



View north across Lake Cowal from the northern end of the project area.

## **ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT**

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### **INHABITAT PROJECT: LAKE COWAL**

BLAND LOCAL GOVERNMENT AREA

MARCH 2021

Report prepared by  
OzArk Environment & Heritage  
for the Lake Cowal Foundation



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## ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT COVER SHEET

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Dr Jodie Benton, OzArk Director

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### **Acknowledgement**

OzArk acknowledge Traditional Owners of the area on which this assessment took place and pay respect to their beliefs, cultural heritage, and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

## ABBREVIATIONS AND GLOSSARY

ACHAR	Aboriginal Cultural Heritage Assessment Report. As set out in the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> , all developments where harm to Aboriginal objects is likely must be assessed in an ACHAR.
ACHCRs	<i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> . Guidelines for conducting Aboriginal community consultation for developments where harm to Aboriginal objects is likely.
AHIMS	Aboriginal Heritage Information Management System. Administered by Department of Premier and Cabinet, AHIMS is the central register of all Aboriginal sites within NSW.
Assemblage:	All artefacts recorded at a location. In this report, assemblage refers to stone artefacts as this was the only artefact class recorded.
BP	Years before present
Code of Practice	<i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> under Part 6 NPW Act. Issued by DECCW in 2010, the Code of Practice is a set of guidelines that allows limited test excavation without the need to apply for an AHIP. The test excavation program for this assessment was conducted under the Code of Practice.
Heritage Act	<i>Heritage Act 1977</i> . Provides for the protection and conservation of historical places and objects of cultural heritage significance and the registration of such places and objects.
Heritage NSW	Government department tasked with ensuring compliance with the NPW and Heritage Acts. Heritage NSW is advised by the Aboriginal Cultural Heritage Advisory Committee (ACHAC) and is part of the Environment, Energy and Science cluster within DPIE.
NPW Act	<i>National Parks and Wildlife Act 1974</i> . Primary legislation governing Aboriginal cultural heritage within NSW.
NPWS	National Parks and Wildlife Service. Government agency formally tasked with maintaining database of Aboriginal sites in NSW.
OEH	Office of the Environment and Heritage. Former government department tasked with ensuring compliance with the NPW Act.

PAD	Potential archaeological deposit. Indicates that a particular location has potential to contain subsurface archaeological deposits, although no Aboriginal objects are visible.
Pleistocene:	Geological epoch which lasted from about 2.5 million years ago to 10,000 BCE. This period spans the world's recent period of repeated glaciations. Aboriginal occupation of Australia occurs during the upper Pleistocene.
RAP	Registered Aboriginal Party. An individual or group who have indicated through the ACHCR process that they wish to be consulted regarding the project.

## EXECUTIVE SUMMARY

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OzArk Environment & Heritage (OzArk) has been engaged by The Lake Cowal Foundation (LCF, the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) to support an Aboriginal Heritage Impact Permit (AHIP) for Aboriginal sites in the impact footprint of the proposed InHabitat ecotourism project at Lake Cowal, NSW (the project). This ACHAR also considers the potential for significant historic items to be present within the impact area based on the results of the test excavation.

The project will involve the installation of 15 semi-permanent eco tents along with associated facilities, including 2 sheds, 2 bathroom buildings, and small solar panel array at the location of the “Lake Cowal” homestead on the shores of Lake Cowal.

The initial field survey for this assessment was undertaken by EMM Consulting on 4 August 2020. The test excavation program was undertaken by OzArk over two days on 7–8 December 2020.

The EMM site survey identified ten previously unrecorded Aboriginal sites, including six isolated stone artefacts, three scarred trees, and one open artefact scatter. This assessment concluded that the study was comprised of three zones of archaeological sensitivity, with impacts proposed in zones of moderate and high sensitivity. As a result, a test excavation program was recommended to investigate the nature of the subsurface deposits within the impact footprint for the project.

The test excavation saw 32 squares excavated along three transects sampling proposed impact areas. The program recorded 35 artefacts from the 32 excavation squares. The results of the program indicate that there are subsurface artefacts present within the project area, however, the deposits were assessed to have a low artefact density overall. Given the limited ground disturbances associated with the project, the following recommendations are made:

1. The proponent should apply for a whole of project AHIP, impacting the seven sites listed in **Section 10** and partially impacting Lake Cowal Homestead OS1, per the salvage methodology outlined in **Section 10.2.2**.
2. The boundary of the AHIP area should be demarcated during works to avoid inadvertent impact to Aboriginal sites outside the area and not authorised for disturbance.
3. All workers on site should be given an induction so that they understand the protections afforded to all Aboriginal objects under the *National Parks and Wildlife Act 1974*. Inductions should include an introduction to artefact recognition (see **Appendix 3**).
4. Should previously unrecorded Aboriginal objects be discovered during works, the measures in the *Aboriginal Heritage Unanticipated Finds Protocol* (**Appendix 3**) must be followed.

5. The likelihood of burial sites being present within the project area has been assessed as low, however, due to the potential significance of such sites, the steps in the *Unanticipated Skeletal Remains Protocol* (**Appendix 4**) must be followed if remains suspected of being human are identified during works.

Recommendations concerning the historic values within project area are as follows.

6. The nature and low density of the historical material recorded during the test excavation indicates that no specific heritage management measures are necessary in relation to the proposed impacts at this time. However, if unexpected items of potential heritage significance are noted during works, then the *Historic Heritage Unanticipated Finds Protocol* (**Appendix 6**) should be followed.

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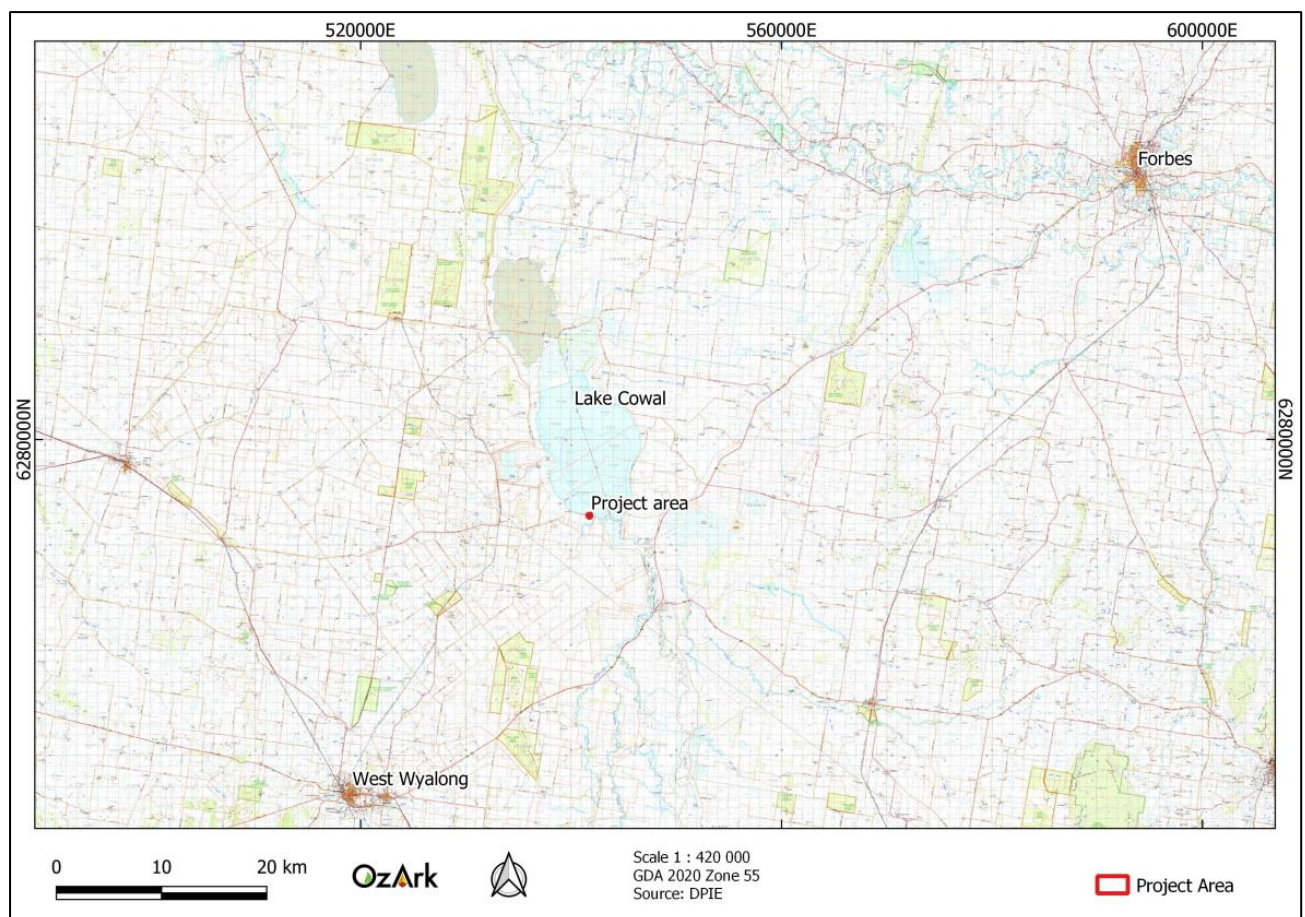
# 1 INTRODUCTION

## 1.1 DESCRIPTION OF THE PROJECT

OzArk Environment & Heritage (OzArk) has been engaged by The Lake Cowal Foundation (LCF, the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) to support an *Aboriginal Heritage Impact Permit* (AHIP) for Aboriginal sites within the impact footprint of the proposed InHabitat ecotourism project at Lake Cowal, NSW (the project). This ACHAR also considers the potential for significant historic items to be present within the impact area based on the results of the test excavation.

The project is within the Bland Shire Council Local Government Area (LGA) (**Figure 1-1**).

**Figure 1-1: Map showing the location of the project area.**



## 1.2 BACKGROUND TO THE PROJECT

On 4 August 2020 EMM conducted a due diligence assessment for the project area. The aims of the inspection were to establish the potential presence of Aboriginal objects or archaeological deposits and whether further archaeological investigation was required. The site inspection included pedestrian sampling of the project area. Ground surface visibility (GSV) was low in some areas due to dense vegetation cover, so areas of exposure were targeted. A total of 10 previously unrecorded Aboriginal sites were identified during the visual inspection and it was concluded that

the lake edge and back plain ridge landform associated with Lake Cowal has potential to contain subsurface deposits.

The Aboriginal sites recorded during the visual inspection include an artefact scatter, five isolated finds, an isolated find with potential archaeological deposits (PAD) and three scarred trees, one of which had a collection of relocated Aboriginal artefacts placed at its base (**Figure 1-2**). Stone materials present included chert, silcrete, volcanics and quartz. The Aboriginal sites were recorded on back plain, slope and beach landforms (EMM 2020).

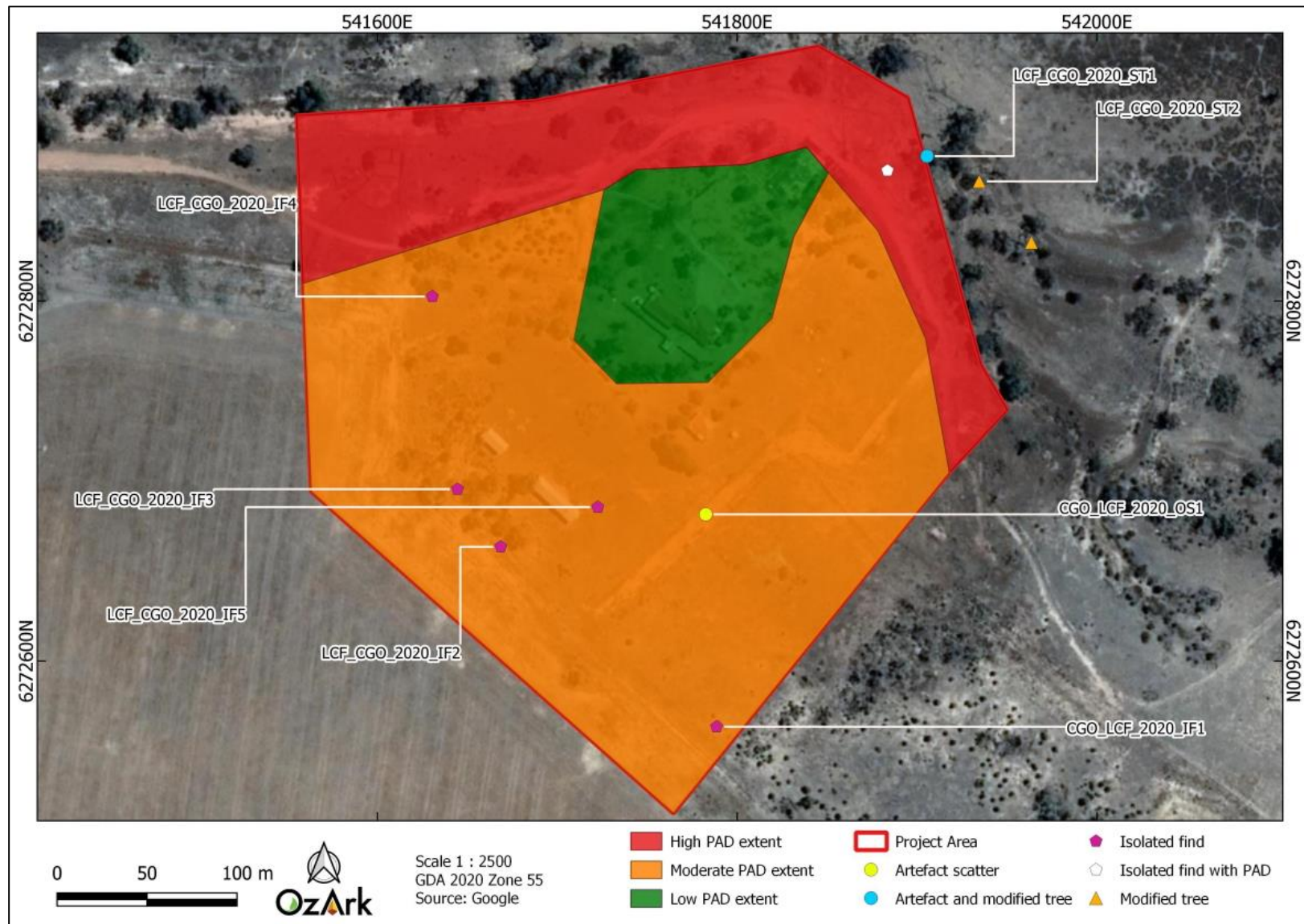
As a result of the assessment, EMM divided the project area into three zones based on their archaeological potential: low, moderate, and high (**Figure 1-2**). The assessment of archaeological potential took into consideration the types of landforms and soils present, as well as whether surface artefacts were identified. As a result, EMM (2020) concluded that further investigation in the form of a test excavation program would be required within the 'moderate' and 'high' zones of archaeological potential where ground surface disturbances are proposed.

As the project requires impacts in these zones, LCF engaged OzArk to undertake test excavation in accordance with the *Code of Practice for the Investigation of Aboriginal Objects in NSW* (DECCW 2010).

Consultation has been completed as per *the Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010b; **Section 3**).



Figure 1-2: Location of Aboriginal sites and the zones of archaeological potential recorded by EMM





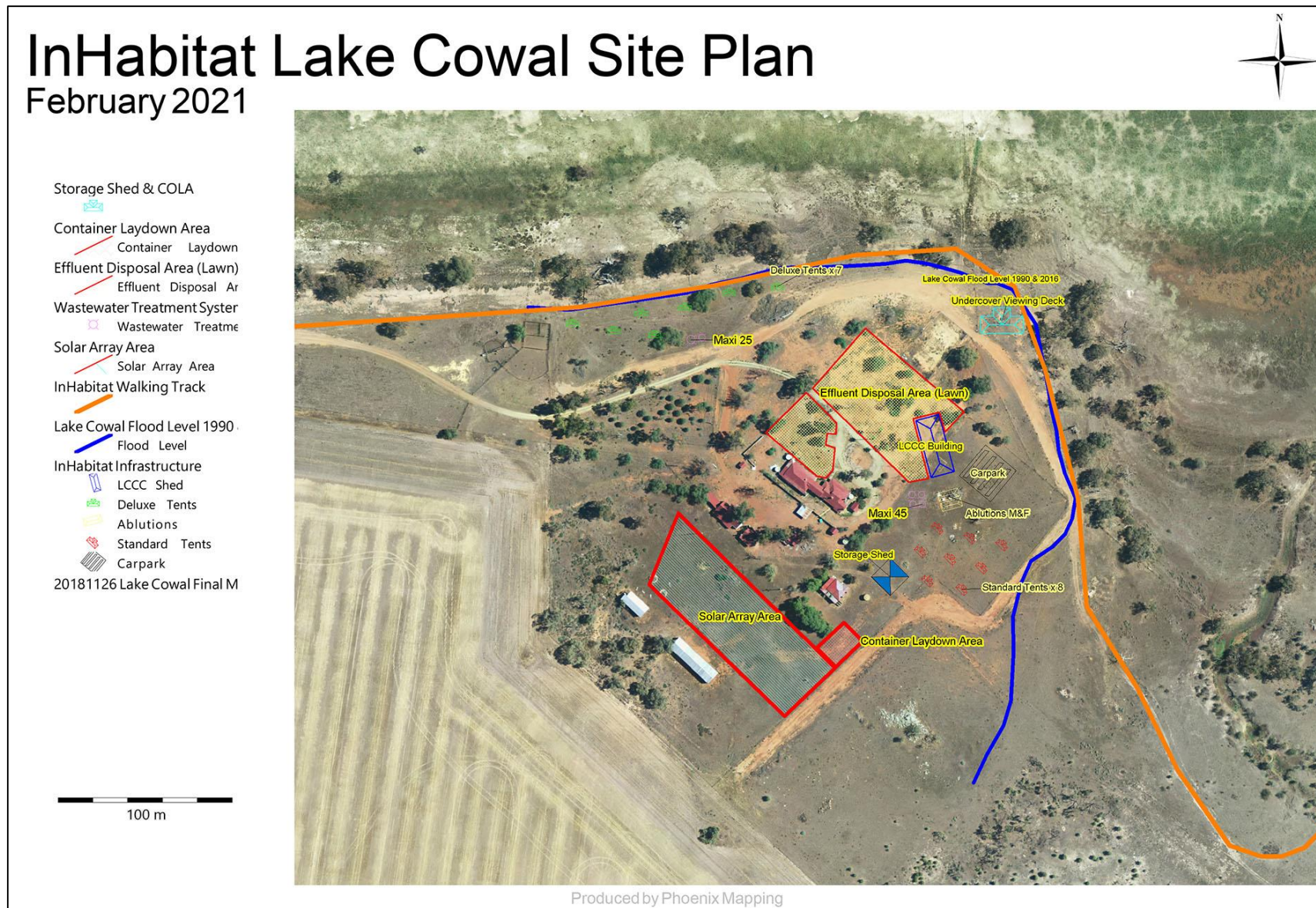
### 1.3 PROPOSED WORK

InHabitat Lake Cowal is an eco-tourism accommodation and environmental education project to be developed and operated by the LCF on the south-western shore of Lake Cowal, New South Wales' largest natural inland lake and wetland bird habitat of National significance. The project area is an elevated position on the lake shore, looking north over the 10 kilometre (km ) expanse of Lake Cowal, and west of the Bland Creek point of entry into the lake. InHabitat Lake Cowal will feature 15 semi-permanent eco tents along with associated kitchen, dining, bathroom, environmental education/presentation facilities, undercover viewing deck and bird hides. The site layout will consist of seven deluxe eco tents along the lake shore. A further eight standard eco tents will be located along the south-eastern side of the site (see **Figure 1-3** for the proposed plan of InHabitat). Although these tents will not have a significant ground surface disturbance footprint in themselves, they will require buried services to connect them to water and power.

The kitchen, dining and presentation facilities will be established through a purpose-built pavilion (36 metres [m] x 10.5 m) with two adjacent bird hides. InHabitat Lake Cowal will also incorporate the Lake Cowal Conservation Centre (LCCC), which will be moved from its current location. Power is to be generated via an on-site solar array, from which underground cabling will extend to connect the project buildings and tents to power.

Overall, the project will not have a significant ground surface disturbance footprint, but there will nonetheless be discrete activities, i.e. trenching, solar array establishment, and shed construction that will disturb the ground surface.

Figure 1-3: Proposed plan of InHabitat.



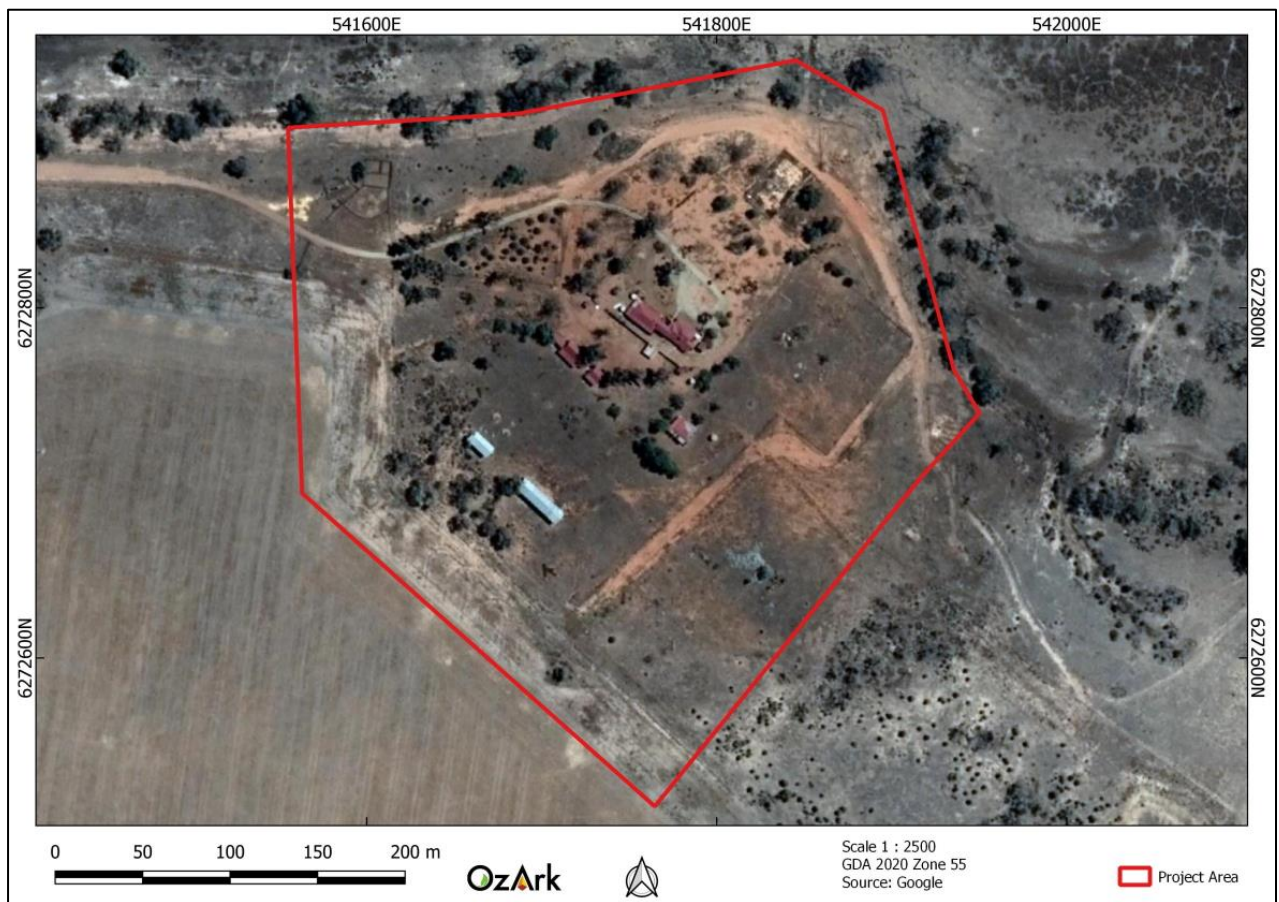


## 1.4 PROJECT AREA

The project area is located on the “Lake Cowal” property, at 419 Uncle Bills Road, Lake Cowal, NSW 2671 (**Figure 1-4**).

The “Lake Cowal” property is agricultural land owned by Evolution Mining’s Cowal Gold Operations which is located 6 km north-northwest of the project site on the western shore of Lake Cowal. The project area includes the original homestead complex of the Lake Cowal property in an elevated position with a north-easterly aspect over the lake.

**Figure 1-4: Aerial showing the project area.**



## 2 ABORIGINAL CULTURAL HERITAGE ASSESSMENT INTRODUCTION

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### 2.1 DATE OF ARCHAEOLOGICAL ASSESSMENT

The test excavation program was undertaken by OzArk over two days on 7–8 December 2020.

### 2.2 OZARK INVOLVEMENT

The fieldwork component of the heritage assessment was undertaken by:

- Fieldwork Director: Dr Jodie Benton (OzArk Director, BA [Hons] and PhD [Archaeology] University of Sydney)
- Fieldwork officer: Harrison Rochford (OzArk Heritage Officer, Masters Philosophy (Ancient History) and Bachelor of Liberal Studies [Hons], University of Sydney).

#### 2.2.1 Reporting

The reporting component of the heritage assessment was undertaken by:

- Report Author: Harrison Rochford
- Contributor: Taylor Foster (OzArk Archaeologist, BA [Hons] Archaeology James Cook University)
- Reviewer: Dr Jodie Benton and Ben Churcher (OzArk Principal Archaeologists).

### 2.3 RELEVANT LEGISLATION

Cultural heritage is managed by several state and national Acts. Baseline principles for the conservation of heritage places and relics can be found in the *Burra Charter* (Burra Charter 2013). The *Burra Charter* has become the standard of best practice in the conservation of heritage places in Australia, and heritage organisations and local government authorities have incorporated the inherent principles and logic into guidelines and other conservation planning documents. The *Burra Charter* generally advocates a cautious approach to changing places of heritage significance. This conservative notion embodies the basic premise behind legislation designed to protect our heritage, which operates primarily at a state level.

Several Acts of parliament provide for the protection of heritage at various levels of government.

#### 2.3.1 Commonwealth legislation

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

The EPBC Act, administered by the Commonwealth Department of Agriculture, Water and the Environment, provides a framework to protect nationally significant flora, fauna, ecological communities, and heritage places. The EPBC Act establishes both a National Heritage List and Commonwealth Heritage List of protected places. These lists may include Aboriginal cultural sites or sites in which Aboriginal people have interests. The assessment and permitting processes of

the EPBC Act are triggered when a proposed activity or development could potentially have an impact on one of the matters of national environment significance listed by the Act. Ministerial approval is required under the EPBC Act for proposals involving significant impacts to National/Commonwealth heritage places.

### ***Other***

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* is aimed at the protection from injury and desecration of areas and objects that are of significance to Aboriginal Australians. This legislation has usually been invoked in emergency and conflicted situations.

The *Protection of Movable Cultural Heritage Act 1986* includes legislation that prevents objects of cultural heritage significance, such as those that are sacred to Aboriginal peoples' heritage, from being exported out of Australia.

## **2.3.2 State legislation**

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

This Act established requirements relating to land use and planning. The framework governing environmental and heritage assessment in NSW is contained within the following parts of the EP&A Act:

- Part 4: Local government development assessments, including heritage. May include schedules of heritage items
  - Division 4.7: Approvals process for state significant development
- Part 5: Environmental impact assessment on any heritage items which may be impacted by activities undertaken by a state government authority or a local government acting as a self-determining authority
  - Division 5.2: Approvals process for state significant infrastructure.

The EP&A Act also establishes two types of environmental planning instruments (EPIs), one of which (a Local Environmental Plan, LEP) can include aims for the protection, conservation, and enhancement of environmental and cultural heritage.

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

Amended during 2010, the NPW Act provides for the protection of Aboriginal objects (sites, objects, and cultural material) and Aboriginal places. Under the Act (Part 6), an Aboriginal object is defined 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 NSW, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction and includes Aboriginal remains.

An Aboriginal place is defined under the NPW Act as an area which has been declared by the Minister administering the Act as a place of special significance for Aboriginal culture. It may or may not contain physical Aboriginal objects.

