View southeast along existing transmission line easement within the project footprint.

TECHNICAL REPORT 5
ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

MOUNT PIPER TO WALLERAWANG TRANSMISSION LINE UPGRADE PROJECT

LITHGOW LOCAL GOVERNMENT AREA

AUGUST 2025

This is a redacted version of the report suitable for public exhibition

Report prepared by

OzArk Environment & Heritage

for GHD on behalf of Transgrid

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Heritage NSW

ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT COVER SHEET

Report Title	Aboriginal Cultural Heritage Assessment Report: Mount Piper to Wallerawang Transmission Line Upgrade Project
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Date of Report	**August 2025**
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Acknowledgement

OzArk acknowledge the traditional custodians 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.

EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by GHD on behalf of Transgrid (the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) for the proposed Mount Piper to Wallerawang Transmission Line Upgrade Project (the project). The project is in the City of Lithgow Local Government Area (LGA).

Transgrid proposes a new transmission line between Mount Piper and Wallerawang substations. The project is required to increase transmission capacity between renewable energy generators in the Central-West Orana Renewable Energy Zone (CWO REZ) and the Greater Sydney region. The project would include a new 330 kilovolt (kV) transmission line, double circuit transmission structures, and incorporate sections of the existing, single-circuit 132 kV transmission line (known as Line 94E), where the two transmission lines would share a widened easement and transmission structures.

The area that is to be directly affected by the construction and operation of the project, is referred to as the project footprint and is approximately 86.5 hectares (ha) in area. The project footprint is generally undulating, with an elevation difference of up to 100 metres (m) between the highest and lowest points. Land within the immediate vicinity of the proposed transmission line is mostly cleared and part of an existing transmission line easement. There are three previously recorded Aboriginal sites on the Aboriginal Heritage Information Management System (AHIMS) within the project footprint: 45-1-2800, 45-1-0215 and 45-1-0237.

The Aboriginal community consultation for the project has followed the *Aboriginal cultural heritage consultation requirements for proponents* (ACHCRs) (DECCW 2010b) with the aim to document the cultural heritage values of the project footprint and the views and concerns of the 15 Registered Aboriginal Parties (RAPs) regarding the project. The field survey was undertaken by OzArk and representatives of the RAPs over five days between March and November 2024. One day of assessment was completed on 25 March 2024, three days of assessment were completed from 6-9 May 2024 and a final day of assessment was completed on 7 November 2024. The test excavation component of this assessment was undertaken by OzArk and representatives of the RAPs from 23-27 September 2024.

There are six sites within the project footprint:

- Two newly identified sites: 45-1-2967 (isolated find) and 45-1-2994 (extension of a destroyed PAD located adjacent to the project footprint).
- Four previously identified sites: 45-1-2800 (isolated find), 45-1-0237 (subsurface artefact deposit), 45-1-0215 (artefact scatter and PAD) and WPS PAD 2 (not listed on AHIMS).

Three of the six sites are PADs, including the artefact scatter and PAD (45-1-0215).

It was determined that ground disturbance could be avoided at 45-1-2015, 45-1-2994, and WPS PAD 2 and these sites were therefore not included in the test excavation program. The test excavation program focused on site 45-1-0237 because it was not yet clear whether ground disturbance could be avoided in this area. The test excavation program confirmed the presence of a subsurface archaeological deposit across the excavation area associated with site 45-1-0237. The program recorded 139 artefacts from the 17 excavated Test Units (TUs), with a single TU (Transect 3 TU 4) accounting for 59 artefacts. The moderate-high density of artefacts at Transect 3 TU 4 includes 30 artefacts within Spit 1 (0-10cm), which has been interpreted as a single knapping event. There is a low-moderate density of artefacts across site 45-1-0237 excluding the concentration at Transect 3 TU 4.

One Aboriginal site within the project footprint (Site 45-1-0237) is considered to have low-moderate archaeological significance as a contributory element to the archaeological profile of the local area. The scientific value of the remaining sites is low due to high levels of disturbance and low artefact density.

