x 140m (w) =205,800m <sup>2</sup>	Low rolling hills, with a number of moderate inclines and gentle sideslopes	Alluvial, colluvial and residual soils, shallow.	Partially cleared, open forest and dry woodland. Sheet erosion and visibility from vehicle and recreational bike tracks.	100% (Survey transect width exceeded with of study area)	3%	0.03 x 205,800m <sup>2</sup> = 6174m <sup>2</sup>
4 - 	E704493 N6083471 to E704236 N6083276	335m (l) x 140m (w) = 46,900m <sup>2</sup>	Gentle hills and alluvial fans, low lying gentle footslopes. Steeper drop off to River on this side	Shallow adamellite and alluvial soils in some areas, increasing with depth towards River	Areas of localised open forest and dry woodland, some clearing. Sheet erosion and visibility from vehicle and recreational bike tracks.	100% (Survey transect width exceeded with of study area)	1%	0.01 x 46,900m <sup>2</sup> = 469m <sup>2</sup>
	E704195 N6083191	381m <sup>2</sup>	Gentle hills	Shallow	Extensive	100%	2%	0.02 x

5 - 	to E703984 N6082874	x  140m (w)  = 53,340m <sup>2</sup>	and alluvial fans, low lying gentle footslopes	adamellite and alluvial soils in some areas, increasing with depth towards River	clearing associated with residential development adjacent. Visibility provided in areas of disturbance and vehicle and recreational bike tracks.	(Survey transect width exceeded width of study area)		53,340 = 1067m <sup>2</sup>
6 - 	E703984 N6082874 to E703173 N6082642	873m (l) x  140m (w)  = 122,220m <sup>2</sup>	Low-lying hills and gently inclined footslopes	Shale and quartz outcropping evident	Extensively cleared land, areas of large disturbance, sheet erosion and visibility from vehicle and recreational bike tracks.	100%  (Survey transect width exceeded width of study area)	5%	0.05 x 122,220m <sup>2</sup> = 6,111m <sup>2</sup>
<b>TOTAL</b>		<b>541,800m<sup>2</sup></b>					<b>3.22%</b>	<b>17 482m<sup>2</sup></b>

## 7.0 Results

During the current survey, the locations of seven previously recorded Aboriginal sites occurring within 100m of the centerline of the proposed development were revisited. Due to increased ground cover since the original locations of these sites, four sites could not be relocated during the current investigations (sites 57-2-66/428, 57-2-74, 57-2-75 and 57-2-615). The remaining 3 sites were relocated and their current status was re-recorded (sites 57-2-635, 57-2-352, 57-2-352).

An additional 6 Aboriginal sites (named ED1-ED6 (AHIMS no's 57-2-0907 – 0910, 57-2-0918, 57-2-0919)) were identified during the current survey, comprising four low density artefact scatters (sites ED1 (57-2-0907), ED3 (57-2-0909), ED5 (57-2-0919) and ED6 (57-2-0910)) and two isolated finds (sites ED2 (57-2-0908) and ED4 (57-2-0918)). Two of these sites (ED4 (57-2-0918) and ED5 (57-2-0919)) are identified as components of a large site complex associated with sites (57-2-066/428, 57-2-74, 57-2-75 and 57-2-635). The locations of all newly identified sites are mapped in figure 9.

All Aboriginal sites identified accord with the predictive model for site location in the area (see section 4.5.2), none of the sites occur in areas with any soil depth and as such, there is no potential for sub-surface deposits at any of the identified sites. All sites have been subject to a range of post-depositional processes, primarily vehicle and recreational bike damage and erosion.

### 7.1 Previously Recorded Sites

A total of 8 previously recorded sites occur within 100m of the proposed Ellerton Dr extension, comprising 7 artefact scatters and an isolated find. Each of these sites is summarized in table 3. Site 110 was destroyed in 1991, while the artefacts visible along the exposed track of site 635 were salvaged and relocated in 2010, leaving a total of 7 sites to be re-assessed/re-identified during the current investigation.

In the years since the original identification of many of these sites, the surrounding landscape has, in some cases been dramatically altered. In other cases, the ground cover has increased significantly, greatly diminishing visibility. Any identified problems are discussed in detail in relation to each site below.

#### **Site Name:** 57-2-66/57-2-428

Despite an extensive search throughout the area, this site was unable to be relocated during the current investigation. Visibility in the immediate area of the site is extremely poor, with thick grass cover predominating. Small areas of erosion occur with exposed shale bedrock outcropping, however no artefacts

were identified within these small areas of visibility, or anywhere along the vehicle track located immediately to the east.

Maps 1-7 at the back of this document illustrate the locations of all previously and newly recorded sites relevant to the current investigation.

**Site Names:** 57-2-74 and 57-2-75

Site 57-2-74 was first identified by Boot and Heffernan as a large artefact scatter of 65 artefacts, extending along a track from Lonergan Drive to the top of a central ridge. Boot and Heffernan (1989) felt that the site may form a complex including JC1, JC9 and JC10 – i.e. 57-2-0066, 0074 and 0075). Kuskie (1989) increased the number of artefacts identified to 107 and indicated that his site JCV 5 may also be part of the complex (no new number assigned to it). Dibden (2009) only located 81 artefacts during her 2009 survey, probably due to the increased ground cover of grass and litter across the area. Visibility was significantly diminished during Dibden's survey (2009).

During the current investigations, artefacts could not be located in the specific areas of either of these sites despite an intensive investigation. Ground cover in the area is now relatively thick, including moss, thick shale bedrock and an regrowth understory of waist high shrubs which form large, impenetrable clumps in several areas.

**Site Name:** 57-2-110

Consent to destroy Site 57-2-110 was given in October 2001. The location of the site is now in a landscaped area between two residences in the suburb of Karabar. During the current survey the area surrounding the site was revisited, no additional artefacts were identified and the original landscape has been completely destroyed.

**Site Name:** 57-2-615

Despite an extensive search throughout the area, this site was unable to be found during the current investigation. Visibility in the immediate area of the site is extremely poor, with thick grass cover predominating. Small areas of erosion occur with exposed shale bedrock outcropping, however no artefacts were identified within these small areas of visibility, or anywhere along the vehicle track located 40m to the north.

**Site Name:** 57-2-635

This site was identified by Navin Officer in 2009 and comprises a scatter of at least 150 artefacts extending along the knoll of the same ridgeline as 57-2-0074, 0075 and 0066/428. The site was visible along an existing and well-used vehicle track with exposed shale bedrock and shallow soils, but was recorded to extend across the ridge crest and away from the vehicle track on either side. In November 2010, the artefacts along the vehicle track only were salvaged and relocated to beneath a tree approximately 15m from the track but within the identified bounds of the scatter (site 57-2-683).

During the current investigation, a number of additional artefacts were identified, extending the bounds of the site further to the north to include a number of artefacts exposed along a track running down the side of the ridge to the north. Several artefacts were also identified in small exposures across the ridge crest. Visibility away from the tracks, however is very low (<1%) with much of the area covered with grass. The Aboriginal community recalls recording this site with Navin Officer and commented that many artefacts are retained beneath the grass cover. Artefact numbers appear to peter off away from the ridge crest. The contents and bounds of the surface scatter identified during the current investigation are as follows:

**Proximity to Water:** Site is approximately 180m from the Queanbeyan Rv to the west and within 100m of Jumping Creek to the north.

**Disturbance:** Highly disturbed, by erosion and vehicle tracks.

**Site Description:**

Site comprises at least 10 artefacts scattered along the crest/knoll of an northwest/southeast trending ridgeline with some spilling over to the upper to mid northern slopes (decline 5°). Those members of the Aboriginal community who participated in the identification and salvage of the site with Navin Officer (2010) observed that tended to peter out away from the crest of the ridge. Due to the dense ground cover currently across the site, the exact distribution of artefacts is unknown.

Water is located 100m to the north from the Jumping Creek and 180m to the west from the Queanbeyan River. Details of identified artefacts are included in table 5 with photos of the site provided in plates 1-5.

**Potential for Sub-surface Deposits:**

The site is located upon skeletal soils with abundant shale bedrock and quartz outcrops. The grass cover alone is affecting visibility of artefacts, as there is



almost no soil depth across the area. The potential therefore exists for the site to extend much further than is currently visible but not for sub-surface deposits.



Plate 1. Ground cover away from tracks at 57-2-635



Plate 2. Looking east along site to relocation point 57-2-683



Plate 3. Looking north to ridge crest from northern extremity of site



Plate 4 Sample of artefacts identified



Plate 5. Sample of artefacts identified



**Table 5. Artefact assemblage identified at Site 57-2-635**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flake	Chert, brown	27 x 14 x 5	Complete	0	10 dorsal scars, one dorsal rotation, no overhang removal, feather termination.
Flake	Chert, brown	31 x 18 x 2	Longitudinal Conal Split, Right Lateral	0	2 dorsal scars, no dorsal rotations, no overhang removal, feather termination.
Flake	Chert, grey	11 x 17 x 5mm	Distal Portion	0	2 dorsal scars, no rotations, hinge termination.
Flake	Chert, grey	35 x 15 x 5	Medial Portion	100	Primary flake?

**Site Names:** 57-2-351 and 57-2-352 (refer Map 4)

These sites were first identified by Saunders (2003) and relocated by BIOSIS (2007). Site 57-2-351 was originally described as an isolated volcanic anvil stone – flaked and pitted on one surface. Site 57-2-352 comprised a scatter of 4 artefacts made from quartz and including an anvil fragment made from porphyritic volcanic. During the current study, attempts to relocate these sites showed significant spatial movement since their original recording. This is most likely due to the more recent construction of power lines immediately overhead, as well as a range of additional post-depositional disturbances.

Artefacts from the two sites now appear to be mixed, with the porphyritic volcanic anvil recorded at site 57-2-352 now associated with two additional artefacts (only one of which was quartz) and with both sites having moved down slope (to the west). The two sites are located approximately 40m apart and now form a single blended site. Details of the four artefacts discovered during the current survey are provided below. A map of the old and new locations of these two sites is provided in figure 9.

**Grid Reference:** 0704629E 6085454N - 0704592E 6085431N

**Site Type:** Open Artefact Scatter

**Site Contents:** At least 4 artefacts including a hammerstone and anvil over an area measuring approximately 40m x 40m

**Surface Visibility:** 90%

**Aspect:** West, incline 3°

**Proximity to Water:** Site is approximately 160m from ephemeral tributary of the Queanbeyan River and approximately 1.1km from the River itself, which lies to the west.

**Disturbance:** Highly disturbed, introduced gravels, erosion, adjacent residential development and overhead power lines

**Site Description:**

Site comprises at least four artefacts including hammerstone and anvil fragments located in a highly disturbed and eroded area immediately adjacent to the residential development of Greenleigh to the west and the existing portion of Ellerton Dr to the north. Artefacts were recovered over an area of approximately 40m x 40m.

The site occurs on the gentle basal slopes of the adjacent steep ridgelines of Curtis Land to the east, with local inclination of 3° (extending up to >30° to the ridge crest).

Details of identified artefacts are included in table 6 with photos of the site provided in plates 6-10.

**Potential for Sub-surface Deposits:**

The site has been subject to extensive disturbance and has been substantially modified by adjacent developments and power line construction. Further, the area in which the site is located comprises gravelly, skeletal soils. There is therefore no potential for sub-surface deposits and the site is unlikely to remain in situ.



Plate 6. Looking west to Greenleigh development from 57-2-351.



Plate 7. Anvil stone comprising Site 57-2-351.



Plate 8. Looking north to Ellerton Dr from Sites 351/352



Plate 9. Looking south to 57-2-352 beneath power lines.



Plate 10. Artefacts identified at site 57-2-352

**Table 6. Artefact assemblage identified at Site 57-2-351 and 352.**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Hammerstone Fragment	Porphyritic Volcanic (pink quartz inclusions)	1100 x 60 x 35	Broken		Possible pitting on one end, river pebble cortex.
Hammerstone Fragment	Basalt	60 x 40 x 37	Broken		Possible pitting on one end, river pebble cortex.
Flake	Quartz, white	25 x 18 x 6	No Left Lateral	0	2 dorsal scars, no dorsal rotations, step termination, overhang removal present.
Flake	Volcanic (weathered)	35 x 27 x 10	Shattered Platform	0 but 100% patina	5 dorsal scars, no dorsal rotations, overhang removal present, retouched distally.

## 7.2 Newly Identified Sites

A total of 6 new sites were identified during the current investigation, comprising 4 low density open artefact scatters and 2 isolated artefacts. Each of these is discussed in detail below.

<b>Site Name:</b>	ED1 (57-2-0907)
<b>Grid Reference:</b>	0703680E 6082620N to 0703653E 6082578N
<b>Site Type:</b>	Open Artefact Scatter
<b>Site Contents:</b>	At least 10 artefacts over area measuring approx. 50m x 6m
<b>Surface Visibility:</b>	100% across track, but reducing to 5% in grassed areas adjacent.
<b>Aspect:</b>	Southwest, inclination of 3°
<b>Proximity to Water:</b>	Ephemeral drainage lines <30m to the north and west, permanent water source of Queanbeyan Rv lies 500m to the east.
<b>Disturbance:</b>	Vehicle damage along track and erosion, introduced gravels

### Site Description:

Site comprises an open scatter of at least 10 artefacts exposed along a dirt vehicle track and in small areas of exposure immediately adjacent. Artefacts are scattered over an area measuring approximately 50m x 6m. Full details of the artefacts identified are included in table 7 with photos of the site and a sample of recorded artefacts provided in plates 11-13.