As of 1 October 2010, it is an offence under Section 86 of the NPW Act to 'harm or desecrate an object the person knows is an Aboriginal object'. It is also a strict liability offence to 'harm an Aboriginal object' or to 'harm or desecrate an Aboriginal place', whether knowingly or unknowingly. Section 87 of the Act provides a series of defences against the offences listed in Section 86, such as:

- The harm was authorised by and conducted in accordance with the requirements of an *Aboriginal Heritage Impact Permit* (AHIP) under Section 90 of the Act
- The defendant exercised 'due diligence' to determine whether the action would harm an Aboriginal object; or
- The harm to the Aboriginal object occurred during the undertaking of a 'low impact activity' (as defined in the regulations).

Under Section 89A of the Act, it is a requirement to notify the Secretary of the Department of Premier and Cabinet of the location of an Aboriginal object. Identified Aboriginal items and sites are registered on Aboriginal Heritage Information Management System (AHIMS) that is administered by Heritage NSW.

### **2.3.3 Local legislation**

While established under state legislation, the Bland Shire LEP 2011 was drafted and enacted at the local government level. Any identified 'environmental heritage' items identified by Schedule 5 of the LEP are subject to the provisions of heritage conservation (Section 5.10).

### **2.3.4 Applicability to the project**

The project will be assessed under Part 4 of the EP&A Act.

Any Aboriginal sites within the project area are afforded legislative protection under the NPW Act.

It is noted there are no Commonwealth or National heritage listed places within the project area, and as such, the heritage provisions of the EPBC Act and other Commonwealth Acts do not apply.

## **2.4 PURPOSE AND OBJECTIVES**

The purpose of the current assessment is to identify and assess heritage constraints relevant to the project.

### 2.4.1 Aboriginal archaeological assessment objectives

The current assessment will apply the Code of Practice in the completion of an Aboriginal archaeological assessment (test excavation) to meet the following objectives:

**Objective One:** To establish whether Aboriginal archaeological deposits are present within the impact footprint of the project area

**Objective Two:** If present, establish the extent of these subsurface deposits and characterise the nature and condition of any archaeological deposits

**Objective Three:** To develop, in consultation with the Registered Aboriginal Parties (RAPs), an informed strategy for the management of impacts to any archaeological deposits in the project area.

## 2.5 REPORT COMPLIANCE WITH THE CODE OF PRACTICE

The Code of Practice establishes requirements that should be followed by all archaeological investigations where harm to Aboriginal objects may be possible. **Table 2-1** tabulates the compliance of this report with the requirements established by the Code of Practice.

**Table 2-1: Report compliance with the Code of Practice.**

Code of Practice Requirement	Context of the Requirement	Concordance in this report
Requirement 1	Review previous archaeological work	<i>see subsection below</i>
Requirement 1a	Previous archaeological work	<b>Section 6</b>
Requirement 1b	AHIMS searches	<b>Section 6.3</b>
Requirement 2	Review the landscape context	<b>Section 5</b>
Requirement 3	Summarise and discuss the local and regional character of Aboriginal land use and its material traces	<b>Section 6</b>
Requirement 4	Predict the nature and distribution of evidence	<b>Section 6.5</b>
Requirement 4a	Predictive model	<b>Section 6.5</b>
Requirement 4b	Predictive model results	<b>Section 8</b>
Requirement 5	Archaeological survey	<i>see subsection below</i>
Requirement 5a	Survey sampling strategy	<b>EMM 2020</b>
Requirement 5b	Survey requirements	This Requirement was fulfilled by EMM during the undertaking of the survey
Requirement 5c	Survey units	<b>EMM 2020</b>
Requirement 6	Site definition	<b>EMM 2020</b>
Requirement 7	Site recording	<i>see subsection below</i>
Requirement 7a	Information to be recorded	<b>Section 7.5.9</b>
Requirement 7b	Scales for photography	All artefact photographs employed a centimetre scale bar.
Requirement 8	Location information and geographic reporting	<i>see subsection below</i>
Requirement 8a	Geospatial information	All artefact locations were logged using a non-differential handheld GPS.



Code of Practice Requirement	Context of the Requirement	Concordance in this report
Requirement 8b	Datum and grid coordinates	All coordinates are provided in GDA 2020 Zone 55.
Requirement 9	Record survey coverage data	<b>EMM 2020</b>
Requirement 10	Analyse survey coverage	<b>EMM 2020</b>
Requirement 11	Archaeological Report content and format	This report adheres to this Requirement.
Requirement 12	Records	OzArk undertakes to maintain all records for at least five years.
Requirement 13	Notifying OEH and reporting	Heritage NSW was notified of test excavation commencement on 7 December 2020.
Requirement 13a	Notification of breaches	Not applicable
Requirement 13b	Provision of information	Not applicable
Requirement 14	Test excavation which is not excluded from the definition of harm	The test excavation did not take place in any of the landforms identified in Requirement 14.
Requirement 15	Pre-conditions to carrying out test excavation	<i>see subsection below</i>
Requirement 15a	Consultation	Consultation has included the ACHCRs, see <b>Section 3</b>
Requirement 15b	Test excavation sampling strategy	A test excavation methodology was produced ( <b>Appendix 2: Test methodology</b> ) and issued to Registered Aboriginal Parties for their information.
Requirement 15c	Notification	Heritage NSW was provided with a copy of the test excavation methodology on 22 October 2020.
Requirement 16	Test excavation that can be carried out in accordance with this Code	<i>see subsection below</i>
Requirement 16a	Test excavations	The test excavation program complied with this requirement; see <b>Section 7</b> and <b>Appendix 2: Test methodology</b> .
Requirement 16b	Objects recovered during test excavations	The test excavation methodology established that any artefacts recovered from the excavations would be analysed and returned to site.
Requirement 17	When to stop test excavations	The methodology of the test excavation adhered to this requirement; see <b>Section 7</b> .

## 2.6 ASSESSMENT APPROACH

The current assessment follows the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (Code of Practice; DECCW 2010).

Field assessment and reporting followed the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011).

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### 3 ABORIGINAL COMMUNITY CONSULTATION

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#### 3.1 ABORIGINAL COMMUNITY CONSULTATION

The Aboriginal cultural heritage assessment of the project has followed the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRs) (DECCW 2010b). A log and copies of correspondence with Aboriginal community stakeholders is presented in **Appendix 1 Table 1**.

The ACHCRs include four main stages and these will be detailed in the following sections.

##### 3.1.1 ACHCRs Stage 1

The aim of Stage 1 is to identify the RAPs who wish to be consulted about the project. A desktop search of the National Native Title Tribunal (NNTT) Register of Native Title Applications, Registration Decisions and Determinations, as well as the Register of and Use Agreements (ILUAs) was conducted by EMM on 4 June 2020, indicating that no active native title or land claims and no ILUAs are present over the project area.

An advertisement was placed in the *Forbes Advocate* on Tuesday 22 September 2020 (**Appendix 1 Figure 1**). A letter requesting input from various public agencies to identify community stakeholders was sent on 17 September 2020. The contacted agencies included Heritage NSW, West Wyalong Local Aboriginal Land Council (WWLALC), Aboriginal Land Rights Act (ALRA) office, Riverina Local Land Services (RLLS), National Native Title Tribunal; Native Title Services Corporation (NTSCORP) and Bland Shire Council. Example letters are presented in (**Appendix 1 Figure 2**).

- The following groups registered as RAPs for the project:
- WWLALC
- Wiradjuri Condobolin Corporation (WCC)
- Wiradjuri Council of Elders

##### 3.1.2 ACHCRs Stages 2 and 3

The aim of Stages 2 and 3 is provide information about the project to the RAPs and to acquire information regarding Aboriginal cultural values associated with the project either through consultation and/or field work. Often these two stages are run together, and the detailed project information is provided in the assessment methodology that is issued to all RAPs for their consideration.

The project overview, survey results, and test excavation methodology were sent to RAPs on 10 November 2020, requesting feedback by 8 December 2020 (**Appendix 1 Figure 3**). The

Wiradjuri Council of Elders (WCE) responded and indicated that they approved the methodology and requested no changes (see **Appendix 1 Table 1**). No further comments were received.

### **3.1.3 ACHCRs Stage 4**

Stage 4 involves the production of a draft ACHAR that is issued to all RAPs for their consideration. The ACHAR will document the results of the assessment, outline opportunities for the conservation of Aboriginal cultural values, and suggest recommendations for the management of Aboriginal objects should impacts to these objects be unavoidable.

No comments were received from WCE or WCC. WWLALC confirmed their approval, in principle, of a Care and Control Agreement for the artefact storage on site after salvage operations, pending discussion of the formal details of the agreement.

## **3.2 ABORIGINAL COMMUNITY INVOLVEMENT IN THE ASSESSMENT**

Site officers representing WWLALC and WCC attended the test excavation program. The engagement of site officers for the fieldwork was managed by LCF.

The site officers attending were:

- Richard Coe (WCC) (7-8 December 2020)
- Eugene Coe (WCC) (7-8 December 2020)
- Linton Howarth (WWLALC) (8 December 2020)
- Louise Davis (WWLALC) (8 December 2020)
- Donald Thomas (WWLALC) (8 December 2020)

### **3.2.1 Comments arising from the assessment**

A brief discussion was held at the conclusion of the test excavation program regarding the long-term management of artefacts recovered from the project area. A consensus was reached that the artefacts should stay on Country with LCF but under the care of WWLALC and WCC.

It was noted that this would require applying for a Care Agreement to be entered into between the RAPs, LCF and Heritage NSW.

## 4 CULTURAL VALUES

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### 4.1 INTRODUCTION TO CULTURAL VALUES

*No matter who you are, we all have culture. Each person's culture is important; it's part of what makes us who we are.*

Many Aboriginal people in Australia have a unique view of the world that is distinct from the non-Aboriginal population. Land, family, law, ceremony, and language are five key interconnected elements of Aboriginal culture. For example, families are connected to the land through the kinship system, and this connection to land comes with specific roles and responsibilities which are enshrined in the law and observed through ceremony. In this way, the five elements combine to create a way of seeing and being in the world that is distinctly Aboriginal.

Fundamentally, culture is living and is not static:

- Culture is acquired - we learn about culture from others in our community, including our parents
- Culture is shared - culture does not exist in a vacuum, it is shared amongst a group of people
- Culture defines core values - because we have been taught our culture and share it with our cultural group, we tend to form the same core values
- Cultures resist change but are not static - culture does and can change, but change is usually slow and gradual.

#### 4.1.1 Connection to Country

Aboriginal and Torres Strait Islander peoples are connected to Country through lines of descent (paternal and maternal), as well as clan and language groups.

Although in the past (and sometimes into the present) there have been conflicts between different tribal groups, these were rarely over land. Aboriginal and Torres Strait Islander people have such a strong sense of belonging to country; they have no desire to own the land of others.

Territory is defined by spiritual as well as physical links. Landforms have deep meaning, recorded in art, stories, songs and dance. Songlines or Dreaming Tracks as well as kinship structures link Aboriginal peoples to the territories of other groups. In the past, these links were also used for trade.

*"When we say Country we might mean homeland, or tribal or clan area and in saying so we may mean something more than just a place; somewhere on the map. We are not necessarily referring to place in a geographical sense. But we are talking about the whole of the landscape, not just the places on it."*

Professor Mick Dodson AM, August 2007

#### **4.1.2 Managing Country**

Surviving on this land for more than 60,000 years, Aboriginal and Torres Strait Islanders established effective ways to use and sustain resources. One important aspect is the right of certain people to control the use of resources in a particular area. Aboriginal and Torres Strait Islander people do not see themselves as 'owning' land, animals, plants, or nature, but rather belonging with these things as equal parts of creation.

The rights of different groups to live in and manage certain areas of land are clear and recorded through art, stories, songs, and dance.

Deep cultural and spiritual values like totemism have also played an important part in Aboriginal and Torres Strait Islander resource management. Totemism is a belief and value system that connects human beings to other animals, plants, and aspects of nature. Groups and individuals are assigned a particular animal that they are related to and have to care for. This gives them a profound sense of connection to and responsibility for the natural world.

Aboriginal and Torres Strait Islanders people have a wide range of traditional methods for gathering food including fish traps, subsistence agriculture, hunting and harvesting a wide range of natural fruits and vegetables. Some groups of people would stay in one place, while others moved around the land according to the seasons, to ensure sustainable and rich food supplies, and to fulfil their spiritual and cultural obligations.

Even before 1788 there were complex relationships for long distance trade between Aboriginal and Torres Strait Islander communities especially for coastal shells and stone hatchets. When people from different groups met socially to share resources, for ceremonies or to settle disputes, they brought items to exchange. Items included stones for hatchets, kangaroo skins, timber for spears, ochre or clay for paint and marine shells for decoration.

The exchange of objects was not motivated by a desire for wealth accumulation but a social system to build connection between people and groups.

#### **4.1.3 Recognising lore**

In Aboriginal and Torres Strait Islander communities, codes of conduct cover behaviour around:

- Leadership and etiquette
- Property
- Laws around special events like marriage, coming of age and death
- Sacred knowledge.

In much of eastern Australia, Aboriginal communities live their lives like most Australians without resorting to tribal lore. However, in certain crucial areas, particularly associated with family,

leadership roles and caring for Country, Aboriginal lore continues, even in the most urbanised communities.

## **4.2 IDENTIFYING CULTURAL VALUES**

A major aim of this assessment is to identify any cultural values within the landscape in which the project is located so that those values can be recognised and incorporated into the project's management recommendations.

Any cultural values relating to the project area will be captured by the OzArk archaeologists (if such information is provided by RAPs during the test excavation) and included in the ACHAR. Requests for information concerning cultural values were also included in formal consultation for the ACHCRs.

Understanding cultural landscapes can only come from the views of a particular community, in this case, the Aboriginal community. Unless informed, OzArk will not know of the community's feelings towards the cultural landscape in which the project will be located. OzArk, therefore, invites any information on the cultural landscape surrounding the project area to be forwarded to OzArk, either by telephone or mail or e-mail. Any information received will be treated according to the conditions set out below.

### **4.2.1 Use of information collected**

An ACHAR will be prepared for the project which articulates Aboriginal cultural values and associated conservation methods across the project area, as identified during the consultations. The ACHAR will be circulated to all RAPs for comment as is set out in the ACHCRs. The ACHAR will be considered by Heritage NSW when determining whether the project should be approved. The report will be publicly available.

### **4.2.2 Public / confidential information**

Information will be treated in accordance with instructions received by Aboriginal informants. Information described as confidential (culturally sensitive) will not be detailed in the publicly available report. Confidential information should be made available to the proponent, its heritage consultants, and Heritage NSW so that significant cultural values can be conserved. On advice from the provider of the information, a redacted ACHAR would be made available to the wider public where any sensitive cultural information is removed.

### **4.2.3 Copyright**

Information collected for this assessment remains the property of the Aboriginal informants and the author. Without written permission from individual informants and the author information may not be used for purposes other than those outlined above.

### **4.3 CULTURAL VALUES RELEVANT TO THE PROJECT AREA**

No submissions were received detailing cultural values that pertain directly to the study area (see **Section 3**). Therefore, understanding of the cultural values of the study area has been inferred from other sources of information, such as ethnographic, regional and archaeological sources.



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## 5 LANDSCAPE CONTEXT

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An understanding of the environmental contexts of a project area is requisite in any archaeological investigation (DECCW 2010). It is a particularly important consideration in the development and implementation of survey strategies for the detection of archaeological sites. In addition, natural geomorphic processes of erosion and/or deposition, as well as humanly activated landscape processes, influence the degree to which these material culture remains are retained in the landscape as archaeological sites; and the degree to which they are preserved, revealed and/or conserved in present environmental settings.

### 5.1 TOPOGRAPHY

The 'Lake Cowal' property is located on the southern shore of Lake Cowal in the fluvial landforms of the NSW South Western Slopes bioregion, in the lower slopes subregion. The landscape consists of an area of hilly ranges and isolated peaks set in wide valley contexts. Areas at Lake Cowal have been assessed previously in terms of their various micro-environments (Cane 1994, Pardoe 2009, 2013). The micro-environments would have offered different resources to Aboriginal people in the past, which is reflected in their current archaeological characteristics.

Within this landscape of micro-environments, the project area includes two landforms associated with Lake Cowal: the Lake Cowal shore edge and a low rise landform that overlooks the back plain and delta of Sandy Creek. The division of these landforms at the project area is shown in **Figure 5-1**.

Previous assessments of similar landforms have termed them the 'lake edge ridge' and 'back plain', but these areas were noted to have some different characteristics. The Lake Cowal shore edge has only slight elevation above the lake and back plain, with the accumulated lacustrine deposits not deemed to constitute a ridge, as it might in other locations around the lake. Similarly, the low rise behind the shore edge has higher elevation above the back plain south of the project area and has some outcropping rock (**Figure 5-2**).

Figure 5-1: Landforms of the project area.

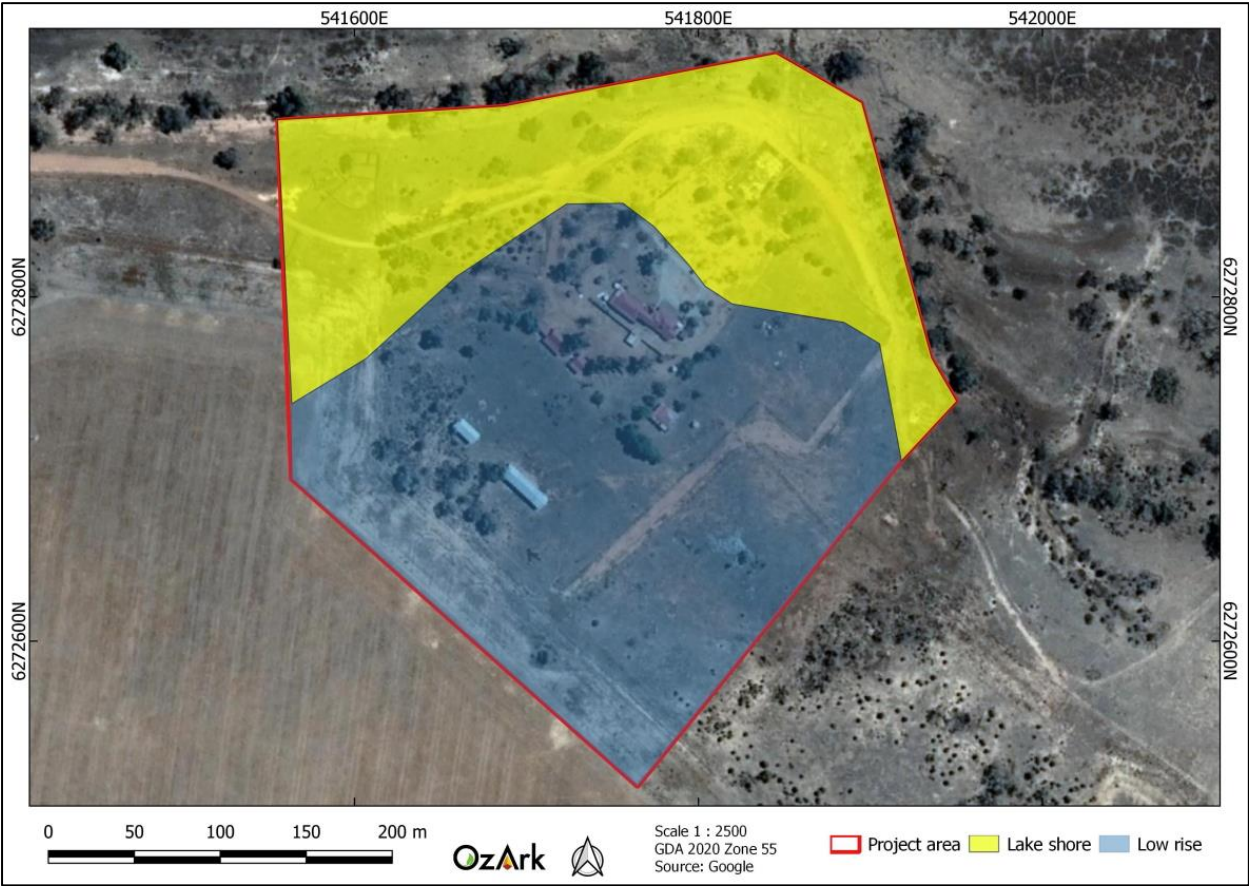


Figure 5-2: Topography of the project area.



## 5.2 SOILS AND GEOLOGY

The project area is located within the Lachlan-Bland Channels and Floodplains landscape classification (Mitchell 2002). The soils present are typically red-brown earths on undulating plains and quaternary alluvial plains with soils consisting of grey cracking clays with gilgai along channels and in swamps. Lake edge and beach zones have deeper loamy sand deposits from

sediment aggradation. The project area is on the shore of the ephemeral Lake Cowal, which is also associated with swamps and tributary channels on alluvial clay, sandy clay, and sand. It is noted that lunettes on alluvial soils are often associated with large Pleistocene deposits, however, lunette features at Lake Cowal are only present on the eastern shore (Pardoe 2013: 31). The stratigraphy of the Lake Cowal soils tend to be alternating bands of clay and gravel.

Local geology consists of interbedded volcanic rocks, areas of intrusive granites and large areas of tertiary and quaternary alluvium. The outcropping rock at the project on the low rise landform has obscure geology and is unlike other outcrops nearby (pers comm Mal Carnegie 7 December 2020).

### **5.3 HYDROLOGY**

Lake Cowal is part of an ephemeral inland wetland system in the Lachlan River catchment and is a typical wetland system with variable flooding/drying cycles. It is New South Wales' largest natural inland lake with an approximate length of 21 km and an approximate width of 9.5 km. Surface water inflow to Lake Cowal originates from Bland Creek in the south and the Lachlan – Lake Cowal Floodway in the northeast. Inflows can also be a result of overflow from the Lachlan River during major flood events 30 km to the north of the lake. Although it can often be dry, its cyclical nature indicates that it should be seen as an important resource for traditional Indigenous peoples who understood these cycles.

The project area is located on the shore of Lake Cowal, so it has a variable distance from permanent water. Sandy Creek, a second-order perennial waterway, joins Lake Cowal 270 m east of the project area. Bland Creek, the major southern tributary to Lake Cowal, is located approximately 1.5 km to the east (**Figure 5-3**).



**Figure 5-3: Hydrological features of the project area.**

## 5.4 VEGETATION

Before colonial occupation, the southern shore of Lake Cowal would have supported open woodland featuring bumble box, grey box, yellow box, and white cypress pine with an understorey of low grasses. River red gum and river coobah line the shore of the lake and banks of more reliable waterways such as Sandy and Bland Creeks.

At present, the project area has been largely cleared of mature, native vegetation around the Lake Cowal homestead. The surrounding area to the south has been cleared and cropped.

## 5.5 CLIMATE

Lake Cowal is located on the boundaries of the south-eastern semi-arid and the south-eastern temperate regions of Australia. Historical data collated by the Lake Cowal Foundation from Condobolin, Forbes and Wyalong indicates that the average high temperature ranges from 32.7°C in January to 2.8°C in July.

Rainfall at the project area is described as erratic with average annual rainfall of 481 millimetres (mm).

## 5.6 LAND–USE HISTORY AND EXISTING LEVELS OF DISTURBANCE

Relevant to the archaeological assessment of the local area is the siting of the project area at the Lake Cowal Homestead complex. The first colonial use of the land around the project area would have been low density grazing as pastoral runs were taken by squatters in the Bland Creek area from 1833. While gold mining was the key industry for the expansion of colonial occupation into the Lake Cowal region from 1893 onwards, centred around the Wyalong goldfields, the project area has remained in pastoral and residential use.

The Lake Cowal station and homestead was constructed by Samuel Wilson in 1888 with the original homestead destroyed by fire in 1927. The Wilson family held the station until it was sold to William Arthur Buttenshaw in 1945. “Lake Cowal” was run as an Estate until 1950, then being purchased by William Robert Buttenshaw (Bill). Bill and family made their home there until 2002 when the property was purchased by Barrick Gold, a Canadian based gold mining company.

The construction of the homestead and associated outbuildings since 1888 has led to a considerable amount of ground disturbance at the centre of the project area (**Figure 1-4**). The majority of the project area has only isolated areas of disturbance, such as fencing, tracks and sheds. There are some broader disturbances, such as clearing and topsoil degradation, that are also present in the project area.

## 5.7 CONCLUSION

The low-grade slopes and flat topography of the project area is generally conducive to the retention of archaeological deposits. The Lake Cowal area is comprised of a range of micro-environments influenced by the general topographic, hydrological, and geological features outlined above.

The lake shore landform has been subject to the deposition of lacustrine material from Lake Cowal. Archaeological deposits present in this landform are likely to have been covered by aggraded material. The shore edge itself may also have been affected by wave and flood action from the lake. The low rise landform is less likely to have retained and concealed archaeological material over time as the landform is more prone to erosive processes that might reveal deposits, if present.

The proximity of the project area to Lake Cowal and Sandy Creek indicates that it may have offered water and water-based resources to Aboriginal people in the past. While the climate is conducive to year-round habitation, no specific resources are present in the project area that differentiates it from the surrounding micro-environments.

The continuous occupation of the area since the settlement of the Lake Cowal homestead will also have resulted in some areas of significant disturbance to the archaeological record across

both landforms. However, there are also areas that will have been relatively undisturbed by construction and habitation since the late 19<sup>th</sup> century.

## 6 ABORIGINAL ARCHAEOLOGY BACKGROUND

### 6.1 ETHNO-HISTORIC SOURCES OF REGIONAL ABORIGINAL CULTURE

According to Tindale, the Lake Cowal area is within the language boundary of the Wiradjuri people. The word *cowal* is said to be the local Aboriginal word for 'large water', according to Woolrych in 1890 (Cane 1995).

Cane 1995 summarises information about the Aboriginal history of the area noting that it is relatively meagre. Wilson in 1923 recorded that "*the Aboriginals had large camps on the site of the present-day Lake Cowal Station homestead ... numerous middens were about there*" (as cited in Cane 1995). English, writing in his undated volume *Around the Cowal*, records that "*there appeared to be substantial evidence that the area had been inhabited by numbers of Aborigines of almost tribal proportions*", however, Cane notes that this evidence was not further discussed (Cane 1995). The Bland was described by English as a meeting place of the tribes of the Lachlan and Murrumbidgee Rivers and was the location of the "*last fight between the Lachlan and Murrumbidgee blacks*" (Cane 1995).

Although not specifically including the project area, these references point to Lake Cowal and the Bland Creek area as a location that supported large gatherings, with further references made to initiation ceremonies held in the area. Lake Cowal is a significant area for the local Wiradjuri community and the substantial amounts of archaeological evidence uncovered in the last 50 years supporting the hypothesis that the area was culturally and socially significant.

### 6.2 REGIONAL ARCHAEOLOGICAL CONTEXT

Etheridge is said to have recorded 112 carved trees in the area in 1918 (Etheridge 1918; Cane 1995). Two were recorded as being located on the Bland River, south of Lake Cowal, although there is some doubt as to actual locations. There is also a reference to a carved tree on Bogies Island. David Bell undertook further carved tree research in the 1970s, and at this time recorded 269 carved trees, three of which were located between Forbes and Lake Cowal (Cane 1995). During his investigations, the owner of 'Lake Cowal' said he had heard of a burial ground somewhere on the Lake Cowal property, encompassing the project area.

Cane 1995 also references a National Parks and Wildlife Services (NPWS) listed site referred to as a campsite on the south end of Lake Cowal, containing scrapers and an axe, although the location of this site is unclear. Cane also suggests that, although distanced from the Lake Cowal project area, burials located 20 km south at Bland Creek propose a higher degree of cultural significance to the area and put forward the possibility that the foreshores of Lake Cowal might also contain such sites.

A significant amount of archaeological investigation has occurred within proximity of the project area due to studies for the Cowal Gold Project commencing in 1989. Paton (1989) divided the

Cowal Gold Project area into four subsections and after concluded that the southern sandy shore (referred to as 'Area 3') had high archaeological sensitivity and may contain burials.

Cowal Gold Operations (also referred to as Barrick Gold) is located 6 km north-northwest of the project site on the western shore of Lake Cowal, was originally operated under Barrick Gold and since 2015 under Evolution Mining. Studies have been conducted for each mine modification or expansion since 1989, providing a suite of detailed studies from which the archaeology of the area can be better understood.