The project would result in impacts to two sites within the project footprint, with one totally impacted (45-1-2967) and one partially impacted (45-1-0215). The PAD area associated with site 45-1-0215 would be avoided, however impacts would occur to the artefact scatter that forms part of site. Impacts on the remaining two artefact sites (45-1-0237 and 45-1-2800) and two PADs (WPS PAD 2 and 45-1-2994) can be avoided by the project.

Executive Summary Table 1 provides the management and mitigation policies appropriate to the four Aboriginal sites and the two PADs within the project footprint.

Executive Summary Table 1: Management categories for the sites within the project footprint. Blue indicates total impact, orange indicates partial impact.

AHIMS ID	Site Name	Impact	Description of works	Management categories
45-1-2967	Mount Piper Substation IF1	Total	The site is located on an access track that would be used during construction and operation of the project. The site may also be impacted by the construction of a nearby structure for the transmission line.	Surface collection
45-1-0215	Lamberts Creek 5	Partial	Artefacts at the site are present on an access track that will be subject to minor ongoing maintenance during the operation of the project within the extent of the existing track and then used by light vehicles only. The artefacts within the project footprint will be salvaged and the PAD area outside the project footprint will be avoided.	Surface collection and avoidance
45-1-0237	Springvale Colliery	None	An access track will be constructed across the site. Within the extent of the deposit, the ground surface will be covered with fill and the track built up. The track will be retained during operation.	Avoidance of ground disturbance
45-1-2800	WPS-IF1	None	The site is at the edge of a construction compound and will be avoided. The compound is not required during operation.	Avoidance of ground disturbance
Not registered	WPS PAD 2	None	WPS PAD 2 is located within the new transmission line easement. Vegetation clearing and stringing will be required during construction and the easement will need to be maintained free of tall growing vegetation during operation. Ground disturbance in WPS PAD 2 will be avoided during vegetation clearing and stringing. This will include retention of root balls and use of appropriate methods to avoid ground disturbance by vehicles.	Avoidance of ground disturbance
45-1-2994	Lidsdale 2 PAD Extension	None	A brake and winch site overlaps with a portion of the PAD. The proposed works will be completed without ground disturbance. The brake and winch site is not required during operation.	Avoidance of ground disturbance

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

1. An ACHMP will be prepared in consultation with the RAPs and DPHI, with input from Heritage NSW. The ACHMP will include:
    - an Unexpected Heritage Finds Protocol for any new discovery of Aboriginal artefacts as per the detailed methodology described in the ACHAR
    - an unanticipated skeletal find protocol as described in detail in the ACHAR
    - a process for engaging with RAPs prior to and during construction of the project
    - salvage methodology
    - heritage induction procedures
    - provisions for the long-term management of the Aboriginal objects that are salvaged.

2. Impacts on Aboriginal heritage sites will be avoided for Springvale Colliery (45-1-0237), WPS-IF1 (45-1-2800), WPS PAD 2 and Lidsdale 2 PAD Extension (45-1-2994) by implementing:
    - a no-go zone for 45-1-2800
    - adopting construction and maintenance work methods that avoid ground disturbance for the remaining sites. These methods are outlined in **Section 10.2.2** and will be monitored during operation and maintained as necessary.
3. All Aboriginal heritage sites within the project footprint and PAD sites that extend outside the project footprint will be clearly marked on construction plans, and mapped and recorded in Transgrid's GIS to avoid impacts.
4. Impact to sites 45-1-0215 and 45-1-2967 cannot be avoided and the sites will be salvaged through the recording and collection of the surface artefacts, prior to construction in accordance with the salvage methodology described in the ACHAR (**Section 10.2.1**).