The site is located in a locally flat area on the upper slopes of a gentle northeast/southwest orientated spurline. Inclination to the crest of the spur is 3°.

Two ephemeral drainage lines from the Queanbeyan River lie less than 30m to the north and west of the site, while the River itself lies 500m to the east.

### Potential for Sub-surface Deposits:

Site occurs in an area of gravelly, skeletal soils with extensive shale bedrock outcropping across the area and introduced gravels adjacent. There is therefore no potential for sub-surface deposits. However, the presence of artefacts in small exposures in the grassy surrounds indicates that the site is likely to extend over a larger area than is immediately visible.





Plate 11. Looking south from western extremity along track



Plate 12. Low visibility in adjacent grassed areas



Plate 13. Sample of artefacts identified at ED1 (57-2-0907).

**Table 7. Artefact assemblage identified at ED1 (57-2-0907).**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flaked Piece	Silcrete, grey	20 x 11 x 5			
Retouched Flake	Silcrete, grey	15 x 25 x 5	No right lateral	0	3 dorsal scars, no dorsal rotations, feather termination, no overhang removal, distally retouched.
Flake	Silcrete, grey	10 x 18 x 7	Complete	0	3 dorsal scars, no dorsal rotations, feather termination, no overhang removal.
Flake	Quartz, white	11 x 12 x 15	Complete	0	2 dorsal scars, no dorsal rotations, feather termination, overhang removal present.

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flake	Quartz, white	17 x 10 x 4	Left Lateral	0	2 dorsal scars, no dorsal rotations, feather termination, no overhang removal.
Core - rotated	Silcrete, grey	30 x 15 x 9	Complete, exhausted	0	10 scars removed from 3 rotated platforms.
Flake	Quartz, white	12 x 9 x 2	Right Lateral	0	No clear dorsal scars or rotations, natural surface, feather termination, no overhang removal.
Flake	Silcrete, grey	15 x 14 x 2	Complete	0	4 dorsal scars, no dorsal rotations, feather termination, no overhang removal.
Flake	Silcrete, grey	15 x 10 x 4	Right Lateral, no distal	0	2 dorsal scars, overhang removal present.
Flaked Piece	Silcrete, grey	12 x 11 x 4			



**Site Name:** ED2 (57-2-0908)  
**Grid Reference:** 0703762E 6082652N  
**Site Type:** Isolated artefact  
**Site Contents:** Manuport – water worn pebble  
**Surface Visibility:** 100% across track, but reducing to 5% in grassed areas adjacent.  
**Aspect:** Northeast, inclination of 4°  
**Proximity to Water:** Ephemeral drainage line from Queanbeyan River lies 75m to the east, permanent water source of Queanbeyan Rv lies 500m to the east.  
**Disturbance:** Vehicle damage along track and erosion, introduced gravels

**Site Description:**

Site comprises a single water worn pebble (manuport) with fracturing on one end. Fracturing cannot be clearly identified as conchoidal and may be product of vehicle damage.

The site is located in a locally flat area on the upper slopes of a gentle northeast/southwest orientated spurline. Inclination to the crest of the spur is 4°. The site has a southeastern aspect. Details of the artefact is included in table 8 with photos of the site provided in plates 14-16.

An ephemeral drainage line from the Queanbeyan River lies less than 80m to the east of the site, while the River itself lies 500m to the east.

**Potential for Sub-surface Deposits:**

Site occurs in an area of gravelly, skeletal soils with extensive shale bedrock outcropping across the area and introduced gravels adjacent. There is therefore no potential for sub-surface deposits.



Plate 14. View north from ED2 along vehicle track



Plate 15. View south from ED2



Plate 16. Manuport ED2 (57-2-0908).

**Table 8. Artefact details from ED2 (57-2-0908)**

Class	Raw Material	Measurements (mm)	State	% Cortex
Water worn pebble/manuport	Basalt?	85 x 45 x 48	Broken	70

**Site Name:** ED3 (57-2-0909)  
**Grid Reference:** 0704153E 6083102N  
**Site Type:** Open Artefact Scatter  
**Site Contents:** At least 2 artefacts over an area measuring approx 2m x 2m  
**Surface Visibility:** 2%  
**Aspect:** East, inclination of >20°  
**Proximity to Water:** Permanent water source of Queanbeyan Rv lies 90m to the east.  
**Disturbance:** Highly disturbed, introduced gravels, mounded deposit

**Site Description:**

Site comprises two artefacts located in a small exposure on the edge of a man-made mound of imported gravels and mixed deposit within a residential road reserve. Inclination of mound is in excess of 20° and has an eastern aspect. Details of identified artefacts are included in table 9 with photos of the site provided in plates 17-19.

The Queanbeyan River runs less than 90m to the east.

**Potential for Sub-surface Deposits:**

Site is an imported mound of material, presumably mixed with material from around the immediate area during residential development. As such, the site has no potential to retain in-situ subsurface deposits. It is, however possible that additional artefacts are contained within the mound but will have lost all context.



Plate 17. Looking east to Queanbeyan Rv from ED3



Plate 18. Looking west up mound of ED3 with Carl Brown.



Plate 19. Artefacts identified at ED3

**Table 9. Artefact assemblage identified at ED3 (57-2-0909).**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flake	Chert, grey	27 x 22 x 5	Complete	0	4 dorsal scars, no dorsal rotations, feather termination, no overhang removal.
Flake	Silcrete, grey	46 x 21 x 4	Complete	0	2 dorsal scars, no dorsal rotations, feather termination, no overhang removal, distally retouched.



**Site Name:** ED4 (57-2-0918)  
**Grid Reference:** 0704356E 6083417N  
**Site Type:** Isolated artefact  
**Site Contents:** Core  
**Surface Visibility:** 95% around exposure, but reducing to 5% in grassed areas adjacent.  
**Aspect:** Northwest, inclination of 20°  
**Proximity to Water:** Immediately adjacent to ephemeral drainage line from Queanbeyan River and 250m from permanent water source of Queanbeyan Rv to the west.  
**Disturbance:** Vehicle damage along track, imported gravels and erosion

**Site Description:**

Site comprises a single silcrete core located in a disturbed context between a well used dirt vehicle track and eroded gully of an ephemeral drainage line. Site occurs on the basal slopes of an elevated northwest/southeast orientated spurline. Site 57-2-635 occurs on the crest of this spurline, immediately to the south, a distance of 85m, and it is possible that this artefact has washed down the relatively steep incline of the spurline to the drainage line below (incline to spur crest is 12°). Similarly, the proximity of the site to the drainage line means it would also have been highly susceptible to inundation and movement through water activity. The artefact is unlikely to have been discarded in its current location.

The Queanbeyan River occurs 250m to the west of the site and the area is surrounded by blackberries and disturbance through dirt bike and vehicle tracks.

Details of the artefact is included in table 10 with photos of the site provided in plates 20-22.

**Potential for Sub-surface Deposits:**

Site occurs in an area of gravelly, skeletal soils with extensive shale bedrock outcropping across the area and introduced gravels adjacent. There is therefore no potential for sub-surface deposits and the site is unlikely to remain in situ.



Plate 20. Looking north to creek line at ED4



Plate 21. Looking south up hill to 57-2-635 from ED4



Plate 22. Artefact at ED4.

**Table 10. Details of artefact identified at ED4 (57-2-0918).**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Core, rotated	Silcrete, grey	24 x 18 x 9	Complete, Exhausted	0	10 dorsal scars removed from 3 platforms, rotated.

**Site Name:** ED5 (57-2-0919)  
**Grid Reference:** 0704285E 6083346N – 704309E 6083338N  
**Site Type:** Open Artefact Scatter  
**Site Contents:** At least 4 artefacts over a 20m x 10m area.  
**Surface Visibility:** 90% around exposure and adjacent track, but reducing to 5% in surrounding grassed areas.  
**Aspect:** West, inclination of 8°  
**Proximity to Water:** Immediately adjacent to ephemeral drainage line (approx 20m) of the Queanbeyan River (to the north) and within 150m of the River itself (to the west).  
**Disturbance:** In an eroded landscape amongst shale bedrock.

**Site Description:**

This site comprises four flakes visible along an erosion scald extending down the western face of a broad, flat, northwest/southeast trending ridge-line. The site is located between several other sites on this ridgeline, including sites 57-2-0066/428, 0074, 0075, 635 and ED4 (57-2-0918).

The Queanbeyan River occurs 150m to the west of the site and an ephemeral drainage line is within 20m or so to the north. Details of the artefact is included in table 11 with photos of the site provided in plates 23-25.

**Potential for Sub-surface Deposits:**

Site occurs in an area of gravelly, skeletal soils with extensive shale bedrock outcropping across the area and introduced gravels adjacent. There is therefore no potential for sub-surface deposits and the site is unlikely to remain in situ.



Plate 23. Looking east up erosion scald to ridge crest



Plate 24. Looking west down erosion scald





Plate 25. Artefacts identified at ED5

**Table 11. Details of artefact identified at ED5 (57-2-0919).**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flake	Silcrete, grey	15 x 21 x 6	Medial portion	0	6 dorsal scars, no dorsal rotations.
Flake	Silcrete, grey	10 x 15 x 4	Medial portion	0	2 dorsal scars, no dorsal rotations.
Flake	Volcanic, grey	20 x 21 x 2	Missing distal	0	2 dorsal scars, no dorsal rotations, overhang removal present, heat affected.
Flake	Volcanic, grey	25 x 18 x 3	Complete	0	6 dorsal scars, no dorsal rotations, overhang removal present, feather termination.

**Site Name:** ED6 (57-2-0910)  
**Grid Reference:** 0704458E 6083504N – 704491E 6083477N  
**Site Type:** Open Artefact Scatter  
**Site Contents:** At least 9 artefacts over a 40m x 4m area.  
**Surface Visibility:** 100% along vehicle track, but reduces to 0% in surrounding grassed areas.  
**Aspect:** Southeast, inclination of 6°  
**Proximity to Water:** Immediately adjacent to ephemeral drainage line from the Queanbeyan River (<20m) within 350m of the River itself (to the west).  
**Disturbance:** Well used vehicle track, erosion.

**Site Description:**

This site comprises nine artefacts visible along a dirt vehicle running northeast to southwest. The artefacts occur along 40m of the track, which runs down gentle side slopes between two low gradient spurs.

An ephemeral drainage line also flows between the spurs and lies immediately adjacent to the site. The Queanbeyan River lies 360m to the west of the site.

Details of the artefact is included in table 12 with photos of the site provided in plates 26-30.

**Potential for Sub-surface Deposits:**

Site occurs in an area of gravelly, skeletal soils with extensive shale bedrock outcropping across the area. There is therefore no potential for sub-surface deposits and the site is unlikely to remain in situ. However the presence of artefacts in the only area visibility indicates that the site is larger and extends beneath the blackberries and leaf litter either side of the road.



Plate 26. Looking south along ED6



Plate 27. Looking north along ED6



Plates 28 and 29 Artefacts identified at ED6



Plate 30. Artefacts identified at ED6

**Table 12. Details of artefact identified at ED6 (57-2-0910).**

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flake	Silcrete, grey	19 x 14 x 2	Distal portion	0	5 dorsal scars, no dorsal rotations, feather termination.
Flake	Silcrete, grey	24 x 14 x 2	Complete	0	6 dorsal scars, no dorsal rotations, focal platform, overhang removal present, feather termination.
Flake	Silcrete, grey	32 x 23 x 9	Complete	0	6 dorsal scars, no dorsal rotations, overhang removal present, edge damage visible, feather termination.
Flake	Silcrete, variegated	33 x 27 x 8	Complete	0	3 dorsal scars, no dorsal rotations, no overhang removal, 3 scar platform, feather termination.
Flake	Chert, brown	40 x 26 x 11	Complete	0	4 dorsal scars, no dorsal rotations, step termination.
Core, discoidal	Silcrete, cream	32 x 36 x 16	Complete	0	12 scars from 2 platforms, worked around entire perimeter, heavily weathered.

Class	Raw Material	Measurements (mm)	State	% Cortex	Measures of Reduction
Flake	Chert, black	29 x 13 x 7	Complete	0	6 dorsal scars, 1 dorsal rotation, overhang removal present, feather termination.
Flake	Chert, grey	21 x 17 x 6	Complete	0	4 dorsal scars, no dorsal rotations, feather termination.
Flake	Chert, grey	19 x 28 x 7mm	Proximal portion	0	3 dorsal scars, no dorsal rotations, no overhang removal.

### **7.3 Discussion**

These results accord well with the predictive model which indicated that open artefacts scatters where the most common site type anticipated in the study area, with highest numbers of sites and artefacts being located on elevated, locally flat landforms in close proximity to permanent water sources.

Maps 1-7 illustrate previous and newly recorded site locations relative to the current development and to local topography and demonstrate a clear area of heightened or more intense occupation along a relatively broad and gentle ridgeline, located immediately adjacent to the Queanbeyan River (to the west) and surrounded by a series of ephemeral drainage lines to the north and east. While the ridgeline slopes gently to nearby drainage lines to the north and east, the drop to the Queanbeyan River to the south and southwest, and to Jumping Creek in the southeast, is considerably steeper. Aboriginal occupation appears to have been focused upon those areas of the ridgeline that are relatively flat, and slope gently towards drainage lines to the north and east.