### **6.2.1 Cane 1994: Campsites at Lake Cowal**

In 1994 Cane conducted a survey in order to identify any Aboriginal sites located within the North Mining's Lease area, along the western bank of Lake Cowal. The survey identified nine Aboriginal sites within the assessment area. These consisted of eight open camp sites and a scarred tree. Five of the camp sites were relatively large and recorded over 100 artefacts at each site. The remaining three sites recorded artefact numbers between 20 and 45. In total 679 artefacts were recorded in Cane's survey. These sites indicated that chert was the dominant raw material, and while low density deposits are common, there is also the potential for higher density sites to be identified. Three main site functions were hypothesised from the recorded sites. Four of the sites are thought to be associated with hunting activities, one site is theorised to be a base camp and one as a 'men's activities' site.

This report supports the hypothesis of the Lake Cowal area being a socially important and culturally rich environment formed through continuous occupation during environmentally favourable periods of time. Cane's investigation was exclusively surface survey, but some of the conclusions could be transferable to characteristics of the potential subsurface assemblage. It would be expected that the assemblage may contain a high proportion of backed blades and flaked artefacts be predominantly quartz.

### **6.2.2 OzArk 2008: Lake Brewster excavations**

Although not in the Lake Cowal area, the limited amount of test excavations conducted near the project area necessitates the consideration of results from similar landscapes in NSW. In 2008, OzArk conducted a test excavation program for water storage upgrade works at Lake Brewster, an ephemeral lake that relies on the Lachlan River.

Excavated landforms included the strandline of the pre-colonial high-water mark (the lake was modified to increase inflows in 1951). Other landforms included sandy lunettes that are not anticipated at the present project area. The strandline landform has similar characteristics of aggraded lacustrine deposits to the shores of Lake Cowal. The results of the excavation in these shore areas indicated that the expected stratigraphy at the study area might be an A-horizon of silty deposited material over grey lakebed clays.



Artefacts recovered during the excavation indicated low-density deposits at the various Lake Brewster excavation areas. The stratigraphy of the excavation squares led to the conclusion that deposits were likely to have been disturbed by hydrological disturbances.

### **6.2.3 Pardoe 2009a and 2009b: Investigations at Lake Cowal**

In 2005 archaeological investigations were undertaken at Lake Cowal in relation to the proposed Cowal Gold Operations. Pardoe's 2009 report describes the activities undertaken as:

- Monitoring of topsoil removal
- Surface artefact collection
- Excavation of sites and ovens
- Additional site inspections
- Reassessment of potential scarred trees and relocation of trees
- Archaeological analysis of the above activities.

Test excavations were conducted along the lake edge and back plains. The result of the excavations on the back plains indicated high disturbance due to past land use, however, excavations on the lake edge were far more successful recording stone artefacts, cultural deposits, ovens, and dateable materials. Artefacts present at the site included ground-edge stone axes, stone flakes, axe-sharpening stones, and hammer and percussion stones. Quartz and 'silicified volcanic rock' were the dominant source of raw materials. The presence of backed tools and micro-blade technologies was noted, although only at sites on lake edge landforms. The results suggest that Lake Cowal is an archaeologically rich area with a diverse array of site types present. Radiocarbon dates placed the base of occupation near Lake Cowal between 6,000 to 8,000 BP (years before present).

For the project area, Pardoe's results indicate that the lake shore landform has high potential for archaeological deposits, which could be expected to include modified artefacts and hearths/ovens in addition to more common artefactual material. The excavations also demonstrated the effects of agricultural disturbance on the back plain landforms, which may be applicable to the low rise landform at the project area.

### **6.2.4 Pardoe 2013: Cowal Gold Operations Modification assessment**

In 2013, a modification was sought for the continuation of the Cowal Gold Operations. Pardoe (2013) undertook assessment seeking to revisit existing site locations and survey new proposed impact areas. No excavations were undertaken.

Survey of the lake shore landforms resulted in the identification of three scarred trees, a weathered stone oven, a grinding dish fragment as well as further stone artefacts. Sites were low-density and some disturbances from fencing and road construction were noted along the shore landforms (Pardoe 2013: 58).

### **6.2.5 Pardoe 2015: Summary of stone tools**

The stone tools collected from the Cowal Gold Operations have been kept in a temporary 'Keeping Place' on site. These objects were subsequently re-examined in 2015 and summarised by Pardoe, who conducted a number of the investigations. In total, 5,158 stone artefacts were collected prior to the 2015 report being released. This included:

- 1739 lithic pieces
- 449 cores
- 2435 flakes
- 54 micro blades
- 26 flaked tools
- 87 hammers
- 329 ground pieces
- 34 edge ground axes
- 5 anvils.

The report indicates that the most common material for flaked stone pieces is quartz and chert, followed by silcrete, whereas the most common raw material for ground stone artefacts was indurated sandstone. The report also provides a comprehensive count of artefact types and supports, on a quantitative level, that vast number of activities undertaken by Aboriginal people over long occupation periods. The report also reaffirms the prevalence of archaeological sites surrounding Lake Cowal, and the potential for archaeological deposits to be present.

### **6.2.6 Niche 2017: Cowal Gold Operations**

In 2017 Niche conducted archaeological investigations at the Barrick Cowal Gold Mine. A total of 65 Aboriginal archaeological sites were recorded which comprised stone artefact sites, ovens, heat retainers and a scarred tree. Most stone artefact sites were low density artefact scatters (5-25 artefacts); however, one larger site was recorded, and a number of open sites had multiple features present. Most sites were recorded on gilgai and alluvial plain landforms. Fine grained volcanic materials were the most common raw material (67% of the total artefacts).

The study area for the 2017 Cowal Gold Operations was almost entirely comprised of back plain landforms further from the edge of Lake Cowal. There were high levels of agricultural disturbance noted across this landform. The areas closest to the lake edge within the Niche study area had swamp characteristics, generally lower in elevation and less free draining than the lake shore and low rise landforms of the project area (Niche 2017: 35-6). While no excavation was conducted during the 2017 assessment, raw materials could be expected to be similar at the project area.

## 6.3 LOCAL ARCHAEOLOGICAL CONTEXT

### 6.3.1 Desktop database searches conducted

A search of the AHIMS database identified 111 Aboriginal sites within an 84 square kilometre area centred on the project area. **Table 6-1** tabulates the site types and frequencies of the recorded sites and **Figure 6-2** shows the locations of these sites.

**Table 6-1: Site types and frequencies of AHIMS sites near the project area.**

Site Type	Number	% Frequency
Artefact (quantity unspecified)	46	41
Artefact scatter (with additional features)	32	29
Hearths	16	14
Isolated finds	11	10
Modified trees	5	4
Stone quarry	1	1
<b>Total</b>	<b>111</b>	<b>100</b>

The results of the AHIMS search shows that stone artefact sites (consisting of artefact scatters and isolated finds, sometimes with additional features) are the predominant site type, comprising 80% the recorded sites in the search area. Stone hearths make up the second largest percentage of site types (14%). Also identified within the area are modified trees and stone quarry sites, however, these are comparatively quite rare.

As shown on **Figure 6-2**, the vast majority of AHIMS sites have been recorded in relation to development at Cowal Gold Operations. While this indicates a high level of assessment within the back plain landforms that are predominantly present at that location, a comparatively small area of the Lake Cowal shoreline has been comprehensively surveyed. As such, some site types that occur at a high rate in back plain areas with depleted soils, such as hearths, may be less likely to be recorded at the lake shore landforms of the project area.

## 6.4 SUMMARY OF EMM SURVEY OF THE PROJECT AREA

EMM recorded 10 of the above sites during the survey of in the project area. The visual inspection identified 10 previously unrecorded Aboriginal sites, including six isolated stone artefacts, three scarred trees and one open artefact scatter. The location of these sites and the survey coverage (representing one member of the three-person team) is shown on **Figure 6-1**.

The majority of sites (five of the isolated finds and the open artefact scatter) were found on the 'back plain landforms' equivalent to the low rise landform category referred to in this assessment. The three modified trees were identified on the beach landform. One isolated find and a PAD were identified on the 'lake edge ridge'.

The visual inspection confirmed that the lake edge ridge landform is an archaeologically sensitive landscape with sandy soils that have the potential to contain subsurface deposits. This area is identified with red shading on **Figure 6-1**. The identification of sites on the back plain (yellow) corresponds with previous findings in the region that this landform type is associated with low-density artefact scatters and isolated finds. The inspection also confirmed that the disturbed land associated with the homestead has a low archaeological potential (green). **Table 6-2** summarises the Aboriginal cultural heritage sites recorded during the survey of the project area.

The assessment resulted in the conclusion that test excavations would be necessary to investigate the nature of the potential sub-surface deposits at the locations affected by the project outside the identified area of low archaeological potential.

**Table 6-2: Aboriginal cultural heritage sites recorded during the EMM survey.**

Site name	AHIMS ID	Site type	Feature(s)	Landform
CGO_LCF_2020_OS1	43-4-0154	Artefact scatter	15+ stone artefacts. Materials include grey volcanics, black chert, silcrete and quartz. Site extent continues over 100 m x 6 m extent.	Back plain
CGO_LCF_2020_IF1	43-4-0155	Isolated find	Quartz flake	Back plain
CGO_LCF_2020_IF2	43-4-0157	Isolated find	Grey chert flake	Back plain
CGO_LCF_2020_IF3	43-4-0158	Isolated find	Polished grindstone	Back plain
CGO_LCF_2020_IF4	43-4-0160	Isolated find	Cobble with pitting	Back plain
CGO_LCF_2020_IF5	43-4-0159	Isolated find	Grey chert flake	Back plain
CGO_LCF_2020_IF6	43-4-0161	Isolated find and PAD	Light grey volcanic flake	Lake edge ridge
CGO_LCF_2020_ST1	43-4-0162	Modified tree and artefacts	Scarred tree with several associated artefacts. It should be noted that the artefacts appear to have moved to the base of the tree from an unknown location.	Lake edge ridge
CGO_LCF_2020_ST2	43-4-0163	Modified tree	Scarred tree	Lake edge ridge
CGO_LCF_2020_ST3	43-4-0156	Modified tree	Scarred tree	Lake edge ridge

Figure 6-1: Survey coverage in relation to landform categories and PAD extents (EMM 2020).

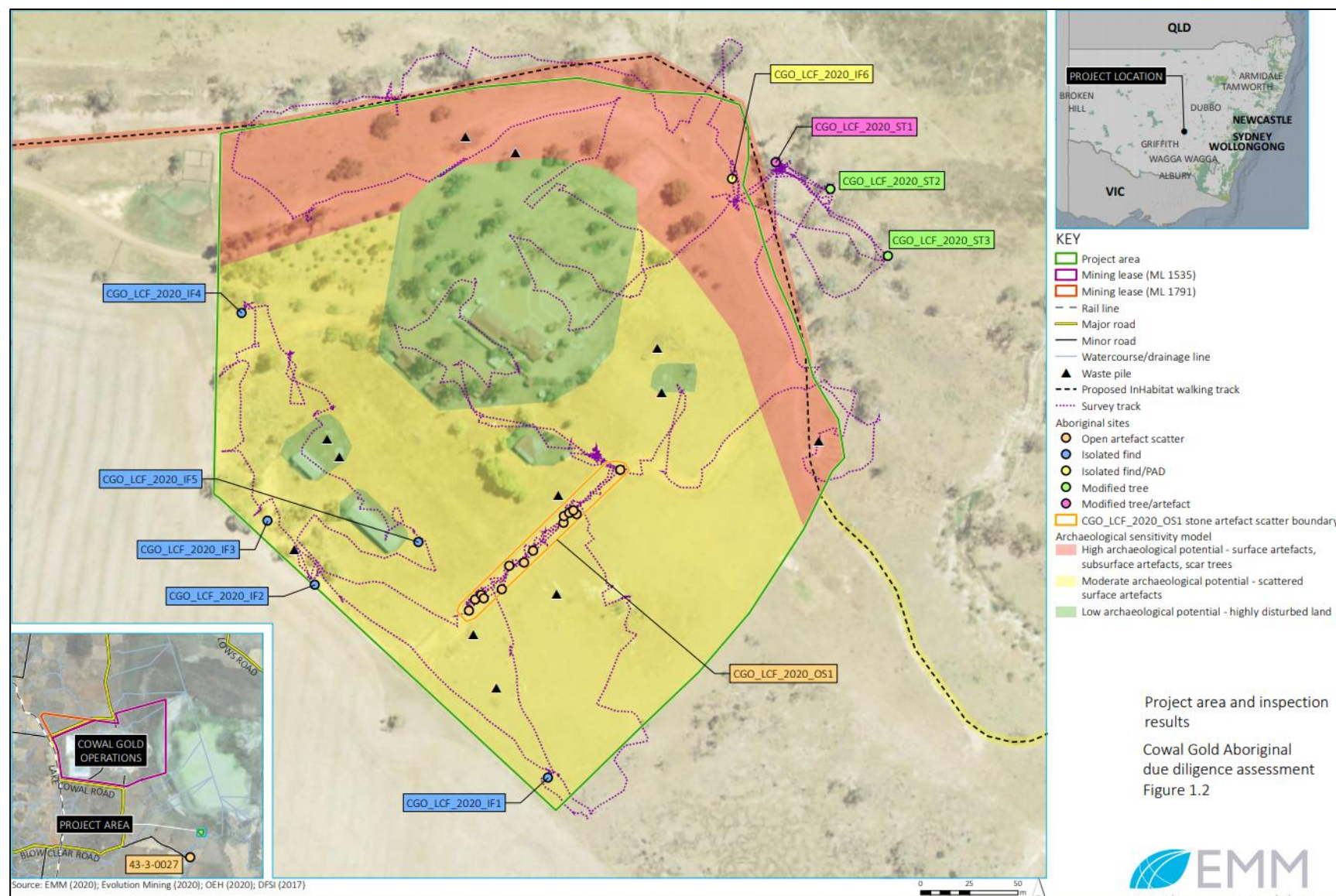
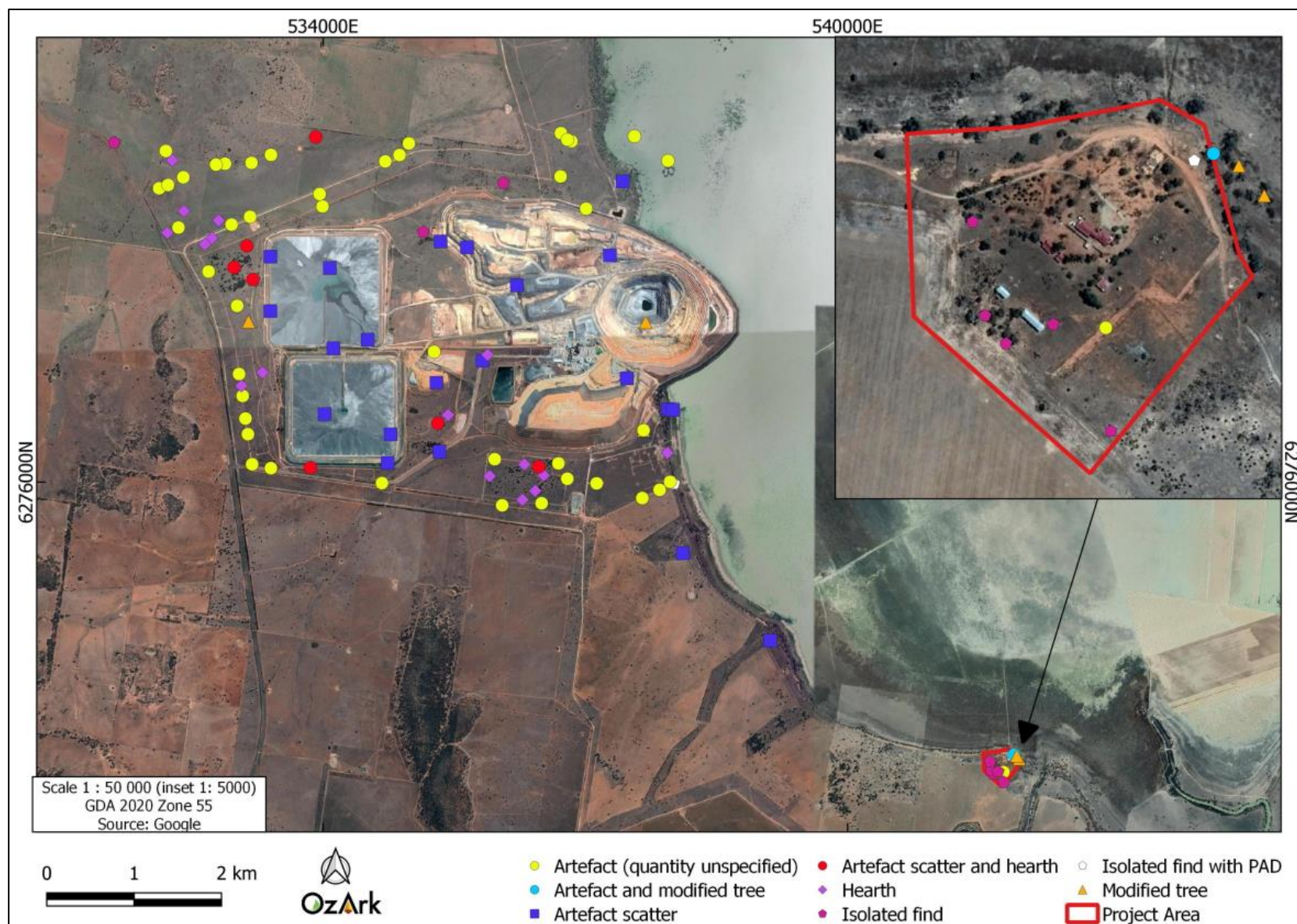




Figure 6-2: Location of AHIMS sites near the project area.



## **6.5 PREDICTIVE MODEL FOR TEST EXCAVATION PROGRAM**

Across Australia, numerous archaeological studies in widely varying environmental zones and contexts have demonstrated a high correlation between the permanence of a water source and the permanence and/or complexity of Aboriginal occupation. The nature and features of occupation sites can be influenced by the availability of and/or accessibility to a range of other natural resources including: plant and animal foods; stone and ochre resources and rock shelters; as well as by their general proximity to other sites/places of cultural/mythological significance.

In formulating a predictive model for Aboriginal archaeological site characteristics within any landscape it is also necessary to consider post-depositional influences on Aboriginal material culture. In all but the best preservation conditions very little of the organic material culture remains of ancestral Aboriginal communities survives to the present. Generally, it is the more durable materials such as stone artefacts, stone hearths, shell, and some bones that remain preserved in the current landscape. Even these, however, may not be found in their original depositional context since these may be subject to either (a) the effects of wind and water erosion/transport—both over short- and long-time scales—or (b) the historical impacts associated with the introduction of colonial farming practices including grazing and cropping, land degradation, and farm related infrastructure.

### **6.5.1 Previous excavation**

The large number of archaeological studies related to gold mining operations undertaken in the vicinity of the project area provides information to obtain a sound understanding of the nature and distribution of archaeological sites within the area. Although the reliability of water at an exact location along the shore of Lake Cowal is variable due to its ephemeral nature, previous studies have shown that there is the potential for complex surface sites with high artefact density across multiple landforms relevant to the project area. In terms of subsurface deposits, Pardoe (2009b) recorded higher density and complexity of sites along lake edge landforms than in the back plain excavation areas. These characteristics are anticipated to be replicated in the project area.

### **6.5.2 Past land use and possible disturbances**

Crucial for the preservation of archaeological deposits is the history of past land use in an area. The project area is within a property which has been subject to varying levels of disturbance including historic vegetation clearing, livestock grazing, ploughing and to more intensive disturbance through the construction of agricultural infrastructure (shearing sheds, housing, and equipment storage facilities). Through these disturbances, Aboriginal sites may have moved from their primary locations. However, the majority of the project area is on land that has not been repeatedly or intensively disturbed.

In addition to anthropogenic disturbance, the results of OzArk excavations at similar lacustrine landforms indicate that hydrological disturbances may also have impacted deposits at the lake shore landforms (OzArk 2008).

### **6.5.3 Previously recorded artefact features**

Pardoe's extensive catalogue of artefacts recovered from surface and subsurface salvage programs at Cowal Gold Operations provides a reliable basis from which to generate hypotheses for the assemblage (Pardoe 2009b, 2015). The most likely raw materials for artefact manufacture are expected to be quartz and chert, both of which also feature in the surface artefacts identified at the project area (EMM 2020). The results of Pardoe 2015 indicate that assemblages of high density, if identified, could also be expected to feature a high percentage of formal tools.



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## 7 TEST EXCAVATION PROGRAM

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### 7.1 BACKGROUND TO THE TEST EXCAVATION PROGRAM

An inception meeting took place at the project area on 9 October 2020. The attendees, Jodie Benton (OzArk), Mal Carnegie (LCF) and Linton Howarth (West Wyalong LALC), conducted a walkover of the main impact areas of the project and the proposed location of the test excavation transects.

### 7.2 EXCAVATION METHODOLOGY

#### 7.2.1 Purpose of the test excavation program

The test excavation program was formulated to target locations of the proposed impact footprint for the InHabitat project.

The aims of the test excavation were to:

1. Establish whether there are subsurface deposits at the locations of impacted land affected by the proposed InHabitat development. If there is subsurface deposit at the sites, then the extent, nature and integrity of the subsurface archaeological deposit were to be established.
2. Use the data gained from the test excavation program to better evaluate the archaeological significance and potential of the project area so as to inform future management of the site in relation to the proposed impacts.

The results of the test excavation will inform the recommendations of the AHIP application. Excavations undertaken as per the Code do not require an AHIP under the NPW Act.

#### 7.2.2 Rationale of the test excavation program

The test excavation methodology is provided as **Appendix 2**. This document sets out the predictive model used to design the test excavation program.

While any test excavation program is limited in the level of research objectives it can achieve due to the restricted nature of the excavations, the test excavations attempted to answer the following research questions:

- Does the shore landform of Lake Cowal within the project area preserve subsurface archaeological deposits? Is the density of these deposits greater than the 'back plain' landforms further from the lake?
- Are the artefacts identified on the surface on the back plain/rise landform associated with subsurface deposits?
- Are additional archaeological features, such as hearths, present in the project area?

- Are the characteristics of the deposits at the project area comparable to other investigations at Lake Cowal?
- How does the subsurface assemblage compare to the surface assemblage recorded by EMM (2020)?

Due to the potential heritage values of the site, any historic material recovered during the test excavation was also to be documented and photographed.

### 7.3 SAMPLING METHODOLOGY FOR THE TEST EXCAVATION PROGRAM

The sampling methodology is presented in **Table 7-1**.

**Table 7-1: Sampling methodology for the test excavation program.**

Site	Transect and test pits	Calculations
High potential PAD site (includes Lake Cowal site: CGD_LCF_2020_IF6.	Transect 1 is approximately 120 m in length. There will be approximately 13 test squares excavated at intervals of 10 m.	The high potential PAD site has an area of 27503 m <sup>2</sup> (2.75 hectares [ha]) inside the project area.  Based on the size of the high potential PAD extent, the test excavation requirements state that no more than 137.5 m <sup>2</sup> of the site is to be excavated. The methodology proposes that a minimum of 13 test squares be excavated at the site, totalling 3.25 m <sup>2</sup> .
Moderate potential PAD site (includes Lake Cowal sites: CGD_LCF_2020_IF1, CGD_LCF_2020_IF2, CGD_LCF_2020_IF3, CGD_LCF_2020_IF4, CGD_LCF_2020_IF5.	Transect 2 is approximately 90 m in length. There will be approximately 10 test squares excavated at intervals of 10 m.  Transect 3 is approximately 20 m in length. There will be approximately three test squares excavated at intervals of 10 m.  Transect 4 is approximately 60 m in length. There will be approximately seven test squares excavated at intervals of 10 m.	The moderate potential PAD site has an area of 72057 m <sup>2</sup> (7.2 ha) inside the project area.  Based on the size of the moderate potential PAD extent, the test excavation requirements state that no more than 360.3 m <sup>2</sup> of the site is to be excavated. The methodology proposes that a minimum of 20 test squares be excavated at the site, totalling 5 m <sup>2</sup> .

### 7.4 THE ARTEFACT CATALOGUE

#### 7.4.1 Analysis terminology

##### Artefact type

Description: Possible artefact types include flakes, blades, retouched flakes/blades, cores, scrapers, shatter/fragments and other (hammerstones, grindstones, ground-edge axes) although not all may be present at any one site.

Issues: Classing artefacts, generally, does not usually entail significant problems. A minority of artefacts are difficult to define such as ambiguities between recognising flaked pieces (flakes subsequently used as a core to source further flakes), and between cores and scrapers.

Uses: This category will be used to assess differences in provisioning strategies, differences in site function/use (e.g. presence/absence of grindstones), and the taphonomic effects of past land use on the site (are more broken artefacts part of the assemblage?).

### Raw Material

Description: A largely self-explanatory attribute. Based on the surface artefacts and the local context, raw materials expected to be present included silcrete, chert, quartz and volcanics.

Issues: This category often has problems for analysts without a geological background. Even then, without breaking an artefact, the true nature of the stone will sometimes remain uncertain. This will allow other researchers to identify the type of stone recorded here as, for example, 'silcrete'. The most common stones utilised for artefact manufacture in the project area were silcrete, quartz and a difficult to identify grey fine-grained siliceous (FGS) material. The recovered artefacts exhibited very weatherworn features, sometimes obscuring important diagnostic material features (such as clasts and silica content).

Uses: Raw material is an important attribute, which may broadly indicate the place of origin of an artefact. The dominance of one raw material or another may also be used to group or differentiate sites. Raw material is also frequently used in concert with attributes in the creation of analytic units for more in-depth inter and intra site comparisons.

### Artefact Breakage

Description: At a basic level, flakes break in three different ways. Two are transverse (at 90 degrees to the direction of percussion) – proximal and distal; one is longitudinal (along the plane of percussion).

Issues: It is occasionally difficult to be certain of the breakage on an artefact. In most cases, however, the kind of breakage can be ascertained.

Use: It is important to differentiate broken from complete flakes for the purposes of analysis, as the two are not comparable regarding several measures. The amount of artefact breakage in an assemblage also indicates the degree of fragmentation to which the assemblage has been subject. In highly fragmented assemblages, the actual number of artefacts represented may be significantly exaggerated.

### Dimensions

Description: Percussive dimensions measure the maximum length of the flake in the direction of force application from the point that force was applied. In this regard it relates to the length of core face that was removed during the manufacture of the artefact.

Issues: There is some uncertainty as to what these attributes are measuring in terms of the flake manufacturing process.

Use: Flake dimensions are expected to correlate with differences in the provisioning and reduction strategies at different places. For example, the reduction of cores at a site will produce many moderate to small flakes and some larger flakes. As a result, a histogram of flake length will show a relatively consistent increase in number of flakes from large to small. Contrastingly, when most flakes are the result of retouching or maintenance tasks on other flakes, most of the flakes remaining should be very small, with comparably few large to moderate flakes.

### Reduction

Description: This category refers to the level of reduction evident on an artefact. This is assessed by the amount of cortex remaining on the artefact. Cortex refers to the 'skin' of a rock: the surface that has been weathered to a different texture and colour by exposure to the elements over a long period. The amount of cortex as a percentage of surface area will be measured on all artefacts (in relation to flakes, cortex can only occur on the dorsal and platform surfaces). This measurement will help determine if an artefact is at a primary, secondary, or tertiary level of reduction.

Issues: This is a relatively unambiguous descriptive category.

Use: When a natural cobble is first selected it will usually be covered in cortex. Therefore, the first artefacts produced from it will have a complete coverage of cortex on the dorsal side (primary reduction). As the cobble is increasingly reduced the amount of cortex on each artefact will rapidly decrease (secondary reduction) until it ceases to be present on artefacts (tertiary reduction). Because of this trend, it should be possible to determine how early in the reduction sequence the artefact was produced. If large numbers of artefacts or a high proportion of the artefacts of a raw material retain cortex it may indicate that the site is near the source.

### Rotation

Description: Describes whether a flake was struck from a core that was rarely rotated (a unidirectional or bidirectional core), or from a core that has been rotated frequently (a multidirectional core).