TABLE OF CONTENTS

FIGURES

TABLES

ABBREVIATIONS AND GLOSSARY

ACHAR	Aboriginal Cultural Heritage Assessment Report. As set out in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*, all developments where harm to Aboriginal objects is likely must be assessed in an ACHAR.
ACHCRs	*Aboriginal Cultural Heritage Consultation Requirements for Proponents.* Guidelines for conducting Aboriginal community consultation for developments where harm to Aboriginal objects is likely.
AHD	Australian Height Datum.
AHIMS	Aboriginal Heritage Information Management System. Administered by the DCCEEW, AHIMS is the central register of all Aboriginal sites within NSW.
AHIP	Aboriginal Heritage Impact Permit. Issued by Heritage NSW to allow harm to Aboriginal objects.
Assemblage:	All artefacts recorded at a location. In this report, assemblage refers to stone artefacts as this was the only artefact class recorded.
Bondaian:	A chronological period where bondi points become more frequent in artefact assemblages. Post-3000 BP, although earlier at some sites.
BP	Years before present
Capertian:	Chronological phase preceding the Bondaian Phase. Pre-3000 BP, although earlier at some sites.
Code of Practice	*Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* 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.
Debitage:	The term debitage refers to all the waste material produced during lithic reduction and the production of stone tools. This report uses debitage to describe the small flakes and chips produced purely as a by-product of knapping.
DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water. DCCEEW contains the Environment and Heritage Group including Heritage NSW.
DPHI	NSW Department of Planning, Housing and Infrastructure. DPHI contains the Planning agency.

EIS	Environmental Impact Statement. A required document for major projects documenting all potential impacts to the environment, including heritage, that may arise due to the development.
GSE	Ground surface exposure. A measure of factors that may reveal surface artefacts such as erosion scalds.
GSV	Ground surface visibility. A measure of factors that may obscure the detection of surface artefacts such as leaf litter.
Heritage NSW	Government department tasked with ensuring compliance with the NPW Act. Heritage NSW is advised by the Aboriginal Cultural Heritage Advisory Committee (ACHAC).
Holocene:	Geological epoch which lasted from around 12,000 years ago (10,000 BCE) to the present. This period is generally warmer and wetter than the preceding Pleistocene period.
NPW Act	*National Parks and Wildlife Act 1974*. Primary legislation governing Aboriginal cultural heritage within NSW.
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.
Project	The CSSI project “Mount Piper to Wallerawang Transmission Line Upgrade Project”, which is the subject of this Environmental Impact Statement. The project involves the construction and operation of high voltage transmission lines between the Mount Piper and Wallerawang substations.
Project footprint	Area that is to be directly affected by the construction and operation of the project.
RAP	Registered Aboriginal Party. An individual or group who have indicated through the ACHCR process that they wish to be consulted regarding the project.
SEARs	Secretary’s Environmental Assessment Requirements issued by DPHI.
Taphonomy:	The study of how artefacts can be moved in archaeological deposits due to natural occurrences such as animals burrowing or treadage into the ground.

1 INTRODUCTION

1.1 BACKGROUND

The Australian and NSW governments have both established targets to achieve net-zero emissions by 2050. Achieving these targets requires low emissions technologies to be deployed at scale across all sectors of the economy, including the electricity generation sector, currently Australia's largest source of greenhouse gas emissions.

The NSW Transmission Infrastructure Strategy (DPE 2018) aims to engage the private sector to invest in priority energy infrastructure projects, which can deliver low-cost, clean and reliable energy to consumers

As part of the Transmission Infrastructure Strategy, the NSW Government has developed a plan to establish five Renewable Energy Zones (REZs) to increase renewable energy generation, reduce carbon emissions, and help deliver lower wholesale electricity costs to consumers. The Central-West Orana REZ (CWO REZ), being the first REZ established, is planned to generate at least 4.5 gigawatt by the late-2020s.

