



VIRTUS HERITAGE



GLENDENNING ROAD DATA CENTRE, 2 GLENDENNING ROAD

*Glendenning, NSW*

# Archaeological Research Design and Methodology

*FINAL | February 2025*

Prepared for LCI Consultants

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Cover design: Cake  
 Cover image: Clare Anderson (2024)

### *Document Controls*

Client:	LCI Consultants
Local Government Area:	Blacktown
Local Aboriginal Land Council (LALC):	Deerubbin Local Aboriginal Land Council

### *Version History*

Version	Date	Prepared by	Approved by	Comments
<b>1a-c</b>	4 November 2024	Lilith Malcolm, Dr Mary-Jean Sutton	Clare Anderson	Draft
<b>2a</b>	8 November 2024	Dr Mary-Jean Sutton	Dr MJ Sutton	Draft incorporating client and proponent review comments
<b>3a</b>	25 November 2024	Dr Mary-Jean Sutton	Dr MJ Sutton	Draft incorporating client and proponent review comments, draft sent to RAPs for review.
<b>4</b>	6 January 2025	Anya Graubard Lilith Malcolm	Dr Mary-Jean Sutton	Incorporated RAP comments.

### *Acknowledgement of Country*

Virtus Heritage acknowledges the Traditional Custodians of the land on which this project was undertaken and pays respect to Elders past, present and emerging.

### *Content Warning*

Aboriginal and Torres Strait Islander people are warned that this publication may contain names and images of deceased people, descriptions of traumatic historic events and parts of Country that have been impacted by development.

This report includes the topics of the forcible removal of children, dispossession and assimilation relating to the Blacktown Native Institution and colonisation.

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All queries related to the content, or to any use of this report must be addressed to Dr Mary-Jean Sutton.

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## Definitions

<b>Abbreviations</b>	<b>Description</b>
AA	Archaeological Assessment
ACHA	Aboriginal Cultural Heritage Assessment
ACHCR	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010)
AHD	Australian Heritage Database
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AIATSIS	Australian Institute of Aboriginal and Torres Strait Islander Studies
ALRA	Aboriginal Land Rights Act 1976
AR	Archaeological Report, Archaeological Assessment
CABAH	Australian Research Council Centre of Excellence for Australian Biodiversity and Heritage
CHMP	Cultural Heritage Management Plan
Code of Practice, COP	Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010)
DA	Development Application
DD	Due Diligence
DD Code, Due Diligence Code	Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010)
DPC	NSW Department of Premier and Cabinet
DPIE	NSW Department of Primary Industry and Environment
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GIA	Guide to investigating, assessing and reporting on Aboriginal Cultural heritage in NSW (OEH 2011)
HNSW	Heritage NSW
ILUA	Indigenous Land Use Agreement
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan

<b>Abbreviations</b>	<b>Description</b>
LGA	Local Government Area
NNTT	National Native Title Tribunal
NPW ACT	National Parks and Wildlife Act 1974
NPW Reg	National Parks and Wildlife Regulation 2019
NPWS	NSW National Parks and Wildlife Service
NTA	Native Title Act 1983
OEH	NSW Office of Environment and Heritage (now Heritage NSW)
PAD	Potential Archaeological Deposit
PBC	Prescribed Bodies Corporate
RAP	Registered Aboriginal Party
RAPs	Registered Aboriginal Parties
RD&M	Research Design and Methodology
REF	Review of Environmental Factors
RNTBC	Registered Native Title Body Corporate
S.139	Section 139
S.140	Section 140.
S.170	Section 170
SHI	State Heritage Inventory
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
SSD	State Significant Development
SSI	State Significant Infrastructure
The Burra Charter	The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance, 2013 (Australia ICOMOS 2013)
UNESCO	United Nations Educational, Scientific and Cultural Organization

## Glossary

**Aboriginal object** – A term used in the NPW Act legislation, meaning: ‘... any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains’ (s.5 NPW Act).

**Registered Aboriginal party** – An individual or party who registers for Aboriginal consultation as part of the consultation and notification process following Aboriginal cultural heritage consultation requirements for proponents 2010 (NSW DECCW 2010b).

**AHIP** – An Aboriginal Heritage Impact Permit which is a document provided by Heritage NSW which provides a defence to the applicant to certain activities which constitute ‘harm’ to Aboriginal objects or Aboriginal places under Part 6 of the NPW Act. A proponent must prepare an application for an AHIP and other relevant documentation (including an ACHA) to obtain an AHIP from Heritage NSW in the Department of Premier and Cabinet.

**Declared Aboriginal place** – A term used in the NPW Act legislation, meaning any place declared to be an Aboriginal place (under s.84 of the NPW Act) by the Minister administering the NPW Act, by order published in the NSW Government Gazette, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture. It may or may not contain Aboriginal objects.

**Due Diligence assessment** – Due diligence is taking reasonable and practical steps to determine whether a person’s actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm. A due diligence assessment will assess the potential for harm and provide recommendations to mitigate harm, generally in the form of an Aboriginal Cultural Heritage Assessment (ACHA), if Aboriginal objects or places are likely to be harmed by proposed works.

**Harm** – A term used in the NPW Act Amendments meaning ‘... any act or omission that destroys, defaces, damages an object or place or, in relation to an object – moves the object from the land on which it had been situated’ (s.5 NPW Act).

**Project area** – Area proposed to be impacted as part of a specified activity or development proposal. These activities include indirect impact.

**Place** – An area of cultural value to Aboriginal people in the area (whether or not it is an Aboriginal place declared under s.84 of the Act).

**Proponent** – A person proposing an activity that may harm Aboriginal objects or declared Aboriginal places and who may apply for an AHIP under the NPW Act.

# 1. Introduction

LCI Consultants has engaged Virtus Heritage Pty Ltd to prepare the following archaeological research design and methodology (ARDM) for Aboriginal cultural heritage for a proposed State Significant Development Application (SSD-73761707) for a data centre at 2 Glendenning Road, Glendenning NSW 2761 (the subject site). (hereafter referred to as 'the project area', and shown in **Figure 1**). Industry-specific SEARs were issued on 25 July 2024 (Application number: SSD-73761707).

Virtus Heritage compiled the *Glendenning Road Data Centre Aboriginal Cultural Heritage Assessment (ACHA)*, in line with industry specific Planning Secretary's Environmental Assessment Requirements (SEARs).

This document constitutes the Archaeological Research Design and Methodology (ARDM) for the salvage of impacted Aboriginal cultural heritage, methods for recording sites, methods for fencing exclusion zones and the options for repository of salvaged Aboriginal objects.

## 1.1 STRUCTURE

**Section 2** identifies previous consultation undertaken on this ARDM

**Section 3** of this research design and methodology summarises previous archaeological research for the site within the project area.

**Section 4** details the research design that has been proposed for the project area.

**Section 5** provides the methodology proposed to minimise and mitigate harm to Aboriginal cultural heritage sites and areas of low, moderate and high archaeological potential This includes the fencing of exclusion zones, archival recording of known Aboriginal cultural heritage sites, methods for undertaking surface collection, community collection/cultural salvage and salvage excavation.

**Section 6** presents the attributes to be recorded during the analysis of artefacts recovered during salvage and the reporting requirements for activities undertaken to manage and mitigate harm to Aboriginal objects in the project area.

**Section 7** discusses options for care of artefacts recovered during the salvage program.

**Section 8** lists the references cited within this document.

## 1.2 LIMITATIONS

This ARDM is based on information provided by LCI Consultants and Willowtree Planning for the 80% design and is limited to the project area for assessment provided in Figure 1.

Areas of any works or impacts outside the boundary of the project area are not considered in this ARDM including the Endeavour Energy easement and adjacent infrastructure which is outside the scope of this assessment, and a section of the pipeline to the north-east which extends outside the project area boundary.

The information for sites and site impacts is based on AHIMS data received and reviewed at the time of the assessment.

## 1.3 PROPOSED PROJECT IMPACTS

The proposed development is known as the Glendenning Road Data Centre and includes the construction and operation of three (3) data centre buildings and associated infrastructure, with a total power consumption of 202.4 MW.

The proposed development seeks consent for the following aspects of development based on information provided by LCI Consultants and Willowtree Planning.

The proposed development is known as the Glendenning Road Data Centre and includes the construction and operation of three (3) data centre buildings and associated infrastructure, with a total power consumption of 202.4 MW.