Issues: There is little ambiguity in assessing this category. If the orientation of previous flakes was unclear, this category is left blank.

Use: An examination of the direction in which previous flake scars on an artefact's dorsal surface have been removed, along with the orientation in which the flake itself was removed from its core, will give evidence about the core from which the flake was struck. This enables a greater sample pool to determine the types of cores used in the project area even if the original core may not have been recorded in the investigation.

### Platform Surface

Description: Platform surface will be recorded as one of the following: simple, point, cortical, crushed or flaked.

Issues: This is a largely unambiguous descriptive attribute.

Use: The surface of a platform provides information about the history of the core prior to the detachment of the flake, and about methods employed to control the flaking process. 'Point' platforms often imply the use of an intermediary punch (or in-direct percussion) to remove a flake; while 'simple' platforms are often indicative of free-hand percussion. Crushing on the platform surface can imply a bipolar reduction technique where the core is first rested on an anvil prior to the flake being detached. Platforms displaying flaking have been linked to the systematic production of 'blades'. Patterns in the spatial distribution of these attributes may be used to infer differences in reduction strategies.

### Platform Size

Description: Platform size will be recorded as fulfilling one of a series of size ranges.

Issues: This is a largely unambiguous descriptive attribute.

Use: Like the platform surface, platform size is illustrative in determining the type of reduction technique used to detach a flake. The smaller (finer) the platform size implies a greater likelihood that it was detached by in-direct percussion rather than direct percussion which often results in a larger platform size.

### Termination

Description: Termination refers to the way in which force leaves a core during the detachment of a flake. Every complete flake has a termination. There are patterns in the forms that terminations will take, with the three major categories (those to be used here) being feather, hinge/step and plunging (outrepasse).

Issues: This is a largely unambiguous descriptive attribute although care needs to be taken to distinguish terminations on a previous flake scar from hinge/step terminations or breakages.

Use: Different terminations have different implications both for flake and core morphology. A flake with a feather termination (in which force exits the core at a low or gradual angle) will have a continuous sharp edge around the periphery beneath the platform. Hinge and step terminating flakes have none of these advantages. They result in edges that are amenable neither to cutting nor to retouching. Furthermore, hinge and step terminations lead to rapidly increasing effective platform angles, leading to a requirement for core rejuvenation and core exhaustion. For these reasons, such terminations are considered undesirable or *aberrant*. The number of aberrant flake terminations is expected to increase towards the end of a core's use-life, as reduction in core size

and increase in core platform angle make it increasingly difficult to detach feather terminating flakes. In areas where aberrantly terminating flakes are relatively common it may be inferred that core potential was more thoroughly exploited. From this it may in turn be inferred that the pressure to realize core potential (e.g. a strategy of heavy raw material conservation) was greater. Increased mobility/emphasis on portability is one possible explanation of such a pattern.

The presence of plunging or outrepasse flakes may be taken to indicate core rejuvenation and the requirement to increase core use-life.

#### **7.4.2 Research considerations**

Stone artefacts are probably the most resilient physical evidence of Aboriginal occupation in Australia and for many parts of the country form the most abundant archaeological evidence of Aboriginal occupation. Stone artefacts are important because they are tangible evidence of Aboriginal use of an area and can potentially contain information about lithic activities, the organisation of stone technologies, and potentially information about larger-scale issues of settlement organisation across regions and even social change over time.

The kinds of information which can be obtained from stone artefacts may vary considerably, depending in part on:

- The numbers of artefacts which can be examined and recorded: generally, the larger the number of artefacts the more reliable will be statistical statements about them
- The presence of other assemblages with which the artefacts can be compared
- The condition of sites in which they occur: generally undisturbed sites have more information potential than disturbed sites, depending on the scale at which research is carried out
- The theory which underlies the artefact recording and analysis.

##### **7.4.2.1 Statistically useful sample sizes**

A large enough number of artefacts need to be recorded so that analyses can be based on statistically sound data (Leonard and Jones 1989). The numbers of artefacts which are needed in a sample will depend on how common or rare certain kinds of artefacts are. If a summary of most common raw material types is required, then a random sample of 20 or 30 artefacts might suffice. On the other hand, if no backed artefacts were found, and this type normally makes up 1% of an assemblage, then several hundred artefacts would need to be recorded to indicate whether or not backed artefacts are present on a site or in a certain landscape setting. Ideally, sample sizes should be large enough to be able to carry out statistical tests of significance (Clegg 1990).

#### **7.4.2.2 Condition**

As a rule, artefacts from undisturbed sites may be able to provide more information than artefacts from disturbed sites. On sites in good physical condition it may be possible to identify artefacts relating to individual lithic activities, such as knapping floors (Hiscock & Mitchell 1993). On very heavily disturbed sites the artefacts themselves may be very broken, making it harder to analyse them.

#### **7.4.2.3 Theory and recording**

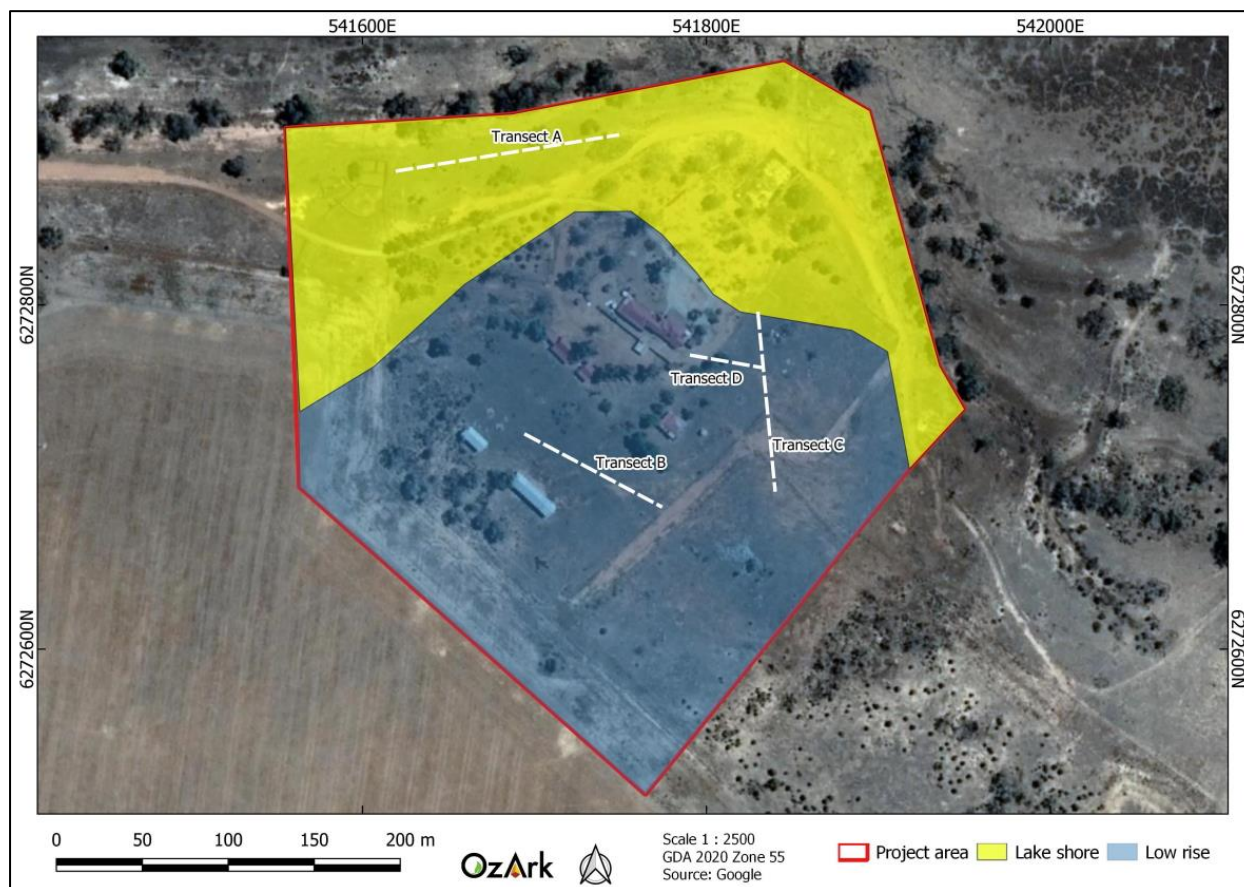
Stone artefacts can be recorded and analysed in different ways to give different kinds of information about different topics. The variables that are recorded and the interpretations which are made will depend in part on the theory which underlies the analysis. If someone wants to know what stone tools were used for, then artefacts should be examined under a microscope for use-wear and residues. If someone wants to know how stone was flaked and tools were made, then a technological analysis may record data on stone flaking such as patterns of scarring on cores or flakes. If someone wants to know about how stone materials were obtained (procured), transported and discarded then recording might focus on stone raw materials; information about raw material types and where they occur naturally in the landscape will be critical, and raw material type and size of artefacts may be recorded.

Consulting projects may seek to provide a basic description of an assemblage, recording just a few variables to give information about general topics. The present analysis records provenance information (where each artefact was found) and nine other variables, with some additional information for modified artefacts and cores. This level of recording should not be regarded as a definitive record of the assemblage. If artefacts are kept in a safe place, they can be reanalysed in the future to provide new information and address new questions.

### **7.5 TEST EXCAVATION RESULTS**

Transects were labelled A, B, C and D. Transect A was sampling the shore landform and the three remaining transects were on the low rise landform. Transects are shown in **Figure 7-1** and individual excavation squares are shown below on **Figure 7-2**.

There were 11 excavation squares in Transects A and C, eight in Transect B, and two in Transect D. Some squares were not excavated at their measured location (e.g. Transect A Sq 1) due to being identified as outside the project impacts or too close disturbance from existing rural infrastructure. Squares were excavated in 10 cm spits.

**Figure 7-1: Location of transects and landforms sampled**

### 7.5.1 Stratigraphy

**Table 7-2** describes the soil profile of all excavated squares. The soils and stratigraphy differed across the landform units of the project area. Transect A featured moderately deep deposits of fine alluvial sands with small gravel inclusions above a layer of compacted, very fine silt. The soil of Transects B, C and D were shallower red clay loams with gravels as well as frequent large inclusions. Images showing these general characteristics are shown in

#### **Table 7-3.**

The profile of the shore landform generally matched the expected soils discussed in **Section 5.2**, but the shallow stony soils of the low rise landform seem to reflect the underlying geology which includes the rock outcrop area southwest of Transects B and C, which was not anticipated from the desktop modelling.

The soil profiles also demonstrated the range of disturbances that have occurred at the project area. Non-Aboriginal archaeological artefacts were recorded to a depth of between 30 and 40 cm along Transect A, suggesting that disturbances associated with the use of this area for workers' accommodation quarters has affected the subsurface to some depth. The depleted humic layer of Transects B, C and D suggest either significant levels of erosion from the low-slope landform or other land use impacts (agricultural) to this landform unit.







**Table 7-2: Soil profiles of the test excavation.**

<b>Transect &amp; Square</b>	<b>GDA94 Zone 55 Easting</b>	<b>GDA94 Zone 55 Northing</b>	<b>Description</b>
Transect A Square 2	541630	6272880	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-50 cm: Fine alluvial gravels. Layer C: 50-60 cm. Fine pale silt. Layer D: 60 cm +. Hard white-grey clay.
Transect A Square 3	541640	6272883	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-50 cm: Fine brown-grey alluvial sand and gravels. Layer C: 50-55 cm. Fine white silt. Layer D: 55 cm +. Hard white-grey clay.
Transect A Square 4	541651	6272884	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-55 cm: Fine brown-grey alluvial gravels. Layer C: 55-60 cm. Fine white silt. Layer D: 60 cm +. Hard white-grey clay.
Transect A Square 5	541659	6272886	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-50 cm: Fine brown-grey alluvial gravels. Layer C: 50-60 cm. Fine white silt. Layer D: 60 cm +. Hard white-grey clay.
Transect A Square 6	541670	6272886	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-50 cm: Fine brown-grey alluvial gravels. Layer C: 50-60 cm. Fine white silt. Layer D: 60 cm +. Hard white-grey clay.
Transect A Square 7	541680	6272886	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-45 cm: Fine brown-grey alluvial gravels. Layer C: 45-55 cm. Fine white silt. Layer D: 55 cm +. Hard white-grey clay.
Transect A Square 8	541689	6272888	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-40 cm: Fine brown-grey alluvial gravels. Layer C: 40-50 cm. Fine white silt. Layer D: 50 cm +. Hard white-grey clay.
Transect A Square 9	541700	6272889	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-32 cm: Fine brown-grey alluvial gravels. Layer C: 32-40 cm. Fine white silt. Layer D: 40 cm +. Hard white-grey clay.
Transect A Square 10	541709	6272891	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-25 cm: Fine brown-grey alluvial gravels. Layer C: 25-30 cm. Fine white silt. Layer D: 30 cm +. Hard white-grey clay.
Transect A Square 11	541720	6272892	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-35 cm: Fine brown-grey alluvial gravels. Layer C: 35-40 cm. Fine white silt. Layer D: 40 cm +. Hard white-grey clay.
Transect A Square 12	541729	6272894	Layer A: 0-10 cm. Humic layer of light brown sands. Layer B: 10-32 cm: Fine brown-grey alluvial gravels. Layer C: 32-38 cm. Fine white silt. Layer D: 38 cm +. Hard white-grey clay.
Transect B Square 2	541760	6272687	Layer A: 0-1 cm. Humic layer of red clay loam. Layer B: 1-22 cm. Loose red clay loam with frequent inclusions. Layer C: 22 cm +. Gravel and stone.

Transect & Square	GDA94 Zone 55 Easting	GDA94 Zone 55 Northing	Description
Transect B Square 3	541749	6272690	Layer A: 0-1 cm. Humic layer of red clay loam. Layer B: 1-18 cm. Loose red clay loam with frequent inclusions. Layer C: 18 cm +. Gravel and stone.
Transect B Square 4	541743	6272696	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-16 cm. Loose red clay loam with frequent inclusions. Layer C: 18 cm +. Gravel and stone.
Transect B Square 5	541734	6272703	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-20 cm. Loose red clay loam with frequent inclusions. Layer C: 20-34 cm. Compacted layer of red clay loam. Layer D: 34 cm +. Red clay.
Transect B Square 6	541725	6272708	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-10 cm. Loose red clay loam with frequent inclusions. Layer C: 10-18 cm. Compacted layer of red clay loam. Layer D: 18 cm +. Red clay and rock.
Transect B Square 7	541715	6272712	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 2-16 cm. Loose red clay loam with frequent inclusions. Layer C: 16 cm +. Red clay and rock.
Transect B Square 8	541708	6272718	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-15 cm. Compacted red clay loam with frequent inclusions. Layer C: 15 cm +. Red clay and rock.
Transect B Square 9	541696	6272722	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-20 cm. Red clay loam with frequent inclusions. Layer C: 20 cm +. Red clay and rock.
Transect C Square 2	541837	6272703	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-20 cm. Red clay loam with frequent inclusions. Layer C: 20 cm +. Red clay and rock.
Transect C Square 3	541835	6272714	Layer A: 0-1 cm. Thin humic layer of red clay loam. Layer B: 1-17 cm. Red clay loam with frequent inclusions. Layer C: 17 cm +. Rock.
Transect C Square 4	541835	6272725	Layer A: 0-30 cm. No humic layer. Red brown clayey loam. Layer C: 17 cm +. Red clay.
Transect C Square 5	541835	6272735	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 1-30 cm. Red clay loam. Layer C: 30 cm +. Red clay with rock.
Transect C Square 6	541834	6272744	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 1-30 cm. Red-brown clay loam. Layer C: 30 cm +. Red clay with rock.
Transect C Square 7	541833	6272753	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 1-30 cm. Red-brown clay loam. Layer C: 30 cm +. Red clay with rock.
Transect C Square 8	541831	6272764	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 1-30 cm. Red-brown clay loam. Layer C: 30 cm +. Red clay.
Transect C Square 9	541833	6272775	Layer A: 0-4 cm. Thin humic layer of red clay loam. Layer B: 4-38 cm. Red clay loam with gravel inclusions. Layer C: 38-45 cm. Hard clay loam. Layer D: 45 cm +. Red clay.

Transect & Square	GDA94 Zone 55 Easting	GDA94 Zone 55 Northing	Description
Transect C Square 10	541831	6272786	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 1-25 cm. Red-brown clay loam. Layer C: 25 cm +. Red clay.
Transect C Square 11	541829	6272793	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 1-40 cm. Red-brown clay loam. Layer C: 40 cm +. Red clay.
Transect C Square 12	541829	6272804	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 2-35 cm. Red-brown clay loam. Layer C: 35-40 cm +. Red clay
Transect D Square 1	541824	6272764	Layer A: 0-2 cm. Thin humic layer of red clay loam. Layer B: 2-30 cm. Red-brown clay loam. Layer C: 30 cm +. Red clay
Transect D Square 2	541813	6272765	Layer A: 0-10 cm. Humic layer of red clay loam. Layer B: 10-30 cm. Red-brown clay loam with gravel inclusions. Layer C: 30 cm +. Red clay

**Table 7-3: Representative images of the soil profiles at each transect**

	
1. Transect A	2. Transect B
	
3. Transect C	4. Transect D

### 7.5.2 Artefact assemblage

A total of 35 artefacts were recorded during the test excavation program. Details of the artefacts are presented in **Table 7-7 (Section 7.5.8)**, and photos of select artefacts are shown on **Figure 7-5**.

The assemblage is too small to be considered a statistically useful sample in terms of detecting patterns in most artefact features that can be compared to other deposits. The sample remains useful for its descriptive characteristics of the deposits at the project area. The initial characteristics of the assemblage are listed below:

- There were 35 subsurface artefacts recorded
- Flakes were the most common artefact type (n=30)
- The most common material was silcrete (n=14)
- All artefacts had tertiary reduction
- Although not recorded by standard artefact feature recordings, it was noted that most artefacts showed signs of consistent weathering.

### 7.5.3 Horizontal distribution

Artefacts were recorded in 16 of 32 excavated squares. The majority of the artefacts were from Transect A on the shore landform (n=21, 60%), followed by Transect C (n=12, 34%). It should be noted that Transects A and C also had the highest number of squares (11).

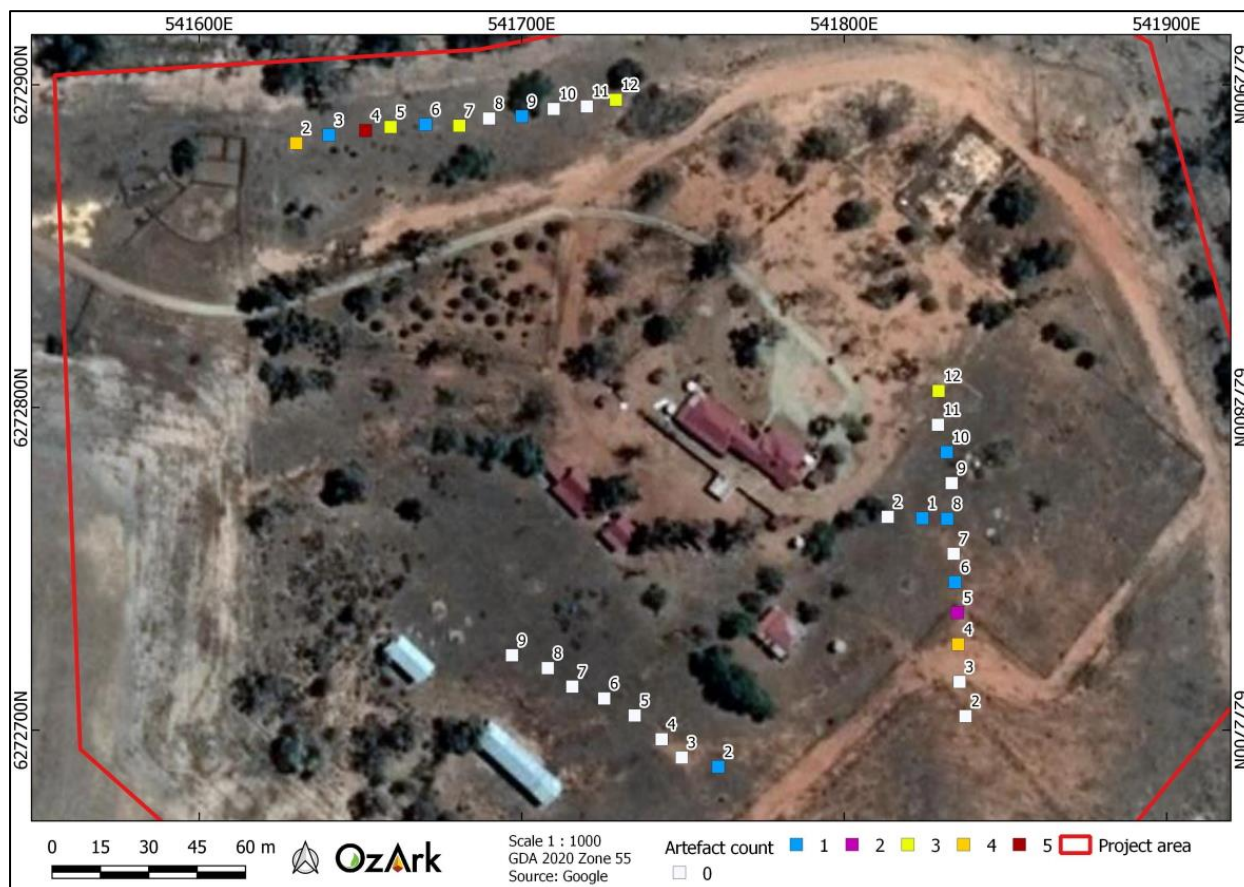
The highest number of artefacts in an excavation square was five (Transect A Sq 4) and another two squares had four (Transect A Sq 2 and Transect C Sq 4). Only one artefact was recorded from the eight squares of Transect B.

**Table 7-4** lists the artefact count of all excavation squares containing artefacts. The density of artefacts in each square is also mapped on **Figure 7-2**, where white indicates no artefacts and blue indicates higher artefact numbers. **Figure 7-2** shows that the highest concentration of artefacts was at the western end of Transect A (Squares 2–7).

**Table 7-4: Horizontal distribution: artefact count per excavation square.**

Square	Artefact count
Transect A Sq 2	4
Transect A Sq 3	1
Transect A Sq 4	5
Transect A Sq 5	3
Transect A Sq 6	1
Transect A Sq 7	3
Transect A Sq 9	1
Transect A Sq 12	3
Transect B Sq 2	1
Transect C Sq 4	4
Transect C Sq 5	2
Transect C Sq 6	1
Transect C Sq 8	1
Transect C Sq 10	1
Transect C Sq 12	3
Transect D Sq 1	1
<b>Total</b>	<b>35</b>

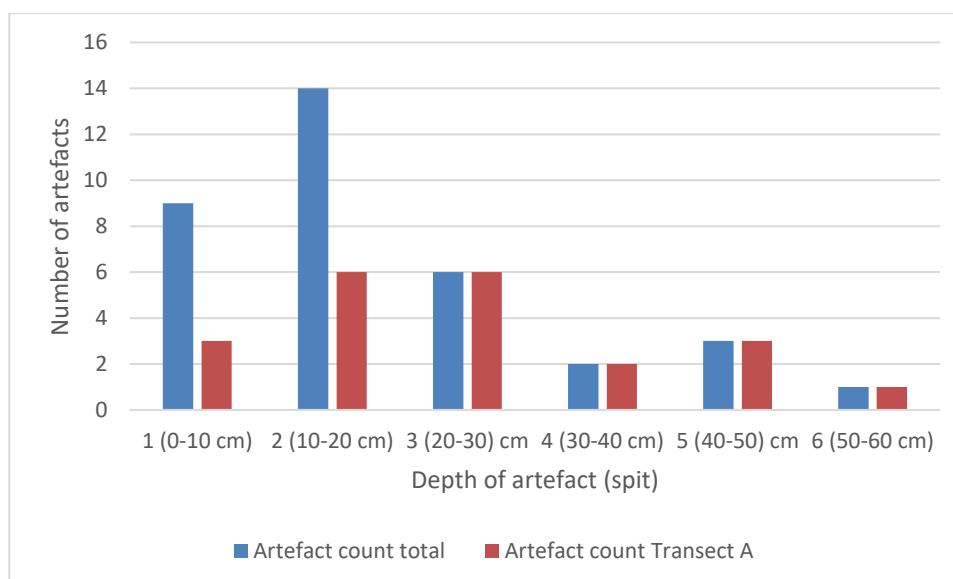


**Figure 7-2: Number of artefacts per excavation square.**

#### 7.5.4 Vertical distribution

As discussed above regarding stratigraphy (**Section 7.5.1**), the depth of the excavation squares varied between landforms. Transect A had an approximate average depth of 55 centimetres (cm), although the squares at the western end of the transect were notably shallower, whereas Transects B, C and D averaged between 20 and 30 cm. No artefacts were recorded below a depth of 20 cm in the three transects on the low rise landform. Therefore, all artefacts from spit 3 or lower were from Transect A. **Figure 7-3** shows the concentration of artefacts recorded in spits 1 and 2 from the total number of artefacts (blue). The red column (artefact count Transect A) indicates that the majority of artefacts in Transect A were recorded in spits 2 and 3 ( $n=12$ , 57% of all Transect A artefacts) but that the deposit extended below this depth as well. No artefacts were recorded below a depth of 20 cm (spit 2) in any other transect.

**Table 7-5** shows the average size of artefacts recovered from each spit. Apart from one outlying score (spit 4, which is skewed by one large artefact), there is no discernible pattern to the distribution. It is likely that this is the product of relatively consistent artefact size across the assemblage, rather than an indication of taphonomic processes affecting the deposit.

**Figure 7-3: Vertical distribution of artefacts per spit.****Table 7-5: Vertical distribution of artefacts by size.**

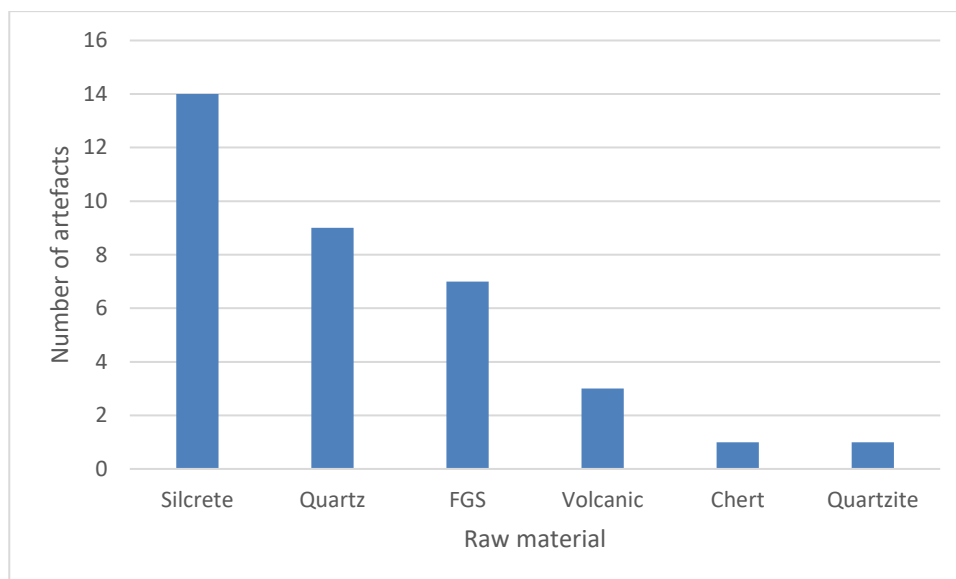
Spit	Length x width average (mm)
1	375
2	310
3	355
4	611
5	242
6	432

### 7.5.5 Artefact types

There were four artefact types recorded in the assemblage: flakes (31), angular shatter (2), a flaked piece (1), and a blade (1). The high proportion of flakes is not unexpected, nor is the absence of formal tools from the small number of total artefacts. While a wider range of artefacts were recorded during the survey of the project area, the small sample sizes make direct comparison difficult (see **Section 6.4**).

### 7.5.6 Raw materials

**Figure 7-4** shows the relative frequency of all artefact materials recorded from the excavations. While some of these categories contained difficult to classify examples, artefacts were assigned to one of these broad headings for analysis. Nearly half (40%) of all artefacts were silcrete, which is an uncommon material for the Lake Cowal area based on Pardoe's analysis, in which it represented only 4% of all objects (n=246; Pardoe 2015).