Along this ridgeline, sites seem to have been identified wherever visibility has been sufficient to allow it. The distinction between the various sites along this landform therefore appears to be artificial, with none more than 40m from one another. Sites 57-2-0066/428, 57-2-0074, 57-2-0075, 57-2-635, ED4 (57-2-0918) and ED5 (57-2-0919) are much more likely to represent different expressions of the same large, but relatively sparse site, which extends along the ridgeline, with a number of artefacts moving down along the sideslopes through various post-depositional processes. Sites 57-2-0068 and 57-2-0087 fall outside the current study area but are likely to be a part of the same spread of artefacts.

Also in keeping with the predictive model, no sites were found along that portion of the route characterized by steep landforms (i.e. Curtis Land), despite the drainage line running along the centre of the study area, but reappear again when the gentle basal slopes return (sites 57-2-351 and 57-2-352).



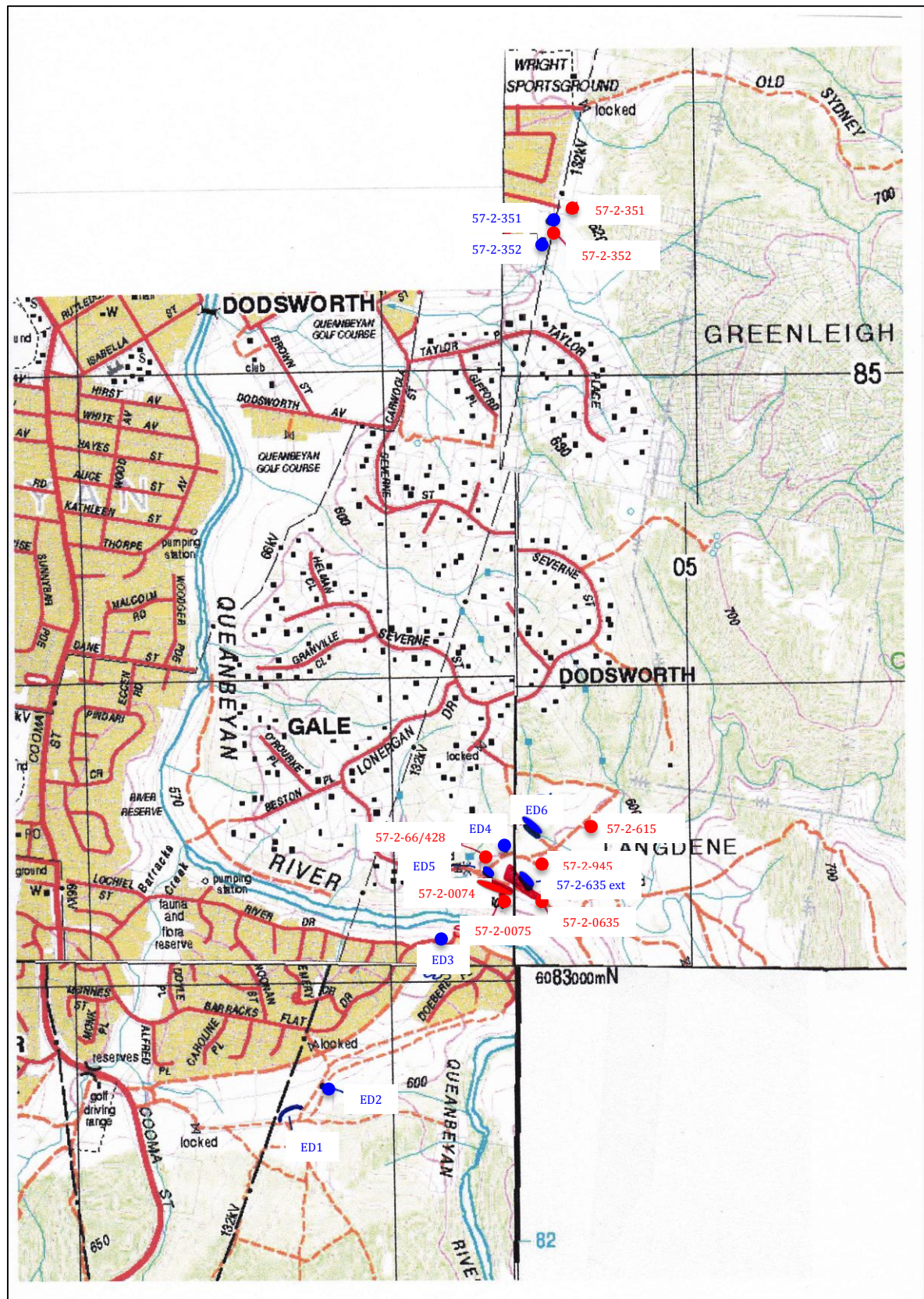


Figure 9. Topographic map pieced together from Topoview Raster 2006 (Department of Lands). Study area crosses into four 1:250,000 maps – from top left in a clockwise direction: Canberra 87273N, Bungendore 87272N, Hoskinstown 87272S and Tuggeranong 87273S.

## **8.0 Scientific Values and Significance Assessment**

### **8.1 Assessment Guidelines**

There are several different ways of defining types of significance, and many practitioners have developed their own system of significance assessment. However, as Sullivan and Pearson (1995) point out, there seems to be a general advantage in using a set of criteria, which is already widely accepted. In Australia cultural significance is usually assessed against the Burra Charter guidelines and the Australian Heritage Commission guidelines (ICOMOS 1988, 1999, Lennon and Mathews 1996).

### **8.2 The Burra Charter**

Under the guidelines of the Burra Charter ‘cultural significance’ refers to the ‘aesthetic, historic, scientific, social or spiritual value for past, present or future generations’ of a ‘place’ (ICOMOS 1999:2). The guidelines to the Burra Charter comment:

*“Although there are a variety of adjectives used in definitions of cultural significance in Australia, the adjectives ‘aesthetic’, ‘historic’, ‘scientific’ and ‘social’ ... can encompass all other values”.*

The following provides the descriptions given for each of these terms.

#### Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and materials of the fabric; the smells and sounds associated with the place and its use (Marquis-Kyle & Walker 1992).

#### Historic Value

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment (Marquis-Kyle & Walker 1992).

#### Scientific Value

The scientific or research value of a place will depend upon the importance of the data involved or its rarity, quality or representativeness and on the degree to which the place may contribute further substantial information.



A site or a resource is said to be scientifically significant when its further study may be expected to help current research questions. That is, scientific significance is defined as research potential (Marquis-Kyle & Walker 1992).

### Social Value

The social value of a place is perhaps the most difficult value for heritage professionals to substantiate (Johnston 1994). However, social value is broadly defined as ‘the qualities for which a place has become a focus of spiritual, political, natural or other cultural sentimental to a majority or minority group’ (ICOMOS 1988:30). In What is Social Value, Johnston (1994) has provided a clear definition of social value:

“Social value is about collective attachment to places that embody meaning important to a community, these places are usually community owned or publicly accessible or in some other way ‘appropriated’ into people’s daily lives. Such meanings are in addition to other values, such as the evidence of valued aspects of history or beauty, and these meanings may not be apparent in the fabric of the place, and may not be apparent to the disinterested observer”. (Johnston 1994:10)

Although encompassed within the criterion of social value, the spiritual value of a place is a new addition to the Burra Charter (ICOMOS 1999:1). Spiritual value is predominantly used to assess places of cultural significance to Indigenous Australians.

The degree to which a place is significant can vary. As Johnston (1994:3) has stated when trying to understand significance a ‘variety of concepts [are] used from a geographical comparison (‘national’, ‘state’, ‘local’) to terms such as ‘early’, ‘rare’, or ‘seminal’. Indeed the Burra Charter clearly states that when assessing historic significance, one should note that for:

‘any given place the significance will be greater where evidence of the association or event survives in situ, or where the setting are substantially intact, than where it has been changed or evidence does not survive (ICOMOS 1988:29).’

### **8.3 Significance Criteria Relevant to Aboriginal Sites**

Aboriginal heritage sites and places may have educational, tourism and other values to groups in society. However, their two principal values are likely to be in terms of their cultural / social significance to Aboriginal people and their scientific / archaeological significance. These are the two criteria that are commonly used in establishing the significance of Aboriginal sites. The following provides an explanation of these criteria.

### 1) Aboriginal Cultural / Social Significance

This relates to the value placed upon a site or suite of sites by the local or regional Aboriginal community. Almost all Aboriginal heritage retains contemporary significance to Aboriginal people as it represents an important tangible link to their past and to the landscape. The identification and assessment of those sites that are significant to Aboriginal people is a matter for Aboriginal people. This assessment can only be made by the appropriate Aboriginal representatives of the relevant communities.

### 2) Scientific (Archaeological) Significance

Archaeological significance values (or scientific values) generally are assessed on the potential of a site or place to generate knowledge through archaeological research or knowledge. Bowdler (1984) states that the scientific significance should be assessed according to timely and specific research questions (research potential) and site representativeness.

Research potential entails the potential of a site or suite of sites for scientific research and excavation. This is measured in terms of a site's ability to provide information on aspects of Aboriginal culture. In this respect, the contents of a site and their state of preservation are important considerations.

Representativeness takes account of how common a site type is (Bowdler 1984). That is, it allows sites to be evaluated with reference to the known archaeological record within the given region. The primary goal of cultural resource management is to afford the greatest protection to a representative sample of sites throughout a region. The corollary of a representative site is the notion of a rare or unique site. These sites may help to understand the patterning of more common sites in the surrounding area, and are therefore often considered of archaeological significance. The concept of a rarity cannot be easily separated from that of representativeness. If a site is determined to be rare, then it will by definition be included as part of the representative sample of that site type. The concepts of both research potential and representativeness are ever changing variables. As research interests shift and archaeological methods and techniques change, then the criteria for assessing site significance are also re-evaluated. As a consequence, the sample of site types, which are used to assess site significance, must be large enough to account for the change in these variables.

Acknowledging the fact that Aboriginal people are the only suitable people to assign levels of cultural significance to sites, the following assessment focuses the potential scientific/archaeological significance of the sites identified within

the study area. The statements of significance provided in no way imply that scientific values override or should be prioritized over cultural values. The scientific significance values provided here must not lessen the importance of the opinions of the Aboriginal community.

#### **8.4 Scientific (Archaeological) Significance of Aboriginal Sites Identified in the Study Area**

An assessment of the scientific (archaeological) significance for Aboriginal sites ED1 through to ED6(57-2-0907 – 0910, 57-2-0918, 57-2-0919), Sites 57-2-351, 57-2-352, 57-2-0066/428, 57-2-0074 and 57-2-0075, and the remainder of the study area together are summarized in Table 13, along with the rationale behind the assessment.

**Table 13. Significance assessment for Aboriginal heritage sites occurring within the study area.**

Site Name	Site Type	Significance Assessment	Conservation Value
57-2-66/428, 57-2-74, 57-2-75, 57-2-635, ED4 (57-2-0918) and ED5 (57-2-0919)	Large open artefact scatter	This site is assessed as being of low-medium scientific significance. The site shows the same range of raw materials and artefact classes as have been identified elsewhere in the region, however its size is relatively unusual in the area. The potential also exists for the site to be much larger than what is currently visible. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	Moderate
57-2-351, 57-2-352	Small open artefact scatter	This site is assessed as being of low scientific significance. The site shows the same range of raw materials and artefact classes as have been identified elsewhere in the region and as such does not represent rare or unusual types. The range of artefact and material types represented is limited. The site has	Low

Site Name	Site Type	Significance Assessment	Conservation Value
		been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	
ED1 (57-2-0907)	Small open artefact scatter	This site is assessed as being of low scientific significance. The site shows the same range of raw materials and artefact classes as have been identified elsewhere in the region and as such does not represent rare or unusual types. The range of artefact and material types represented is limited. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	Low
ED2 (57-2-0908)	Isolated artefact	This site is assessed as being of low scientific significance. The site type is well represented in the archaeological record of the region and as such does not represent a rare or unusual type. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	Low
ED3 (57-2-0909)	Small open artefact scatter	This site is assessed as being of low scientific significance. The site shows the same range of raw materials and artefact classes as have been identified elsewhere in the region and as such does not represent rare or unusual types. The range of artefact and material types	Low

Site Name	Site Type	Significance Assessment	Conservation Value
		represented is limited. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	
ED6 (57-2-0910)	Open Artefact Scatter	This site is assessed as being of low scientific significance. The site shows the same range of raw materials and artefact classes as have been identified elsewhere in the region and as such does not represent rare or unusual types. The range of artefact and material types represented is limited. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	Low
(57-2-0945)	Isolated artefact	This site is assessed as being of low scientific significance. The site type is well represented in the archaeological record of the region and as such does not represent a rare or unusual type. The site has been affected by various post-depositional processes and is consequently of relatively low integrity. There is no potential for sub-surface deposits that may be of a high research value.	Low

It is likely that artefacts are retained beneath the vegetation and grass cover in the portion of the road corridor that passes through the areas surrounding Jumping Creek and Environs. However, it is likely that the artefacts present include the same range of raw material types and artefact classes as have already been identified. Due to the lack of soil depth in the area, these areas are assessed as being of moderate archaeological sensitivity.

Those portions of the proposed route alignment that are outside of the areas around Jumping Creek and Environs are assessed as being of very low archaeological sensitivity. Almost the entire route crosses skeletal soils with volcanic shales exposed throughout. As such, there is no soil depth within which archaeological deposits may be retained. The shallow soils also mean that even low levels of disturbance such as vehicle exposure and erosion have a dramatic effect on context. The majority of the route has been subject to considerable disturbance by vehicles and recreational bike use.