The proposed development seeks consent for the following aspects of development:

§ Site preparation and establishment works including:

- o Bulk earthworks to create proposed site levels;
- o In-ground building services and utility work;
- o Clearance of trees and vegetation within the proposed development extent, where necessary;

§ Construction and operation of three (3) data centre buildings, known as DC01, DC02 and DC03, comprising:

- o A total Gross Floor Area (GFA) of 50,233m<sup>2</sup> (DC01 – 19,985m<sup>2</sup>, DC02 – 10,263m<sup>2</sup> and DC03 – 19,985m<sup>2</sup>);
- o A maximum building height of 45.3m, including five (5) storeys for each building;
- o Three (3) internal substations;
- o A total IT capacity of approximately 193.6MW (DC01 – 79.2MW, DC02 – 35.2MW and DC03 – 79.2MW);

§ Total diesel fuel storage of 2,736,030L within underground bulk fuel storage tanks and generator day tanks;

§ 97 back-up generators across the full development;

§ External plant and equipment (including water tanks and pump rooms);

§ Installation of evaporative cooling units;

§ Three (3) vehicle crossovers to Glendenning Road and internal access roads;

§ Security fencing surrounding the development, including a controlled entry and exit point;

§ 165 on-site car parking spaces (including 6 accessible parking spaces and 12 EV parking spaces);

§ Landscaping across the subject site;

§ Hours of operation being on a 24 hours per day, seven (7) days per week basis.

The proposed works would be constructed in three (3) stages, as follows:

§ Stage 1: The first stage would include the construction of DC01, located at the rear of the subject site. The three existing site buildings would be demolished.

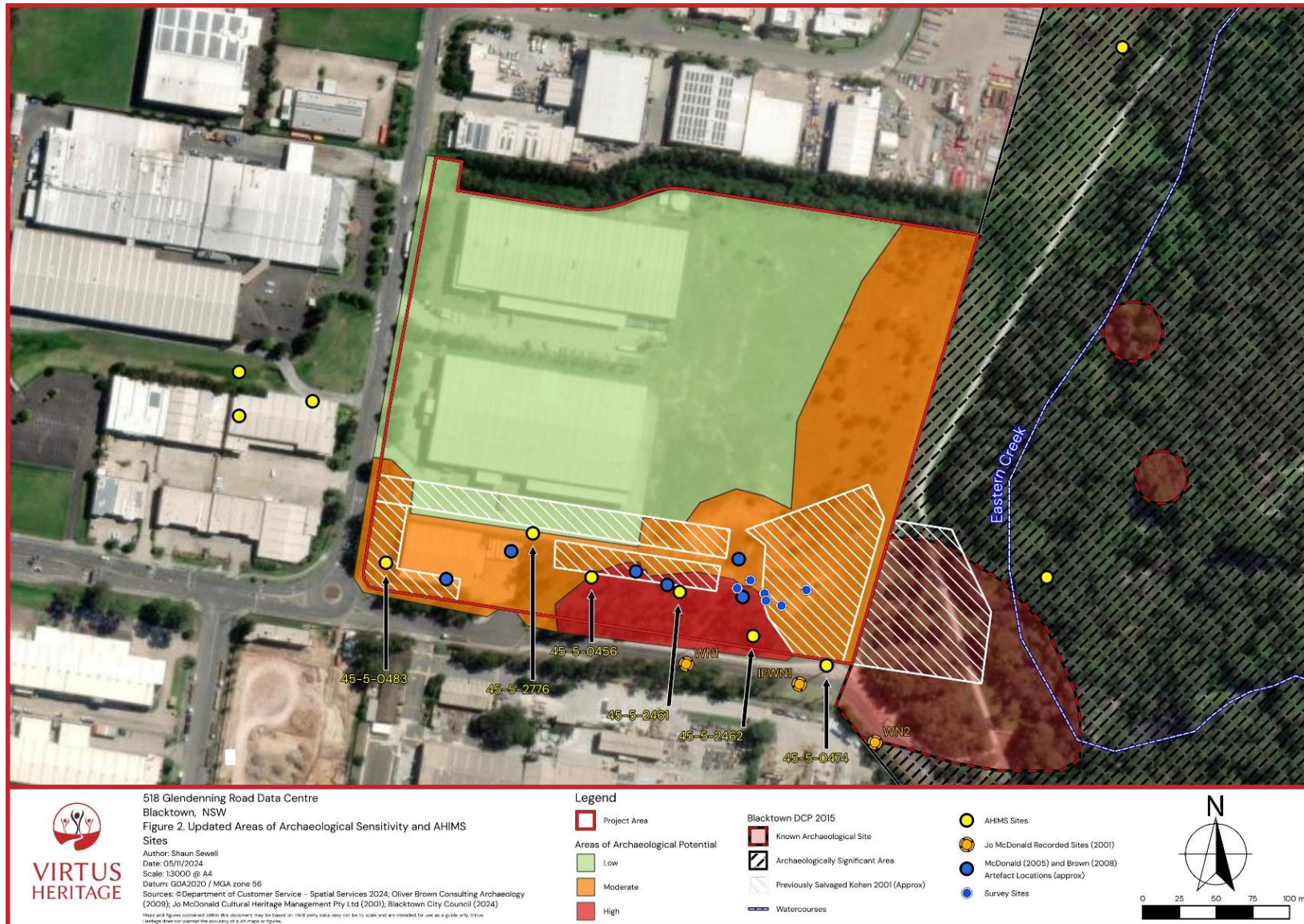
§ Stage 2: The second stage would involve the construction of DC02.

§ Stage 3: The construction of DC03.

Figure 1. Project Area and Locality.



Figure 2. Updated Areas of Archaeological Sensitivity and AHIMS sites



#### 1.4 IMPACTED SITES

The ACHA determined that there are six registered sites (45-5-0483, 45-5-0456, 45-5-0474, 45-5-2776, 45-5-2461, 45-5-2462) within the project area and further Aboriginal objects are likely within the project area in both disturbed and intact contexts (refer to Figure 2). Blue dots in Figure 2 represent artefacts reported in the project area after an archaeological salvage undertaken by Kohen in 2001. Aboriginal sites are most likely to be found along elevated landforms, like the remnant ridge slope and spur landform in the south of the project area and next to permanent water sources, such as Eastern Creek. While stone artefact scatters are common in the region, the sites within the project area formed part of a larger site complex that was subsequently impacted by development throughout Glendenning.

Work undertaken at these sites formed an early and important contribution to our understanding the archaeology of the Cumberland Plain while the advocacy of Aboriginal organisations to protect Aboriginal cultural heritage within the project area forms part of its contemporary and historic values. Aboriginal objects in the project area, even in disturbed contexts, can provide valuable information on connections between stone sources, raw material choices and activities undertaken by Aboriginal people in the region. Where intact archaeological deposits survive in the project area, they are of significance due to their ability to inform our understanding of Aboriginal life and the site complex.

The proposed activity will directly and indirectly impact on known Aboriginal cultural heritage sites and known Aboriginal objects (45-5-0483, 45-5-0456, 45-5-0474, 45-5-2776, 45-5-2461, 45-5-2462) and areas of low, moderate and high archaeological potential as detailed in the Virtus Heritage (2024) ACHA. Proposed impacts within areas of high archaeological potential have been limited to fencing, revegetation and land care. The proposed activity has the opportunity to create exclusion zones to protect a percentage of land within areas of moderate and high archaeological potential and Aboriginal objects areas (i.e. 45-5-0483, 45-5-0456, 45-5-0474, 45-5-2776, 45-5-2461, 45-5-2462).

Management and mitigation measures are required to avoid, minimise and mitigate harm to known and likely Aboriginal objects and heritage values. Additional sites and areas of archaeological potential are located immediately adjacent the project area (45-5-0475, Blacktown DCP 2015 Known Archaeological site and Area of Archaeological Sensitivity, Area of Archaeological Potential (Brown 2008) and areas of archaeological potential associated with Woodstock Avenue). Proposed works must be managed in order to avoid and minimise impacts to these sites.

Future service installations may directly impact Blacktown DCP 2015 Area of Archaeological Sensitivity, Area of Archaeological Potential (Brown 2008). These works are not included in this ACHA/ARDM and will require further investigation and heritage approvals prior to impact.

Further summary of impacts is provided in Section 6 of the ACHA and Section 2 and Section 10 of the AA. The proposed activity will involve extensive earthworks and will harm known and likely Aboriginal objects throughout the project area. Further discussion of potential project impacts to Aboriginal archaeological heritage is presented in **Section 2, 9** and **Section 10** of the AA in the ACHA.

*Table 1: Architectural drawings and site plans assessed in the ACHA and proposed works impacting Aboriginal cultural heritage*

<b>Plan/Drawing</b>	<b>Date</b>	<b>Revision number</b>	<b>Relevance to heritage items</b>
Civil Plans	30/9/2024	ACR-XX-XX-DR-C-COMBINED-DDC	Proposed activity will result in direct impact known sites and areas moderate and low archaeological potential and requires management and mitigation measures to prevent indirect harm to Aboriginal objects associated with all registered Aboriginal cultural heritage sites in the project area and areas of high archaeological potential.  The proposed works require management and mitigation measures to prevent and minimise indirect harm to Aboriginal objects and areas of archaeological sensitivity adjacent the project area.
Security Zoning Plan	27/9/2024	Security Zoning Plan Rev C	The plan indicates potential direct impacts to known Aboriginal heritage sites and areas of low, moderate and high archaeological potential.  The works require management and mitigation measures.
Biodiversity report	27/9/2024		The proposed mitigation measures indicate direct impacts to known Aboriginal heritage sites and areas of moderate and high archaeological potential.