The NSW Government's Electricity Infrastructure Roadmap (DPIE 2020) identifies that the expansion of renewable generation must be accompanied by increased transmission capacity to transfer power from REZs in inland NSW to key demand centres. Interest in new energy generation projects in the CWO REZ is forecasted to exceed the existing transmission network capacity in several locations. The existing infrastructure located between the Mount Piper 550/330 kilovolt (kV) substation (Mount Piper 330 kV substation) and the Wallerawang 330/132 kV substation (Wallerawang 330 kV substation) has been identified in the NSW Network Infrastructure Strategy (EnergyCo 2023) as requiring upgrades. The Mount Piper to Wallerawang Transmission Line Upgrade Project (the project) would provide the additional capacity required to reliably transmit power from the CWO REZ to the Greater Sydney region.

1.2 LOCATION

The project is located within the Central West region of NSW within the Lithgow City Local Government Area (LGA). It is located approximately 14 kilometres (km) north-west of Lithgow situated on the western fringes of the Blue Mountains (**Figure 1-1**).

The area that is to be directly affected by the construction and operation of the project, is referred to as the project footprint and is shown in **Figure 1-2**. The project footprint is approximately 86.5 hectares in size and is generally bounded by the following:

- Castlereagh Highway to the north
- Former Wallerawang Power Station site to the east
- Gardens of Stone State Conservation Area (SCA) to the south

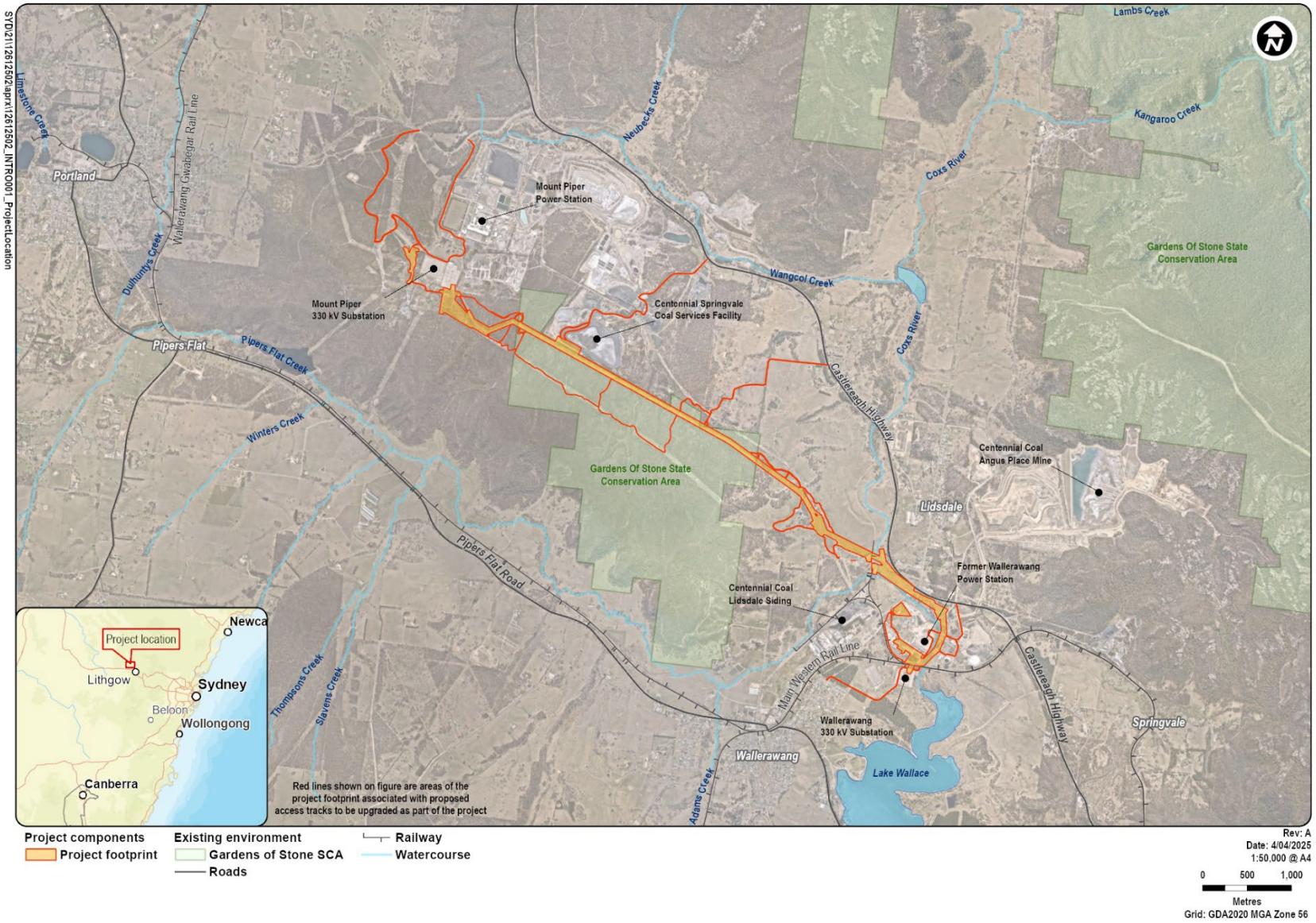
- Mount Piper Power Station to the north-west.