The northern portion of the route cuts through the steeply inclined ridges of Curtis Land, which is dissected by drainage lines that would have been cold and damp and unappealing for habitation. No sites were identified along this section of the route and it is believed that this is a true reflection of site distribution and not an artificial construct of survey strategy or visibility.



## 9.0 Statutory Obligations

The following provides a summary of State and Commonwealth legislation relevant to the protection and management of Aboriginal heritage. During the current investigations, no heritage items listed for indigenous values under the *NSW Heritage Act 1977*, *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, *Environment Protection and Biodiversity Conservation Act 1999* or the *Australian Heritage Council Act 2003*, were identified. However, Aboriginal sites/objects summarized in section 6 or this report are protected under the *NSW Parks and Wildlife Act 1974*.

### 9.1 Commonwealth Legislation

The primary legislation providing protection to heritage in NSW is enacted by the State (see section 8.2), however several Acts administered by the Commonwealth are also relevant. The main Acts comprise the *Environment Protection and Biodiversity Conservation Act 1999*, *The Australian Heritage Council Act 2003* and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1987*.

#### ***Environment Protection and Biodiversity Conservation Act 1999 (Comm)(EPBC Act)***

This Act is the primary Commonwealth legislation for the management and protection of areas of national environmental significance. In 2003 the EPBC Act was amended to through the Environment and Heritage Legislation Amendment Act (No1) 2003 to provide protection for cultural heritage sites, in addition to the existing aim of protecting environmental areas and sites of national significance.

The 2003 amendments to the Environment Protection and Biodiversity Conservation Act 1999 have resulted in the inclusion of indigenous and non-Indigenous heritage sites and areas. These heritage items are defined as:

*‘indigenous heritage value of a place means a heritage value of the place that is of significance to indigenous persons in accordance with their practices, observances, customs, traditions, beliefs or history;*

The environmental assessment process within the EPBC Act protects matters of national environmental/heritage significance where actions are proposed on/will take affect on, Commonwealth land or where Commonwealth agencies are proposing to take action. The Act also promotes the ecologically sustainable use of natural resources, biodiversity and the incorporation of community

consultation and knowledge.

Any proposal identified as having the potential to significantly impact on a matter of national environmental significance (including cultural heritage) requires the proponent to refer the project to the Department of Sustainability, Environment, Water, Population and Communities. The matter is then made public and referred to state, territory and Commonwealth ministers for comment, before the Minister decides whether or not the project must be assessed under the EPBC Act. The action may be approved, not approved or approved with conditions, following assessment by the Minister.

Items identified under this legislation are given the same penalty as actions taken against environmentally sensitive sites. Specific to cultural heritage sites are §324A-324ZB.

In addition to the above amendments to the *Environment Protection and Biodiversity Conservation Act 1999* to include provisions for the protection and conservation of heritage, the Act also enables the identification and subsequent listing of items for the Commonwealth and National Heritage Lists (ss. 341D & 324D respectively). The Act establishes the *National Heritage List*, which enables the inclusion of all heritage, natural, Indigenous and non-Indigenous, and the *Commonwealth Heritage List*, which enables listing of sites nationally and internationally that are significant and governed by Australia.

Substantial penalties (and, in some instances, goal sentences) can be imposed on any person who damages items on the National or Commonwealth Heritage Lists (ss. 495 & 497) or provides false or misleading information in relation to certain matters under the Act (ss.488-490). In addition, the wrongdoer may be required to make good any loss or damage suffered due to their actions or omissions (s.500).

### ***Australian Heritage Council Act 2003 (Comm.)***

The *Australian Heritage Council Act 2003* established an independent body of experts – the Australian Heritage Council – whose role it is to advise the Minister on all matters relating to heritage and on the listing and protection of heritage places in particular.

Until 19 February 2012 the Australian Heritage Council facilitated the management of the Register of the National Estate (RNE), which comprised a list of more than 13,000 heritage places throughout Australia (compiled since 1976 by the former Australian Heritage Commission). The RNE is no longer a statutory list and currently acts as an archive of information with relevant heritage places now listed on state or commonwealth registers. References to the RNE no longer occur within the EPBC Act or the *Australian Heritage Council*

*Act 2003.*

***The Aboriginal and Torres Strait Islander Heritage Protection Act 1987.***

*The Aboriginal and Torres Strait Islander Heritage Protection Act 1987* provides protection for Aboriginal heritage, in circumstances where it could be demonstrated that such protection was not available at a state level. In certain instances the Act overrides relevant state and territory provisions.

The major stated purpose of the Act is to preserve and protect from injury and desecration, areas and objects of significance to Aborigines and Islanders. The Act enables immediate and direct action for protection of threatened areas and objects by a declaration from the Commonwealth minister or authorised officers. The Act must be invoked by, or on behalf of an Aboriginal or Torres Strait Islander or organisation.

Any Aboriginal or Torres Strait Islander person or organization may apply to the Commonwealth Minister for a temporary or permanent 'Stop Order' for protection of threatened areas or objects of significant indigenous cultural heritage.

The Commonwealth Act 'overrides' State legislation if the Commonwealth Minister is of the opinion that the State legislation (or undertaken process) is insufficient to protect the threatened areas or objects. Thus, in the event that an application is made to the Commonwealth Minister for a Stop Order, the Commonwealth Minister will, as a matter of course, contact the Queensland Environmental Protection Agency to ascertain what protection is being imposed by the State and/or what mitigation procedures have been proposed by the land user/developer.

In addition to the threat of a 'Stop Order' being imposed, the Act also provides for the following:

- If the Federal Court, on application from the Commonwealth Minister, is satisfied that a person has engaged or is proposing to engage in conduct that breaches the 'Stop Order', it may grant an injunction preventing or stopping such a breach (s.26). Penalties for breach of a Court Order can be substantial and may include a term of imprisonment;
- If a person contravenes a declaration in relation to a significant Aboriginal area, penalties for an individual are a fine up to \$10,000.00 and/or 5 years goal and for a Corporation a fine up to \$50,000.00 (s.22);
- If the contravention is in relation to a significant Aboriginal object, the penalties are \$5,000.00 and/or 2 years goal and \$25,000.00 respectively

(s.22);

- In addition, offences under s.22 are considered 'indictable' offences that also attract an individual fine of \$2,000 and/or 12 months goal or, for a Corporation, a fine of \$10,000.00 (s.23). Section 23 also includes attempts, inciting, urging and/or being an accessory after the fact within the definition of 'indictable' offences in this regard.

The Commonwealth Act is presently under review by Parliament and it is generally accepted that any new Commonwealth Act will be even more restrictive than the current legislation.

## **9.2 State Legislation**

The protection of Indigenous cultural heritage in New South Wales is principally governed by two pieces of legislation, the *National Parks and Wildlife Act 1974 (NPW Act)* (as amended) and the *Environment Planning and Assessment Act 1979*.

### **The National Parks and Wildlife Act 1974 (NPW Act)**

The NPW Act provides the primary basis for the legal protection and management of Aboriginal sites within NSW. The implementation of the Aboriginal heritage provisions of the Act is the responsibility of the NSW Department of Environment and Conservation (DEC).

The general rationale behind the Act is the prevention of unnecessary, or unwarranted destruction of relics, and the active protection and conservation of relics which are of high cultural significance.

Section 90 of the Act provides statutory protection for all Aboriginal 'objects', whereby it is an offence (without the Minister's consent) to:

*damage, deface or destroy Aboriginal sites without the prior consent of the Director of the National Parks and Wildlife Service.*

The Act defines an 'object' as:

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

The Act, together with the policies of the NPWS provide the following constraints and requirements on land owners and managers.

- It is an offence to knowingly disturb an Aboriginal artefact or site without an appropriate permit.
- Prior to instigating any action which may conceivably disturb an 'object' (generally land surface disturbance or felling of mature trees), archaeological survey and assessment is required.
- When the archaeological resource of an area is known or can be reliably predicted, appropriate land use practices should be adopted which will minimize the necessity for the destruction of sites/objects, and prevent destruction to sites/objects which warrant conservation.
- Documented and appropriate consultation with relevant Aboriginal Community representatives is required by the OEH as part of the prerequisite information necessary for endorsement of consultant recommendations or the provision of Consents or Permits by the OEH.

Section 86 of the NP&W Act specifies the offences and penalties relating to harming or desecrating Aboriginal places and objects:

- 1) A person must not harm or desecrate an object that the person knows is an Aboriginal object.

Maximum Penalty:

- (a) in the case of an individual – 2,500 penalty units or imprisonment for one year, or both or (in circumstances of aggravation) 5,000 penalty units or imprisonment for two years, or both, or
  - (b) in the case of a corporation – 10,000 penalty units (currently \$1,100 000).
- 2) A person must not harm an Aboriginal object ('strict liability offence').
    - (a) in the case of an individual – 500 penalty units or (in circumstances of aggravation) 1,000 penalty units, or
    - (b) in the case of a corporation – 2,000 penalty units (currently \$220,000).

Under s86(4) of the Act it is an offense for a person to harm or desecrate an Aboriginal place, with maximum penalties of 5,000 penalty units or imprisonment for two years, or both, for individuals and 10,000 penalty units for corporations.

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as

Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture.

Harm to an Aboriginal object or place is defined under s5(1) as any act or omission that:

- (a) destroys, defaces or damages the object or place, or
- (b) in relation to an object – moves the object from the land on which it had been situated
- (c) is specified by the regulations
- (d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c), but does not include any act or omission that:
- (e) desecrates the object or place, or
- (f) is trivial or negligible, or
- (g) is excluded from this definition by the regulations.

Exemptions and defenses to offences under s86 of the Act to exist and include the following:

- Offences under s86(1), (2) and (4) have a defense against prosecution under s87(1) in which the harm or desecration was authorized by an Aboriginal Heritage Permit (AHIP) and the conditions to which the AHIP were subject have not been contravened.
- The strict liability offense under s86(2) has a defense against prosecution under s87(2) if the person exercised *due diligence* to determine whether the act or omission constituting the alleged offence would harm and Aboriginal object and reasonably determined that no Aboriginal object would be harmed. Due diligence may be achieved through compliance with industry specific Codes of Practice approved by the Minister, such as the DECCW (2010a) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*.

The 'due diligence' process is intended to provide a defense against the strict liability offense under s86(2) of the Act, if an activity where subsequently to unknowingly harm an Aboriginal object without the presence of an AHIP. If Aboriginal objects are present or likely to be present and an activity will harm them, an AHIP application is required (excluding Part 3A Projects).

The DECCW (2010a) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* outlines procedures to determine the presence



or likely presence of Aboriginal objects, the identification of activities that may harm Aboriginal objects and the need for AHIPs, the level of assessment is not generally sufficient to satisfy the assessment requirements outlined under Parts 5 and 5 of the EPBC Act (see below).

- A second defense to the strict liability offense under s86(2) is provided under section 87(4) if the person shows that the act or omission constituting the alleged offense is prescribed by the regulations as a low impact act or omission. Clause 80B of the National Parks and Wildlife Regulation 2009 describes low impact acts or omissions, most of which centre around land that is considered to be already disturbed. For the purposes of clause 80B, land is classified as ‘already 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’ (for example soil ploughing, construction of rural infrastructure such as dams and fences, construction of roads, tracks and trails, clearing of vegetation, construction of buildings, installation of utilities, substantial grazing involving the construction of rural infrastructure, or construction of earthworks related to the above).
- The defense of honest and reasonable mistake of fact applies under s86(5) to the strict liability offense of s86(2) and to offenses against Aboriginal places under s86(4).
- Offenses under s86(1) and (2) do not apply under s86(6) with respect to an Aboriginal object that is dealt with in accordance with s85 (see below)
- Exemptions are also available under s87A to s86(1)-(4) for emergency situations pertaining to conservation works and agreements
- And exemptions are available under s87B to S86(1), (2) and (4) for Aboriginal people in relation to the carrying out of traditional cultural activities.

Consent regarding the use of or destruction of relics is managed through the OEH Aboriginal Heritage Impact Permit (AHIP) system, as outlined in s90 of the NP&W Act clauses 80D and 80E of the Regulations. The issuing of permits is dependent upon adequate archaeological review and assessment, together with an appropriate level of Aboriginal community liaison and involvement. Failure to do so will result in a rejection of the permit application and the inability to undertake any collection of artefactual material (outside of the developmental area) or sub-surface testing.

Aboriginal archaeological assessments must be undertaken in accordance with the OEH (2011a) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, which involves conducting an assessment in accordance with the DECCW (2010b) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* and consultation with the Aboriginal community in accordance with the DECCW (2010c) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* policy.

In accordance with the DECCW (2010b) *Code of Practice for Archeological Investigation of Aboriginal Objects in NSW*, the key features required for heritage assessments include:

- Investigations must be undertaken by people with appropriate skills and experience as specified in s1.6.
- Archaeological sub-surface investigation will be necessary when it can be demonstrated through Requirements 1, 2, 3, 4 and 5 of the Code that sub-surface Aboriginal objects with potential conservation value have a high probability of being present in an area, and the area cannot be avoided by the proposed activity (irrespective of whether or not there are objects present on the surface).
- A s90 AHIP is not necessary for test excavations undertaken in compliance with the Code (however in all cases implementation of the Aboriginal Cultural Heritage Consultation Requirements for Proponents Policy must be undertaken).