An AHIP (AHIMS 941) was previously over the project area and three sites (45-5-0483, 45-5-0456 and 45-5-00474). McDonald (2005) indicated that a proponent may have applied for another AHIP prior 2010, however there is no connected information apparent in AHIMS.

The project has been designed to minimise impacts in areas of high archaeological potential. Impacts proposed in these areas are proposed to be limited to fencing and revegetation and land care management activities.

**Table 2** of the ACHA lists all sites identified within the project area and summarises the type, level and consequence of harm to these places.

*Table 2. Summary of Likely Harm.*

<b>Site/Place/PAD</b>	<b>Type of Harm (direct/indirect/none)</b>	<b>Level of Harm (total/partial/none)</b>	<b>Consequence of Harm (total loss of value/partial loss of value/no loss of value)</b>
45-5-0483	Direct	Total	Total loss of value
45-5-2776	Direct	Total	Total loss of value
45-5-0456	Direct	Partial	Partial loss of value
45-5-2461	Direct	Partial	Partial loss of value
45-5-2462	Direct	Partial	Partial loss of value

**Areas of sensitivity/archaeological potential**

Site/Place/PAD	Type of Harm (direct/indirect/none)	Level of Harm (total/partial/none)	Consequence of Harm (total loss of value/partial loss of value/no loss of value)
Areas of low archaeological potential	Direct	Total	Total loss of value
Areas of moderate archaeological potential	Direct	Partial	Partial loss of value
Areas of high archaeological potential	Direct	Partial	Partial loss of value

AHIMS site	Additional information	Type of harm	Degree of harm	Consequence of harm
South East Plumpton 6.5 (45-5-2777)	Artefact	None	None	No loss of value
Sept1000/B (45-5-3105)	Artefacts	None	None	No loss of value
Sept2000/A (45-5-3104)	Isolated find	None	None	No loss of value
Southeast Plumpton 3 (45-5-0475)	Artefacts and Archaeological Deposit	Indirect – changes to visual setting of site	Partial	Partial loss of value – the proposed activity will alter to the visual setting of the site and no change to the archaeological values
EC132kVPAD01 (45-5-3643)	PAD	None	None	No loss of value
Glen Trib (45-5-3699)	Artefacts	None	None	No loss of value
EC132kVPAD 02 (45-5-3644)	PAD	None	None	No loss of value
Blacktown DCP Known Archaeological Site	Area of archaeological potential -	Indirect – the proposed activity may result in changes to the visual setting	Partial	Partial loss of value – the proposed activity will alter the visual setting of the site and no change to the archaeological values. Management and mitigation measures are required to ensure that works are contained within the project area and adequate protections are in place to prevent impacts.

**Areas of archaeological potential and sensitivity**

AHIMS site	Additional information	Type of harm	Degree of harm	Consequence of harm
Blacktown DCP Archaeological Significant Area	Area of archaeological potential -	Direct – proposed electrical easement and water management will directly impact this. The proposed activity will result in changes to the visual setting.	Partial	Partial loss of value – the proposed activity will impact part of this area and alter the visual setting of the site. Separate approvals may be required prior to ground disturbance works. Management and mitigation measures are required to ensure that works are contained within the project area and adequate protections are in place to prevent impacts.
-	Adjacent areas of archaeological potential (Brown 2008)	Direct – proposed electrical easement and water management will directly impact this. The proposed activity will result in changes to the visual setting.	None	Partial loss of value – the proposed activity will directly impact this area and alter the visual setting of the site . Separate approvals may be required prior to ground disturbance works. Management and mitigation measures are required to ensure that works are contained within the project area and adequate protections are in place to prevent impacts.
-	Adjacent areas of archaeological potential on Woodstock Avenue	Indirect – the proposed activity may result in changes to the visual setting	None	Partial loss of value – the proposed activity will alter the visual setting of the site and no change to the archaeological values. Management and mitigation measures are required to ensure that works are contained within the project area and adequate protections are in place to prevent impacts.

## 2. Aboriginal consultation

As recognised by Heritage NSW, we acknowledge that Aboriginal people are the primary determinants of the cultural significance of their heritage. Aboriginal consultation for the ACHA was undertaken in compliance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (NSW DECCW 2010b) (hereafter referred to as the “ACHRs”). These consultation requirements are legal requirements that proponents must comply with during the ACHA process which are set out in Clause 80c of the NPW Regulation. Aboriginal consultation is crucial in the compilation of the ACHA in order to adequately assess and investigate Aboriginal cultural heritage.

Thirty (30) Aboriginal groups/individuals registered interest for this project during the notification process (responded to the advertisements in various newspapers or to an invitation to register in the project after their contact details were provided by notified organisations). The groups/individuals registered for consultation are listed in **Table 3**.

*Table 3. Representatives of Registered Aboriginal Parties Involved in Fieldwork and Consultation.*

<b>Name of Contact</b>	<b>Registered Aboriginal Party</b>
REDACTED	REDACTED
Dharug Custodian Aboriginal Corporation	Justine Coplin
Didge Ngunawal Clan	Lilly Carroll and Paul Boyd
Kamilaroi Yankuntjatjara Working Group	Phil Khan
Wailwan Aboriginal Group	Philip Boney
Long Gully Cultural Services	Ethan Trewlynn
Thomas Dahlstrom	Thomas Dahlstrom
Yulay Cultural Services	Arika Jalomaki (Manager)
Muragadi Heritage Indigenous Corporation	Jesse Johnson
Wallanbah Aboriginal Site Conveyancing	Kelvin Boney
Deerubbin Local Aboriginal Land Council	Kevin Cavanagh
Waawaar Awaar Aboriginal Corporation	Rodney Gunther and Barry Gunther
Wurrumay Pty Ltd	Vicky Slater and Kerrie Slater
Konanggo Aboriginal Cultural Heritage Services (KACHS)	Robert Young Aunty Pamela Young
Amanda Hickey Cultural Services	Amanda Hickey
Aragung Aboriginal Cultural Heritage Site Assessments	Jamie Eastwood
B.H. Heritage Consultants	Ralph Hampton and Nola Hampton
Butucarbin Aboriginal Corporation	Jennifer Beale

<b>Name of Contact</b>	<b>Registered Aboriginal Party</b>
Freeman and Marx	Clive Freeman and Julie
Goobah Development PTY LTD (Murrin Clan/Peoples)	Basil Smith
Guntawang Aboriginal Resources Incorporated	Wendy Morgan
Koori Digs Services	Korri Currell
Thawun Aboriginal Consultancy	Jason Mitchell
RAW Cultural Healing	Raymond Weatherall
Gali Heritage Consultants	Helen Slater
Bill Trewlynn	Bill Trewlynn
Woka Aboriginal Corporation	Steven Johnson
Paul Webb	Paul Webb
Yurrandaali	Bo Field
Darug Aboriginal Resource Centre	Thelmerie Rudd

All registered Aboriginal parties were provided with the opportunity to discuss and develop the ARDM presented in this document as part of the review of the ACHA. Comments provided by RAPs were integrated into this final ARDM.

### 3. Summary of previous archaeological research

A review of the Heritage NSW AHIMS library and online searches were undertaken to obtain copies of previous Aboriginal heritage studies and archaeological investigations within the locality of the project area. **Table 4** below summarises some of the key previous archaeological research undertaken within the locality that was consulted for this assessment.