Land uses within and adjacent to the project footprint include:

- Electricity generation at Mount Piper Power Station
- Electricity transmission, including the Mount Piper and Wallerawang 330 kV substations, and associated transmission lines
- Mining activities, with several Centennial Coal operations including the former Ivanhoe Coal Mine and Springvale Coal Services overlapping the project footprint
- Agriculture, primarily livestock grazing
- Conservation, notably the Gardens of Stone SCA
- State and local road reserves including the Castlereagh Highway, Boulder Road and Brays Lane
- Rail corridors including the Main Western Rail Line and a disused railway line near Brays Lane.

A mixture of land uses is proposed at the former Wallerawang Power Station site. This may include commercial and industrial land use. Development of a Battery Energy Storage System is also proposed by others at the site.

Figure 1-1: Project location and regional context.

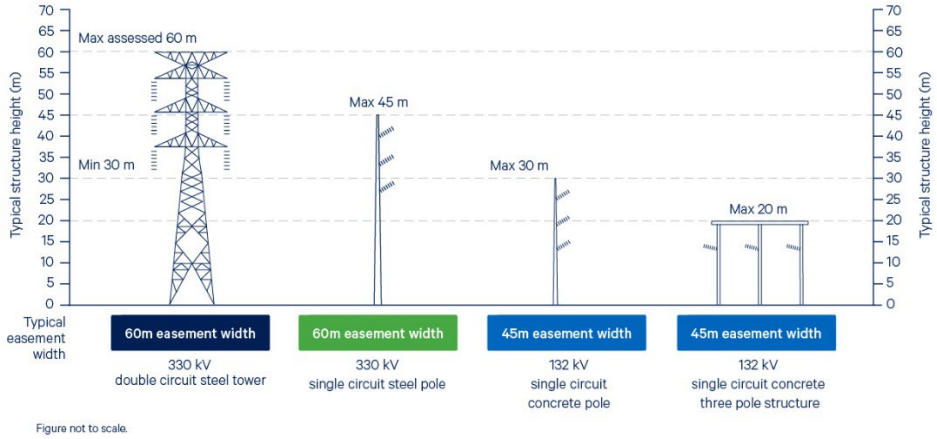


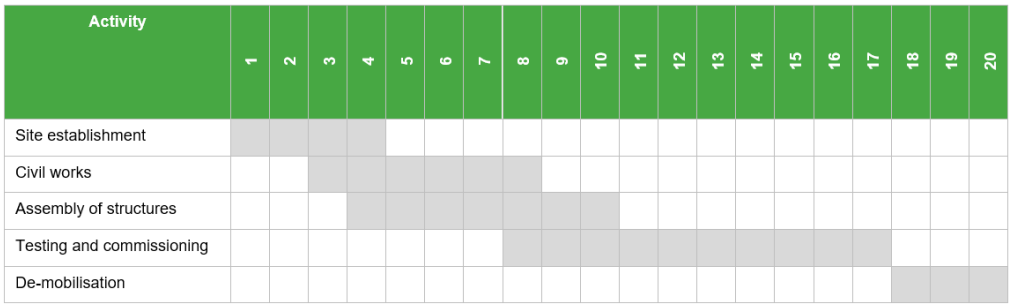
1.3 THE PROJECT

The project would involve construction and operation of approximately 8 km of new 330 kV transmission line between the Mount Piper and Wallerawang 330 kV substations as shown in **Figure 1-2**. The project would also include the replacement of transmission structures, partial adjustment of existing transmission lines, permanent and temporary access tracks, construction compounds and laydown areas.

Table 1-1 outlines the key features of the project. The description of the project in **Table 1-1** is based on the current concept design. Further detail is provided in Chapter 3 of the Environmental Impact Statement (EIS). The project will continue to be refined as part of detailed design.