Clause 80D of the NP&W Regulation 2009 dictates that the cultural heritage assessment report which accompanies an AHIP must address the following:

- The significance of the Aboriginal objects and/or places that are the subject of the application;
- The actual or likely harm to those Aboriginal objects/places from the proposed activity that is the subject of the application;
- Any practical measures that may be taken to conserve/protect those Aboriginal objects/places;
- Any practical measures that may be taken to avoid or mitigate any actual or likely harm to those Aboriginal objects/places;
- Include any submission received from registered Aboriginal parties under clause 80C and the applicant's response to that submission.

Evaluations of AHIP applications are guided by the OEH (2011a) *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, OEH (2011b) *Applying for an Aboriginal Heritage Impact Permit: Guide for Applicants*, and OEH (2011c) *Guide to Aboriginal Heritage Impact Permit Processes and Decision-Making Policy*.

AHIPs may be issued in relation to Aboriginal objects, places, land activities or persons or specified types or classes of Aboriginal objects, places, land, activities or persons. They may be transferred or varied at the approval of the Director General, and may also be refused. An application is taken to be refused 60 days after the date of receipt by the Director-General (unless otherwise granted or refused earlier).

The Director-General may attach any conditions deemed necessary to any AHIP granted, with failure to comply with a condition deemed a contravention of the Act (under s90J). Such offences may result in a maximum penalty of 1,000 penalty units for each day the offence continues for an individual: these fines are doubled for a corporation.

Under s90K of the Act the Director-General must consider the following matters when making a decision in relation to an AHIP:

- a) The objects of the Act;
- b) Actual or likely harm to the Aboriginal objects/place that are the subject of the permit;
- c) Practical measures that may be taken to protect and conserve the Aboriginal objects/place that are the subject of the permit;
- d) Practical measures that may be taken to avoid or mitigate any actual or likely harm to the Aboriginal objects/place that are the subject of the permit;
- e) The significance of the Aboriginal object/place that are the subject of the permit;
- f) The results of any consultation by the applicant with Aboriginal people regarding the Aboriginal objects/place that are the subject of the permit (including submissions made by Aboriginal people as part of the consultation required by the regulations);
- g) Whether the consultation process complied with the consultation

requirements set out in the regulations (specified in s90 of the NP&W Act, clause 80C of the NP&W Regulation 2009 and in the DECCW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010);

- h) The social and economic consequences of making the decision;
- i) Accompanying documentation including public submissions made under the EP&A Act in connection to the activity which is the subject of the permit and that has been received by the Director-General;
- j) Any other matter prescribed by the regulations.

Appeals against the decisions made on an AHIP can be made to the Land and Environment court under s90L of the NP&W Act. The appeal must be made within 21 days following notice of the decision that is being appealed. However, the decision of the Land and Environment Court is final and binding on both the Director-General and the applicant.

Section 85A of the NP&W Act allows the Director-General to 'dispose' of Aboriginal objects that are the property of the 'crown' in the following ways:

- a) By returning the Aboriginal objects to an Aboriginal owner/s entitled to and willing to accept possession, custody or control of the Aboriginal objects in accordance with Aboriginal tradition, or
- b) By dealing with Aboriginal objects in accordance with any reasonable directions of an Aboriginal owner/s referred to in paragraph (a), or
- c) If there is/are no such Aboriginal owner/s – by transferring the Aboriginal objects to a person, or a person of a class, prescribed by the regulation for safekeeping (implemented by way of a Care Agreement between the OEH and the Aboriginal person/organization).

Section 85A(3) of the NP&W Act makes provision as to the resolution process for any dispute concerning the entitlement of an Aboriginal owner/s to possession, custody or control of Aboriginal objects for the purposes of this section.

Section 91AA of the NP&W Act allows the Director-General to place a stop work order for up to 40 days, should they be of the opinion that any action is being or is about to be carried out that is likely to significantly affect an Aboriginal place/object or any other item of cultural heritage situated on land reserved under the Act. Emergency situations are exempt from this section of the Act, as

are approved developments under the EP&A Act. Contravention of a stop work order may result in penalties up to 1,000 penalty units with an additional 100 units for every day the offence continues (10,000 units and 1,000 units respectively in the case of a corporation). Under s91A, the Director-General may also make recommendations to the Minister for an Interim Protection Order in respect of land which has cultural significance, including Aboriginal objects, for up to 2 years duration. The existence of an AHIP does not prevent the making of a stop work order or an interim protection order (Section 90D).

Section 91L of the NP&W Act provides for remediation work to Aboriginal places or objects that have been harmed as a result of offences under the Act. This work may involve protection, maintenance, conservation, remediation or restoration of the harmed Aboriginal object or place. The maximum penalties under s91Q for contravening a remediation direction are 2,000 penalty units and 200 penalty units for each day the offence continues for a corporation.

### ***Environment Planning & Assessment Act (1979)***

The EP&A Act and its regulations, schedules and associated guidelines require that environmental impacts are considered in land use planning and decision making. Environmental impacts include cultural heritage assessment.

The EP&A Act has three main parts that are of direct relevance to Aboriginal cultural heritage. These are part III which governs the preparation of planning instruments, Part 4 which relates to development assessment processes for local government (consent) authorities and Part 5 which relates to activity approvals by governing (determining) authorities.

Part 3 deals primarily with development planning in which sites and places sacred or significant to Aboriginal communities are to be assessed and are to be taken into consideration in initial studies. Planning New South Wales (formerly DUAP) has produced guidelines on the preparation of planning instruments such as State Environmental Planning Policies (SEPP's), Development Control Plans (DCPs) and Local Environmental Plans (LEP's) that explicitly list Aboriginal sites and places of significance as values which should be assessed as part of initial planning studies.

Part 4 of the Act deals with decisions to be made within the context of development applications (DAs). As a component of this legislative section, an Environmental Impact Study will, under Section 90 (1)9b include consideration of the potential impacts a proposed development may have on Aboriginal cultural heritage. If Aboriginal objects are known to exist on the land to which the DA applies prior to the application being made, Part 4 of the EP&A Act

requires the use of an 'Integrated Development Application' (IDA). Any IDAs approved for development must therefore be consistent with the General Terms of Approval or requirements provided by the relevant State Government agency (such as OEH).

Part 5 of the Act relates primarily to activities that do not require consent but still require an environmental evaluation, such as proposals by government authorities. State Government agencies which act as the determining authority on the environmental impacts of proposed activities must consider a variety of community and cultural factors in their decision making, including Aboriginal and Historic cultural heritage values.

The *Environmental Planning and Assessment Act, 1979*, as amended, provides for the listing of heritage items and conservation areas and for the protection of these items or areas through environmental planning instruments (like LEPs or REPs) at the Local government and State planning levels. These statutory planning instruments usually contain provisions for the conservation of these items and areas as well as an assessment process to reduce the impacts of new development on the heritage significance of a place, building or conservation area.

In 2005, the NSW Parliament passed amendments to the EP&A Act, which were designed to facilitate major and critical infrastructure developments. Part 3A of the Act was repealed under these amendments, however under Division 4.1 of Part 4 'State Significant Development' is treated in a similar manner to the former Part 3A. Under Part 3A of the amended EP&A Act, separate approvals or permits are not required from DECCW, with regard to cultural heritage issues, although the DECCW may be consulted to ensure that best practices are being undertaken.

A complex interplay therefore exists between the NP&W Act and Regulation and the planning system. The specific level of Aboriginal heritage assessment and community consultation required for a given development, as well as the requirement for an AHIP is therefore dependent on the nature of the proposal, the Part and Division of the EP&A Act under which planning approval is required, the NP&W Act and Regulation, any particular project requirements imposed by the DP&I and/or the OEH and the presence/absence or potential for Aboriginal objects to occur (Kuskie 2012).

### **9.3 Local Legislation**

In accordance with the Environmental Planning and Assessment Act 1979 (EP&A Act) the Minister may produce planning instruments such as Local Environment Plans to be administered at a local level. These plans establish the objectives and developmental controls for land in local government areas.



Part 1 (1.2/d) of the Queanbeyan LEP specifies that the aim and objective in relation to heritage conservation is as follows:

- (d) to recognize and protect the City's natural, cultural and built heritage including environmentally sensitive areas such as Queanbeyan's native grasslands, the Queanbeyan River and Jerrabomberra Creek.

Under the LEP Aboriginal place of heritage significance is defined as 'an area of land, the general location of which is identified in an Aboriginal heritage study adopted by the Council after public exhibition and that may be shown on the Heritage map that is:

- (a) the site of one or more Aboriginal objects or a place that has the physical remains of pre-European occupation by, or is of contemporary significance to, the Aboriginal people. It may (but need not) include items and remnants of the occupation of the land by Aboriginal people, such as burial places, engraving sites, rock art, midden deposits, scarred and sacred trees and sharpening grooves, or
- (b) a natural Aboriginal sacred site or other sacred feature. It includes natural features such as creeks or mountains of long-standing cultural significance, as well as initiation, ceremonial or story places or areas of more contemporary cultural significance.'

Section 5.10 of the LEP specifically speaks to a Heritage Conservation Policy the objectives of which are stated as follows:

- (1)
  - (a) to conserve the environmental heritage of Queanbeyan
  - (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,
  - (c) to conserve archaeological sites,
  - (d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

Section 5.10 (2) – (3) of the LEP outlines the specific circumstances under which consent is or is not required, while section 5.10 outlines policies relating to the effects of development on heritage significance (5.10(4)), heritage assessments (5.10(5)), heritage conservation management plans (5.10(6)), archaeological sites (5.10(6)) and Aboriginal places of heritage significance (5.10(8)). Heritage Conservation areas and archaeological sites are also detailed in Parts 2 and 3 of Schedule 5.

## 10.0 Impact Assessment

In this section, the nature and extent of the proposed activity and any potential harm to Aboriginal areas, objects and/or places is identified.

### 10.1 Proposed Activity

The proposed extension to Ellerton Dr will commence at the current end of Ellerton Dr and link to the new Edwin Land Parkway intersection at Old Cooma Road. It is envisaged that the road will be a two lane road with provision for cyclists within an 80m wide road corridor. The development activity is expected to include the following:

- Each lane will measure approximately 3.5m wide plus a 2m wide shoulder
- Provision for cyclists will be made in the form of a 2.5m wide shared concrete path
- Due to the high slopes in the area there is expected to be substantial cut and fill at these points and expected drainage structures such as open drains which could add to the width of the formal road by a further 6m.
- Road pavement depths will be in the order of 600mm deep.

The proposed impact area is discrete, linear and relatively narrow in width (80m), however it is anticipated that the original landscape along the route of the highway will be completely destroyed within the 80m wide corridor.

### 10.2 Type of Harm

The development will therefore result in the **direct harm** of any Aboriginal sites located within the 80m wide road corridor. **Indirect harm** is also to be anticipated for Aboriginal sites located within 20m either side of this corridor from vehicle movement and related construction activities. Table 14 provides a summary of probable impact within the road alignment.

**Table 14. Summary of Potential Impacts**

Site Name	Type of Harm	Degree of Harm	Consequence of Harm
57-2-66/428/74/75/635/ED4/ED5	Direct and Indirect	Total destruction of a portion of the site, disturbance to another portion.	Partial loss of value.
57-2-351/352	Direct	Total destruction	Total loss of value.

Site Name	Type of Harm	Degree of Harm	Consequence of Harm
ED1	Inadvertent Harm	Possible disturbance	Potential loss of value
ED2	Inadvertent Harm	Possible disturbance	Potential loss of value
ED3	Direct	Total destruction	Total loss of value.
ED6	Direct	Total destruction	Total loss of value
57-2-945	Inadvertent Harm	Possible disturbance	Potential loss of value

The potential for further evidence to occur within the development area has been discussed in section 7.4. In the remainder of the investigation area the potential for sites with research value or significance is generally low, however a low-density spread of artefacts comprising a 'background scatter' is likely to be present and should be expected. These artefacts are less likely to occur on the portion of the route that cuts through steeply sloped areas, however any artefacts within this general 'background scatter' may be subject to impacts from the proposal.

Other types of heritage sites (such as grinding grooves, quarries, rock shelters and stone arrangement sites) are not anticipated to occur within the development area. Given the young age of the regrowth in the area, scarred trees are thought to be highly unlikely, as are burials due the skeletal soils and extensive presence of bedrock throughout the area. No other traditional or historical Aboriginal cultural values or associations have been identified during previous or the present survey of the area.

Given these factors, it is assessed that provided the impacts are confined to the 80m corridor identified by the QCC, the overall impacts of the proposal on Aboriginal heritage will be low within a local context and very low within a regional context. However, mitigation measures can also be implemented to further reduce impacts to the sites identified within the impact zone and immediate surrounds (see section 9).

It is therefore concluded that the cumulative effect of the development on the identified and potential Aboriginal heritage resources of the area are low based on the following basis:

- The impacts of the activity itself will be relatively low within a local context;

- With the exception of the Jumping Creek area, much of the area comprises areas of low heritage potential;
- A total of 4 sites (including the one large site around 57-2-635) will be directly impacted by the development;
- A further 3 sites are vulnerable to indirect/inadvertent impact by general construction activities;
- Similar environmental contexts and resources are present in areas that will not be impacted by the current development, both in the immediate area and further afield.

## **11.0 Avoiding and/or Minimising Harm**

### **11.1 Management Recommendations**

The nature of the proposed development is such that all Aboriginal sites located within the road corridor will be directly impacted with a handful of sites vulnerable to indirect impact through vehicle movement and general construction activities. The following therefore provides a series of management strategies for identified Aboriginal heritage within the area.