*Table 4. Previous Archaeological Investigations within the Project Area.*

Notes	Relevance of Findings to the Project Area
<p><b>Kohen, 1985, 1989</b>      <b>Archaeological Survey of the project area and larger industrial estate,</b>                      South East Plumpton/4 (45-5-0474), South East Plumpton 5 (45-5-0456) and South East Plumpton (45-5-0483) were identified in the project area. A second study was undertaken to assessment undertaken by Kohen in 1989, indicated that these sites had had 'significant disturbance'.</p>	<p>A total of 131 stone artefacts were recovered from the project area, 33 from 26 of the 50, 5 m intervals adjacent SEP 4 and SEP 6, seven from south south-western corner of the property, 12 from the western soil stockpile adjacent SEP/5, 52 artefacts from the bulldozed areas near the western end of the site and 34 from the stockpile outside the project area within the BDCP area of archaeological sensitivity.</p>
<p><b>Haglund 1987</b>      <b>Archaeological survey and assessment of transmission line</b>                      Laila Haglund undertook an archaeological survey and assessment of a transmission line that intersected the project area. No sites were registered in AHIMS within the project area as a result of this survey,</p>	<p>Artefacts were manufactures of silcrete, quartzite, chert, quartzite, hornfels and basalt. Artefact types included elouera adze flakes, microliths, blade cores, bipolar cores, a hammerstone, an edge-ground axe head, retouch and utilised flakes. The distribution of raw material types and artefact types across the site were indicative of different activities occurring different locations.</p>
<p><b>Kohen 1997</b>      <b>Archaeological Survey for development by Transmit Management Ltd</b>                      Additional artefacts were identified relating to South East Plumpton/4 (45-5-0474), South East Plumpton 5 (45-5-0456) and South East Plumpton (45-5-0483) and consultation undertaken with Deerubbin LALC and Darug Tribal Aboriginal Corporation. Subsequently Development was initiated without the issue of an AHIP.</p>	<p>Kohen identifies the ridgeline as a focal point of Aboriginal occupation a possible source of silcrete, with outcrops of silcrete along the eastern extension of Woodstock Avenue. Kohen reported unmodified pebbles and fragments of silcrete were also observed in the project area and interprets the assemblage as demonstrating trade links along the Nepean River.</p>
<p><b>Kohen 2000</b>      <b>Archaeological survey</b>                      After Deerubbin LALC and DTAC identified the breach of the NPW Act. SEP4 and SEP5 were found to have been grossly impacted. An Aboriginal Heritage Assessment and Management Plan was undertaken and a consent to destroy South East Plumpton/4 (45-5-0474), South East Plumpton 5 (45-5-0456) and South East Plumpton (45-5-0483) with salvage of artefacts was lodged and approved with NPWS.                      No spatial information is recorded in DCCEEW's Aboriginal Heritage Impact Permit GIS dataset or public register for this site.</p>	<p>No artefacts were identified outside the collection areas and previously recorded sites.                      The previous assessments demonstrate the high archaeological potential and archaeological significance of Aboriginal objects within the project area, particularly along intact soils on the southern boundary as well as the potential for further stone artefacts to be present within the transmission line easement and within fill associated with the development. SEP/6 (45-5-0483)</p>
<p><b>Kohen and Knight 2001</b>      <b>Archaeological survey of the proposed subdivision Lot 12 DP 844530, Cnr of Woodstock Avenue and Glendenning Road, Glendenning NSW</b>                      Part of the project area was assessed by Kohen and Knight during their survey of the proposed subdivision Lot 12 DP 844530, Cnr of Woodstock Avenue and Glendenning Road.</p>	<p>No artefacts were identified outside the collection areas and previously recorded sites.                      The previous assessments demonstrate the high archaeological potential and archaeological significance of Aboriginal objects within the project area, particularly along intact soils on the southern boundary as well as the potential for further stone artefacts to be present within the transmission line easement and within fill associated with the development. SEP/6 (45-5-0483)</p>
<p><b>Kohen 2001</b>      <b>Report on Consent to Destroy with Salvage Sites SEP/4, SEP5, SEP6, Cnr of Woodstock Avenue and Glendenning Road, Glendenning.</b>                      Kohen completed salvage of the three sites with DTAC and provided copies of reports to DCAC and DTAC.                      Artefacts were observed exposed on the area between the overhead transmission line and the batter north of the transmission line; the two sites, SEP/4 and SEP/6, were covered with soil; stockpiles of soil existed</p>	<p>No artefacts were identified outside the collection areas and previously recorded sites.                      The previous assessments demonstrate the high archaeological potential and archaeological significance of Aboriginal objects within the project area, particularly along intact soils on the southern boundary as well as the potential for further stone artefacts to be present within the transmission line easement and within fill associated with the development. SEP/6 (45-5-0483)</p>

Notes	Relevance of Findings to the Project Area
<p>at the eastern and western ends of the study area; and artefacts were observed on the bulldozed area on the eastern end of Kohen's study area.</p> <ul style="list-style-type: none"> <li>• An east-west transect 250 m long was established between transmission line towers on north side as far as batter, and extending down the slope. Artifacts were collected every 5 m along transect i.e. 0-5m, 5-10m, etc.</li> <li>• An examination of stockpiled earth at the western end of the area, as it was being redistributed, was carried out</li> <li>• Surface collections were undertaken over the bulldozed area at south-eastern end of the site</li> <li>• Surface collections were undertaken in the grassed areas at south-western corner of the study area (site SEP/6 covered over by earthworks)</li> <li>• Monitoring and collection was carried out after spreading of the stockpile of soil at the eastern end of the study area</li> </ul> <p>These five areas were the only places artefacts were observed and recovered. In other areas, either there was no surface visibility because no disturbance had taken place, or there were no artefacts present.</p> <p>The establishment of the transect parallel with the overhead transmission line was intended to provide some assessment of the east-west spatial distribution across the area. The other collections were undertaken to recover whatever cultural material was exposed during the destruction of the sites, however sieving of spoil heaps was not undertaken.</p>	<p>may survive below the current landform as Kohen reported it was buried.</p>
<p><b>Navin Officer Heritage Consultants 2000 Transmission line survey</b></p> <p>This report was not available in AHIMS, through key term searches via Google or the Major Projects website</p>	<p>The assessment identified Glendenning Road 1 (AHIMS 45-2776).</p>
<p><b>Sinclair Knight Mertz 2001 Archaeological investigations and testing for the Western Sydney Orbital</b></p> <p>Also:</p> <ul style="list-style-type: none"> <li>• Proposed Western Sydney orbital, Summary of the EIS</li> <li>• Draft RTA Response to NPWS for the Western Sydney Orbital</li> <li>• Report on the Archaeological sub-surface testing within the Western Sydney Orbital Alignment</li> </ul>	<p>No additional Aboriginal objects were recorded within the project area, as a result of these assessments.</p>
<p><b>Jo McDonald 2005 Archaeological assessment undertaken for Transmit Management Pty ltd development of a small warehouse on the intersection of Woodstock Avenue and Glendenning Road</b></p> <p>Jo McDonald undertook archaeological survey of the low ridge on the southern boundary of the project area. Five additional locations of stone artefacts were identified, this occurring after the Kohen (2001) salvage, some occurring within the location of the proposed warehouse. Visibility was generally low but artefacts were visible wherever exposures occurred. These deposits were assessed as having high archaeological potential and sensitivity with the potential for intact deposits. Subsurface archaeological investigation and an Aboriginal Heritage Impact Permit was recommended for the site.</p>	<p>Five additional stone artefacts were recorded in the project area. No spatial information is recorded in DCCEEW's Aboriginal Heritage Impact Permit GIS dataset or public register for the warehouse area. If an AHIP was issued over this area, it was likely prior to 2010. This assessment demonstrates that despite archaeological salvage and construction activities within the project area associated with the transmission line and works undertaken by Transmit Management Pty Ltd, that stone artefacts have survived within the project area.</p>
<p><b>Brown 2008 Proposed 132k Feeder power line between Glendenning and Quakers Hill [Total Earth Care] by Oliver Brown</b></p>	<p>Brown identified additional artefacts within the project area and identified areas of archaeological potential. The</p>

Notes	Relevance of Findings to the Project Area
<p>Brown completed an archaeological survey immediately adjacent the project area of the transmission line to the east of the project area boundary,</p> <p>Eight stone artefacts were identified in the project area at the base of the electricity tower, EC132kV-1. These artefacts were intended to be registered with AHIMS 45—0456, however, there are no attachments associated with the site card in AHIMS.</p> <p>Leanne Watson (DCAC) suggested that the artefacts have been relocated to the site during the process of the destruction of areas to the north and west during the recent industrial development (Brown 2008: 20)</p> <p>Brown (2008) also mapped as areas of archaeological potential based on a criterion of a 100m buffer on known sites and 150m on Eastern Creek.</p> <p>The recommendation of the report was that the site be avoided.</p>	<p>mapped areas of archaeological potential are a high level buffer and require further refinement in consideration of the specific soil and past land use history and disturbance in the project area.</p> <p>This assessment demonstrates that despite archaeological salvage and construction activities within the project area associated with the transmission line and works undertaken by previous land holders, that stone artefacts have survived and been displaced within the project area.</p>

*Table 5. Previous Archaeological Investigations within the Project Area*

Notes	Relevance of Findings to the Project Area
<p><b>Dallas. 1985. An Archaeological Survey of North Richmond, NSW</b></p> <p>Seven sites were identified during this field survey, five of which were axe-grinding sites and two open camp sites.</p> <p>AHIMS site 45-5-0456 is located within the current project area and is mentioned within this report according to the AHIMS database. However, no additional information regarding this site was obtained from this report.</p> <p>This assessment concluded that ‘all the sites are located in or along the creek’ and ‘have been subject to varying degrees of disturbance’ (Dallas, 1985:13).</p>	<p>This report was identified within the AHIMS database as report # 947.</p> <p>This assessment is relevant to the project area as it includes a portion of the current project area, within the same geological and soil landscape. Additionally, 45-5-0456 was identified during this assessment and is located within the current project area.</p>
<p><b>McDonald. 1986. Preliminary Archaeological Reconnaissance of the Proposed Schofields Regional Depot</b></p> <p>Previous research for this assessment identified Plumpton Ridge as a ‘major silcrete outcrop on the Cumberland Plain’, which was extensively utilised as a source of raw material (McDonald, 1986:1).</p> <p>AHIMS sites 45-5-0456 and 45-5-0483 are located within the current project area, and 45-5-0474 located approximately 3 metres south of the project area, are identified on the AHIMS database as associated with this report. No additional information is contained within this report.</p> <p>This assessment concluded that ‘there was widespread surface archaeological evidence across the entire site, and that in the areas of low or no surface evidence, high proportions of sub-surface artefactual material existed’ (McDonald 1986:102). The proposed development for this assessment was recommended not to proceed, and further research was required (McDonald 1986:107).</p>	<p>This report was identified within the AHIMS database as report # 1018.</p> <p>This assessment is relevant as it includes AHIMS sites 45-5-0456, 45-5-0483 located within, and 45-5-0474 located approximately 3 metres from the current project area are associated with this report.</p> <p>Additionally, this report provides further insight into the area of high archaeological sensitivity as mapped in <b>Figure 3</b> of this report.</p>