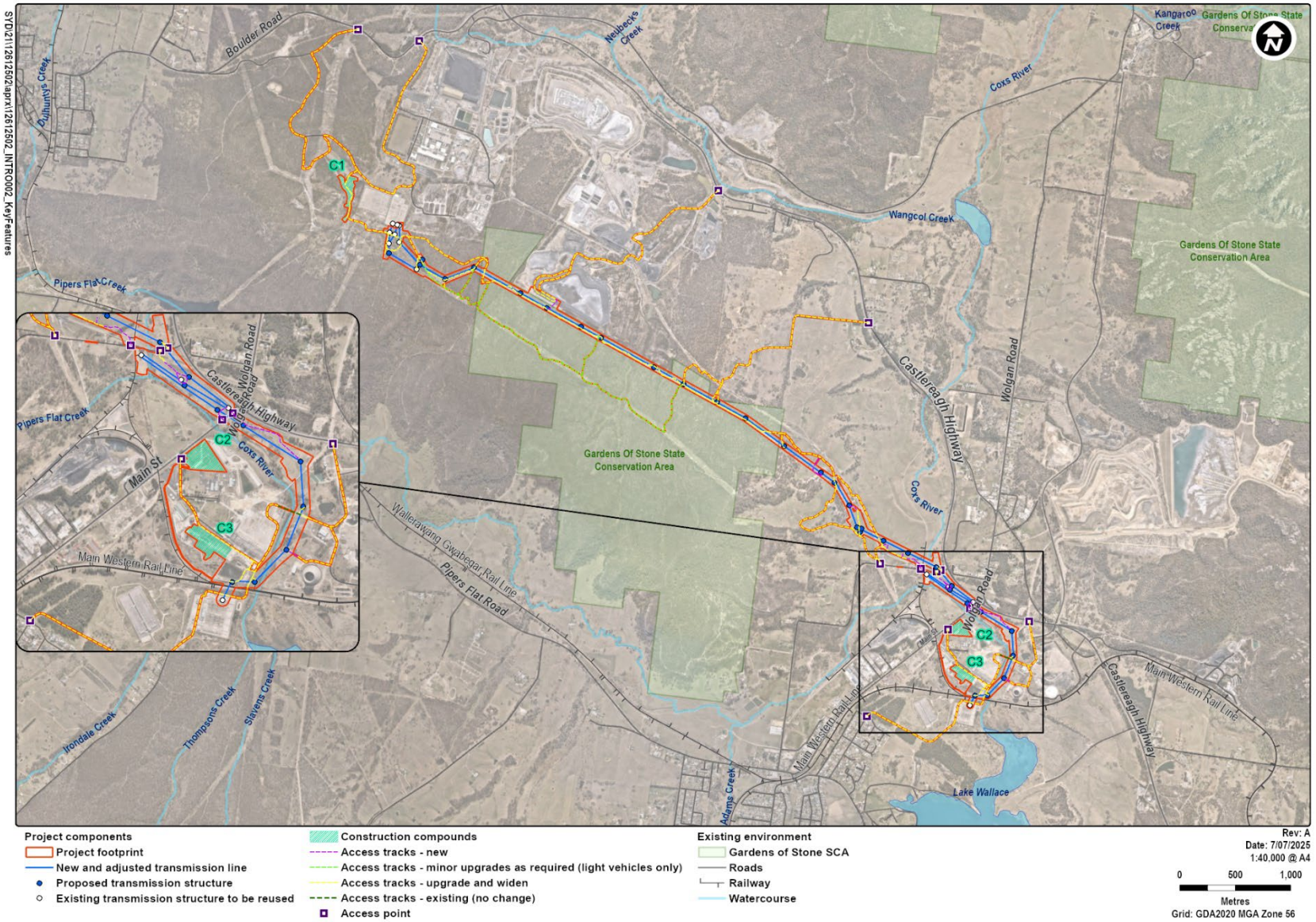
Table 1-1: The project

Aspect	Description
	Design
Transmission line and easement	• Approximately 8 km of new 330 kV transmission line between the existing Mount Piper 330 kV and Wallerawang 330 kV substations that would include (from west to east): • widening of approximately 0.5 km of existing easements in the vicinity of the Mount Piper 330 kV substation by up to 40 m to accommodate the new 330 kV transmission line and adjustments to existing 132 kV and 330 kV transmission lines • widening of the existing 132 kV easement from 45 m to 60 m for 4.8 km to accommodate double circuit transmission structures for the existing 132 kV transmission line and the new 330 kV transmission line • installation of two 132 kV pole structures where the existing 132 kV transmission line is restrung onto the new double circuit transmission structures • construction of 1.2 km of new 330 kV transmission line from the existing 132 kV transmission line south-east to the intersection of Main Street and the Castlereagh Highway on a 60 m easement • construction of 1.5 km of new 330 kV transmission line on a 40 m easement running parallel to existing 330 kV transmission lines for approximately 1.1 km and then diverging and widening to 60 m for the remaining 0.4 km to the Wallerawang 330 kV substation. • The standard easement widths for 132 kV and 330 kV transmission lines are 45 m and 60 m respectively. However, easements may vary in width where multiple transmission lines converge/ diverge or where they overlap with an existing easement.
Transmission structures	Transmission structures for the project include approximately 28 new steel lattice towers and four steel and/or concrete pole structures. Transmission structures would range in height from approximately 14 to up to 60 m, however these heights would be subject to detailed design. The image below presents an indicative illustration of the types of structures proposed for the project and their maximum heights.  • The steel transmission structures would generally be spaced between 100 m to 550 m apart and the pole structures about 30 m to 50 m apart. • New conductors, earth wires and optical ground wire (OPGW) would be installed on the new transmission structures for the new 330 kV and existing 132 kV lines.

<table>
<tr><th>Aspect</th><th>Description</th></tr>
<tr><td></td><td>• Local adjustment of existing transmission structures would be required in the vicinity of the Mount Piper 330 kV substation to minimise crossover of transmission lines.
• Redundant transmission structures, including the gantry immediately north of the Main Western Rail Line, would be removed and recycled, where possible.</td></tr>
<tr><td colspan="2">Construction</td></tr>
<tr><td>Program</td><td>• Construction of the project would commence once all necessary approvals are obtained. It is anticipated that construction would commence in late 2026.
• Construction would be undertaken in stages over a period of approximately 20 months. The key activities and their indicative durations shown in the below table.
 