Of utmost importance in selecting suitable management strategies is recognition of the primary importance of Aboriginal heritage to the local Aboriginal community. All decisions made about the management of these sites must be made in consultation with the registered Aboriginal parties, in accordance with their views and wishes on what is culturally appropriate.

Wherever possible, the best means of minimizing harm is to avoid impact to sites altogether, by modifying the development proposal to avoid known site localities. In the case of Ellerton Dr, the Queanbeyan City Council is unable to modify the proposed route, due to the need to navigate particular types of terrain and to meet up with the two existing roads of Ellerton Dr and the Edwin Land Parkway. The following recommendations have therefore been made with the knowledge that site avoidance is not possible in this case.

- 1) Given that impacts cannot be avoided to identified sites, prior to any impacts occurring the proponent must obtain from the OEH a S90 Aboriginal Heritage Impact Permit (AHIP) for this evidence, in consultation with the registered Aboriginal parties. The AHIP should be obtained over the entire impact area to address s86(2) requirements of the NP&W Act and the mitigation measures detailed below. As a condition of the AHIP the registered Aboriginal representatives and a qualified archaeologists should be engaged to:
  - a) Site 57-2-66/428/74/75/635/ED4 (57-2-0918)/ED5 (57-2-0919)
    - i. Identify and mark the external boundary of the impact area on Site with a 5m buffer clearly marked on the ground;
    - ii. Salvage any artefacts that might be subject to impacts, including those identified along vehicle tracks that may be used in construction activities;
    - iii. Salvaged artefacts should be subject to detailed recording and analysis;

- iv. Relocate salvaged artefacts to site 57-2-683 where previously salvaged artefacts are already located.
    - v. Identify boundaries of remainder of the site, and protect with barrier markers to ensure no indirect or inadvertent harm to the remaining portion of the site.
    - vi. Site boundaries must be removed with development works conclude.
  - b) Sites 57-2-352/352, ED3 (57-2-0909) and ED6 (57-2-0910)
    - i. Salvage any artefacts that might be subject to impacts, including those identified along vehicle tracks that may be used in construction activities;
    - ii. Salvaged artefacts should be subject to detailed recording and analysis;
    - iii. Relocate salvaged artefacts to suitable location nearby but out of area of impact.
  - c) Sites ED1 (57-2-0907), ED2 (57-2-0908) and (57-2-945)
    - i. Boundaries of each site should be identified and marked on the ground with protective barriers to ensure no indirect or inadvertent harm comes to the sites.
    - ii. A buffer of at least 10m is recommended to allow for probability that the sites extend further across the landform than is visible in current areas of exposure.
    - iii. Protective barriers to be removed on conclusion of works.
- 2) All salvage work must be undertaken prior to any development impacts occurring. Archaeological investigations must only be undertaken by qualified archaeologists in accordance with the requirements of s1.6 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW, and in consultation with the registered Aboriginal parties.
- 3) Relocation points for salvaged artefacts must be lodged with the OEH for inclusion in AHIMS.

In accordance with the request of the Aboriginal Community (see Appendix F), site inductions should include a cultural awareness element in which it is clearly stated that all vehicular travel must be limited to within the surveyed easement to minimize risks of impacting sites outside the easement and outlines the OEH penalties that can be imposed for knowingly or unknowingly impacting heritage sites.



## **11.2 Proposed Methodology for Salvage**

As noted in the community consultation section of this report, the following methodology was circulated to all community groups who registered an interest in being consulted on the Ellerton Dr Extension project. Their responses to this methodology have been predominantly supportive (refer section 2.0). It is the community's preference that sites be salvaged as a whole, rather than just within the impact area, so that sites/artefacts may be analysed and interpreted as a whole, rather than piecemeal.

In accordance with Requirement 26 of the Office of Environment and Heritage's Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW, as well as the DECCW requirements for the recording of Attributes, the following methodology is proposed for artefact recording:

The following recommendations are made for sites that will be subject to direct impact by the proposed development - 57-2-351/352, ED3 and ED6:

- a) subject to detailed survey in order to identify ALL surface artefacts present;
- b) individual flags should be used to mark each artefact locality within each site, in order to allow a visual image of the nature and distribution of the artefacts within the area and to identify and mark the boundary of the site;
- c) individual artefact locations will be recorded;
- d) artefacts will be systematically collected with each artefact receiving a unique identifier (number/code);
- e) artefacts will be subject to detailed recording and analysis in accordance with all OEH guidelines and AHIMS site recording forms;

Site 57-2-66/428, 57-2-74, 57-2-75, 57-2-635, ED4/ED5 – identified as a single large open scatter – will be bisected by the proposed development. As such, approximately 40m of the site will be subject to direct harm, while a further 20m beyond the bounds of the impact area will be vulnerable to indirect/inadvertent harm through general construction activities and vehicle movement. These activities will therefore result in a partial loss of site value.

Salvage is therefore to be undertaken across the entire site (rather than impact area alone) and analysis and interpretation incorporates the assemblage as a whole. The reasoning for this approach is as follows.

Site 57-2-635 was first identified by Navin Officer during 2009 and comprised a scatter of at least 150 artefacts extending along the knoll of the same ridgeline as 57-2-0074, 0075 and 0066/428. The site was visible along an existing and well-

used vehicle track with exposed shale bedrock and shallow soils, but was recorded to extend across the ridge crest and away from the vehicle track on either side. In November 2010, the artefacts along the vehicle track only were salvaged and relocated to beneath a tree approximately 15m from the track but within the identified bounds of the scatter (site 57-2-683). As such, by 2009, site 57-2-635 combined more than 3 other sites, each of which had been previously recorded as separate entities.

During CHMA's 2012 survey, at least another 10 artefacts were identified across the area, extending the bounds of the site even further to the north, with additional artefacts located within previously salvaged areas. Post depositional processes such as erosion have clearly exposed new artefacts in the area.

By limiting salvage to only those portions of the site likely to be impacted by the current development, we are further dividing up the data of the site and the information able to be gleaned from it. In so doing, we are diminishing the scientific value of the material.

Any salvage that does take place at site 57-2-66/428, 57-2-74, 57-2-75, 57-2-635, ED4/ED5 will be undertaken in accordance with the following methodology:

- a) subject to detailed survey in order to identify ALL surface artefacts present;
- b) individual flags should be used to mark each artefact locality within each site, in order to allow a visual image of the nature and distribution of the artefacts within the area and to identify and mark the boundary of the site;
- c) individual artefact locations will be recorded;
- d) artefacts will be systematically collected with each artefact receiving a unique identifier (number/code);
- e) artefacts will be subject to detailed recording and analysis in accordance with all OEH guidelines and AHIMS site recording forms;

Sites ED1 and ED2 occur in excess of 70m from the proposed impact corridor and may only be subject only to inadvertent harm through general construction activities and vehicle movement. Site 57-2-945 is similarly situated and as such, for these three sites, the following recommendations are suggested:

- a) subject to detailed survey in order to identify ALL surface artefacts present;
- b) individual flags should be used to mark each artefact locality within each site, in order to allow a visual image of the nature and distribution of the

- artefacts within the area and to identify and mark the boundary of the site;
- c) the physical boundaries of each site should be identified and marked on the ground with protective barriers to ensure no indirect or inadvertent harm comes to the sites.
  - d) a buffer of at least 10m is recommended to allow for probability that the sites extend further across the landform than is visible in current areas of exposure.
  - e) protective barriers are to be removed on conclusion of works.

### Artefact Analysis

In order for artefact analysis to be undertaken at a high standard and to be comprehensive, CHMA would prefer that this process be undertaken in away from the field (i.e. in a lab/office).

Attributes analysed will include all those required by OEH guidelines and AHIMS site recording forms, as well as others identified as being highly significant.

### Return to Country

In recognition of the broader community's wish to have cultural material left where it is or returned to country wherever possible, CHMA suggests that all artefacts salvaged during the current investigation be returned to country at an established relocation point.

Navin Officer have already established a relocation point at 57-2-683, where the previously salvaged contents of site 57-2-635 are now located. This relocation point occurs well outside the development corridor for Ellerton Drive, but within relatively close proximity to the original depositional locations of these artefacts. The most obvious place to relocate the salvaged artefacts during this program would therefore be with the rest of this site at 57-2-683.

The AHIP application for impacts to these sites is therefore to undertake the above methodology for mitigation to impacts to sites caused by the Ellerton Drive Extension.

### **11.3 Unexpected Archaeological Finds Procedure**

Following the completion of impact mitigation works (i.e salvation methodology outlined above), the possibility remains that unanticipated Aboriginal cultural heritage items may yet be discovered within the impact area. For any unanticipated finds, the protocol outlined in Appendix N must be followed.

## **12.0 Alteration to Development Footprint**

The final development footprint for Ellerton Dr differed very slightly from the original route surveyed in 2012. The proposed site compound and stockpiles area to be added to the northern portion of the route, extending north from the existing Ellerton Dr, parallel with the housing along Thomas Royal Gardens and towards Geebung Place (see Figures 10 and 11).

Upon the advice of OEH staff, a survey of this additional portion was undertaken by Dr Sophie Collins, accompanied by Tim Alexander of the Queanbeyan City Council, on 11<sup>th</sup> February 2015. Photographs of the chosen area are provided in plates 31 and 32.



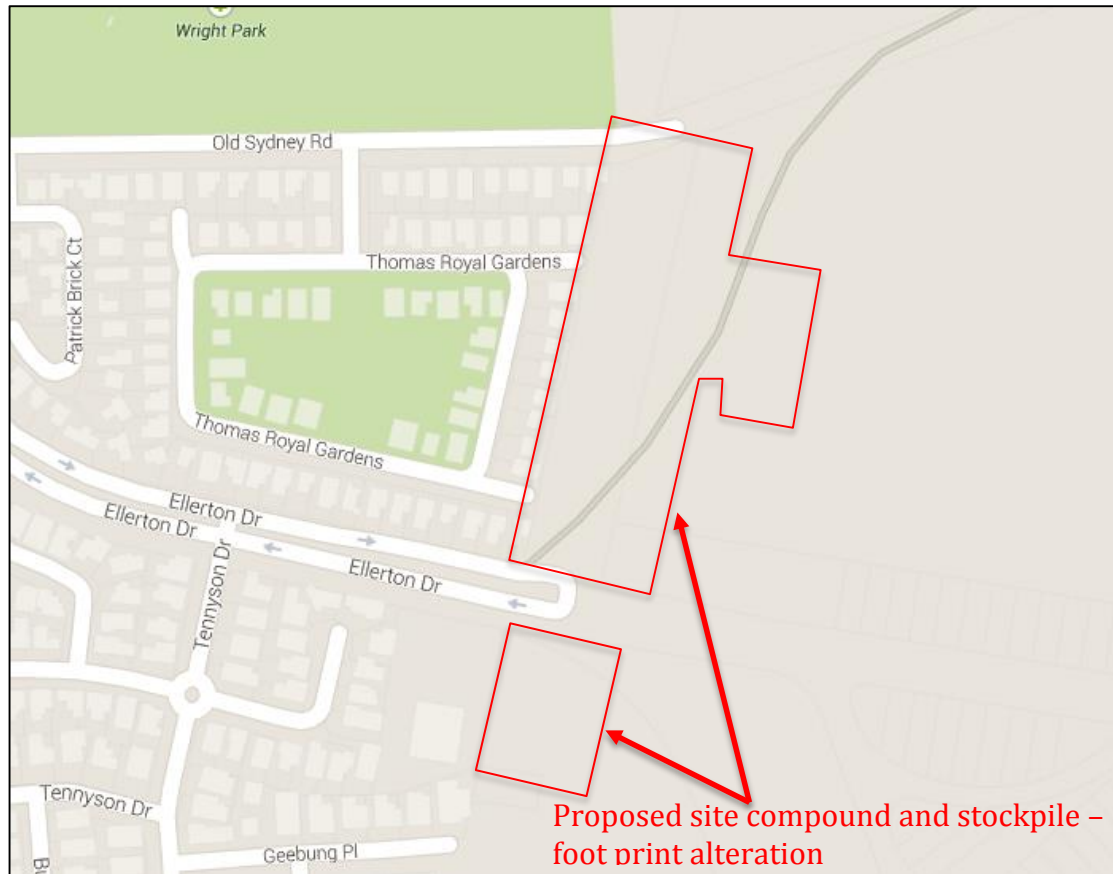
**Plate 31. Looking northeast across stockpile area from existing Ellerton Drive.**

The additional area extends approximately 500m northeast/southwest and is approximately 50m to 100m in width. The area has been subject to extensive disturbance from a range of activities. These include extensive sediment control and subsurface engineering (see plates 33, 34 and 40), earthworks relating to the construction of the overhead power lines (see plate 35), repeated use by motorcyclists (see plate 36), construction of the adjacent buildings (see plates 31, 35) and the introduction of large volumes of imported material (see plate 39). The area no longer retains any of its original landscape.