Notes	Relevance of Findings to the Project Area
<p><b>Koettig. 1988. Survey for Aboriginal Sites Along the Proposed Road Between the Great Western Highway and Woodstock Ave, Rooty Hill. Report to the Department of Main Roads.</b></p> <p>AHIMS site 45-5-0747 is mentioned within this report and is located approximately 354m west of the current project area.</p> <p>This report found that ‘the highest site densities are around swampy/marshy areas’, and that ‘50% of sites are within 50m of a creekline’ (Koettig, 1988:4).</p>	<p>This report was identified within the AHIMS database as report # 1547.</p> <p>This assessment is significant as it offers deeper insight into the environmental landscape immediately surrounding the project area.</p>
<p><b>Donlon 1988 Archaeological survey and monitoring of proposed Factory site at Plumpton</b></p> <p>Donlon undertook archaeological survey and monitoring of a factory area to the north of the project area. The study area was described as prone to flooding. The brown, yellow loam topsoil, interpreted by Donlon to have already been impacted by market gardens, was removed down to basal clays in this area. A yellow silcrete stone artefact was identified with consultation with Mr Gary Williams of the Western Metropolitan Regional Land Council.</p>	<p>The survey identified additional sites within the local area and contributes to an understanding of the archaeological model.</p>
<p><b>Crew. 1992. Aboriginal Site Survey Eastern Creek Open Space Corridor, Doonside NSW. Report to NSW Department of Planning, Sydney West Office.</b></p> <p>AHIMS site 45-1-0221 is identified within this report and is located approximately 738m from the current project area.</p> <p>This assessment identified 13 open campsites, with ‘at least two of these sites... indicate the potential for sub-surface material to be located on the floodplain’ (Crew, 1992:1).</p> <p>Additionally, this report states that ‘it is clear from previous investigations that Eastern Creek is an area of high archaeological significance’ (Crew, 1992:9).</p>	<p>This report was identified within the AHIMS database as report # 2440.</p> <p>This assessment is important as it offers a comprehensive insight into the landscape and landforms of the wider landscape surrounding the current project area.</p>
<p><b>Robynne Mills Archaeological and Heritage Services. 1997. An Aboriginal Heritage Study for the Olympic Softball Venue and Aquilina Reserve, Blacktown.</b></p> <p>Three open campsites were identified during the survey for this assessment. Of these sites, EC-OS-2 (45-5-2432) is located approximately 880 metres south of the current project area, and EX-OS-3 (45-5-2431) is approximately 997 metres southeast of the current project area. Both sites were identified within highly disturbed contexts and were assessed as having low archaeological significance.</p> <p>The third open campsite identified during this survey was EC-OS-1. This site name was not identified on the AHIMS Extensive search.</p> <p>Additionally, AHIMS site 45-5-0466 is associated with this report on AHIMS and is located approximately 940 metres southeast of the current project area. No information was provided about this site within this report.</p>	<p>This report was identified within the AHIMS database as report # 4188.</p> <p>This assessment is relevant as it located less than 1 kilometres from the current project area. Although the geology of this assessment is ‘characterised by quaternary alluvium deposits derived from Wianamatta Shale’, if is located within a flood plain area that ‘has been built up over time by deposition from constant flooding from the Eastern Creek’ (AHS 1997:6). This location provides further insight into the current project area and the regions impacts from flooding events.</p>

Notes	Relevance of Findings to the Project Area
<p><b>Jo McDonald Cultural Heritage Management 1999.</b>  <b>Survey for Prehistoric Archaeological Sites:</b>  <b>Proposed Road into Nurragingy Reserve Blacktown, NSW.</b></p> <p>This archaeological survey re-located AHIMS site 45-5-0456 which has been identified as ‘part of a large open artefact scatter’ comprised of ‘over 60 artefacts’, which were collected and are reportedly held at Macquarie University (McDonald CHM 1999:1).</p> <p>Additionally, during the survey for this assessment, AHIMS sites 45-5-2461 and 45-5-2462 (which are located within the current project area) were recorded.</p> <p><i>Please note: AHIMS site 45-4-0456 status is ‘valid’ according to the AHIMS database. This appears to be a discrepancy as this report states the artefacts have been collected and are now held at Macquarie University.</i></p>	<p>This report was identified within the AHIMS database as report # 4600.</p> <p>This assessment is relevant to the project area as it includes a southern portion of the current project area and is within the same geological and soil landscapes as the current project.</p> <p>It was concluded that the sites identified in this study were of moderate to high archaeological potential and sub-surface testing was ‘required so as to better assess the significance of this site complex’ (McDonald CHM 1999:25).</p>
<p><b>Jo McDonald Cultural Heritage Management Pty Ltd. 2001.</b>  <b>Subsurface Testing for Prehistoric Archaeological Sites: Results of a Field Programme at the Proposed Access Road into Nurragingy Reserve, Blacktown, NSW.</b></p> <p>This subsurface investigation aimed to map and define the area of archaeological deposit associated with AHIMS site 45-5-0475 with greater accuracy. A total of 640 stone artefacts were recovered during these subsurface investigations.</p> <p>‘The results of these subsurface investigations in Nurragingy Reserve provide the first observations regarding the status of archaeological deposit in an area which has produced observations of surface artefacts since the mid-1980s’ (McDonald CHM 2001:2).</p>	<p>This assessment is relevant to the project area as it is located immediately south of the project area, within the same low ridge line and spur landform and discusses sites identified within the AHIMS extensive search for the current project.</p> <p>The predictive model for this assessment identified ‘low ridge lines, adjacent to water’ as being the known preferred locales for sites within the Cumberland Plains and Blacktown locality (McDonald CHM 2001:12). As the current project area is located within a low relief landscape approximately 150m from Eastern Creek, this supports the predictive model for the current project.</p> <p>This study determined that despite a substantial portion of the site being covering in relocated fill, intact deposits remain subsurface. It was also noted that the proposed works would not ‘for the most part impact on archaeological deposits that are either already significantly disturbed or remnants of primary archaeological horizons buried beneath fill’ (McDonald CHM 2001:2).</p> <p>Through identifying that archaeological deposits are present within nearby disturbed contexts; this assessment offers a comprehensive insight into the landscapes and landforms in which sites are identified within the region. It highlights a greater potential for archaeological deposits at depths within such disturbed contexts.</p> <p>Additionally, <b>Figure 24</b> of this Archaeological Assessment report applies McDonald’s Figure 2 which mapped previously identified areas of archaeological sensitivity to the current project (McDonald CHM 2001:4, Figure 2). Through the presence of remnant vegetation and recorded AHIMS site distribution, this figure highlights that a southern portion of the current project area is of high archaeological sensitivity. This information is crucial for developing an understanding</p>

Notes	Relevance of Findings to the Project Area
<p><b>Banksia Heritage and Archaeology. 2005. The Blacktown Native Institution, Plumpton: Archaeological Monitoring Report.</b></p> <p>This report details the results of the salvage and cultural excavations undertaken in association with a drain expansion on the site of the Blacktown Native Institution.</p> <p>No tangible Aboriginal sites or objects were recovered during this assessment. Large quantities of Plumpton silcrete were identified, however it was determined to be 'part of the natural distribution of this material, which outcrops to the north'.</p>	<p>of the archaeological landscape and for the creation of a predictive model.</p> <p>The assessment is relevant as it is located approximately 2.8km from the current project area.</p> <p>Additionally, this report provides additional insight into the national, state and local significance of the Blacktown Native Institution.</p>
<p><b>Andrew Knight. 2006. Archaeological Report: Stage 4 of the Assessment Process Including Monitoring of Surface Stripping and the Salvage of Cultural Materials.</b></p> <p>Eight stone artefacts, comprising of 3 flakes, 2 manuports and 2 'nondescript lithic fragments' were located within Knight's project area (Knight 2006:12). These artefacts have been registered as AHIMS site 45-5-2777, which is located approximately 53 metres west of this project area.</p>	<p>This report was identified within the AHIMS database as report # 100446.</p> <p>This assessment is relevant to the project area as it is located immediately west of this project area, within the same geological and soil landscape as this project.</p>
<p><b>Navin Officer Heritage Consultants Pty Ltd. 2007. Blacktown Olympic Park Extension, Aboriginal Cultural Heritage Assessment. A Report to Corkery Consulting for Blacktown Council.</b></p> <p>AHIMS sites 45-5-3419 is mentioned in report and is located approximately 760m southeast from the current project area.</p> <p>This assessment identified six sites during fieldwork, which were comprised of artefact scatters, and associated with PADs.</p> <p>During the consultation for this assessment, it was noted by Darug Custodian Aboriginal Corporation (DCAC) that:</p> <p>'In this area the population was high due to the proximity of the Native Institute and the Maria Lock land grant it had been documented that large families stayed in this area as is already shown in the materials found. This information is still discussed with our elders that have been told about this area, this area was also an area that was continuously visited by other Aboriginal people due to the high population in this area' (Navin Officer: 2007:20).</p>	<p>This report was identified within the AHIMS database as report # 100842.</p> <p>This assessment is important as it provides comments made by Darug Custodian Aboriginal Corporation regarding the significance of the site and the connection of the AHIMS sites to the wider community.</p>
<p><b>Dominic Steele Consulting Archaeology. 2010. Aboriginal Archaeological &amp; Cultural Heritage Impact Assessment. 309-315 Rooty Hill Road North, Plumpton NSW – Proposed Residential Subdivision.</b></p> <p>AHIMS site 45-5-4060 is related to this report according to the AHIMS database. This site is located approximately 1,360m northwest of project area.</p> <p>One 'definitive' silcrete flake was identified during the site inspection for this assessment (DSCA, 2010:47).</p>	<p>This report was identified within the AHIMS database as report # 102275.</p> <p>This assessment is important as it offers a comprehensive insight into the landscape and landforms of the wider landscape surrounding the current project area. Additionally, this assessment is also within the Wianamatta Shale Group geological landscape.</p>