**Figure 7-4: Raw material types.**

### 7.5.7 Integrity

As shown in **Table 7-6**, the majority of artefacts in the assemblage are complete (51%) followed by proximal flake fragments (26%). Although the highest number of complete artefacts was recorded in spit 2, there was no discernible relationship between artefact integrity and depth of artefact.

**Table 7-6: Artefact integrity.**

Artefact Type	Number	% Frequency
Complete	18	51
Proximal fragment	9	26
Distal fragment	2	6
Longitudinal break	3	9
Not discernible (shatter)	3	9









## 7.5.8 Artefact catalogue

**Table 7-7: Test excavation artefact catalogue.**

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Length or max	Width	Breadth	Reduction	Rotation	Platform type	Platform Type	Termination	Notes
Key: Artefact Type F=flake, C=Core, B=Blade, M=Microlith; Raw material MS=Mudstone, Q=Quartz, V=Volcanics, T=Tuff, GW=Greywacke, C=Chert, QZ=Quartzite, O=Other; Integrity C=complete, PF=Proximal fragment, DF=distal fragment, MF=Medial fragment, LB=Longitudinal break; Reduction T=tertiary reduction (no cortex), S=secondary reduction (cortex present but less than 50%), P=Primary (more than 50% cortex present); Platform type S=simple, CR=crushed, F=flaked; Platform size 2=very small (up to c.3mm), 3=small (up to c.5mm), 4=moderate (up to c.10mm), 5=Large (over c. 10mm); Termination type F=feather, SH=step/hinge, P=Plunge; Rotation ND=Not discernible, P=Parallel, R=Rotated															
A	2	1	1	F	Grey FGS?	C	20	13	3	3	N	CR	2	F	Worn
A	2	4	2	F	Grey FGS?	C	33	15	9	3	N	ND	4	F	Worn
A	2	1	3	F	Grey FGS?	P	13	20	3	3	N	C	3	NA	Same worn grey FGS
A	2	5	4	F	S	P	15	20	10	3	N	S	2	NA	Worn
A	3	1	5	F	Q ?	P	26	31	7	3	N	S	2	NA	
A	4	3	6	F	Grey FGS?	C	30	29	4	3	N	ND	3	NA	
A	4	5	7	F	Grey FGS	C	14	11	3	3	N	C	3	F	Worn
A	4	5	8	F	S	C	17	16	10	3	N	ND	3	F	Dark silcrete
A	4	6	9	F	Q	P	24	18	6	3	N	ND	2	F	
A	4	3	10	S	Q		19	15	8	3	N	ND	2	NA	
A	5	3	11	F	Grey FGS	C	10	8	2	3	N	S	1	SH	
A	5	3	12	F	Q	L	22	14	4	3	N	CR	2	F	
A	5	3	13	F	Q	L	21	11	4	3	N	ND	2	F	
A	6	4	14	F	Q	C	33	22	10	3	N	S	3	F	
A	7	2	15	B	QT	C	35	13	7	3	P	S	4	ND	V worn, poss. red silcrete
A	7	2	16	F	V	D	15	10	3	3	N	ND	2	F	Reddish dark volcanic
A	7	2	17	F	Grey FGS	P	20	25	8	3	N	F	3	NA	

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Length or max	Width	Breadth	Reduction	Rotation	Platform type	Platform Type	Termination	Notes
Key: Artefact Type F=flake, C=Core, B=Blade, M=Microlith; Raw material MS=Mudstone, Q=Quartz, V=Volcanics, T=Tuff, GW=Greywacke, C=Chert, QZ=Quartzite, O=Other; Integrity C=complete, PF=Proximal fragment, DF=distal fragment, MF=Medial fragment, LB=Longitudinal break; Reduction T=tertiary reduction (no cortex), S=secondary reduction (cortex present but less than 50%), P=Primary (more than 50% cortex present); Platform type S=simple, CR=crushed, F=flaked; Platform size 2=very small (up to c.3mm), 3=small (up to c.5mm), 4=moderate (up to c.10mm), 5=Large (over c. 10mm); Termination type F=feather, SH=step/hinge, P=Plunge; Rotation ND=Not discernible, P=Parallel, R=Rotated															
A	9	2	18	S	V		11	10	4	3	N	ND	2		
A	12	2	19	F	C	C	11	8	3	3	N	ND	2	F	Dark grey chert
A	12	2	20	F	S	C	25	9	4	3	N	ND	2	F	Poss. longitudinal break
A	12	3	21	F	S	C	21	17	10	3	N	ND	3	ND	
B	2	1	22	F	Q	C	16	14	6	3	N	S	2	ND	
C	4	1	23	F	S	D	6	12	3	3	N	ND	2	F	Distal of art. 23 (above)
C	4	1	24	F	S	L	30	21	21	3	N	S	5	NA	Worn white silcrete
C	4	1	25	F	S	P	15	8	3	3	N	S	2	NA	Similar to dark red silcrete
C	4	1	26	F	V	P	26	19	6	3	N	S	2	NA	
C	5	2	27	FP	S	C	31	23	8	3	P	S	4	F	Two negative scars
C	5	2	28	F	S	C	22	13	6	3	P	ND	4	F	
C	6	2	29	F	S ?	C	19	20	3	3	N	S	3	F	Similar to dark red, rougher
C	8	1	30	F	S	P	23	22	6	3	N	S	4	NA	Similar material to grey FGS
C	10	2	31	S	S		24	9	5	3	N	ND	2	NA	Similar to dark red silcrete
C	12	2	32	F	Q	C	21	19	4	3	N	S	3	F	Rosy quartz, poor quality
C	12	2	33	F	Q	C	17	12	8	3	N	S	4	F	
C	12	2	34	F	S ?	C	16	14	10	3	N	S	4	F	
D	1	2	35	F	S ?	P	20	20	10	3	N	S	4	F	Poss. grey silcrete

**Figure 7-5: View of artefacts from the test excavation program.**

	
1. View of artefact from Transect A Square 7.	2. Transect A Square 7
	
3. View of artefacts from Transect A Square 12.	4. View of artefact from Transect B Square 2.
	
5. View of artefacts from Transect C Square 4.	6. View of artefacts from Transect C Square 12

### 7.5.9 Site amendment details

The subsurface artefacts identified at Transect A, along the shore landform, are not associated with an existing AHIMS site and will be registered as a new site (Lake Cowal Homestead OS-1). The artefacts recovered from Transects B, C and D are associated with the previously registered surface scatter 43-4-0154 (CGO\_LCF\_2020\_OS1) and a site card will be submitted summarising the results of excavation at that location.

## **Lake Cowal Homestead OS-1**

**Site Type:** Subsurface deposit



**GPS Coordinates:** 541681E/6272887N (GDA2020 Zone 55)

**Location of Site:** The site is on an elevated sandy landform on the shore of Lake Cowal. Immediately north of the “Lake Cowal” homestead. Site is 5 km east of the intersection of Blow Clear Road and Uncle Bills Road, 35 km northeast of West Wyalong.

**Description of Site:** The site consists of a low-density artefactual deposit recorded during test excavations. The Lake Cowal high shoreline is 30 m north of the site and the confluence of Sandy Creek and the lake is 550 m to the east. Artefacts recorded from the deposit were exclusively unmodified flaked artefacts, mostly manufactured from silcrete, FGS and quartz. The site extent is 150 m x 40 m (**Figure 7-6**).

The site is bordered to the north by old growth river red gums along the shore but is largely cleared within the site extent. Low shrubs and grasses were the vegetation within the site. Soils were grey-white sands to a depth of approximately 50 cm at which point there was a layer of fine white silt sitting above firm white clay. GSV was at approximately 30% due to grasses with GSE of 30%. Disturbances at the site included the construction of rural and residential infrastructure, some evidence of which was also detected within the deposit. The subsurface deposit was assessed as low density.

**Figure 7-6: Lake Cowal Homestead OS1. View west of site and recorded artefacts**

	
<p>1. View west along test excavation transect at Lake Cowal Homestead OS1 location. Deposit area extent was located 3 m east of fence.</p>	<p>2. Representative sample of small, flaked artefacts recorded at the site.</p>

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## 8 DISCUSSION

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### 8.1 TEST EXCAVATION SUMMARY

The test excavation program recorded 35 artefacts from the 32 excavation squares. The results of the program indicate that there are subsurface artefacts present within the project area.

- The nature of the deposits varied across the project area. There was a low-moderate density of artefacts identified across Transect A. Transects C and D had low density deposits and Transect B had a very low density of artefacts
- The soil profile of Transect A was considerably deeper and sandier than the other transects, but the majority of artefacts were recovered from a relatively shallow depth of 10–30 cm (spits 2 and 3). The shallow stratigraphy of the remaining transects correlated with similarly shallow average artefact depth
- The most common artefacts were unmodified silcrete flakes
- There was a high cooccurrence of non-Aboriginal archaeological material recorded in most excavation squares.

### 8.2 HISTORIC MATERIAL RECOVERED

While not the focus of the test excavation, historic material recovered was recorded and briefly analysed. Examples of the material recovered are shown in **Figure 8-1**.

Prior to the commencement of excavation, it was indicated that the location of Transect A was near a previous accommodation structure (Mal Carnegie pers comm 7 December 2020).

#### 8.2.1 Summary

- The highest quantity of material was recovered from Transect A
- The most common materials recovered were glass, small iron nails, and bone
- Transect A Sq 8 had the most recorded historical artefacts (19)
- No intact archaeological features were identified
- Most material was recovered from spit 1 (0–10 cm) across all transects.



**Figure 8-1: View of historic material recovered during the test excavation program.**

1. View of glass, iron nail and fencing wire from Transect A.



2. View of glass, iron nail and bullet shell (bottom right) recovered from Transect B.



3. View of glass, bullet shell, nail and animal bone (top and bottom right) from Transect C



4. View of glass and glazed stoneware from Transect D



5. View of clear glass recovered from spit 4 in Transect A



6. View of green glass fragments from spit 3 in Transect A

### 8.2.2 Discussion

While the recorded historic heritage material does not lend itself to analysis as a discrete assemblage, some characteristics are worth discussion.

In general, the quantity of material recovered was low and did not suggest that intact archaeological deposits were present. The majority of material was recovered from spit 1, indicating its recent deposition. However, some material was recovered from spit 4 (30–40 cm) in Transect A, suggesting that some disturbance of the ground surface had reached this depth, as it is highly unlikely that this amount of material could have aggraded above the deposit.

The nature of the material recovered is indicative of habitation of the site: fragments of glass, brick, and ceramics. Items such as wire and bolts could have some association with the agricultural values of the project area, but these were relatively uncommon. Material recovered from Transects C and D had items indicating more recent use (such as plastics and mass-produced metals).

### 8.2.3 Likely impacts to historic heritage from the project

Full assessment of the heritage values of the project area is beyond the scope of the current study. It is noteworthy, however, that no intact historical archaeological deposits were encountered and no further archaeological investigation is warranted at the locations investigated.

## 8.3 RESEARCH QUESTIONS

In **Section 7.2** several research questions were posed for the test excavation program. These will be answered below.

- Does the shore landform of Lake Cowal preserve subsurface archaeological deposits? Is the density of these deposits greater than the ‘back plain’ landforms further from the lake?
  - Yes, the shore landform was found to have a higher number of subsurface artefacts. This was correlated with deep sandy soils that contrasted with the generally shallow and rocky deposits of the transects on the low rise landform
  - The density of artefacts was highest at the east of Transect A on the shore landform but was still characterised as ‘low-moderate’ (approximately 7.6 artefacts per square metre). This was only slightly higher density than Transect C on the low slope landform
  - The density of artefacts and the complexity of the assemblage was lower than expected when compared to the results of Pardoe (2009a and 2015) approximately 5 km northeast on similar landforms.
- Are the artefacts identified on the surface on the back plain/low rise landform associated with subsurface deposits?



- Yes, but the density of the deposit ranges from low to very low. Transect B, associated with the artefact scatter 43-4-0154 (CGO\_LCF\_2020\_OS1), only resulted in one subsurface artefact being identified. The artefact was recorded at the southern end of the transect closer to site 43-4-0154. Transect C had a higher density of artefacts overall and the excavation square (SQ4) with the most artefacts (n=4) was at the north-eastern edge of the site extent of 43-4-0154.
- Are additional archaeological features, such as hearths, present in the project area?
  - No additional archaeological features were identified in the excavation squares. Few artefact types were identified, and no formal tools were recorded.
- Are the characteristics of the deposits at the project area comparable to other investigations near Lake Cowal?
  - The low number of artefacts recorded limits the statistical power of the sample. However, the raw materials of the artefacts recorded during the test excavation program did not match those recorded in other studies. Further, based on the landforms present, it was expected that the subsurface would yield greater numbers and varieties of artefacts than were recorded.
- How does the subsurface assemblage compare to the surface assemblage recorded by EMM (2020)?
  - While some artefacts were of the same raw material (quartz and chert), the subsurface assemblage does not share many characteristics with the surface artefacts.
  - There were no large artefacts comparable to the cobble core or grindstone identified on the surface. This may indicate that the larger items have remained above current ground level since their deposition, while disturbances and taphonomic processes (treadage, animal burrows etc.) have led to the smaller flakes being submerged over time.

### 8.3.1 Research considerations

**Section 7.4.2** provides some research considerations that need to be applied to any excavation. Some concluding remarks will be made in this section about the two relevant considerations: sample size and site condition.

The size of the sample is not considered to be sufficient to allow for inferential analysis of the assemblage. It is not possible to confidently discern patterns in the sample that are the clear result of site formation processes rather than being an arbitrary occurrence. As a result, the conclusions drawn are descriptive rather than analytical.

As noted in **Section 7.4.2**, the condition of a site also influences the conclusions that can be drawn from the data. Land use disturbances were noted across Transects A, C and D. This has led to the inclusion of non-Aboriginal archaeological material in the subsurface deposit. The repeated presence of non-Aboriginal material at depths of 20-30 indicates that there has been considerable disturbance to the deposit at Transect A. Whether or not this disturbance has been

linear (material being pushed down) or more random is not discernible. Due to a shallower soil profile and fewer Aboriginal artefacts, the levels of disturbance at Transects B, C and D are less obvious in the archaeological record. However, the cooccurrence of Aboriginal and non-Aboriginal material at multiple depths suggests that the same processes that have introduced historic material to the subsurface have also disturbed the Aboriginal archaeological deposit.

## **8.4 CONCLUSIONS**

Overall, the results of the test excavation returned less Aboriginal archaeological material than was anticipated by the landform modelling and previous excavations across similar landforms. All available archaeological and ethnographic information suggests that Lake Cowal has been a focus for habitation for many thousands of years. Results of larger excavation programs (Pardoe 2009b) indicated that larger habitation sites along Lake Cowal could be associated with large artefact deposits with complex tool types and hearths.

The results of the test excavation at the project area suggest that previous Aboriginal habitation of this particular area of shoreline was more sporadic or of lower population density. At the shore landform, it is also possible that disturbances associated with the construction and continuous use of the Lake Cowal Homestead and surrounding infrastructure has disturbed deposits that existed in the past. Similarly, the activity of the lake may also have disturbed intact deposits and distributed the material at lower densities across the landform.

The surface artefacts recorded at the low rise landform (43-4-0154) indicate past Aboriginal use of the landscape. The low to very low density of subsurface deposits at this location most likely indicates that the conditions for artefact retention in this landform are poor, due to thin topsoil vulnerable to erosion, and that the surface artefacts were at some time, buried.

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## 9 SIGNIFICANCE AND IMPACT ASSESSMENT

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### 9.1 ASSESSMENT OF SIGNIFICANCE

#### 9.1.1 Introduction

The appropriate management of cultural heritage items is usually determined based on their assessed significance, as well as the likely impacts of any proposed developments. Cultural, scientific, aesthetic, and historical significance are identified as baseline elements of significance assessment, and it is through the combination of these elements that the overall cultural heritage values of a site, place or area are resolved.

##### *Social or Cultural Value*

This area of assessment concerns the importance of a site or features to the relevant cultural group: in this case the Aboriginal community. Aspects of social value include assessment of sites, items, and landscapes that are traditionally significant or that have contemporary importance to the Aboriginal community. This importance involves both traditional links with specific areas, as well as an overall concern by Aboriginal people for their sites generally and the continued protection of these. This type of value may not be in accord with interpretations made by the archaeologist: a site may have low archaeological value but high social value, or vice versa.

##### *Archaeological/Scientific Value*

Assessing a site in this context involves placing it into a broader regional framework, as well as assessing the site's individual merits in view of current archaeological discourse. This type of value relates to the ability of a site to answer current research questions and is also based on a site's condition (integrity), content and representativeness.

The overriding aim of cultural heritage management is to preserve a representative sample of the archaeological resource. This will ensure that future research within the discipline can be based on a valid sample of the past. Establishing whether a site can contribute to current research also involves defining 'research potential'. Questions regularly asked when determining significance are: can this site contribute information that no other site can? Is this site representative of other sites in the region?

##### *Aesthetic Value*

This refers to the sensory, scenic, architectural, and creative aspects of the place. It is often closely linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use (Burra Charter 2013).

### Historic Value

Historic value refers to the associations of a place with a historically important person, event, phase, or activity in an Aboriginal community. Historic places do not always have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). They may have 'shared' historic values with other (non-Aboriginal) communities.

Places of post-contact Aboriginal history have generally been poorly recognised in investigations of Aboriginal heritage. Consequently, the Aboriginal involvement and contribution to important regional historical themes is often missing from accepted historical narratives. This means it is often necessary to collect oral histories along with archival or documentary research to gain enough understanding of historic values.

## **9.2 ASSESSED SIGNIFICANCE OF THE RECORDED SITES**

**Table 9-1** presents a summary of the significance assessment of Aboriginal cultural heritage sites included in this assessment. Further details of each of the assessment criteria are provided below.

### Social or Cultural Value

All Aboriginal objects can offer a sense of connection with past people and their cultural practices. All sites in the project area are considered to have high social and cultural value by the current assessment for this reason. However, no specific assessments of social or cultural value for these individual sites were provided by RAPs.

### Archaeological/Scientific Value

The archaeological value of all sites within the project area is considered to be low.

- All stone artefacts recorded during the survey are in disturbed depositional environments
- While the three scarred trees are in their original context, the site type is not rare, and the features offer little research value as individual objects
- The subsurface deposit Lake Cowal Homestead OS1 is of low-density and does not contain rare tool types, assemblage characteristics or dateable material.

### Aesthetic Value

The setting of the project area on the shore of Lake Cowal offers most sites some aesthetic values, especially the scarred trees overlooking the lake. Stone artefacts in disturbed contexts or subsurface do not have assessed aesthetic value.

### Historic Value

As some Aboriginal objects at the project area were recovered with non-Aboriginal archaeological material, it is possible that the sites could have heritage values associated with the historic or

post-contact period. However, no specific connections between Aboriginal cultural heritage sites and the historic period of the project area have been identified by the current assessment.

**Table 9-1: Aboriginal cultural heritage: significance assessment.**

Site Name	AHIMS ID	Social or Cultural Value	Archaeological / Scientific Value	Aesthetic Value	Historic Value
CGO_LCF_2020_OS1	43-4-0154	High	Low	Low	None
CGO_LCF_2020_IF1	43-4-0155	High	Low	Low	None
CGO_LCF_2020_IF2	43-4-0157	High	Low	Low	None
CGO_LCF_2020_IF3	43-4-0158	High	Low	Low	None
CGO_LCF_2020_IF4	43-4-0160	High	Low	Low	None
CGO_LCF_2020_IF5	43-4-0159	High	Low	Low	None
CGO_LCF_2020_IF6	43-4-0161	High	Low	Low	None
CGO_LCF_2020_ST1	43-4-0162	High	Low	Low-moderate	None
CGO_LCF_2020_ST2	43-4-0163	High	Low	Low-moderate	None
CGO_LCF_2020_ST3	43-4-0156	High	Low	Low-moderate	None
Lake Cowal Homestead OS1	Pending	High	Low	Low	None

## 9.3 AVOIDING AND MINIMISING HARM

### 9.3.1 Conserving significant Aboriginal cultural heritage

An object of the NPW Act is the '*conservation of objects places and features... of cultural value within the landscape, including... places, objects and features of significance to Aboriginal people*' (s.2A(1(b)(i))).

As heritage professionals, OzArk strives for good conservation outcomes. In particular, OzArk is concerned with the conservation and protection of Aboriginal cultural heritage that is of significance to Aboriginal people.

Two primary objectives when managing harm to an Aboriginal object are:

- Impacts to significant Aboriginal objects and places should always be avoided wherever possible
- Where impacts to Aboriginal objects and places cannot be avoided, projects should be amended so as to reduce the extent and severity of impacts to significant Aboriginal objects and places through the use of reasonable and feasible measures.

### 9.3.2 Opportunities to conserve Aboriginal cultural heritage values

Three identified Aboriginal sites 43-4-0162, 43-4-0163 and 43-4-0156 (CGO\_LCF\_2020\_ST1, CGO\_LCF\_2020\_ST2 and CGO\_LCF\_2020\_ST3) will be avoided and conserved by the project.

The proponent has the opportunity to conserve the heritage values associated with the impacted sites through its existing education programs and Aboriginal artefact curation. The objects from the seven sites that will be impacted by the project can be salvaged, as is the preference of the

Aboriginal community stakeholders, and managed at the proposed Keeping Place on site by the Wiradjuri Condobolin Corporation and the West Wyalong LALC. The objects and their cultural value can be conserved through active management in an educational capacity. Even though some of the isolated finds may not be directly impacted by ground disturbing works, Aboriginal community representatives indicated that they prefer objects to be collected and protected due to the level of public access and the availability of educational opportunities.

### **9.3.3 Ecologically sustainable development principles**

Ecologically sustainable development principles (ESD) (defined in s.6 of the *Protection of the Environment Administration Act 1991*) requires the integration of economic and environmental considerations (including cultural heritage) in the decision-making process. In regard to Aboriginal cultural heritage, ESD can be achieved by applying the principle of intergenerational equity and the precautionary principle.

#### **9.3.3.1 Intergenerational equity**

Intergenerational equity is the principle whereby the present generation should ensure the health, diversity, and productivity of the environment for the benefit of future generations.

In terms of Aboriginal heritage, intergenerational equity can be considered in terms of the cumulative impacts to Aboriginal objects and places in a region. If few Aboriginal objects and places remain in a region (for example, because of impacts under previous permits), fewer opportunities remain for future generations of Aboriginal people to enjoy the cultural benefits of those Aboriginal objects and places.

Information about the integrity, rarity or representativeness of the Aboriginal objects and places proposed to be impacted, and how they illustrate the occupation and use of land by Aboriginal people across the region, will be relevant to the consideration of intergenerational equity and the understanding of the cumulative impacts of the project.

Where there is uncertainty, the precautionary principle should also be followed.

#### **9.3.3.2 The precautionary principle**

The precautionary principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

In relation to Aboriginal cultural values, the precautionary principle should be guided by:

- The level of risk of serious or irreversible damage to Aboriginal objects or places or to the value of those objects or places

- The level of uncertainty about the Aboriginal cultural heritage values or scientific or archaeological values, including in relation to the integrity, rarity or representativeness of the Aboriginal objects or places proposed to be impacted.

### 9.3.3.3 Principle of Integration

The Plan of Implementation of the World Summit on Sustainable Development held in Johannesburg, 2002, noted the need to “*promote the integration of the three components of sustainable development- economic development, social development and environmental protection- as interdependent and mutually reinforcing pillars*”.

The principle of integration ensures mutual respect and reciprocity between economic and environmental considerations:

- Environmental considerations are to be integrated into economic and other development plans, programs, and projects
- Development needs are to be taken into account in applying environmental objectives.

### 9.3.3.4 Applicability to the project

The nature of this project, being an ecotourism venture, generally aligns with the above-described ESD principles. The physical impacts of the project are minimal due to the use of tents for guest accommodation. The intergenerational impacts of the project are also reduced by this minimal modification of the Lake Cowal shore landforms. Intergenerational impacts are further mitigated by the plans to use the existing LCF building as a Keeping Place for Aboriginal objects.

As an eco-tourism venture, the project is balanced according to the principle of integration. The development will promote access to an important ecological and cultural location for the purpose of education and conservation, whilst also minimising the impact of this access.

**Table 9-2** examines the application of ESD principles to the project.

**Table 9-2: Application of ESD principles to the project.**

ESD principle	Response
Avoiding and minimising harm	Three sites, the scarred trees, can be avoided and conserved by the project. Surface salvage of the remaining sites is considered to be the best long-term management strategy.
The integration principle	The proponent is actively involved in social development through the promotion of Aboriginal cultural education and environmental appreciation, both of which will be facilitated by the project.
The precautionary principle	There are effective management measures that will mitigate impacts to Aboriginal heritage at the project area. The cultural heritage and archaeological values of the site have been documented in this report.
The intergenerational equity principle	The impacts to Aboriginal heritage are not considered to reduce the capacity for later generations to understand and appreciate the Lake Cowal cultural landscape.

## 9.4 LIKELY IMPACTS TO ABORIGINAL HERITAGE FROM THE PROJECT

While the proposed works have a relatively small direct impact footprint, the project as whole will have a broader indirect impact on the Aboriginal sites identified in this assessment. Four sites will



be directly impacted. However, due to concerns about public access to the site, the RAPs consulted for the project have indicated that they would prefer for all artefacts in the project area to be salvaged and stored at the agreed Keeping Place. **Table 9-3** presents a summary of potential impacts to Aboriginal cultural heritage associated with the project.

**Table 9-3: Aboriginal cultural heritage: impact assessment.**

Site Name	AHIMS ID	Type of Harm (Direct/Indirect / None)	Degree of Harm (Total/Partial / None)	Consequence of Harm (Total/Partial/No Loss of Value)
CGO_LCF_2020_OS1	43-4-0154	Direct	Total	Total
CGO_LCF_2020_IF1	43-4-0155	Indirect	Total	Total
CGO_LCF_2020_IF2	43-4-0157	Indirect	Total	Total
CGO_LCF_2020_IF3	43-4-0158	Indirect	Total	Total
CGO_LCF_2020_IF4	43-4-0160	Indirect	Total	Total
CGO_LCF_2020_IF5	43-4-0159	Direct	Total	Total
CGO_LCF_2020_IF6	43-4-0161	Direct	Total	Total
CGO_LCF_2020_ST1	43-4-0162	None	None	None
CGO_LCF_2020_ST2	43-4-0163	None	None	None
CGO_LCF_2020_ST3	43-4-0156	None	None	None
Lake Cowal Homestead OS1	Pending	Direct	Partial	Partial

## 10 MANAGEMENT OF ABORIGINAL CULTURAL HERITAGE SITES

### 10.1 GENERAL MANAGEMENT PRINCIPLES

Appropriate management of cultural heritage items is primarily determined based on their assessed significance as well as the likely impacts of the proposed development. **Section 9.2** and **Section 9.3** describe, respectively, the significance / potential of the recorded sites and the likely impacts of the development. The following management options are general principles, in terms of best practice and desired outcomes, rather than mitigation measures against individual site disturbance.

- Avoid impact by altering the development proposal or in this case by avoiding impact to a recorded Aboriginal site. If this can be done, then a suitable curtilage around the site must be provided to ensure its protection both during the short-term construction phase of development and in the long-term use of the area. If plans are altered, care must be taken to ensure that impacts do not occur to areas not previously assessed.
- If impact is unavoidable then approval to disturb sites under the authority of an AHIP must be sought from Heritage NSW. Whether the AHIP is consented will depend on many factors including the site's assessed significance. This ACHAR will be required to accompany the AHIP application and normally the management recommendations contained in the ACHAR become the basis for the conditions of the AHIP. As the Aboriginal community have been provided the opportunity to view the draft ACHAR, the ACHAR must make it clear that an AHIP application will be sought so that the Aboriginal community can assess the management recommendations with this knowledge. The AHIP conditions will often stipulate that the Aboriginal community should be involved in any salvage activities and will dictate what the fate of any salvaged Aboriginal objects will be.