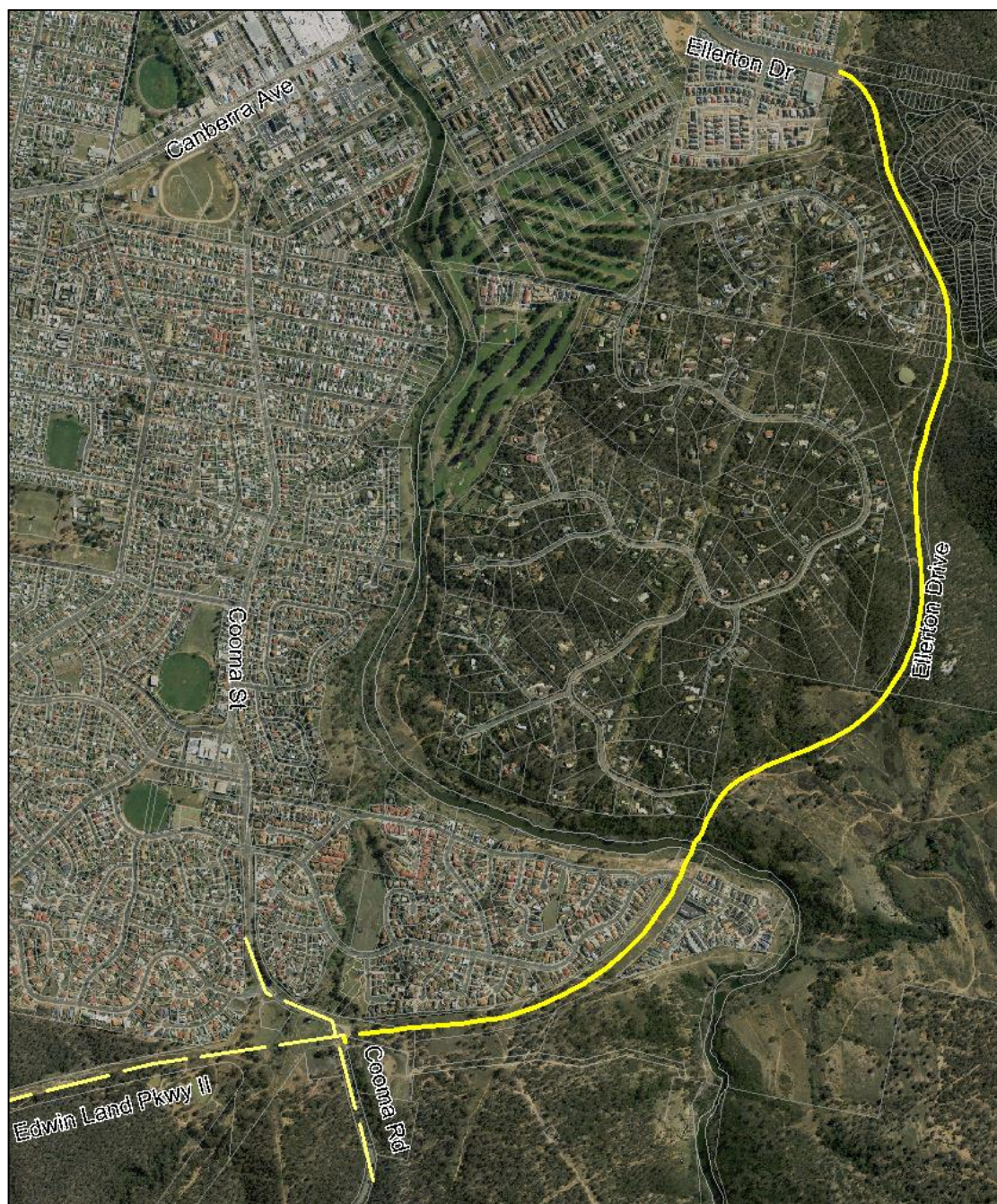


Figure 10. Location of alteration to 2012 development footprint.



**Figure 11. Location of stockpile area – alteration to 2012 development footprint, adjoining the existing portion of Ellerton Dr.**





**Figure 12. The original 2012 survey footprint for Ellerton Dr, Queanbeyan (40m either side of centre line; area surveyed was 75m either side of centre line).**





**Plate 32. Looking southwest across compound area to existing portion of Ellerton Dr.**



**Plate 33. Erosion and visible erosion control within compound area**



**Plate 34. Erosion control engineering**



**Plate 35. Evidence of sedimentation ponds and erosion control works  
beneath powerlines and construction of drainage basin.**





**Plate 36. Motorcycle paths across the area**



**Plate 37. Introduced gravels mixed with existing bedrock**





**Plate 38. Areas of visibility (note mounding adjacent)**



**Plate 39. Areas of visibility and introduced gravels**





**Plate 40. Visibility in erosion scald**



**Plate 41. Visibility in drainage erosion**

Regardless, a detailed survey was undertaken, with all areas of visibility and disturbance investigated closely. Areas of visibility included paths worn by motorcyclists and large erosion scalds created by downward movement of soils/sediment from the adjacent hillsides.



Table 15 summarises the effective survey coverage and relevant environmental constraints for this area.

**Table 15. Effective Survey Coverage and relevant environmental constraints for this area.**

<b>Location of Stockpile</b>	E704621 N6085507 to E704690 N6085764
<b>Size of Survey Unit</b>	250m (l) x 50m (w) = 12,500m <sup>2</sup>
<b>Landforms</b>	Artificially constructed drainage basin, originally basal slopes emanating from adjacent ridgeline.
<b>Soils</b>	Shallow lithosols, with shale and quartz outcropping evident.
<b>Land Surface and Vegetation</b>	Extensively disturbed, handful of eucalypts, introduced grasses/weeds
<b>Survey Coverage</b>	100% (area localised and easily canvassed)
<b>Visibility</b>	50% - large erosion scalds, vehicle tracks
<b>Effective Survey Coverage</b>	50% x 100% or 0.5 x 12,500m <sup>2</sup> = 6250m <sup>2</sup>

### Results

No Aboriginal artefacts or heritage sites were identified within this proposed compound area. Importantly, the high levels of disturbance, skeletal soils, soil mitigation measures and levels of introduced gravels are such that there is no potential for any artefacts to remain in their original position.

### Statement of Archaeological Potential

Aside from the extensive disturbance to the area, the location itself is ill-suited to large sites/intensive occupation. The area lies more than 1.2km from Queanbeyan River to the west and over 2km from the Molonglo River in the north. Along with the rest of the study area, skeletal soils occur in the area, with bedrock visible. Large-scale downward movement of soils is such that any sites discovered in the area are likely to have derived from elsewhere (e.g. 57-2-351 and 57-2-352). In combination, these factors make the archaeological potential of this area very low. Summary data for the assessment of archaeological sensitivity for the area is included in Table 16.

**Table 16. Pertinent data for Archaeological Sensitivity for this area**

<b>Location of Stockpile</b>	E704621 N6085507 to E704690 N6085764
<b>Landscape</b>	Artificially constructed drainage basin, originally basal slopes emanating from adjacent ridgeline. No potential for in situ material
<b>Proximity to Water/resources</b>	> 1.2km from water, detracts from long term settlement - chert, siltstone and quartz rich sandstone, quartz available, suits sporadic/expedient use of materials
<b>Potential for in situ and/or Subsurface Deposits</b>	No potential for sub-surface deposits. Soils very shallow, area cleared and eroded.
<b>Types of Sites Likely</b>	Low density open artefact scatters and isolated finds symptomatic of transient movement through area
<b>Predicted archaeological sensitivity</b>	Very low – area retains none of its original form, highly disturbed.

### **Management Recommendations**

The study area has already been exposed to extensive disturbance, to the effect that none of the original landscape has been retained. The location of the study area itself, lack of proximity to permanent water sources and distance from the more highly occupied areas of Jumping Creek means that irrespective of the disturbance evident, the area would be considered to be of low archaeological sensitivity.

It is therefore recommended that no further heritage works are required in this proposed compound and stockpile/construction locality. However, this does not negate the need to follow the RMS Unexpected Archaeological Finds Procedure as outlined in Appendix N, in the unlikely event that cultural materials are identified within the area.

## References Cited

### AASC

2001. *An Archaeological Assessment of the Proposed Subdivision 1048 Old Cooma Road, NSW*. A Report to P & I Woodbury.

### Abell, R.S.

1991. *Geology of the Canberra 1:100,000 Sheet Area, New South Wales and Australian Capital Territory*. AGPS, Canberra.

### Access Archaeology

1991. *The Poplars Archaeological Survey*. Report to Scott and Furphy Pty Ltd.

### Australian ICOMOS

1988. Guidelines to the Burra Charter.  
1999. The Burra Charter.

### Bennett, G.

1934. *Wanderings in New South Wales, Batabia, Pedir Coast, Singapore and China: being the journal of a naturalist in those countries during 1832, 1833 and 1834*. Two Vols. Bentley, London.

### BIOSIS

2007. *Cook Avenue, Queanbeyan, NSW: Aboriginal and Historical Cultural Heritage Assessment*. A Report for Queanbeyan City Council.

### Bluett, W.P

1954. *The Aborigines of the Canberra district at the arrival of the white man*. MS Canberra and Direct Historical Society archives.

### Boot, P.

1994. Recent Research into the Prehistory of the Hinterland of the South Coast of New South Wales. In M. Sullivan, S. Brockwell and A. Webb *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association*.

### Boot, P and H. Cooke

1989. *Conservation Management Plan for London Bridge Karst Area Googong Foreshores Reserve*. Report to ACT Heritage Unit, DELP.

Boot, P. and K. Heffernan

1989. *Jumping Creek. Local Environmental Study. Preliminary Archaeological Survey.* Report to Kinhill Engineers Pty Ltd.

Bowdler, S.

1984. Archaeological Significance as a mutable quality. In S. Sullivan and S. Bowdler (eds.) *Site Surveys and Significance Assessment in Australian Archaeology.* Department of Prehistory, ANU Canberra.

Collins, S.J.

2001. *Ethnographic analogy and archaeological interpretation in western Arnhem Land.* Unpublished hon. Thesis, ANU.

Dearling, C.

2007. *Proposed New Road – Edwin Land Parkway, Jerrabomberra, NSW.* A Report to GHD Canberra Pty Ltd.

Dearling, C. and A. Grinsberg

2002. *Preliminary Aboriginal and Cultural Heritage Study Selected National Parks and Nature Reserves, South West Slopes Region, NSW.* Report to NSW NPWS, South West Slopes Region.

DECCW

2009a. *Guide to Determining and Issuing Aboriginal Heritage Impact Permits.* DECCW Sydney.

2009b. *Operational Policy: Protecting Aboriginal Cultural Heritage.* DECCW Sydney.

2010a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.* DECCW, Sydney.

2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales.* DECCW, Sydney.

2010c. *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.* DECCW, Sydney.

Dibden, J.

2004. *'Greenwich Park' Rural Residential Subdivision Stage 1, Towrang, via Goulburn, NSW – Aboriginal Archaeological Assessment.* Unpublished report to Vincent Curtis CPC Land Development Consultants Pty Ltd, Archaeology NSW, Palmerston, ACT.

2009. *Proposed Jumping Creek Rezoning, Queanbeyan, NSW. Aboriginal Archaeological Assessment.* A Report to Michael Nolan Canberra Investment Corporation.

English, B.

1985. *Where the Molonglo Runs*. Unpublished B.A. (Hons) Thesis, Department of Prehistory and Anthropology, Australian National University, Canberra.

Flood, J.

1980. *The Moth Hunters: Aboriginal Prehistory of the Australian Alps*. AIAS, Canberra.

Flood, J, David, B., Majee, J., and B. English.

1987. Birrigai: A Pleistocene site in the south-eastern highlands. *Archaeology in Oceania* 22:9-26.

Hamm, G.

2007. *Aboriginal Cultural Heritage Survey Assessment Report for HQJOC Project: Wright's Park Queanbeyan to HQJOC Site Bungendore NSW*. A Review of Environmental Factors Report. A Report to Visionstream Pty Ltd.

Hughes, P.

2003. An Archaeological Assessment of the Proposed Bernallah Stage 2 Rural Subdivision, Lot 8 DP 103582 and Lot 18 DP614734 Wanna Wanna Rd via Queanbeyan NSW.

Irish, P.

2004. When is a Scar a Scar? Evaluating Scarred and Marked Trees at Sydney Olympic Park, *Australian Archaeology* No 59.

IT Environmental

1999. Stage 2 Environmental Investigation at Jumping Creek, Queanbeyan NSW. Report to Queanbeyan City Council.

Johnston, C.

1994. *What is Social Value: a discussion paper*. Australian Heritage Commission Technical Publications: Series Number 3.

Keen, I.

2004. *Aboriginal Economy and Society: Australia at the threshold of colonization*. Oxford University Press: Melbourne.
2010. *Indigenous Participation in Australian Economies: historical and anthropological perspectives*. ANU E Press: Canberra.



Kinhill

1989. City of Queanbeyan Jumping Creek Local Environmental Study.  
Final Report. Prepared for Queanbeyan City Council.

Klaver, J.

1987. *Lake Jerrabomberra Aquatic Facility Archaeological Survey – Preliminary Statement*. A Report by Navin Officer Heritage Consultants to R.A. Young Consulting Engineers.

Kuskie, P.J.

1989. *Changing Land Use Patterns from Prehistoric to Modern Times at Jumping Creek Valley, Queanbeyan, New South Wales*. Unpublished B.A. Hons Thesis, Australian National University, Canberra.

Lance, A.

1984. *An archaeological survey of a proposed subdivision at Queanbeyan NSW*. Report to Haglund and Associates.

Lea-Scarlett, E

1968. *Queanbeyan District and People*. Queanbeyan Municipal Council.

Lewis, D.

1984. *Jerrabomberra Park Development. Queanbeyan Archaeological Sites Survey*. Report to David Hogg Pty Ltd.

Marquis-Kyle, P. and M. Walker

1991. *The Illustrated Burra Charter: Making Good Decisions about the care of Important Places*. Australia ICOMOS/Australian Heritage Commission, Sydney, NSW.