Notes	Relevance of Findings to the Project Area
<p><b>Dominic Steele Consulting Archaeology. 2015. Aboriginal Archaeological Test Excavation Report. 266 Rooty Hill Road North, Plumpton NSW. AHIP# c0001362.</b></p> <p>AHIMS site 45-5-4490 is mentioned in this report according to the AHIMS database. This site is located approximately 985m from project area.</p> <p>Test excavation for this assessment recovered four stone artefacts. This 'testing revealed a very low number and density occurrence of Aboriginal objects and/or silcrete materials that may have potentially been brought onto the site by people that were subsequently 'used' and discarded,' (DSCA, 2015:2).</p> <p>Additionally, it was concluded that 'no further archaeological test or salvage excavation of AHIMS #45-5-4490 [was] warranted' (DSCA, 2025:3).</p>	<p>This report was identified within the AHIMS database as report # 103720.</p> <p>This assessment is relevant as it provides further insight into the archaeological landscape of the region.</p>
<p><b>AMBS Ecology and Heritage. 2017. Blacktown City Council Animal Housing Facility: Aboriginal Cultural Heritage Assessment. Prepared for Blacktown City Council.</b></p> <p>AHIMS sites 45-5-3648, 45-1-0221, and 45-5-3649 are mentioned in this report according to the AHIMS database. These sites are located approximately 720m, 735m, and 800m from the current project area respectively.</p> <p>45-1-0221 is located within this assessments study area, while 45-5-3648 and 45-5-3649 are located adjacent to the eastern boundary of this assessments study area.</p>	<p>This report was identified within the AHIMS database as report # 103874.</p> <p>This project is located within the South Creek soil landscape and is situated approximately 130m west of Eastern Creek. This is similar and comparable to the current project area.</p> <p>This assessment is significant as it offers deeper insight into the landscape immediately surrounding the project area.</p>
<p><b>GML Heritage. 2018. Blacktown Native Institution Heritage Impact Statement.</b></p> <p>AHIMS sites 45-5-4531 (open campsite), 45-5-0486 (open campsite) and 45-5-0398 (Aboriginal Ceremony and Dreaming site) were identified within the study area and were not discussed in depth within this assessment.</p>	<p>The assessment is relevant as it is located approximately 2.8km from the current project area.</p> <p>The Blacktown Native Institution is one of the first known places where Dharug and other First Nations children were forcibly removed from their families and communities and were institutionalised. 'The site is connected to dispossession, desecration due to colonisation, and the implementation of racially based government policies of "protection", assimilation, and removal, which continue to impact Ngurra and Aboriginal people today' (GML Heritage 2018).</p>

### 3.1 RATIONALE FOR NO ADDITIONAL TESTING

Based on accessible and reviewed archaeological surveys and assessments in Section 4 and 6, Aboriginal objects have not been identified in areas assessed as having low archaeological potential in **Figure 52** of the Archaeological Assessment (AA) to date. Geotechnical investigations (AECOM 2023, Martens 2024) have provided soil profiles across the project area, indicating intact archaeological deposits within areas mapped as low archaeological potential are unlikely to be present. No data reviewed to date has indicated the method of earthworks and fill in the areas mapped as low archaeological potential.

Previous archaeological investigations in the southern portion of the project area (Kohen 2001, McDonald 2001, 2005) and archaeological survey undertaken as part of the ACHA (Virtus 2024) have indicated that in areas of moderate archaeological potential, there is a high likelihood of Aboriginal objects with low archaeological integrity. i.e. Aboriginal objects have been displaced within fill and imported fill or eroded downslope. Aboriginal objects in these areas have cultural value but their archaeological value is limited to the object itself rather than the environmental and chronological data that could be obtained from a stratified archaeological deposit.

Archaeological test excavations undertaken by Jo McDonald (1999, 2001) and surface collections undertaken by Kohen (2001) have provided sufficient data to understand the archaeological values and significance of Aboriginal objects within areas mapped as having moderate and high archaeological potential and to inform planning decisions. As such, archaeological test excavations prior to EIS submission are not proposed.

## 4. Research Design

The past archaeological research within the vicinity of the project area and surrounds (refer to **Section 2** of this document and **Section 4.2** of the **AA** (Archaeological Assessment), **Appendix 1** of the **ACHA**) indicates that evidence of Aboriginal occupation has survived previous land use history.

Previous assessments in the locality have established that the area was intensively and repeatedly used by Aboriginal people. Evidence of this occupation is seen through the previously recorded AHIMS sites and newly identified stone artefacts in areas that have previously been surveyed and salvaged (refer to **Table 6** of the **AA**).

The underlying historical land use and urbanisation disturbances, the proximity to water and the Nurragingy Reserve are key indicators that the project area is within a highly sensitive landscape for Aboriginal cultural heritage materials and contains stone artefacts.

The broader objective of this research design is to assist in further understanding how Aboriginal people utilised the landscape in the past through investigations of the disturbed landscape, determine the significance, extent and integrity of any intact archaeological deposits if they are identified and to analyse any artefacts recovered to document values, during salvage.

Other research questions that will be investigated will be (and not limited to):

- What do the artefact assemblages indicate about how Aboriginal people were utilising the local landscape? How do these assemblages compare to other results in the locality including work completed in the project area by Kohen and McDonald and in what types of contexts?
- How do the results of the collections, excavation and artefact analysis compared to other analyses conducted in the locality and the region?
- Can the stone artefacts provide additional information about stone procurement, technological choices and activities in the landscape? How does this pattern of landscape use compare to previous archaeological research in the locality and the region of Western Sydney and how has land use history impacted these understandings?
- Are certain types of artefact types and artefact materials more prevalent within the project area than others as predicted in the ACHA in the predictive model? How do these results compare to previous archaeological research in the locality and the region?
- How have the descendants of the Traditional Aboriginal people and the broader Aboriginal community utilised this landscape through generations to the present day? Are there any dateable features (charcoal or hearths) that can provide information on the chronology of the occupation deposit, if identified? What is the age of such features (e.g. Holocene or Pleistocene)? What is their significance within the broader cultural landscape?
- Is there any evidence of a change in occupation strategy over time?
- Is there any evidence of post contact occupation (including knapped or culturally modified ceramic or glass)?
- How do the results of the investigations compare with the assessed areas of archaeological potential and sensitivity by Virtus (2024), Jo McDonald (2001) and Borne (2008)?
- What is the extent of previous land use history's impacts on the survival of Aboriginal objects and cultural and scientific values?

## 5. Methodology

### 5.1 IMPACT AND MITIGATION AREAS

This section of the document presents a combination of methodologies to salvage Aboriginal objects within the project area, whilst minimising impacts. **Table 6** below sets out the proposed impacts and mitigation measures in each works area.

*Table 6. Proposed Impacts and Recommended Mitigation.*

<b>Works Area</b>	<b>Proposed Impacts</b>	<b>Recommended Mitigation</b>
Low Archaeological Potential	Bulk earthworks	Surface collection and Community collection/cultural salvage.
Low to Moderate Archaeological Potential	Footings/pier locations and associated infrastructure	Surface collection and Community collection/cultural salvage.  Archival recording before and after construction.  Where ground disturbance cannot be avoided in areas of moderate archaeological potential, surface collection and community Collection/cultural salvage.
Moderate Archaeological Potential	Ground disturbance (including proposed infrastructure, e.g. pipe and headwall)	Create exclusion zones where impacts can be avoided.  Archival recording before construction.  Where ground disturbance cannot be avoided, surface collection and community Collection/cultural salvage.  Archival recording after construction.
High Archaeological Potential	Fencing, revegetation, land care	Create exclusion zones where impacts can be avoided.  Archival recording before construction.  Where ground disturbance cannot be avoided, surface collection, manual excavation and community collection/cultural salvage.  Archival recording after construction.