### 10.2 MANAGEMENT AND MITIGATION OF RECORDED ABORIGINAL SITES

#### 10.2.1 Opportunities to conserve Aboriginal cultural heritage values

Three identified Aboriginal sites (CGO\_LCF\_2020\_ST1, CGO\_LCF\_2020\_ST2 and CGO\_LCF\_2020\_ST3) will be avoided and conserved by the project.

The proponent has the opportunity to conserve the heritage values associated with the impacted sites through its existing education programs and Aboriginal artefact curation. The objects from the seven sites that will be impacted by the project can be salvaged, as is the preference of the Aboriginal community stakeholders, and managed at the proposed Keeping Place on site by the Wiradjuri Condobolin Corporation and the West Wyalong LALC. The objects and their cultural value can be conserved through active management in an educational capacity. Preliminary

approval to seek a Care and Control Agreement under the NPW Act was given by WWLALC and WCC on site. Arrangements with these groups and the proponent will be formalised once development approval for the project is determined.

### **10.2.2 Management of potentially impacted Aboriginal sites**

Impacts arising from the project will be mitigated using a salvage methodology to cover the following activities under Section 2.1.4 of the AHIP application. This would include:

- Movement only of certain Aboriginal objects
- Community collection
- Harm to certain Aboriginal objects through the proposed work (should objects be unable to be located and salvaged during the surface collection/community collection phase or impacted by ground disturbance).

#### Surface Salvage

Seven sites will be salvaged prior to the commencement of the project: 43-4-0154; 43-4-0155; 43-4-0157; 43-4-0158; 43-4-0160; 43-4-0159; and 43-4-0161.

Surface artefacts in the impact area will be salvaged and relocated in a manner agreed with RAPs. Even though some of the isolated finds may not be directly impacted by ground disturbing works, Aboriginal community representatives indicated that they prefer objects to be collected and protected due to the level of public access.

The following program is suggested:

- Overall vegetation cover at the time of excavation was relatively minimal. If, however, there is significant ground cover at the time of salvage, it is recommended that the vegetation be poisoned within the impact footprint well ahead for the salvage, and if necessary, some method of vegetation removal should be applied to enable sufficient view of the ground surface for salvage
- All visible artefacts at the sites should be flagged in the field
- The sites should be photographed after flagging and before recording
- All artefacts should have the following artefact information entered directly into a GPS unit, albeit one set up with all variable fields already entered to make the field recording job more efficient:
  - Location
  - Artefact Class
  - Artefact Type
  - Size

- Reduction level
  - Raw Material
  - Notes.
- A selection of indicative and / or unusual artefacts from each site will be photographed
- A sketch plan of the site will be completed indicating zones for the surface collection of artefacts if the quantity requires it
- Once all recording is complete, the artefacts will be collected according to site with artefacts from each site being kept separate
- The recording of the artefacts recovered will largely be completed in the field and this data would be incorporated into a salvage report
- Analysis will attempt to answer the research questions of this report if a statistically valid artefact assemblage from across the salvage area is returned.

## 11 AHIP APPLICATION DETAILS

The AHIP application area will include the 10-hectare impact area assessed as part of this ACHAR. All impacts associated with the project will be contained within the impact area. The proposed term of the AHIP will cover 10 years from a proposed start date of 1 March 2021 to 1 March 2031. There have been no other applications for AHIPs relating to the project area.

### 11.1 CADASTRAL DETAILS

**Table 11-1** details the cadastral information specific to the AHIP application area.

**Table 11-1: Cadastral details for the AHIP application area.**

Information Requirement	Details
Street Address(es)	419 Uncle Bill's Road, Lake Cowal, NSW 2671
Lot(s) / DP(s)	Part Lot 1 DP 753084; part Lot 15 DP 753097; part Lot 4 DP753097
LGA(s)	Bland
Zone(s)	RU1 Primary Production according to the Bland LEP (2011).
Parish	Back Creek

### 11.2 AHIP APPLICATION AREA

The AHIP application area includes those areas where all impacts associated with the project will be located. The AHIP will be for approval to impact seven sites and partially impact newly recorded site Lake Cowal Homestead OS1:

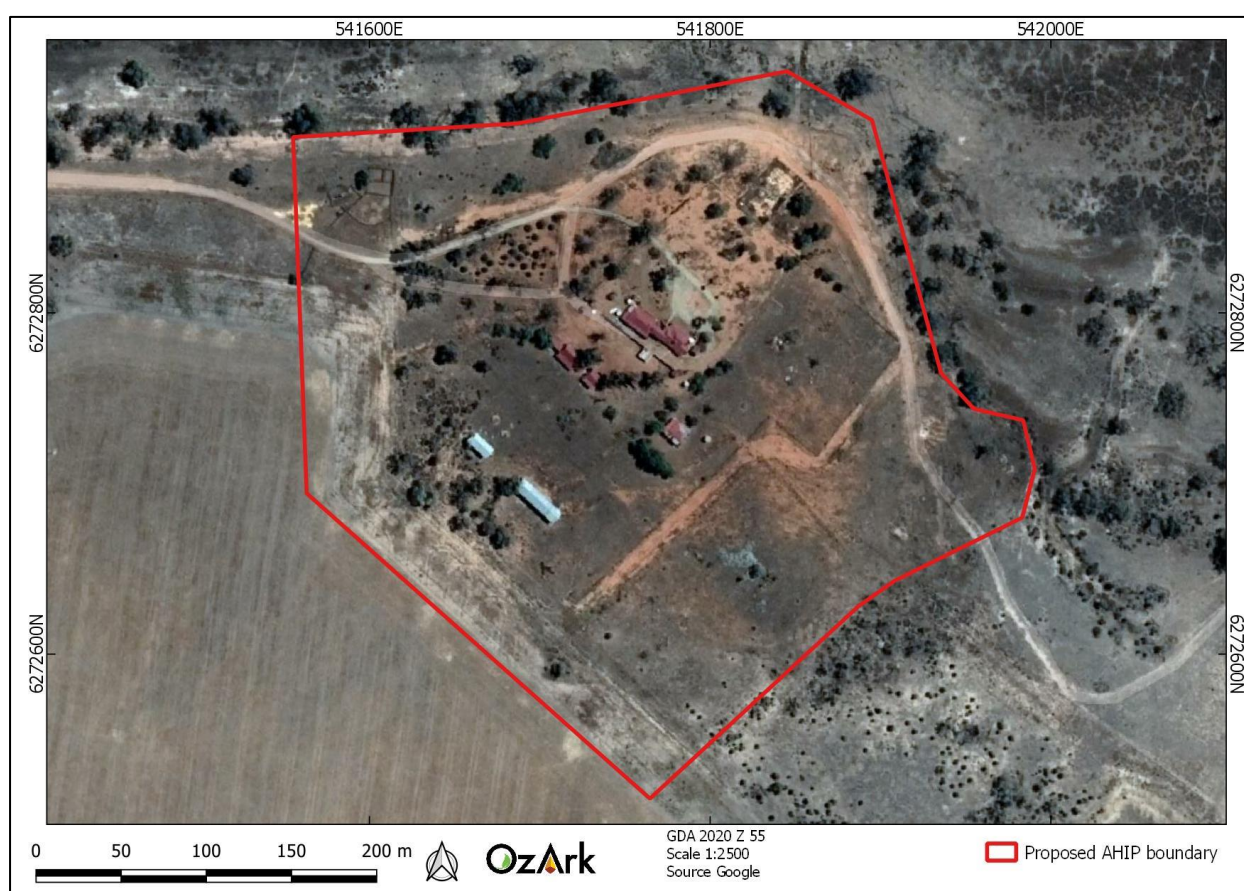
- 43-4-0154
- 43-4-0155
- 43-4-0157
- 43-4-0158
- 43-4-0160
- 43-4-0159
- 43-4-0161.
- Lake Cowal Homestead OS1

**Figure 11-1** shows the AHIP application area and **Table 11-2** provides GPS points demarcating the AHIP application area.

Further investigation and salvage via excavation are not recommended to be a condition of the AHIP. A surface salvage program is recommended per the methodology explained in **Section 10.2.2**. All sites should be listed as 'destroyed' and the artefacts transferred to long-term management in the Keeping Place as determined with RAPs should the AHIP application be approved.

**Table 11-2: AHIP application area boundary points.**

AHIP application boundary points	GDA94 Zone 55 Easting	GDA94 Zone 55 Northing
1	541555	6272903
2	541687	6272911
3	541845	6272942
4	541898	6272912
5	541936	6272765
6	541950	6272739
7	541765	6272515
8	541563	6272694

**Figure 11-1: AHIP area.**

## 12 RECOMMENDATIONS

### 12.1 ABORIGINAL CULTURAL HERITAGE

Under Section 89A of the NPW Act it is mandatory that all newly recorded Aboriginal sites be registered with AHIMS. This requirement has been fulfilled by EMM, who conducted the initial survey. OzArk will register the new site, Lake Cowal Homestead OS1.

The following recommendations are made based on these impacts and with regard to:

- Legal requirements under the terms of the NPW Act whereby it is illegal to damage, deface or destroy an Aboriginal place or object without the prior written consent of Heritage NSW, or its equivalent
- The findings of the current investigations undertaken within the project area
- The interests of the Aboriginal community.

Recommendations concerning Aboriginal cultural values within the project area are as follows:

1. The proponent should apply for a whole of project AHIP, impacting the seven sites listed in **Section 10** and partially impacting Lake Cowal Homestead OS1, per the salvage methodology outlined in **Section 10.2.2**.
2. The boundary of the AHIP area should be demarcated during works to avoid inadvertent impact to Aboriginal sites outside the area and not authorised for disturbance.
3. All workers on site should be given an induction so that they understand the protections afforded to all Aboriginal objects under the NPW Act. Inductions should include an introduction to artefact recognition (see **Appendix 3**).
4. Should previously unrecorded Aboriginal objects be discovered during works, the measures in the *Aboriginal Heritage Unanticipated Finds Protocol* (**Appendix 3**) must be followed.
5. The likelihood of human burial sites being present within the project area has been assessed as low, however due to the potential significance of such sites, the steps in the *Unanticipated Skeletal Remains Protocol* (**Appendix 4**) must be followed if remains suspected of being human are identified during works.

Recommendations concerning the historic values within project area are as follows.

6. The nature and low density of the historical archaeological material recorded during the test excavation indicates that no specific heritage management measures are necessary in relation to the proposed impacts at this time. However, if unexpected items of potential



heritage significance are noted during works, then the *Historic Heritage Unanticipated Finds Protocol* (**Appendix 6**) should be followed.

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- 
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## APPENDIX 1: ABORIGINAL COMMUNITY CONSULTATION

**Appendix 1 Table 1: Aboriginal community consultation log.**

Date	Organisation	Comment	Method
17.9.20	Riverina Leader	Rebecca Hardman (RH) phoned - N/A	Phone
17.9.20	Riverina Leader	RH emailed newspaper to ask when printed and the cut off.	Email
17.9.20	Riverina Leader	RH received call back to clarify which paper advertises over area	Phone
17.9.20	Riverina Leader	RH received call back to clarify which paper advertises over area	Phone
17.9.20	Forbes Advocate	RH sent ad off to the newspaper	Email
17.9.20	Heritage NSW	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	West Wyalong Local Aboriginal Land Council	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	Office of The Registrar, ALRA	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	National Native Title Tribunal	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	NTSCORP	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	Bland Shire Council	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	Riverina Local Land Services	RH sent stage1 agency letter requesting potential stakeholders. Closing date 1.10.20	Email
17.9.20	Forbes Advocate	RH received email clarifying advert	Email
18.9.20	Forbes Advocate	RH received call asking for last line of advert as could not see	Phone
18.9.20	Forbes Advocate	RH received proof	Email
18.9.20	Forbes Advocate	RH sent back with edits	Email
18.9.20	Forbes Advocate	RH received proof	Email
18.9.20	Forbes Advocate	RH approved and asked for receipt	Email
18.9.20	Forbes Advocate	RH received receipt	Email
18.9.20	West Wyalong Local Aboriginal Land Council	RH received email: <i>West Wyalong LALC will provide 2 Community members for this process. Contact can be made via West Wyalong LALC.</i>	Email
18.9.20	National Native Title Tribunal	RH received notification <i>Based on the records held by the National Native Title Tribunal as at 17 September 2020 it would appear that there are no Native Title Determination Applications, Determinations of Native Title, or Indigenous Land Use Agreements over the identified area.</i>	Email
22.9.20	Forbes Advocate	RH received tear sheet	Email
23.9.20	West Wyalong Local Aboriginal Land Council	RH responded: <i>At this stage we are just asking for</i>	Email

Date	Organisation	Comment	Method
		<i>contact details of whom we should contact to see if they would like to register for the project. No fieldwork has been considered yet.</i>  <i>Would you like me to register the LALC for the project?</i>	
23.9.20	West Wyalong Local Aboriginal Land Council	Registered as a RAP	Email
24.9.20	Riverina Local Land Services	RH received email recommending to contact the West Wyalong Local Aboriginal Land Council	Email
29.9.20	Heritage NSW	Heritage NSW sent response to contact Wiradjuri Condobolin Corporation Ltd, Mooka Traditional Owners (no contact available), Wiradjuri Council of Elders	Email
01-Oct-20	Wiradjuri Condobolin Corporation Ltd	Stage 1 Round 2 letter for EOI sent. Closing date 16.10.20	Email
01-Oct-20	Wiradjuri Council of Elders	Stage 1 Round 2 letter for EOI sent. Closing date 16.10.20	Email
01-Oct-20	Mooka Traditional Owners Council	Unable to send Stage 1 Round 2 letter for EOI as no contact information was available	
20-Oct-20	Wiradjuri Council of Elders	RH realised email address supplied from Heritage NSW was different to usual email address, phoned Rob and registered as a RAP.	Email
22.10.20	Mooka Traditional Owners Council	RH found contact number online and phoned - Number disconnected. Address RH has on file from previous stakeholder letters comes back RTS	Phone
10-Nov-20	West Wyalong Local Aboriginal Land Council	Brendan Fisher (BF) sent stage 2 test excavation methodology and cover letter	Email
10-Nov-20	Wiradjuri Council of Elders	BF sent stage 2 test excavation methodology and cover letter	Email
10-Nov-20	Wiradjuri Condobolin Corporation Ltd	BF sent stage 2 test excavation methodology and cover letter	Email
10-Nov-20	West Wyalong Local Aboriginal Land Council	Stage 2 test excavation methodology and cover letter read by recipient	Email
10-Nov-20	Wiradjuri Condobolin Corporation Ltd	Email undeliverable. percykinghtwcc@bigpond.com was not found.	Email
10-Nov-20	Wiradjuri Council of Elders	BF received email from Robert Clegg (RC) saying methodology is good.	Email
10-Nov-20	Wiradjuri Council of Elders	BF thanked RC for response.	Email
26-Nov-20	West Wyalong Local Aboriginal Land Council	BF phoned for feedback and left msg.	Phone
26-Nov-20	Wiradjuri Condobolin Corporation Ltd	BF phoned for feedback	Phone
26-Nov-20	Wiradjuri Condobolin Corporation Ltd	BF resent stage 2 test excavation methodology and cover letter and notified that they should update their contact details with Heritage NSW.	Email
26-Nov-20	Wiradjuri Condobolin Corporation Ltd	BF phoned in regard to WCC updating contact details with Heritage NSW.	Phone
07-Dec-20	West Wyalong Local Aboriginal Land Council	BF sent notification of RAPs	Email
07-Dec-20	Heritage NSW	BF sent notification of RAPs	Email
15-Feb-2021	West Wyalong Local Aboriginal Land Council	BF sent stage 4 letter and ACHAR	email
15-Feb-2021	Wiradjuri Council of Elders	BF sent stage 4 letter and ACHAR	email
15-Feb-2021	Wiradjuri Condobolin Corporation Ltd	BF sent stage 4 letter and ACHAR	email

Date	Organisation	Comment	Method
19-Mar-2021	Wiradjuri Council of Elders	HR rang to confirm end of stage 4 . Message left requesting contact	Phone
19-Mar-2021	Wiradjuri Condobolin Corporation Ltd	HR left message with Vicky, who will get Ally to get back in touch on Monday.	Phone
19-Mar-2021	West Wyalong Local Aboriginal Land Council	HR spoke to LH who noted no comments on draft report apart from seeking to confirm specifics of the forthcoming care and control agreement to be organised. Would like clarification on the land hold details of the CC agreement.	Phone

**Appendix 1 Figure 1: Advertisement placed in Forbes Advocate, 22 September 2020.**

**Expression of Interest  
Cultural Heritage Management**

OzArk Environment & Heritage has been engaged on behalf of the proponent, the Lake Cowal Foundation, and seek registration of Aboriginal groups or individuals who are interested in being consulted over an Aboriginal Cultural Heritage Assessment for the proposed construction of an ecotourism accommodation and environmental education facility at Lake Cowal, NSW.

Following both this assessment and the community consultation process referred to below, OzArk may seek an Aboriginal Heritage Impact Permit (AHIP) on behalf of the proponent, under section 90 of the NSW *National Parks and Wildlife Act, 1974*.

Community consultation is an important part of this process. In accordance with the requirements as set out in the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water, 2010) (Consultation Guidelines) issued by the then NSW Office of Environment and Heritage, the proponent is required to conduct a community consultation process with relevant Aboriginal people to assist in the preparation of the Aboriginal Cultural Heritage Assessment.

If you hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects or places in the proposed study area, please register your interest.

Registrations can be made by post: OzArk EHM PO Box 2069 Dubbo NSW 2830; email: [rebecca@ozarkehm.com.au](mailto:rebecca@ozarkehm.com.au) or by phoning OzArk on 02 6882 0118. All submissions should be received no later than **5pm Tuesday 6th October 2020**.

OzArk advises that the details of any Aboriginal person or group who registers an interest in the Modification will be forwarded to the NSW Division of Biodiversity and Conservation and the West Wyalong Local Aboriginal Land Council in accordance with Section 4.1.5 of the Consultation Guidelines, unless they specify that they do not want their details released.

Please note that any opportunities for engagement during the Aboriginal Cultural Heritage Assessment process would be separate to the consultation process.



Appendix 1 Figure 2: Stage one EOI letter example.

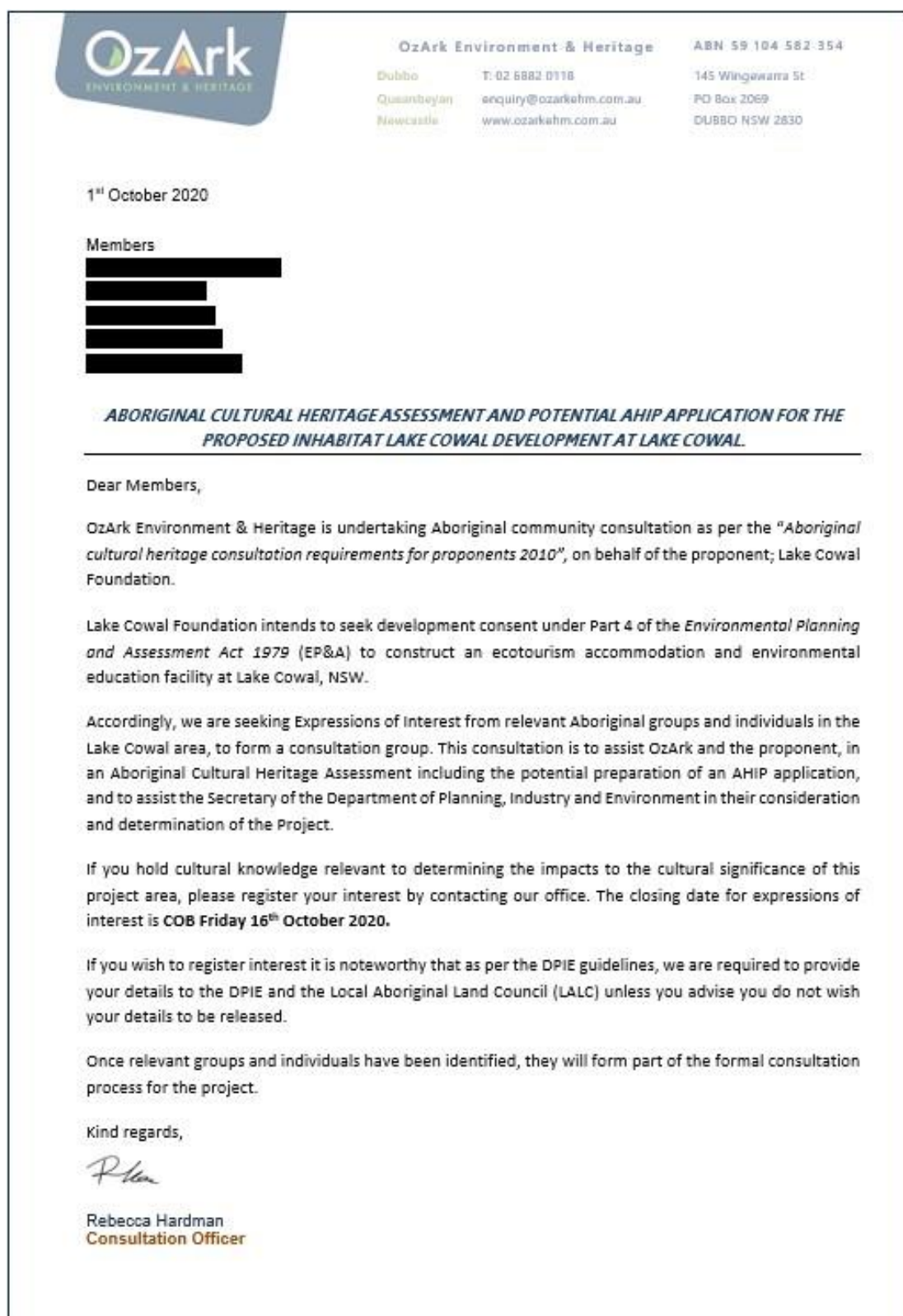
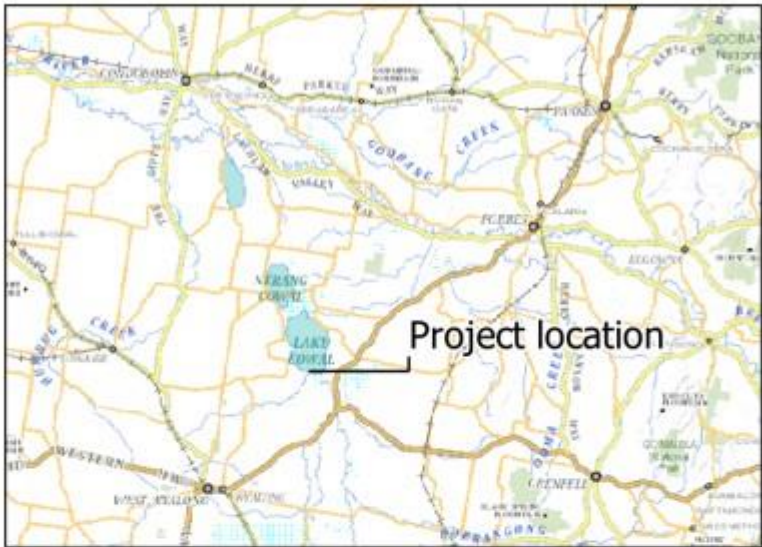


Figure 1: Proposed site Location.



Appendix 1 Figure 3: Stage two/three cover letter example.



## APPENDIX 2: TEST METHODOLOGY



View over Lake Cowal from the northern part of the project area.

### ABORIGINAL ARCHAEOLOGICAL TEST EXCAVATION METHODOLOGY

#### InHabitat Project: Lake Cowal

Bland Shire Council Local Government Area (LGA)

October 2020

Prepared by  
OzArk Environment & Heritage  
for  
The Lake Cowal Foundation (LCF)



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<p style="text-align: center;">COPYRIGHT</p> <p style="text-align: center;">© OzArk Environment &amp; Heritage 2020 and © Lake Cowal Foundation 2020.</p> <p style="text-align: center;">All intellectual property and copyright reserved.</p> <p>Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, 1968, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission.</p> <p style="text-align: center;">Enquiries should be addressed to OzArk Environment &amp; Heritage</p>			



***Acknowledgement***

OzArk acknowledge Traditional Owners of the area on which this assessment will take place and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

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## 1 INTRODUCTION

### 1.1 BRIEF DESCRIPTION OF THE PROPOSAL

OzArk Environment and Heritage (OzArk) has been engaged by The Lake Cowal Foundation (LCF, the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) to support an *Aboriginal Heritage Impact Permit* (AHIP) for Aboriginal sites in the impact footprint of the proposed InHabitat ecotourism project at Lake Cowal, NSW (the proposal). The proposal is within the Bland Shire Council Local Government Area (LGA). **Figure 1-1** shows the location of the project area.

Due to the presence of previously recorded Aboriginal sites within the project area and the potential for subsurface Aboriginal archaeological material to be present, an archaeological test excavation program is required.

### 1.2 PROJECT AREA

The project area (also termed here the 'study area') is located on the "Lake Cowal" property, at 419 Uncle Bill's Road, Lake Cowal, NSW 2671 (**Figure 1-1**).

The "Lake Cowal" property is agricultural land owned by Evolution Mining's Cowal Gold Operations located five kilometres (km) southeast of Mine Lease ML 1535 on the southern shore of Lake Cowal. The project site is located within the original homestead complex of the Lake Cowal property in an elevated position with a northerly aspect over Lake Cowal.

### 1.3 PROJECT DESCRIPTION

InHabitat Lake Cowal is an eco-tourism accommodation and environmental education project to be developed and operated by the LCF on the south-western shore of Lake Cowal, New South Wales' largest natural inland lake and wetland bird habitat of National significance. The project area is an elevated position on the lake shore, looking north over the 10 km expanse of Lake Cowal, and west of the Bland Creek point of entry into the lake. InHabitat Lake Cowal will feature 15 semi-permanent eco tents along with associated kitchen, dining, bathroom, environmental education/presentation facilities, undercover viewing deck and bird hides. The site layout will consist of seven deluxe eco tents along the lake shore. A further eight standard eco tents will be located along the south-eastern side of the site (see **Figure 1-2** for the proposed plan of InHabitat). Although these tents will not have a significant ground surface disturbance footprint in themselves, they will require buried services to connect them to water and power.

The kitchen, dining and presentation facilities will be established through a purpose-built pavilion (36 metres [m] x 10.5 m) with two adjacent bird hides. InHabitat Lake Cowal will also incorporate the Lake Cowal Conservation Centre (LCCC), which will be moved from its current location.

Power is to be generated via an on-site solar array, from which underground cabling will extend to connect the project buildings and tents to power.

Overall, the project will not have a significant ground surface disturbance footprint, but there will nonetheless be discrete activities, i.e. trenching, solar array establishment and shed construction that do disturb the ground.

#### **1.4 ASSESSMENT APPROACH**

The Aboriginal cultural heritage test excavations will follow the Code of Practice for Archaeological Investigations of Objects in NSW (the Code, DECCW 2011) and the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales (OEH 2011).

Figure 1-1: Study area location.



Figure 1-3: Aerial showing a detail of the study area.



## 2 CULTURAL VALUES

### 2.1 INTRODUCTION TO CULTURAL VALUES

*No matter who you are, we all have culture. Each person's culture is important; it's part of what makes us who we are.*

Many Aboriginal people in Australia have a unique view of the world that's distinct from the mainstream. Land, family, law, ceremony and language are five key interconnected elements of Aboriginal culture. For example, families are connected to the land through the kinship system, and this connection to land comes with specific roles and responsibilities which are enshrined in the law and observed through ceremony. In this way, the five elements combine to create a way of seeing and being in the world that is distinctly Aboriginal.

Fundamentally, culture is living and is not static:

- Culture is acquired - we learn about culture from others in our community, including our parents
- Culture is shared - culture does not exist in a vacuum, it is shared amongst a group of people
- Culture defines core values - because we have been taught our culture and share it with our cultural group, we tend to form the same core values
- Cultures resist change but are not static - culture does and can change, but change is usually slow and gradual.

#### 2.1.1 Connection to Country

Aboriginal and Torres Strait Islander peoples are connected to Country through lines of descent (paternal and maternal), as well as clan and language groups.

Although in the past (and sometimes into the present) there have been conflicts between different tribal groups, these were rarely over land. Aboriginal and Torres Strait Islander people have such a strong sense of belonging to country; they have no desire to own the land of others.