Mulvaney J. and J. Kamminga

1999. *Prehistory of Australia*. Allen and Unwin: St Leonards.

Navin Officer Heritage Consultants

1990. *Gale Precinct, Queanbeyan, NSW: An Archaeological Assessment*. A Report to David Hogg Pty Ltd on behalf of Queanbeyan City Council.  
2003. *Defence HQAST Facility, Bungendore, NSW: Site 5*. Report to URS Corp Australia Pty Ltd.

- 2004a. *Defence HQJOC Facility Access Road and Service Easement Bungendore, NSW, Cultural Heritage Assessment*. Report to URS Corp Australia Pty Ltd.
- 2004b. *Jumping creek Queanbeyan NSW, Archaeological Survey*. Report to Greater Queanbeyan City Council.
- 2009a. *Remediation Works Jumping Creek, NSW*. A Report to Queanbeyan City Council.
- 2009b. *Old Queanbeyan Road Realignment Queanbeyan, NSW. Cultural Heritage Assessment*. A Report to Brown Consulting (ACT) Pty Ltd.
2010. *Remediation Works Jumping Creek, Queanbeyan NSW: Archaeological Salvage (Relocation) Program*. A Report to Queanbeyan City Council.

Office of Environment and Heritage (OEH)

- 2011a. *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. OEH, Sydney.
- 2011b. *Applying for an Aboriginal Heritage Impact Permit: Guide for Applicants*. OEH, Sydney.
- 2011c. *Guide to Aboriginal Heritage Impact Permit Processes and Decision-Making*. OEH, Sydney.

O'Keefe, B. and B. McGowan

1993. *Heritage Assessment Cooma Road Quarry Queanbeyan*. Report to Camp Scott Furphy Pty Ltd.

Peterson, N.

1975. Hunter-Gatherer Territoriality: The Perspective From Australia. *American Anthropologist* 77 vol 1.
1986. *Australian Territorial Organisation*. Oceania Monograph. University of Sydney.
2008. Too Sociological? Revisiting 'Aboriginal Territorial Organisation'. In M. Hinkinson and J. Beckett (eds.) *Appreciation of Difference: WEH Stanner and Aboriginal Australia*. Aboriginal Studies Press, Canberra.

Queanbeyan City Council

2012. Ellerton Drive Extension – Tender Brief.

Saunders, P.

1997. *Queanbeyan Showground Heritage Study*. In Cox Architects and Planners report to Queanbeyan City Council.

1999. *Archaeological Inspection of Aboriginal Sites W1-W5, 'Weetabalah', via Queanbeyan, NSW*. Report to Canberra Investment Corporation Limited.
2000. *Canberra Primary Mains Extension NSW Section Environmental Impact Statement Appendix F: Archaeological Survey for Aboriginal and European Cultural Heritage Sites*. Manidis Roberts Pty Ltd for AGL Construction.
- 2001a. *Wanna Wanna Road Portion 125 Archaeological Survey*. Report to Canberra Investment Corporation Limited.
- 2001b. *Talpa Crest Aboriginal and European Cultural Heritage Survey*. Report to Bill Swan and Associates Pty Ltd.
- 2001c. *Old Cooma Road Upgrade Stage 1: Archaeological Survey*. Report by Archaeological Heritage Surveys to Yarrawlumla Shire Council.
2002. *Old Cooma Road Upgrade Stage 2: Archaeological Survey*. Report by Archaeological Heritage Surveys to Yarrawlumla Shire Council.
2003. *Curtis Land, Queanbeyan, NSW. Aboriginal Archaeological Assessment*. Report by Archaeological Heritage Surveys to Link Management Pty Ltd.
2007. *Jumping Creek Estate, Cultural Heritage Assessment, Desktop Study*. Report to Parsons Brinkerhoff Pty Ltd.
- Service, E.R.  
1966. *The Hunters*. Prentice Hall, Inc. New Jersey.
- Shumack, S.  
1967. *An autobiography or Tales and Legends of Canberra Pioneers*. ANU Press, Canberra.
- Smith, M.A.  
1975. *Googong Dam field survey*. Canberra Archaeological Society report to Department of Housing and Construction.
- Sutton, P.  
2008. *Stanner and Aboriginal Land Use: Ecology, economic change and enclosing the commons*. In M. Hinkinson and J. Beckett (eds.) *Appreciation of Difference: WEH Stanner and Aboriginal Australia*. Aboriginal Studies Press, Canberra.
- Trigger, D.  
1992. *Whitefell Comin': Aboriginal responses to colonialism in northern Australia*. Cambridge University Press, Cambridge.

2010. Anthropology and native title: Issues of method, claim group membership and research capacity. In T. Bauman (ed.) *Dilemmas in Applied Native Title Anthropology in Australia*.

Watson, F.

1938. Early history, in *The story of Queanbeyan 1838-1938 published on the occasion of the town's centenary*. M. Fallick & Sons, Queanbeyan.

White, M.

2008. *Running Down: Water in a Changing Landscape*. Kangaroo Press, East Roseville, NSW.

White, I. and S. Cane

1986. *An Investigation of Aboriginal Settlements and Burial Patterns in the Vicinity of Yass*. A Report to the NSW NPWS.

Williams, D.

2006. *Stage 2 Archaeological Investigation at Headquarters Joint Operations Command between Queanbeyan and Bungendore, NSW: Subsurface Testing Probing*. Report to URS Australia Pty Ltd and the Commonwealth Department of Defence.

Williams, D. and M. Barber

1993. *An Archaeological Survey of 'Weetabalah' Queanbeyan, NSW*. Report to The GHD Group.

Winston-Gregson, J.

1989. *Environmental Investigation of Portion 51, Parish of Queanbeyan, County of Murray*. Report by Scott and Furphy Pty Ltd for Queanbeyan City Council.

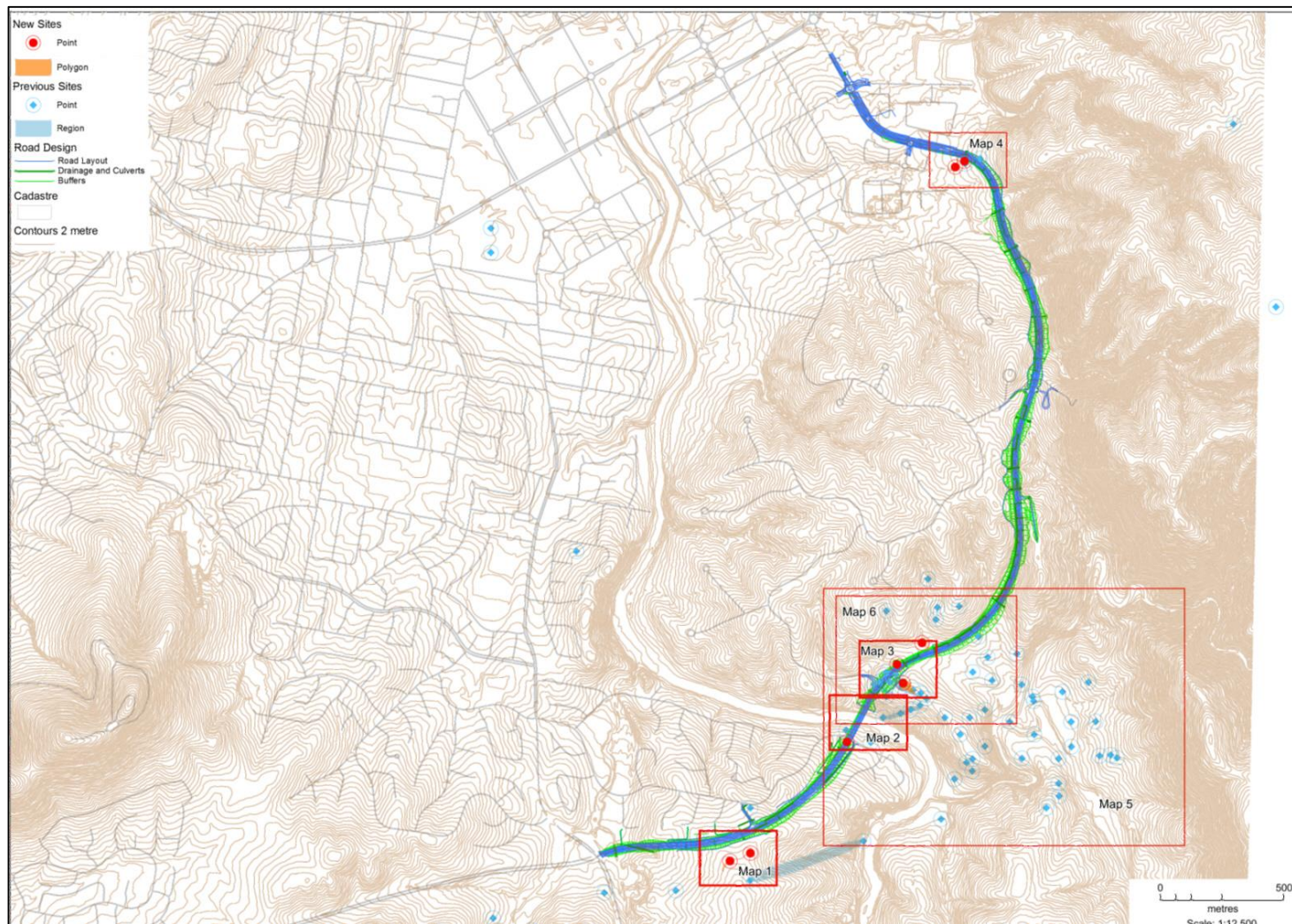
Wright, W.D.

1923. *Canberra*. John Andrew & Co., Sydney

## **MAPS: Overview and Maps 1-7**

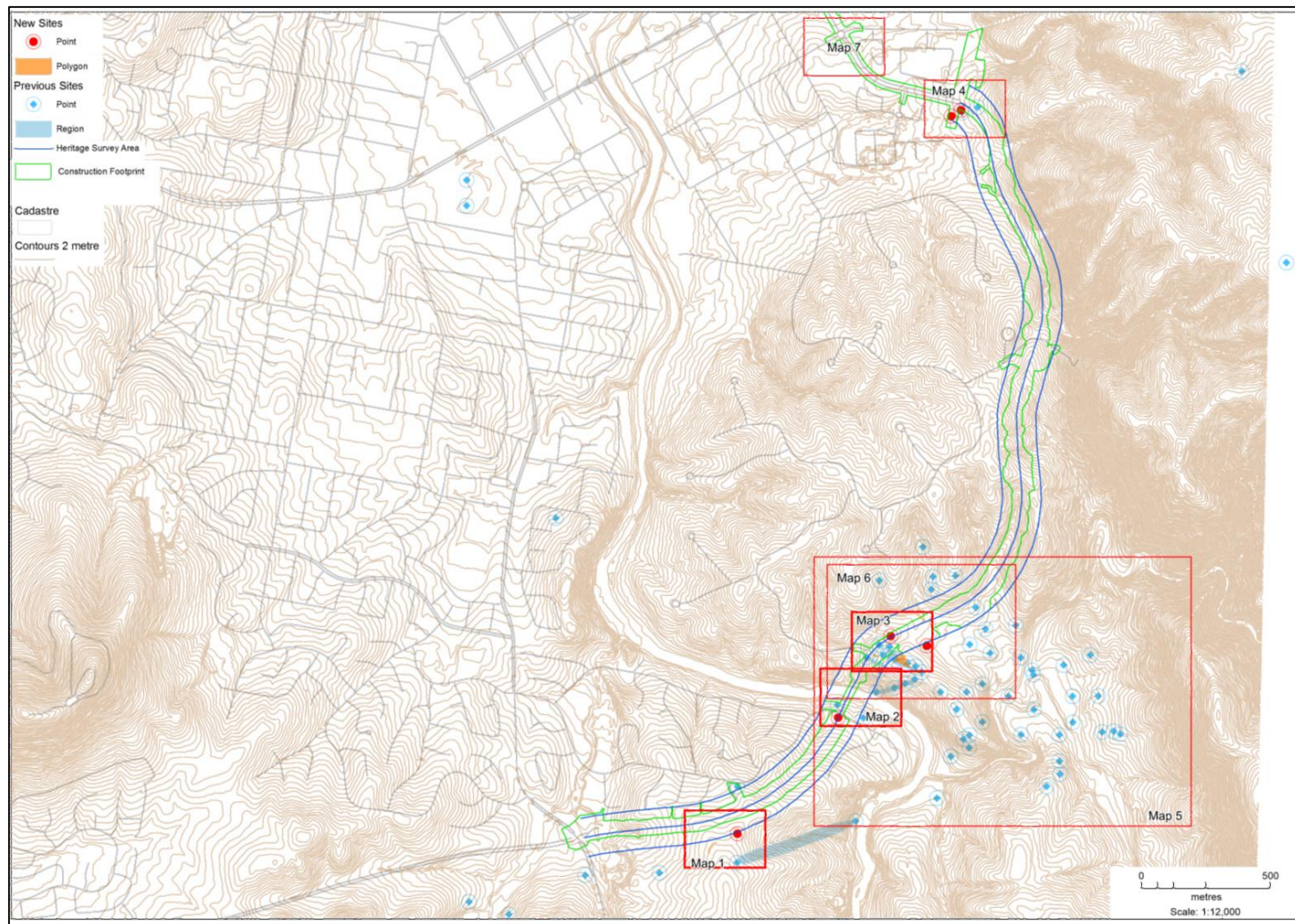


## Overview Map - 2012





## Overview Map 2015





Map 1