Due to the cultural significance of the area and potential for out of context Aboriginal objects to occur despite past land use disturbance, the following methodologies have been prepared for a surface collection, community collection and triggers for manual salvage in the even that it is required.

## 5.2 METHODOLOGY FOR FENCING EXCLUSION ZONES

Exclusion zones are to be fenced by the proponent or their delegated general works contractor with supervision by an archaeologist with at least one representative of the Registered Aboriginal Parties, and a surveyor with a differential GPS undertaking fencing. Fencing should be undertaken that is safe during construction and also needs to be demarcated on all site plans pre-construction and during construction as areas that must be protected. Exclusion zones should have appropriate signage and also discussed in site inductions as requiring protection.

## 5.3 METHODOLOGY FOR ARCHIVAL RECORDING

It is anticipated that archival recording of identified Aboriginal cultural heritage sites and will occur before and after construction and documented in accordance with the Code of Practice for Archaeological Investigation for Aboriginal objects via Aboriginal Site Recording Forms (AHIMS site cards) and Aboriginal Site Impact Recording Forms (ASIRFs) (see Section 6.3).

## 5.4 METHODOLOGY FOR SURFACE COLLECTION

This is sometimes referred to as surface clearance. The opportunity to inspect the project area (inclusive of areas of low, moderate and high archaeological potential) prior to site establishment works should be provided to at least two representatives from RAPs and one qualified archaeologist. If Aboriginal objects are located in impact areas which are not exclusion zones where harm can be avoided, then surface collection and site recording should be undertaken.

The proposed surface collection methodology for lithic artefacts is as follows:

- Surface collection will be undertaken by RAPs, with assistance from at least one qualified archaeologist;
- Surface artefacts will be flagged prior to collection. The flagged site will be photographed to record the spatial distribution of artefacts within the site;
- The location of each surface artefact will be recorded using a handheld GPS to record the spatial distribution of artefacts within the site; and
- Artefacts will be individually bagged and labelled (including site name, date and unique identifier connected to MGA co-ordinates).
- Detailed artefact attribute analysis should be recorded for all lithic artefacts, as detailed in **Section 6** of this ARDM;

## 5.5 COMMUNITY COLLECTION / CULTURAL SALVAGE

Community collection has been identified to enable cultural collection when required by RAPs. All ground disturbing works in A horizon soils, alluvium or fill will be supervised by the general contractor and at least two representatives from the Registered Aboriginal Parties (RAP).

A qualified archaeologist will be on call, when Aboriginal objects are identified, the archaeologist will be responsible for recording and ensuring repository and cataloguing of Aboriginal objects.

A qualified archaeologist will also be on call, in case manual investigation is triggered. This methodology is also in place for the historical archaeological investigations, where at least one RAP representative must be on site to be present during the excavation of historical archaeological testing.

If Aboriginal objects are located in impact areas which are not exclusion zones where harm can be avoided, the methodology for community collection would include the following, this includes during all ground disturbing works:

- At least two representatives from RAPs, with assistance from at least one qualified archaeologist, would undertake community collection during ground disturbing works. This collection may involve sieving soil excavated during manual or mechanical works where it is safe and practical during the project timeframes to do so as part of cultural salvage. The soil sieved is to be selected by RAPs, and the predictive model (refer to Archaeological Assessment, **Appendix A** of the **ACHA**) based on their predictions for the presence of Aboriginal objects. This collection also includes salvaging any Aboriginal artefacts (stone artefacts), where it is safe and practical during the project timeframes to do so.
- If any Aboriginal objects or sites are identified, it should be recorded by a qualified archaeologist, other suitably qualified person, or experienced cultural heritage sites officer. This should include the following steps:
  - Artefacts should be flagged, photographed and spatial distribution of artefacts within the site recorded;
  - The location of each surface artefact should be recorded using a handheld GPS to record the spatial distribution of artefacts within the site;
  - Detailed artefact attribute analysis should be recorded for all lithic artefacts, as detailed in **Section 6** of this ARDM;
  - Works will cease if suspected human remains are encountered. If suspected human remains are uncovered during salvage excavations, the area of these suspected remains must be secured, and the NSW Police notified. If these remains are deemed to require archaeological investigation by the NSW Police or NSW Coroner, then Heritage NSW, and RAPs must be notified.

During excavation works, certain features may trigger manual salvage. These triggers are:

- The presence of an intact midden deposit;
- The presence of an intact heat treatment pit or intact hearth;
- Evidence of stone artefacts in intact stratified deposit or clear feature;
- Evidence of early interaction between settlers and Aboriginal people such as knapped glass or ceramics (the presence of clear manual percussion including a dorsal scar or bulb of percussion would be required and glass/ceramic that dates to the early to mid-nineteenth century)
- The presence of more than formal tool types in an intact deposit, i.e. backed artefacts, scrapers, axes, elouera, grounded edge tools or other tool types considered rare in a local and/or regional context.

## 5.6 METHODOLOGY FOR SALVAGE EXCAVATION (IF AREAS OF HIGH ARCHAEOLOGICAL POTENTIAL ARE TO BE IMPACTED OR IF TRIGGERED BY CERTAIN FEATURES DURING COMMUNITY COLLECTION)

### 5.6.1 *Manual Excavation*

Manual excavations would be conducted with a minimum of three representatives of Registered Aboriginal Parties, where available, and three archaeologists. Manual salvage will involve:

- For areas mapped as high archaeological potential in to **Figure 2**:
  - As conservation of areas of high archaeological potential is the goal, salvage excavation would be limited to areas of impact. Salvage excavation would be undertaken of 30 m<sup>2</sup> or the maximum impact footprint whichever is smaller
  - Excavation pits would be placed in consultation with representatives present on the day and target areas of relatively less disturbance.

- Artefact type and/or density triggers for expansion of salvage pits to maximum of 50m squared total salvage excavation area within the project area.
- . If only low density, out of context objects are identified, community collection will be triggered.
- For areas triggered for manual salvage by certain features during community collection:
  - Salvage excavation would be undertaken in 1m x 1m test pits, with additional test pits placed to identify the extent of the identified features.
  - Artefact type and/or density triggers for expansion of salvage pits to maximum of 50m squared total salvage excavation area within the project area.
  - If only low density, out of context objects are identified, community collection will be triggered.
- Excavation of 1m x 1m pits would include the following:
  - Fill (including concrete, bitumen, road base and imported fill) will be removed in bulk mechanically in one unit. Fill can be inspected by RAPs, where safe to do so, and can be undertaken through raking of fill, windrows or through general inspection; and community collection undertaken.
  - Excavation pits will be excavated by hand (inclusive of trowels, spades, and other hand tools) in 10cm spits and/or stratigraphic units to:
    - ◆ the maximum depth of excavation for proposed works, or
    - ◆ The B horizon is reached, or
    - ◆ To the depth of culturally sterile deposits or
    - ◆ Bedrock or
    - ◆ water table
  - Triggers for expansion of excavation pits within the impact footprint include:
    - ◆ If 10 or more artefacts are located within a 1m square excavation pit. (
    - ◆ If features such as evidence of knapping events, and/or more than five formal tool types (i.e. backed artefacts, retouched artefacts, scrapers, axes, or other tool types considered rare in local and/or regional context), ochre are located in a single salvage pit, manual salvage of an adjoining 1m x 1m excavation square will be excavated to follow the area of highest artefact density.
    - ◆ If a midden site is identified in a salvage pit, manual salvage of an adjoining 1m x 1m excavation square will be extracted to follow the area of the midden site
    - ◆ If heat treatment pits or hearths are identified, the excavation pit would be expanded to provide sufficient information about the extent of the hearth, its construction, including one or two spits below the base of the heath cut and to allow for plans and section and dating samples.
    - ◆ Pleistocene aged deposits
    - ◆ Indications of multiple phases of occupation
  - It may be necessary in some situations to excavate mechanically if, for instance soils are cemented or for safe work methods for excavating at depth or in unstable soil profiles (such as stepping out or shoring) depending on the stability of the sediment, depth of culturally sterile deposits or depth of proposed impact. In the case of mechanical excavation:
    - ◆ Mechanical excavation would be conducted in a controlled manner and supervised by an archaeologist and representative of the RAPs
    - ◆ The size of the test pits will be determined based on the advice of the archaeologist and generally aim to be as small as can reasonably be achieved
    - ◆ Excavated in 10cm spits or stratigraphic unit.
    - ◆ In the event that cultural material other than stone artefacts were identified, mechanical excavation would cease until the relevant feature had been investigated, recorded and salvaged.