Territory is defined by spiritual as well as physical links. Landforms have deep meaning, recorded in art, stories, songs and dance. Songlines or Dreaming Tracks as well as kinship structures link Aboriginal peoples to the territories of other groups. In the past, these links were also used for trade.

*"When we say Country we might mean homeland, or tribal or clan area and in saying so we may mean something more than just a place; somewhere on the map. We are not necessarily referring to place in a geographical sense. But we are talking about the whole of the landscape, not just the places on it."*

Professor Mick Dodson AM, August 2007

### 2.1.2 Managing Country

Surviving on this land for more than 60,000 years, Aboriginal and Torres Strait Islanders established effective ways to use and sustain resources. One important aspect is the right of certain people to control the use of resources in a particular area. Aboriginal and Torres Strait Islander people don't see themselves as 'owning' land, animals, plants or nature, but rather belonging with these things as equal parts of creation.

The rights of different groups to live in and manage certain areas of land are clear and recorded through art, stories, songs and dance.

Deep cultural and spiritual values like totemism have also played an important part in Aboriginal and Torres Strait Islander resource management. Totemism is a belief and value system that connects human beings to other animals, plants and aspects of nature. Groups and individuals are assigned a particular animal that they are related to and have to care for. This gives them a profound sense of connection to and responsibility for the natural world.

Aboriginal and Torres Strait Islanders people have a wide range of traditional methods for gathering food including fish traps, subsistence agriculture, hunting and harvesting a wide range of natural fruits and vegetables. Some groups of people would stay in one place, while others moved around the land according to the seasons, to ensure sustainable and rich food supplies, and to fulfil their spiritual and cultural obligations.

Even before 1788 there were complex relationships for long distance trade between Aboriginal and Torres Strait Islander communities especially for coastal shells and stone hatchets. When people from different groups met socially to share resources, for ceremonies or to settle disputes, they brought items to exchange. Items included stones for hatchets, kangaroo skins, timber for spears, ochre or clay for paint and marine shells for decoration.

The exchange of objects was not motivated by a desire for wealth accumulation but a social system to build connection between people and groups.

### 2.1.3 Recognising lore

In Aboriginal and Torres Strait Islander communities, codes of conduct cover behaviour around:

- Leadership and etiquette
- Property
- Laws around special events like marriage, coming of age and death
- Sacred knowledge.

In much of eastern Australia, Aboriginal communities live their lives like most Australians without resorting to tribal lore. However, in certain crucial areas, particularly associated with family,

leadership roles and caring for Country, Aboriginal lore continues, even in the most urbanised communities.

## **2.2 IDENTIFYING CULTURAL VALUES**

A major aim of this assessment is to identify any cultural values within the landscape in which the project is located so that those values can be recognised and incorporated into the project's management recommendations.

Any cultural values relating to the study area will be captured by the OzArk archaeologists (if such information is provided by RAPs during the test excavation) and included in the ACHAR.

In addition, should any RAPs have knowledge of cultural values regarding the study area that they wish to share or that may affect the test excavation methodology set out in **Section 6**, OzArk invites them to contact us so that these values can be recorded and/or responded to in the methodology.

Understanding cultural landscapes can only come from the views of a particular community, in this case, the Aboriginal community. Unless informed, OzArk will not know of the community's feelings towards the cultural landscape in which the project will be located. OzArk, therefore, invites any information on the cultural landscape surrounding the study area to be forwarded to OzArk, either by telephone or mail or e-mail. Any information received will be treated according to the conditions set out below.

### **2.2.1 Use of information collected**

An ACHAR will be prepared for the project which articulates Aboriginal cultural values and associated conservation methods across the study area, as identified during the consultations. The ACHAR will be circulated to all RAPs for comment as is set out in the ACHCRs. The ACHAR will be considered by Heritage NSW when determining whether the project should be approved. The report will be publicly available.

### **2.2.2 Public / confidential information**

Information will be treated in accordance with instructions received by Aboriginal informants. Information described as confidential (culturally sensitive) will not be detailed in the publicly available report. Confidential information should be made available to the proponent, its heritage consultants, and Heritage NSW so that significant cultural values can be conserved. On advice from the provider of the information, a redacted ACHAR would be made available to the wider public where any sensitive cultural information is removed.

### **2.2.3 Copyright**

Information collected for this assessment remains the property of the Aboriginal informants and the author. Without written permission from individual informants and the author information may not be used for purposes other than those outlined above.

### 3 LANDSCAPE CONTEXT

The 'Lake Cowal' property is located on the south bank of Lake Cowal in the fluvial landforms of the Jemalong Plains within the NSW South Western Slopes bioregion, in the lower slopes subregion. The landscape consists of an area of hilly ranges and isolated peaks set in wide valley contexts. Geology consists of interbedded volcanic rocks, areas of intrusive granites and large areas of tertiary and quaternary alluvium. The soils present are typically red-brown earths on undulating plains and extensive grey clays on alluvium landscapes.

Lake Cowal is located in the Cowal Lakes, Swamps and Lunettes Mitchell landscape unit (Mitchell 2002). This landscape is typically associated with ephemeral lakes (such as Lake Cowal), swamps and associated channels and lunettes on quaternary alluvial clay, sandy clay and sand. It is noted that lunettes on alluvial soils are often associated with large Pleistocene deposits, and while a lunette was initially believed to have been formed on the western shoreline of Lake Cowal this has been discounted. This is due to the fact that Pleistocene lunettes in western NSW are all on the east rather than the west and also due to the fact that the land feature present at Lake Cowal is constructed on alternating bands of clay and gravel.

The study area is located within the Lachlan-Bland Channels and Floodplains landscape. This landform consists of extensive quaternary alluvial plains with soils consisting of grey cracking clays with gilgai along channels and in swamps. Lake Cowal is part of an ephemeral inland wetland system in the Lachlan river catchment and is a typical wetland system with variable flooding/drying cycles. It is New South Wales largest natural inland lake with an approximate length of 21 km and an approximate width of 9.5 km. Surface water inflow to Lake Cowal originates from the Bland Creek in the south and the Lachlan – Lake Cowal Floodway in the northeast. Inflows can also be a result of overflow from the Lachlan River during major flood events which is located approximately 40 km to the north of the lake. During wet seasons and in times of flood, the lake can be seen as an abundant resource for past Indigenous people.



## 4 BACKGROUND TO THE TEST EXCAVATION PROGRAM

On 4 August 2020 EMM conducted a due diligence site inspection for the LCF over the project area. The aims of the inspection were to establish the potential presence of Aboriginal objects or archaeological deposits and whether further archaeological investigation was required. The site inspection included pedestrian sampling of the project area. Ground Surface Visibility (GSV) was low in some areas due to dense vegetation cover and so areas of Ground Surface Exposure (GSE) were targeted. As a result of the visual inspection 10 previously unrecorded Aboriginal sites were identified and it was established that the lake edge and back plain ridge landforms that comprise the project area have the potential likelihood to contain potential archaeological deposits (PADs, see **Figure 4-1**). The Aboriginal objects located include one artefact scatter, five isolated finds, one isolated find with potential archaeological deposit and three possible modified trees, one of which had a collection of relocated Aboriginal artefacts at the base. Stone materials present included chert, silcrete, volcanics and quartz. The Aboriginal objects were recorded on back plain, slope and beach landforms (EMM 2020). As a result of the assessment, EMM divided the project area into three zones of low, moderate and high archaeological potential (**Figure 4-1**). It was concluded that the landforms and soil types present inside the study area, as well as artefacts on the ground surface, indicate that *in situ* archaeological deposits could be encountered inside the impact footprint and that test excavation would be required before progressing further with the project if there were to be impacts in the zones of moderate or high archaeological potential.

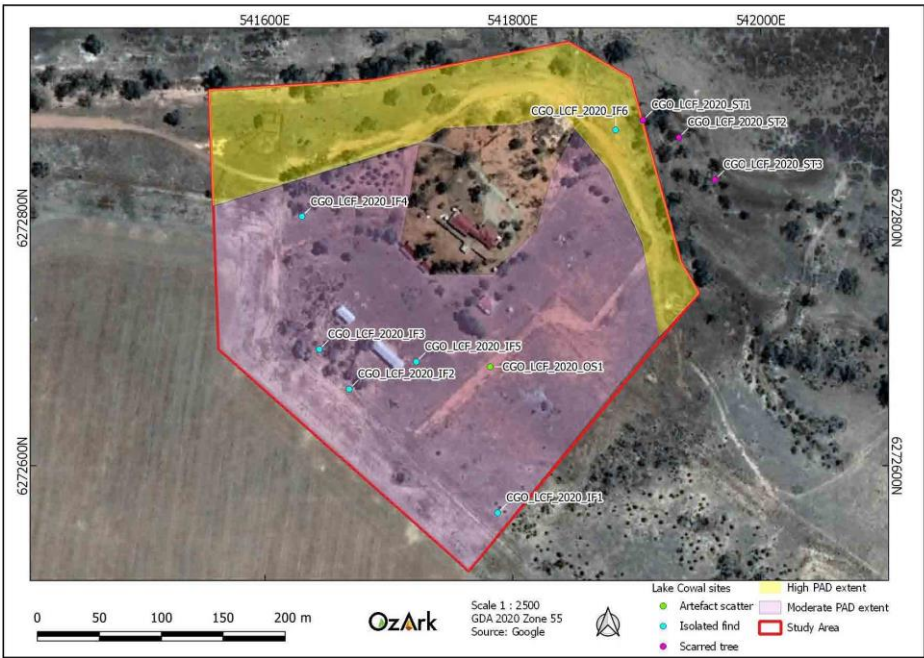
As the project requires impacts in these zones, the LCF engaged OzArk to undertake test excavation within the impact footprint, as well as initiating Aboriginal community consultation, to support an application for an AHIP that will be required for the project.

Consultation as per the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010) was commenced, with Stage 1 letters distributed and an advertisement placed in local print media.

During this phase an inception meeting was held on site on 1 October 2020. The meeting was attended by a representative of the LCF, Aboriginal community stakeholders<sup>1</sup> and OzArk Director, Dr Jodie Benton, to determine an appropriate way forward. Based on the results of the due diligence conducted by EMM, it was decided that test excavation would be a likely requirement, and a site inspection was conducted to determine the extent of the site and to scope the potential locations for test excavation transects.

<sup>1</sup> Both the West Wyalong Local Aboriginal Land Council (WWLALC) and the Wiradjuri Condobolin Corporation (WCC) were expected to attend, however the WCC representatives was unable to participate on the day.

Figure 4-1: Location of Aboriginal sites and PAD extent recorded by EMM.



## 5 LOCAL ARCHAEOLOGICAL BACKGROUND

### 5.1 ETHNOHISTORIC CONTEXT

According to Tindale, the Lake Cowal area is within the language boundary of the Wiradjuri people. The word *cowal* is said to be the local Aboriginal word for 'large water', according to Woolrych in 1890 (Cane 1995).

Cane 1995 summarises information about the Aboriginal history of the area noting that it is relatively meagre. Wilson in 1923 recorded that "*the Aborigines had large camps on the site of the present day Lake Cowal Station homestead ...numerous middens were about there*" (as cited in Cane 1995). English, writing in his undated volume *Around the Cowal*, records that "*there appeared to be substantial evidence that the area had been inhabited by numbers of Aborigines of almost tribal proportions*", however, Cane notes that this evidence was not further discussed (Cane 1995). The Bland was described by English as a meeting place of the tribes of the Lachlan and Murrumbidgee Rivers and was the location of the "*last fight between the Lachlan and Murrumbidgee blacks*" (Cane 1995).

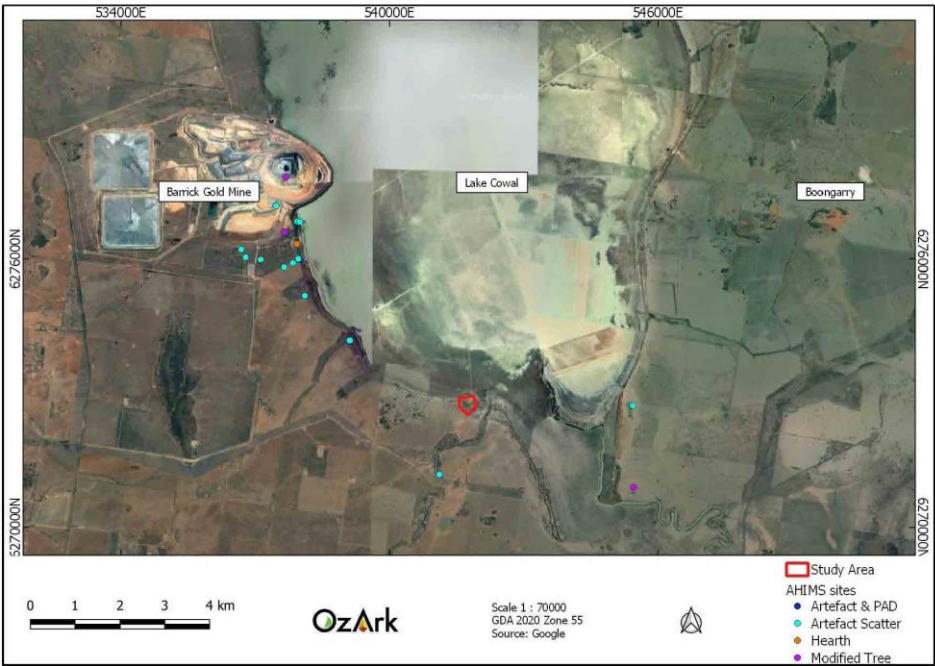
Although not substantial, these references point to Lake Cowal and the Bland area as being fertile enough to support large gatherings, with further references made to initiation ceremonies held in the area. Lake Cowal is believed to have been a significant area for the local Wiradjuri community with substantial amounts of archaeological evidence uncovered in the last 50 years supporting the hypothesis that the area was culturally and socially significant.

### 5.2 ARCHAEOLOGICAL CONTEXT

A search of the AHIMS database conducted by EMM identified 104 Aboriginal sites within an 84 square kilometre area centred on the project area. It was found that stone artefact sites (consisting of artefact scatters and isolated finds) made up most (67%) of the site types. Stone hearths make up the second largest percentage of site types (28%). Also identified within the area are modified trees and stone quarry sites, however, these are comparatively quite rare. The nearest AHIMS site, site #43-3-0027, is an unspecified artefact located 1.6 km south of the project area. The location of the AHIMS sites in relation to the study area can be seen on **Figure 5-1**.

In addition to the registered AHIMS sites, EMM recorded 10 sites in the project area (**Section 4**). While the location of the Lake Cowal property sites recorded were supplied to the Lake Cowal Foundation by EMM, and OzArk have been made aware of their location (see **Section 4**), site cards have not been uploaded onto the AHIMS database and so they will not be shown in **Figure 5-1**.

Figure 5-1: Locations of the AHIMS sites in relation to the study area.



A significant amount of archaeological investigation has occurred within proximity of the project area due to studies for the Cowal Gold Project commencing in 1989 (Barrick Gold Mine on **Figure 5-1**). Cowal Gold mine, located 6 km north-northwest of the project site on the western shore of Lake Cowal, was originally operated under Barrick Gold and since 2015 under Evolution Mining. Studies have been conducted for each mine modification or expansion since 1989, providing a suite of detailed studies from which the archaeology of the area can be better understood. Whilst access to all reports has not been feasible, some are summarised below to gain an understanding of the nature of subsurface deposits that may be encountered within the InHabitat Lake Cowal project area.

### 5.3 PREVIOUS INVESTIGATIONS

Prior to the mining phase of investigation, Etheridge is said to have recorded 112 carved trees in the area in 1918 (Cane 1995). Two were recorded as being located on the Bland River, south of Lake Cowal, although there is some doubt as to actual locations. There is also a reference to a carved tree on Bogies Island. David Bell undertook further carved tree research in the 1970s, and at this time recorded 269 carved trees, three of which were located between Forbes and Lake Cowal (Cane 1995). During his investigations the owner of 'Lake Cowal' said he had heard of a burial ground somewhere on his property. 'Lake Cowal' is the property on which the InHabitat project is to be located.

Cane 1995 also references a NPWS listed site referred to as a campsite on the south end of Lake Cowal, purportedly containing scrapers and an axe, although the location of this site is unclear. Cane also suggests that, although distanced from the Lake Cowal study area, burials located 20 km south at Bland Creek propose a higher degree of cultural significance to the area and put forward the possibility that the foreshores of Lake Cowal might too contain such sites.

Further archaeological investigations were undertaken at Lake Cowal by Paton in 1989<sup>2</sup>. He divided the Lake Cowal into four areas and after brief field inspections concluded that the southern sandy shore (his Area 3) had high archaeological sensitivity and may contain burials.

#### 5.3.1 Cane 1994 Campsites at Lake Cowal

In 1994 Cane conducted a survey in order to identify any Aboriginal sites located within the North Mining's Lease area, along the western bank of Lake Cowal. The survey identified nine Aboriginal sites within the study area. These consisted of eight open camp sites and a scarred tree. Five of the camp sites were relatively large and recorded over 100 artefacts at each site. The remaining three sites recorded artefact numbers between 20 and 45. In total 679 artefacts were recorded in Cane's survey. These sites indicated that chert was the dominant raw material, and while low

<sup>2</sup> We have not been able to source this report, but it is summarised in Cane 1995

density deposits are common, there is also the potential for higher density sites to be identified. Three main site functions were hypothesised from the recorded sites. Four of the sites are thought to be associated with hunting activities, one site is theorised to be a base camp and one as a 'men's activities' site. This report supports the hypothesis of the Lake Cowal area being a socially important and culturally rich environment formed through continuous occupation during environmentally favourable periods of time.

### **5.3.2 Pardoe 2009 investigations at Lake Cowal**

In 2005 Archaeological Investigations were again undertaken at Lake Cowal in order to facilitate archaeological works for the Cowal Gold Operations. Pardoe's 2009 report describes the activities undertaken as;

- Monitoring of topsoil removal
- Surface artefact collection
- Excavation of sites and ovens
- Additional site inspections
- Reassessment of potential scarred trees and relocation of trees
- Archaeological analysis of the above activities.

Test excavations were conducted at the lake edge and back plains. The result of the excavations on the back plains indicated high disturbance due to past land use, however, excavations on the lake edge were far more successful recording stone artefacts, cultural deposits, ovens and dateable materials. Artefacts present at the site included ground-edge stone axes, stone flakes, axe-sharpening stones, and hammer and percussion stones. Quartz and 'silicified volcanic rock' were the dominant source of raw materials. The presence of backed tools and micro-blade technologies was noted, and scarred trees were noted to be associated with box trees. The results suggest that Lake Cowal is an archaeologically rich area with a diverse array of site types present.

The excavations demonstrated high archaeological potential of the landscape west of Lake Cowal, especially in areas of low or no disturbance. Radiocarbon dates placed the base of occupation near Lake Cowal as early as 8000-6000 years ago, demonstrating Aboriginal occupation at Lake Cowal over thousands of years.

### **5.3.3 Pardoe 2015 Summary of stone tools**

The stone tools collected from the Barrick Cowal Gold Mine have been kept in a temporary Keeping Place on site. These objects were subsequently re-examined in 2015 and summarised by Pardoe, who conducted a number of the investigations personally. In total, 5,158 stone artefacts were collected prior to the 2015 report being released. This included:



- 1739 lithic pieces
- 449 cores
- 2435 flakes
- 54 micro blades
- 26 flaked tools
- 87 hammers
- 329 ground pieces
- 34 edge ground axes
- 5 anvils.

The report indicates that the most common material for flaked stone pieces is quartz and chert, followed by silcrete, whereas the most common raw material for ground stone artefacts was indurated sandstone. The report also provides a comprehensive count of artefact types and supports, on a quantitative level, that vast amount of activities undertaken by Aboriginal people over long occupation periods. The report also reaffirms the prevalence of archaeological sites surrounding Lake Cowal, and the potential for archaeological deposits to be present.

#### **5.3.4 Niche 2017 Cowal Gold Operations**

In 2017 Niche conducted archaeological investigations at the Barrick Cowal Gold Mines. A total of 65 Aboriginal archaeological sites were recorded which comprised stone artefact sites, ovens, heat retainers and a scarred tree. Most stone artefact sites were low density artefact scatters, however, one larger site was recorded, and a number of open sites had multiple features present. While 57 sites were recorded as having low archaeological significance, five sites were recorded as having moderate archaeological significance and three sites recorded as having high archaeological significance. The report supports the observation that open campsites are a common site type in the region and that archaeologically significant sites occur in the area.

#### **5.3.5 EMM 2020 survey of the project area**

In August 2020 EMM conducted archaeological investigations at the 'Lake Cowal Property.' During these investigations ten previously unrecorded Aboriginal sites were identified including six isolated stone artefacts, three scarred trees and one open artefact scatter (refer to **Figure 4-1**). The majority of sites (five of the isolated finds and the open artefact scatter) were found on back plain landforms. The three modified trees were found to be located on the beach and one isolated find and a Potential Archaeological Deposit were identified on the lake edge ridge. The visual inspection confirmed that the lake edge ridge is an archaeologically sensitive landscape with deep sandy soils that have the potential to contain subsurface deposits. The identification of sites on the back plain landform confirm previous findings that this landform type is associated with sporadic artefact scatters and isolated finds. The inspection also confirmed that the disturbed

land associated with the homestead has a low archaeological potential. It is from these findings that the test excavation methodology has been developed and through which Potential Archaeological Deposits have been determined to varying sensitivities.



## 6 PROPOSED METHODS

### 6.1 PURPOSE OF THE TEST EXCAVATION METHODOLOGY

The test excavation program will target locations of the proposed impact footprint for the InHabitat. Figure 4-1 shows the location of the surface artefacts recorded by EMM and the PAD extent that was determined.

The aims of the test excavation are to:

1. Establish whether there are subsurface deposits at the locations of impacted land affected by the proposed InHabitat. If there is subsurface deposit at the sites, then the extent, nature and integrity of the subsurface archaeological deposit will also be established
2. Use the data gained from the test excavation program to better evaluate the archaeological significance and potential of the study area so as to inform future management of the site in the face of proposed impacts.

The results of the test excavation will be included in the ACHAR and inform the recommendations of the AHIP application. Excavations undertaken as per the Code do not require an AHIP under the *National Parks and Wildlife Act 1974*.

### 6.2 COMPLIANCE WITH THE CODE: REQUIREMENT 16

Table 6-1 outlines the points necessary to comply with Requirement 16 of the Code of Practice and where these requirements are addressed in the test excavation methodology.

**Table 6-1: Compliance with Requirement 16 of the Code.**

Requirement 16 of Code	Where requirement is addressed
1. Test excavation units must be placed on a systematic grid appropriate to the scale of the area—either PAD or site—being investigated e.g. 10 m intervals, or other justifiable and regular spacing.	Complies. See Section 6.3.
2. Any test excavation point must be separated by at least 5 m.	Complies. See Section 6.4 point 1.
3. Test excavations units must be excavated using hand tools only.	Complies. Section 6.4 point 4.
4. Test excavations must be excavated in 0.5 m x 0.5 m units.	Complies. See Section 6.3 and Section 6.4 point 1.
5. Test excavations units may be combined and excavated as necessary to understand the site characteristics, however: i) the maximum continuous surface area of a combination of test excavation units at any single excavation point conducted in accordance with point 1 (above) must be no greater than 3 m <sup>2</sup> ;  ii) The maximum surface area of all test excavation units must be no greater than 0.5% of the area—either PAD or site—being investigated.	i) Complies. See Section 6.3 and Section 6.4 point 10. ii) Complies. See Section 6.3 and Table 6-2.
6. Where the 0.5 m x 0.5 m excavation unit is greater than 0.5% of the area then point 5 (ii) (above) does not apply.	Not applicable.
7. The first excavation unit must be excavated and documented in 5 cm spits at each area—either PAD or site—being investigated. Based on the evidence of the first excavation unit, 10 cm spits or sediment profile/stratigraphic excavation (whichever is smaller) may then be implemented.	Complies. See Section 6.4 point 3.

Requirement 16 of Code	Where requirement is addressed
8. All material excavated from the test excavation units must be sieved using a 5 millimetre (mm) aperture wire-mesh sieve.	Complies. See <b>Section 6.4 point 5</b> .
9. Test excavation units must be excavated to at least the base of the identified Aboriginal object-bearing units, and must continue to confirm the soils below are culturally sterile.	Complies. See <b>Section 6.3</b>
11. Photographic and scale-drawn records of the stratigraphy/soil profile, features and informative Aboriginal objects must be made for each single excavation point.	Complies. <b>Section 6.4 points 2, 7, 8, and 11.</b>
12. Test excavations units must be backfilled as soon as practicable.	Complies. See <b>Section 6.4 point 6</b> .
13. Following test excavation, if Aboriginal Cultural Heritage has been identified a site card must be completed and submitted to the AHIMS Registrar as soon as practicable. Following the submission of the site card to the AHIMS Registrar an Aboriginal Site Impact Recording form will be completed as in accordance with the requirements of the Code.	It will be the responsibility of OzArk to ensure that this requirement is met.

### 6.3 SAMPLING STRATEGY

The sampling strategy will involve investigating subsurface deposits at impact locations within the study area with some flexibility for changes to the design. **Figure 6-1** shows the indicative location of the transects. Please note that these are subject to change slightly depending on the discretion of the OzArk Excavator Director, in consultation with Aboriginal community representatives, when on site to take into account observed landscape features, observed areas of disturbance, and design changes subsequent to the development of this document.

Excavation will occur in 10 m intervals along four transects and it is intended that 33 test squares will be excavated across the site. All test squares will be 0.5 m by 0.5 m in size.

**Table 6-2** outlines the specific sampling strategy for each site during the test excavation program.

**Table 6-2: Proposed transect information for test excavation program.**

Site	Transect and test pits	Calculations
High potential PAD site (includes Lake Cowal sites; CGD_LCF_2020_IF6.	Transect 1 is approximately 120 m in length. There will be approximately 13 test squares excavated at intervals of 10 m.	The high potential PAD site has an area of 27503 m <sup>2</sup> (2.75 hectares [ha]) inside the study area.  Based on the size of the high potential PAD extent, no more than 137.5 m <sup>2</sup> of the site is to be excavated. The methodology proposes that a minimum of 13 test squares be excavated at the site, totalling 3.25 m <sup>2</sup> .
Moderate potential PAD site (includes Lake Cowal sites CGD_LCF_2020_IF1, CGD_LCF_2020_IF2, CGD_LCF_2020_IF3, CGD_LCF_2020_IF4, CGD_LCF_2020_IF5.	Transect 2 is approximately 90 m in length. There will be approximately 10 test squares excavated at intervals of 10 m.  Transect 3 is approximately 20 m in length. There will be approximately three test squares excavated at intervals of 10 m.  Transect 4 is approximately 60 m in length. There will be approximately seven test squares excavated at intervals of 10 m.	The moderate potential PAD site has an area of 72057 m <sup>2</sup> (7.2 ha) inside the study area.  Based on the size of the moderate potential PAD extent, no more than 360.3 m <sup>2</sup> of the site is to be excavated. The methodology proposes that a minimum of 20 test squares be excavated at the site, totalling 5 m <sup>2</sup> .

Any decision to expand an excavation square or to investigate a perpendicular transect will be done in consultation with the Aboriginal community, but the decision of whether to expand or not will ultimately rest with the OzArk Excavation Director.

Test squares will be excavated manually in five centimetre (cm) spits<sup>3</sup>. If the soil profile and/or lack of archaeological stratigraphy indicates that it is warranted, test squares may then be excavated in 10 cm spits, after consultation between the OzArk Excavation Director and RAPs.

Excavation will continue in any one test square until culturally sterile soils are reached. 'Culturally sterile' does not necessarily mean the B-Horizon clays, but rather, if no artefacts have been present for 20 cm, the test square will stop being excavated. If there is evidence of alluvial disturbance, i.e. gravels or rolled river pebbles, the degree of disturbance will be considered in the decision as to how deep an individual test square should be excavated. The decision to stop excavation at any test square will be done in consultation with RAPs, but the ultimate decision rests with the OzArk Excavation Director.

If the test squares are very deep, there may need to be reconsideration of the number of test squares that can be excavated. This will occur with RAP input and will also ensure that the archaeological characteristics of the impact footprint has been adequately sampled.

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<sup>3</sup> A spit is an arbitrary division of vertical space.

Figure 6-1: Location of proposed transects (exact locations subject to minor changes).



## 6.4 PERSONNEL AND METHODS

The excavation program will be undertaken by two archaeologists and six RAP representatives and will include the following aspects:

1. Three transects of varying length with test squares placed 10 m apart will be excavated. All test squares will be 0.5 m by 0.5 m in size. No test square will be within 5 m of another (unless point 10 is enacted)
2. Prior to any excavation, the site will be recorded via digital photography
3. Initial test squares will be excavated in 5 cm spits to determine whether archaeological stratigraphy is present. If not, spit size will be increased to 10 cm. If archaeological stratigraphy is present, this will be used rather than spits, though only if equal or less than 10 cm
4. All excavation will be done using hand tools only
5. The excavated material from all test squares will be sieved on site using dry sieving through sieves of five millimetre mesh
6. Each excavator (by hand) will be responsible for sieving the deposit from their test square, retrieving the artefacts and, in conjunction with the supervising archaeologist, correctly recording their provenance. There could be some room for assistance with the sieving, but a self-contained approach is preferable. Deposits will be sieved onto tarpaulins and the spoil used to backfill the test square once final recording and photography has occurred
7. A standard excavation recording form will be used for each excavated test square. Details will include; date, site recorder, spit number and depth, description of finds, description of soil, sketch plan of excavation (if relevant to show structure), end of spit levels, and soil pH (when necessary or appropriate)
8. It is envisioned that the excavation crew will consist of two archaeologists and six RAP representatives over two days. The excavator of each test square, in conjunction with the supervising archaeologist, will be responsible for ensuring any forms are correctly completed. It will be the site archaeologist's responsibility to perform all photographic tasks, undertake any planning and section drawing if required and to ensure that a correct location of each test square is maintained
9. Given that the work will be physical, all persons participating on the test excavation program should be aware of this and be 'fit for work'
10. If intact archaeological deposits or archaeological features are encountered, then additional archaeological test squares may be excavated to ensure documentation of any features and/or retrieval of artefacts and other relevant archaeological material. A feature

could include a high density of artefacts within a square<sup>4</sup>, or a test square containing rare or unusual artefacts (such as artefacts constructed from a stone type rarely represented in the area or less-common tool forms such as ground edge axes, hammerstones, etc.), or other signs of human occupation i.e. ground ovens/hearths or charcoal concentrations. The decision of whether any expansion is warranted rests with the OzArk Excavation Director; although it will be done in consultation with the attending RAPs. No expansion will exceed 3 m<sup>2</sup>

11. Photographic and scale-drawn recordings of the stratigraphic/soil profile, features and informative Aboriginal objects must be made for each test square if warranted (i.e. archaeological stratigraphy is encountered). At a minimum, an indicative section of each test square will be photographed
12. Analysis of all excavated lithics will be made in order to determine the site's characteristics and to enable the site to be compared with other sites in the region. Analysis will also assist in determining what type of activities the Aboriginal people carried out at the site and their relationship with local resources (fauna, flora, water and stone). All artefacts will be analysed and selectively photographed, and the more diagnostic artefacts may be drawn by a lithic specialist
13. All faunal remains, if recovered, will be analysed by a fauna specialist. Remnant shell and bone fragments may assist in determining what foods Aboriginal people may have eaten at the specific site and may elucidate possible foraging strategies. In conjunction with *in situ* stone tools, bone/shell fragments may also provide evidence of specific usage of stone tools for food processing
14. Artefacts will remain at the OzArk office (145 Wingewarra Street, Dubbo NSW) until the analysis is complete. Once complete, the artefacts will remain at the OzArk office where they will be kept at a locked location until point 16 below is enacted
15. Excavation results will be used to advise further courses of action in relation to the management and mitigation options for the project
16. Once all excavation activities for this project are complete, artefacts, if present, will have their ultimate fate decided in a negotiated agreement between the RAPs, the Lake Cowal Foundation and Heritage NSW.

<sup>4</sup> It is considered that the 'high density' equates to more than 40 artefacts per square metre excluding angular shatter and small flakes without discernible artefact attributes.

## REFERENCES

- |                    |  |
|--------------------|--|
| Burke & Smith 2004 | Burke H and Smith C. 2004. <i>The Archaeologist's Field Handbook</i> , Blackwell, Oxford.  |
| Cane 1994          | Cane, S. 1994. <i>Campsites at Lake Cowal</i> . Report for Cowal Gold Operations.  |
| DECCW 2010         | DECCW. 2010. <i>Code of Practice for the Investigation of Aboriginal Objects in New South Wales</i> . Department of Environment, Climate Change and Water, Sydney. |
| EMM 2020           | EMM 2020. <i>InHabitat Lake Cowal Aboriginal Heritage Due Diligence Assessment</i> . Report for The Lake Cowal Foundation.   |
| Mitchell 2002      | Mitchell 2002. <i>Descriptions for NSW (Mitchell) Landscapes</i> . Department of Environment and Climate Change (NSW).   |
| Niche 2017         | Niche 2017. <i>Aboriginal Cultural Heritage Assessment: Cowal Gold Operations</i> . Report for Evolution Mining.   |
| Pardoe 2009b       | Pardoe 2009b. <i>Archaeological Investigations at Lake Cowal</i> . Report for Barrick Gold of Australia Limited.   |
| Pardoe 2015        | Pardoe 2015. <i>Summary of Stone Tools from Barrick Cowal Gold Mine</i> . Unpublished report for Barrick gold Mine.  |

### **APPENDIX 3: ABORIGINAL HERITAGE: UNANTICIPATED FINDS PROTOCOL**

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An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification, i.e. smoothing, use). Human bone (skeletal) remains may also be uncovered while onsite.

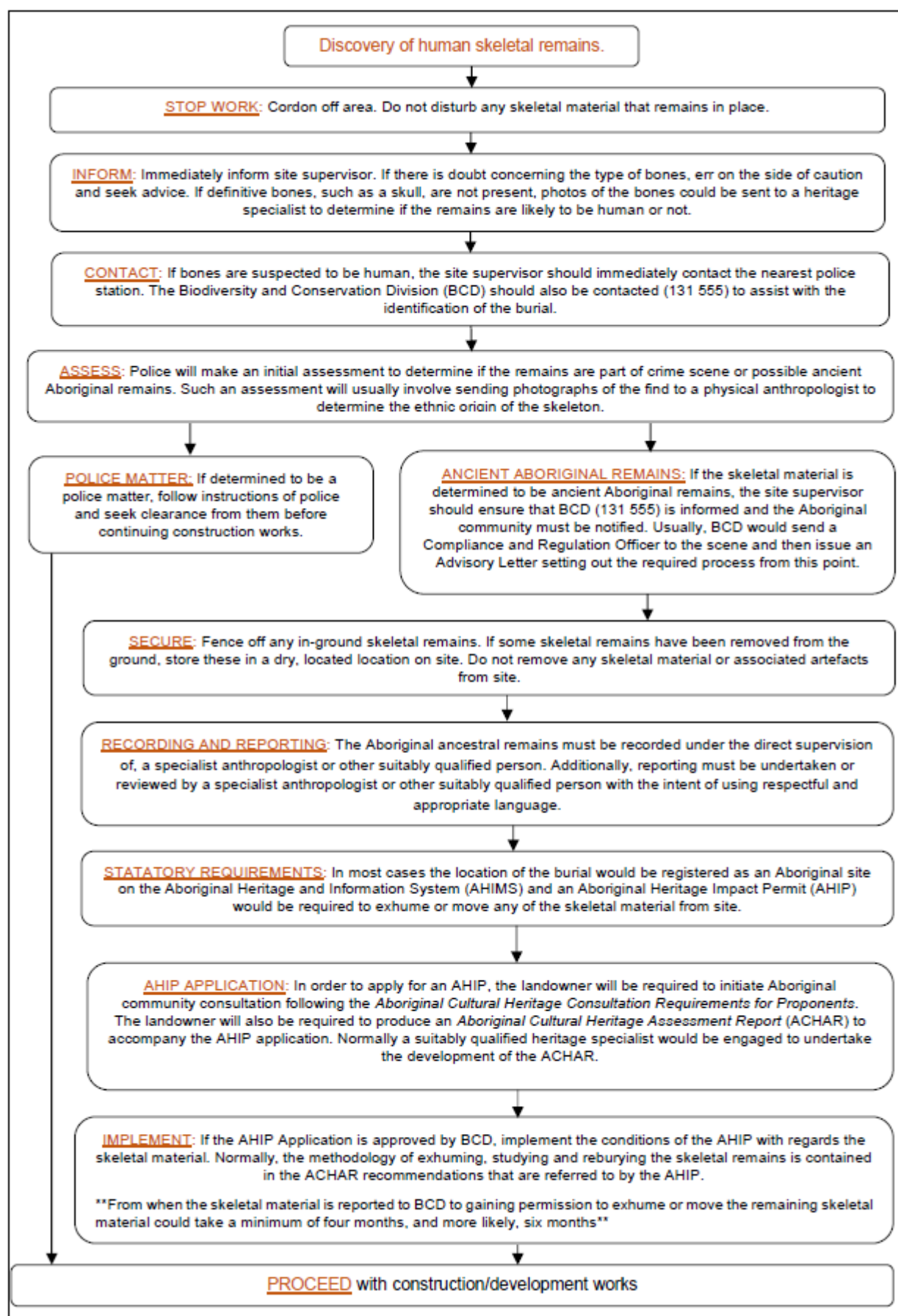
Cultural heritage significance is assessed by the Aboriginal community and is typically based on traditional and contemporary lore, spiritual values, and oral history, and may also take into account scientific and educational value.

Protocol to be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered:

1. If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the proponent must:
  - a. Not further harm the object;
  - b. Immediately cease all work at the particular location;
  - c. Secure the area so as to avoid further harm to the Aboriginal object;
  - d. Notify Heritage NSW as soon as practical on 131 555, providing any details of the Aboriginal object and its location; and
  - e. Not recommence any work at the particular location unless authorised in writing by Heritage NSW.
2. In the event that Aboriginal burials are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and Heritage NSW contacted.
3. Cooperate with the appropriate authorities and relevant Aboriginal community representatives to facilitate:
  - a. The recording and assessment of the find(s);
  - b. The fulfilment of any legal constraints arising from the find(s), including complying with Heritage NSW directions; and
  - c. The development and implementation of appropriate management strategies, including consultation with stakeholders and the assessment of the significance of the find(s).
4. Where the find(s) are determined to be Aboriginal object(s), recommencement of work in the area of the find(s) can only occur in accordance with any consequential legal requirements and after gaining written approval from Heritage NSW (normally an Aboriginal Heritage Impact Permit).



## APPENDIX 4: UNANTICIPATED SKELETAL REMAINS PROTOCOL



## APPENDIX 5: ABORIGINAL HERITAGE: ARTEFACT IDENTIFICATION

	
Retouched blades (scale = 1cm)	Flakes
	
Microliths (scale = 1cm)	Scraper (scale = 1cm)
	
Flake characteristics (scale = 1cm)	Core from which flakes have been removed (scale = 1cm)

## APPENDIX 6: HISTORIC HERITAGE: UNANTICIPATED FINDS PROTOCOL


A historic artefact is anything which is the result of past activity not related to the Aboriginal occupation of the area. This includes pottery, wood, glass, and metal objects as well as the built remains of structures, sometimes heavily ruined.

Heritage significance of historic items is assessed by suitably qualified specialists who place the item or site in context and determine its role in aiding the community's understanding of the local area, or their wider role in being an exemplar of state or even national historic themes.


The following protocol should be followed if previously unrecorded or unanticipated historic objects are encountered:

1. All ground surface disturbance in the area of the finds should cease immediately, then:
  - a) The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted
  - b) The site supervisor will be informed of the find(s).
2. If finds are suspected to be human skeletal remains, then NSW Police must be contacted as a matter of priority.
3. If there is substantial doubt regarding the historic significance for the finds, then gain a qualified opinion from an archaeologist as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be significant. If a quick opinion cannot be gained, or the identification is that the item is likely to be significant, then proceed to the next step.
4. Notify Heritage NSW as soon as practical on 131 555 providing any details of the historic find and its location.
5. If in the view of the heritage specialist or Heritage NSW that the finds appear not to be significant, work may recommence without further investigation. Keep a copy of all correspondence for future reference.
6. If in the view of the heritage specialist or Heritage NSW that the finds appear to be significant, facilitate the recording and assessment of the finds by a suitably qualified heritage specialist. Such a study should include the development of appropriate management strategies.
7. If the find(s) are determined to be significant historic items (i.e. of local or state significance), any re-commencement of ground surface disturbance may only resume following compliance with any legal requirements and gaining written approval from Heritage NSW.

## APPENDIX 7: AHIMS SEARCH

<div>  <div> <div>Office of Environment &amp; Heritage</div> <div>AHIMS Web Services (AWS)</div> <div>Extensive search - Site list report</div> </div> <div> <div>Your Ref/PO Number : Lake Cowal</div> <div>Client Service ID : 561541</div> </div> </div>										
SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
39-4-0276	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536522	6276076	Open site	Valid	Hearth :-	Permits	
39-4-0277	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	535267	6277489	Open site	Valid	Artefact :-	Permits	
39-4-0278	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533108	6276725	Open site	Valid	Artefact :-	Permits	
39-4-0279	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533136	6276546	Open site	Valid	Artefact :-	Permits	
39-4-0280	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532214	6278851	Open site	Valid	Hearth :-	Permits	4376
39-4-0281	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533399	6276157	Open site	Valid	Artefact :-	Permits	
39-4-0282	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533184	6276202	Open site	Valid	Artefact :-	Permits	
39-4-0283	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533076	6276984	Open site	Valid	Artefact :-	Permits	
39-4-0284	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	535903	6276066	Open site	Valid	Hearth :-	Permits	
39-4-0285	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533013	6278015	Open site	Destroyed	Artefact :-	Permits	
43-4-0054	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533062	6277100	Open site	Valid	Hearth :-	Permits	
39-4-0286	Contact	Recorders	Nidhe Environment and Heritage	Mr.Jamie Reeves						
		GDA	55	536046	6275732	Open site	Valid	Artefact :-	Permits	
39-4-0287	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533035	6277235	Open site	Valid	Artefact :-	Permits	
39-4-0288	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	535960	6276260	Open site	Valid	Hearth :-	Permits	
39-4-0289	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536466	6276174	Open site	Valid	Artefact :-, Hearth :-	Permits	
39-4-0290	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536300	6276201	Open site	Valid	Hearth :-	Permits	
39-4-0291	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536424	6275897	Open site	Valid	Hearth :-	Permits	
<p>Report generated by AHIMS Web Service on 15/01/2021 for Harrison Rochford for the following area at Datum :GDA, Zone : 55, Eastings : 531453 - 550007, Northings : 6271053 - 6280000 with a Buffer of 0 meters. Additional Info : Report.Number of Aboriginal sites and Aboriginal objects found is 111</p> <p>This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.</p>										

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
39-4-0292	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536278	6275796	Open site	Valid	Hearth :-	Permits	
39-4-0293	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533990	6279152	Open site	Partially Destroyed	Artefact :-	Permits	
39-4-0294	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536690	6276212	Open site	Valid	Artefact :-	Permits	
39-4-0295	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536791	6276036	Open site	Valid	Artefact :-	Permits	
39-4-0296	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	536497	6275756	Open site	Valid	Artefact :-	Permits	
39-4-0297	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533990	6279152	Open site	Valid	Artefact :-	Permits	
39-4-0298	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533304	6277252	Open site	Destroyed	Hearth :-	Permits	
39-4-0299	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532686	6278407	Open site	Destroyed	Artefact :-	Permits	
39-4-0300	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533125	6278700	Open site	Destroyed	Artefact :-, Hearth :-	Permits	
39-4-0301	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532643	6278720	Open site	Valid	Hearth :-	Permits	
39-4-0302	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532725	6278789	Open site	Valid	Hearth :-	Permits	
39-4-0303	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532978	6278464	Open site	Destroyed	Artefact :-, Hearth :-	Permits	
39-4-0304	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	533193	6278317	Open site	Destroyed	Artefact :-, Hearth :-	Permits	
39-4-0305	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532404	6279099	Open site	Valid	Hearth :-	Permits	4376
39-4-0306	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532120	6279360	Open site	Valid	Artefact :-	Permits	4376
39-4-0307	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	532222	6279398	Open site	Valid	Artefact :-	Permits	4376
39-4-0308	Contact	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varito						
		GDA	55	537650	6275815	Open site	Valid	Artefact :-	Permits	4376
<p>Report generated by AHIMS Web Service on 15/01/2021 for Harrison Rochford for the following area at Datum :GDA, Zone : 55, Eastings : 531453 - 550007, Northings : 6271053 - 6280000 with a Buffer of 0 meters. Additional Info : Report.Number of Aboriginal sites and Aboriginal objects found is 111</p> <p>This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.</p>										

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
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39-4-0310	<a href="#">Contact</a> Lake Cowal 2017-027	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits			
39-4-0311	<a href="#">Contact</a> Lake Cowal 2017-021	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Modified Tree (Carved or Scarred) :-	Permits	4376		
39-4-0312	<a href="#">Contact</a> Lake Cowal 2017-022	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	He arth :-	Permits			
39-4-0313	<a href="#">Contact</a> Lake Cowal 2017-023	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits			
39-4-0314	<a href="#">Contact</a> Lake Cowal 2017-024	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits			
39-4-0315	<a href="#">Contact</a> Lake Cowal 2017-003	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits	4376		
39-4-0316	<a href="#">Contact</a> Lake Cowal 2017-004	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits	4376		
39-4-0317	<a href="#">Contact</a> Lake Cowal 2017-005	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits	4376		
39-4-0318	<a href="#">Contact</a> Lake Cowal 2017-006	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-, Hearth :-	Permits	4376		
39-4-0319	<a href="#">Contact</a> Lake Cowal 2017-007	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits	4376		
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39-4-0324	<a href="#">Contact</a> Lake Cowal 2017-012	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Not a Site	He arth :-	Permits	4376		

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Client Service ID : 561541

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
39-4-0325	<a href="#">Contact</a> Lake Cowal 2017-013	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits	4376		
39-4-0326	<a href="#">Contact</a> Lake Cowal 2017-014	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits	4376		
39-4-0327	<a href="#">Contact</a> Lake Cowal 2017-020	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits			
39-4-0328	<a href="#">Contact</a> Lake Cowal 2017-019	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	He arth :-	Permits	4376		
39-4-0333	<a href="#">Contact</a> Lake Cowal 2017-001	Recorders	Nidhe Environment and Heritage	Ms.Rebecca Varitto	Valid	Artefact :-	Permits			
43-4-0154	<a href="#">Contact</a> CGO_LCF_2020_061	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-	Permits			
43-4-0155	<a href="#">Contact</a> CGO_LCF_2020_IP1	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-	Permits			
43-4-0156	<a href="#">Contact</a> LCF_CGO_2020	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Modified Tree (Carved or Scarred) :-	Permits			
43-4-0157	<a href="#">Contact</a> LCF_CGO_2020_IP2	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-	Permits			
43-4-0158	<a href="#">Contact</a> LCF_CGO_2020_IP3	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-	Permits			
43-4-0159	<a href="#">Contact</a> LCF_CGO_2020_IP5	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-	Permits			
43-4-0160	<a href="#">Contact</a> LCF_CGO_2020_IP4	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-	Permits			
43-4-0161	<a href="#">Contact</a> LCF_CGO_2020_IP6	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-, Potential Archaeological Deposit (PAD) :-	Permits			
43-4-0162	<a href="#">Contact</a> LCF_CGO_2020_ST1	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Artefact :-, Modified Tree (Carved or Scarred) :-	Permits			
43-4-0163	<a href="#">Contact</a> LCF_CGO_2020_ST2	Recorders	EMM Consulting - St Leonards - Individual users	Ms.Taylor Reid	Valid	Modified Tree (Carved or Scarred) :-	Permits			

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## AHIMS Web Services (AWS)

### Extensive search - Site list report

Your Ref/PO Number : Lake Cowal  
Client Service ID : 561541

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
43-4-0020	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 536100	6278065	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	3148,102172
	Lake Cowal back plains site A	EMM Consulting - St Leonards - Individual users, Ms Taylor Reid								
43-4-0021	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 535529	6278500	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Cowal back plains site B	Doctor Colin Pardoe, Doctor Scott Cane								3148
43-4-0022	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 535227	6278566	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Cowal Back Plains site C	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0023	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 535708	6277202	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site D	Doctor Scott Cane, Mr. Roly Williams								3148
43-4-0024	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 535180	6276950	Open site	Valid	Artefact :-	<a href="#">Permits</a>	1467,1468
	E	Doctor Scott Cane, Mr. Roly Williams								3148
43-4-0025	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 534393	6277443	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site F	Doctor Colin Pardoe, Doctor Scott Cane, Mr. Roly Williams								3148,102172
43-4-0026	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 534000	6277344	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site G	Doctor Colin Pardoe, Doctor Scott Cane, Mr. Roly Williams								3148,102172
43-4-0027	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 535214	6276163	Open site	Valid	Artefact :-	<a href="#">Permits</a>	1467,1468
	H	Doctor Scott Cane								3148
43-4-0028	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 533960	6278262	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake cowal back plains site I	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0029	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 533279	6278393	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site J	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0030	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 533279	6277770	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site K	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0031	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 533900	6276590	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site L	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0032	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 534655	6276360	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site M	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0033	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 534622	6276033	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	1467,1468
	Lake Cowal back plains site N	Doctor Colin Pardoe, Doctor Scott Cane								3148,102172
43-4-0140	IWL South-ST1	GDA	55 533143	6277835	Open site	Valid	Modified Tree (Carved or Scarred) :-	<a href="#">Permits</a>		
	<a href="#">Contact</a>	<a href="#">Recorders</a>	EMM Consulting - St Leonards - Individual users, Ms Taylor Reid					<a href="#">Permits</a>		

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## AHIMS Web Services (AWS)

### Extensive search - Site list report

Your Ref/PO Number : Lake Cowal  
Client Service ID : 561541

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
43-4-0034	L-C-2	AGD	55 533900	6276590	Open site	Valid	Artefact :- 1. Stone Quarry :- 1	<a href="#">Permits</a>		
43-4-0035	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 534655	6276360	Open site	Valid	Artefact :- 1. Modified Tree (Carved or Scarred) :- 1	<a href="#">Permits</a>	102172
	L-C-3	Doctor Scott Cane								
43-4-0106	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 531609	6279883	Open site	Destroyed	Artefact :-	<a href="#">Permits</a>	
	Thornton Plains Grinding Stone	Mr John Gliding, DPIE								
43-4-0085	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 536838	6279898	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.049	Niche Environment and Heritage, Ms Katherine Day								
43-4-0086	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 536714	6279496	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.046	Niche Environment and Heritage, Ms Katherine Day								
43-4-0087	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 537007	6279127	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.055	Niche Environment and Heritage, Ms Katherine Day								
43-4-0088	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 537007	6279127	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.056	Niche Environment and Heritage, Ms Katherine Day								
43-4-0089	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 537944	6279675	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.054	Niche Environment and Heritage, Ms Katherine Day								
43-4-0090	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 537560	6279955	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.053	Niche Environment and Heritage, Ms Katherine Day								
43-4-0091	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 536718	6279991	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.047	Niche Environment and Heritage, Ms Katherine Day								
43-4-0092	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 536792	6279916	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2018.051	Niche Environment and Heritage, Ms Katherine Day								
43-4-0105	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 532341	6278911	Open site	Valid	Artefact :-	<a href="#">Permits</a>	
	Lake Cowal 2019 CI	Mr John Gliding, DPIE								
43-4-0124	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 538011	6275979	Open site	Valid	Artefact :- 1. Potential Archaeological Deposit (PAD) :- 1	<a href="#">Permits</a>	
	B40A OS	EMM Consulting - St Leonards - Individual users, Ms Taylor Reid								
43-4-0113	<a href="#">Contact</a>	<a href="#">Recorders</a>	GDA	55 531606	6279882	Open site	Valid	Artefact :- 1	<a href="#">Permits</a>	
	Lake Cowal 2019B	Mr Peter Kuski, South East Archaeology								
43-3-0021	<a href="#">Contact</a>	<a href="#">Recorders</a>	AGD	55 537164	6278408	Open site	Destroyed	Artefact :-	Open Camp Site	102172, 102173
	Cowal site LCI	Doctor Colin Pardoe, R Williams, Doctor Scott Cane								3
	<a href="#">Contact</a>	<a href="#">Recorders</a>	Doctor Colin Pardoe, R Williams, Doctor Scott Cane					<a href="#">Permits</a>	1467,1468	

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## AHIMS Web Services (AWS)

### Extensive search - Site list report

Your Ref/PO Number : Lake Cowal

Client Service ID : 561541

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	Site Features	Site Types	Reports
43-3-0022	Cowal site L02	AGD	55	537312	6279255	Open site	Destroyed	Artefact :-	Open Camp Site	102172,102173
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe,R.Williams,Doctor.Scott Cane							
43-3-0023	Cowal site L03	AGD	55	537830	6276648	Open site	Destroyed	Artefact :-	Open Camp Site	102172,102173
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe,R.Williams,Doctor.Scott Cane							
43-3-0024	Cowal site L04	AGD	55	537887	6276638	Open site	Destroyed	Artefact :-	Open Camp Site	102172,102173
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe,R.Williams,Doctor.Scott Cane							
43-3-0025	L05	AGD	55	538000	6275000	Open site	Valid	Artefact :-	Open Camp Site	
	<b>Contact</b>	<b>Recorders</b>	R.Williams,Doctor.Scott Cane							
43-3-0026	L06	AGD	55	539000	6274000	Open site	Valid	Artefact :-	Open Camp Site	
	<b>Contact</b>	<b>Recorders</b>	R.Williams,Doctor.Scott Cane							
43-3-0027	S01	AGD	55	541000	6271000	Open site	Valid	Artefact :-	Open Camp Site	
	<b>Contact</b>	<b>Recorders</b>	R.Williams,Doctor.Scott Cane							
43-4-0003	Lake Cowal	AGD	55	545321	6272539	Open site	Valid	Artefact :-	Open Camp Site	
	<b>Contact</b>	<b>Recorders</b>	CS Vale							
43-4-0007	Cowal site P1	AGD	55	537359	6277000	Open site	Destroyed	Artefact :-	Open Camp Site	3148,102172,102173
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe,R.Williams,Doctor.Scott Cane							
43-4-0008	Cowal Scarred Tree P2	AGD	55	537575	6277643	Open site	Destroyed	Modified Tree (Carved or Scarred) :-	Scarred Tree	3148,102172
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe,R.Williams,Doctor.Scott Cane							
43-4-0044	Warrboyne Back Plain Site 1	GDA	55	535144	6278861	Open site	Destroyed	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe,Doctor.Colin Pardoe							
43-4-0045	Warrboyne Back Plain Site 2	GDA	55	536061	6279420	Open site	Valid	Artefact : 1		102172
	<b>Contact</b>	<b>Recorders</b>	Doctor.Colin Pardoe							
39-4-0271	Lake Cowal 2017-055	GDA	55	533853	6276163	Open site	Destroyed	Artefact :-, Hearth :-		
	<b>Contact</b>	<b>Recorders</b>	Niche Environment and Heritage Ms.Rebecca Varitto							
39-4-0272	Lake Cowal 2017-056	GDA	55	534670	6275987	Open site	Destroyed	Artefact :-		
	<b>Contact</b>	<b>Recorders</b>	Niche Environment and Heritage Ms.Rebecca Varitto							
39-4-0273	Lake Cowal 2017-057	GDA	55	535310	6276670	Open site	Valid	Artefact :-, Hearth :-		
	<b>Contact</b>	<b>Recorders</b>	Niche Environment and Heritage Ms.Rebecca Varitto							
39-4-0274	Lake Cowal 2017-058	GDA	55	535427	6276766	Open site	Valid	Hearth :-		
	<b>Contact</b>	<b>Recorders</b>	Niche Environment and Heritage Ms.Rebecca Varitto							
39-4-0275	Lake Cowal 2017-059	GDA	55	535879	6277455	Open site	Valid	Hearth :-		

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