- All excavated soil will be sieved through a 5mm. A 2mm nested sieve may be utilised. sieve, with the exception of fill or sediment removed mechanically to allow for safe entry and exit of excavation pits (for example stepping or shoring in unstable sediments).
  - Munsell and pH analysis will be undertaken for each stratigraphic unit.
  - Representative soil samples of key stratigraphic units may be collected.
  - Scientific dating samples may be collected.
  - Photographic and scale drawn records of the stratigraphic/soil profile will be taken for each salvage pit
- Excavations will cease if suspected human remains are encountered. If suspected human remains are uncovered during salvage excavations, the area of these suspected remains should be secured, and the NSW Police notified. If these remains are deemed to require archaeological investigation by the NSW Police or NSW Coroner, then Heritage NSW, and all RAPs must be notified.
  - Lithic artefacts will be analysed recording the general attributes on all artefacts and additional attributes on flakes and cores are listed in **Table 7** below.
  - Midden material will be analysed to identify species, weight, evidence of any cultural use and estimated minimum number of individuals (analysis hinges or lids and, if possible, growth rings will be counted where possible to understand the time of shell/age when harvested).
  - Animal and fish bones will be attempted to be analysed by species and by weight, as well as type of bone found.

Please note that 'a patch of mature vegetation existing along the southern boundary [of the project area], which is identified as outstanding biodiversity value' (Willowtree 2024, p. 4). This may impact on the accessibility of this area, resulting in no manual salvage.

### 5.6.2. *Dating*

Scientific dating samples will be collected during manual excavation, if present. A minimum of three radiocarbon dating samples will be sent for analysis if samples are viable and this analysis will add significantly to an understanding of the site's stratigraphy and/or phases of use.

If dateable archaeological features such as hearths are identified, at least one radiocarbon sample will be submitted for dating per feature (up to ten samples).

It is not anticipated that the soils in areas of high archaeological potential will be suitable for OSL dating, however should additional features suitable for OSL dating be identified, samples will be collected. Dating of these features will be subject to funding constraints.

### 5.6.3. *Protocols for Unexpected Human Remains*

Based previous archaeological research within the region, consultation date and previous land use history it is not predicted that burials will occur in the project area. If unexpected human remains are located during works:

In all cases, the sensitivity and significance of Aboriginal ancestral remains must acknowledge and respected and the wishes of the Aboriginal community must be the primary determinant of decisions made regarding the management of ancestral remains.

To avoid doubt, the precautionary principle must be applied to all physical remains suspected to be Aboriginal ancestral remains.

If any human remains are disturbed in, on or under the land, you must:

1. Do not further disturb or move these remains
2. Immediately cease all work at the particular location and within vicinity of these remains and ensure this location is secured and protected
3. Notify NSW Police immediately, who will contact the NSW Corner to undertake an investigation
4. Notify (DPE's) Environment Line on 131 555 as soon as practicable and provide available details of the remains and their location
5. No work can recommence at the particular location, unless authorised in writing by Heritage NSW and NSW Police Corner, and in consultation with RAPs

If human remains are unexpectedly encountered and they are thought to be Aboriginal, all RAPs must be notified. Recording of Aboriginal ancestral remains must be undertaken by, or be conducted under the direct supervision of, a specialist physical anthropologist and other suitably qualified person.

Archaeological reporting of Aboriginal ancestral remains must be undertaken by, or review by, a specialist physical anthropologist or other suitably qualified person, with the intent of using respectful and appropriate language and treating the ancestral remains as the remains of Aboriginal people rather than as scientific specimens.

An appropriately qualified archaeologist/anthropologist must be on call for all works.

## 6. Recording

### 6.1 STONE ARTEFACTS

**Table 7** below lists the attributes to be recorded on each Aboriginal artefact recovered during works and has been separated into general attributed to be recorded on all artefacts, additional attributes to be recorded on flakes, and additional attributed to be recorded on cores.

*Table 7. Attributes to be Recorded.*

General Attributes (All Artefacts)	Additional Attributes (Flakes)	Additional Attributes (Cores)
Artefact Type	Platforms (number, width, thickness, surface, removal)	Rotated
Raw Material	Termination	Platform Preparation
Artefact Weight (g)	Retouch (Location and Type)	Scar Type
Artefact Measurements (Length, Width, Thickness)	Breakage	Exhausted
Cortex (Amount and Type)		
Heat Affect		

Subject to approval by RAPs, Virtus Heritage proposed to take artefacts to their secured location at their home office at Weir Phillips in a locked drawer for recording and analysis prior to their final repository.

This may present an opportunity if the proponent has capacity for engagement with RAPs to be engaged in the recording of Aboriginal objects.

### 6.2 USEWEAR AND RESIDUE ANALYSIS

Where utilised flakes, tools or grinding fragments are identified, a sample of stone artefacts may be selected for usewear and residue analysis. This analysis may occur off Country.

### 6.3 SHELL

Consistent with the *Code of Practice for Archaeological Investigation of Aboriginal Objects* (DECCW 2010) the attributes and features to be recorded for shell middens or any shell material recovered include:

- Full range of shells (to species level if possible) and other materials;
- Estimate of the rank and order of abundance (e.g. pre-dominant, common, rare) of species present;
- Any obvious changes in midden stratigraphy; and
- Estimate the density of shell (or bone) present, expressed as a ratio of shell (or bone) to sedimentary context on the basis of ground surface exposure or exposed sections (e.g. eroding ground surface).

Subject to the approval of the RAP's, the project archaeologist will take artefacts off site for recording and analysis in their offices in a secure location, prior to their final repository.

#### 6.4 SITE CARDS AND ASIRFS

New AHIMS site cards will need to be completed by an archaeologist or experienced Aboriginal sites officer for any new Aboriginal sites uncovered during works or for the reburial of Aboriginal objects if undertaken.

Updated AHIMS site cards and Aboriginal site recording forms for all salvaged or partially salvaged sites need to be updated by a qualified archaeologist experienced Aboriginal sites officer at the conclusion of the site works.

All recordings must follow the recording requirements of the *Code of Practice for Archaeological Investigations* and include or consider:

- a) Scale for photographs
- b) High resolution photographs including an overview of the site with compass direction and a close up of features or objects with a scale
- c) Mud maps or measured plans of impacted areas of site and mapping of features
- d) GPS co-ordinate in MGA of where Aboriginal objects are found and recorded
- e) Any cultural restrictions on knowledge or gender issues

#### 6.5 REPORTING

A short clearance report will be completed at the end of each activity identified in this ARDM.

A final salvage and compliance report will be prepared in accordance with the Code of Practice for Archaeological Investigation of Aboriginal objects in NSW at the completion of surface collection, community collection and manual excavation.

The report will:

- Include a short summary of the report
- Describe any ongoing consultation with or involvement of representatives of the Registered Aboriginal Parties
- Describe how any Aboriginal objects or no-harm areas were managed
- Provide details of the Aboriginal objects which were fully or partially harmed in the course of undertaking the actions
- Describe the methods and results of the surface collection, community collections and manual excavations
- Comment on the effectiveness of any mitigation measures that were implemented
- Comment on the effectiveness of any management plan in place.
- If any Aboriginal objects were moved to a temporary storage location, a description of the nature and types of Aboriginal objects which are now at that location
- Detail the results of any analysis of Aboriginal objects
- Detail the long term management arrangements for any Aboriginal objects
- Include a statement confirming that all AHIMS site cards, update and ASIRFs have been submitted to the AHIMS registrar
- The report must be submitted to Heritage NSW within 6 months of the completion of the surface collection, community collection and salvage excavations.
- A copy of the salvage and compliance report, including a summary of the report in plain English may be sent to each Registered Aboriginal Party within 14 days of the report being submitted to Heritage NSW.

## 7. Short and Long Term Care of Aboriginal Objects

Temporary care agreement is requested for Virtus Heritage's secure locked cupboard at Weir Phillips, and if large amounts of Aboriginal objects or shell midden material are recovered in a nominated laboratory in NSW or facility to undertake photography, cleaning, and analysis prior to final repository.

Proposed options for final repository include:

### OPTION 1

The care and control of all artefacts recovered during works from the project area will be stored at Deerubbin LALC office or by another RAP organisation under a Care and Control agreement.

### OPTION 2

All artefacts recovered during works from the project area will be re-buried in a location to be determined by RAPs. An AHIMS site card will be prepared and provided to the DPE after re-burial for registration onto the DPE's AHIMS. The location of re-burial of recovered artefacts will be decided and endorsed by the Aboriginal parties who registered an interest in the project.

Five parties have indicated that reburial onsite is the preferred option (as long as no further disturbances will take place once the artefacts are reburied), with one of the parties supporting a display on site.

## 8. References

Aboriginal Land Rights Act 1983

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

DECCW. 2010a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW and Archaeological Investigation of Aboriginal Objects Code of Practice.*

DECCW. 2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW.*

DECCW. 2010c. *Aboriginal heritage consultation requirements for proponents 2010.*

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

*Environment Protection and Biodiversity Conservation Act 1999*

*Heritage Act 1977*

ICOMOS Burra Charter 2013.

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

*Native Title Act 1993*

*Native Title Act (NSW) 1994*

Office of Environment and Heritage (OEH) 2011. *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW.*

Willowtree Planning 2024. *Project/Consultant Brief for the Proposed Glendenning Road Data Centre.* Supplied to Virtus Heritage Pty Limited by LCI Consultants.