</td></tr>
<tr><td>Construction methodology</td><td>Construction of the project would include:
• site establishment including vegetation removal, construction compound establishment, access track construction and upgrade
• removal of existing transmission structures where required
• civil works involving earthworks and establishment of construction benches for each transmission structure, and establishment of brake and winch sites
• construction of footings and foundation work for the new transmission structures
• assembly and erection of new transmission structures
• stringing of conductors.</td></tr>
<tr><td>Construction hours</td><td>The proposed construction working hours for the project are 7 am to 7 pm Monday to Sunday.
Out-of-hours construction work will likely be required between 7 pm to 7 am Monday to Sunday and public holidays, to align with scheduled outages.
Justification for the out-of-hours works includes:
• proximity to live transmission lines requiring the work to be completed under a scheduled outage for network and personnel and contractor safety
• the need to complete works within a limited time window to meet a timeframe to re-energise the transmission line to avoid disruption to customers
• minimising disruptions to the use of the Main Western Rail Line during stringing.</td></tr>
<tr><td>Construction workforce</td><td>Expected to peak at about 150 personnel and contractor, with an average workforce of about 60 personnel and contractor.</td></tr>
<tr><td>Construction compounds and laydown areas</td><td>A total of three construction compounds would support the construction of the project. One would be located at the western end of the project near the Mount Piper 330 kV substation and two located at the eastern end of the project within the former Wallerawang Power Station site. The locations of these compounds are shown in Figure 1-2.
Laydown of materials (e.g. poles, cable drums, other large equipment, etc.) would also occur at specified locations along the easement within the project footprint, particularly at transmission structure locations.</td></tr>
<tr><td>Access</td><td>To facilitate efficient construction access, the following is required:
• upgrading and widening of approximately 25 km of existing access tracks to at least 6 m, with some sections widened up to 10 m due to local topography
• construction of approximately 2 km of new 6 m wide access tracks.
• In addition to those tracks, approximately 4 km of existing track would be used only by light vehicles. The light vehicle tracks may require minor repairs (for example, filling potholes), but would not be graded or widened.
The project footprint would be accessed from public roads at 13 access points, with the majority of these being existing property access points.
Existing access tracks would be used in preference to new tracks whe0 rever possible. Access track upgrades and widening would include required drainage.
Access points and access tracks established for the construction of the project that are not required for future operation and maintenance activities would be returned to pre-project conditions, subject to agreement with landowners.</td></tr>
</table>

Aspect	Description
Utility adjustments and infrastructure crossings	The new transmission line would need to cross the following utilities and infrastructure: • water pipeline operated by WaterNSW • distribution lines operated by Endeavour Energy • rail signal power supply • council drainage and other assets • public roads at Brays Lane and Main Street • rail lines at the Main Western Rail Line and the disused rail line travelling north of Brays Lane. It is not currently anticipated that the project would require the adjustment of any nearby utilities. Further investigations and consultation with asset owners would be undertaken during detailed design.
Vegetation clearing	The project would require the clearance of vegetation for a number of activities including but not limited to building new access tracks and widening existing ones, establishment of construction compounds, laydown areas, and brake and winch sites, construction of the transmission structures, and establishing and maintaining the vegetation clearance requirement for the transmission lines. Vegetation clearing would be undertaken either with the use of machinery or manually, where it is unsafe to operate machinery, or when access is limited. Root balls would be retained where possible. Clearing methods would be determined with consideration to vegetation type or structure, slope and terrain, and environmental and ecological constraints. Removed vegetation, which is weed free, would be mulched for beneficial reuse, where appropriate. Areas cleared for construction, that are not needed for operation of the project, would be rehabilitated to a stable and weed free condition.
Testing and commissioning	Testing and structure checks would form part of the final construction and installation work. These activities would ensure the project has been installed in accordance with the design and statutory standards and is safe to proceed to commissioning which would include, but not be limited to: • transmission line cut-in and connection to the electrical network • protection, control and metering checks • high voltage equipment operation and energisation • post commissioning testing and verification.
Demobilisation and rehabilitation	Upon completion of the construction works, all construction equipment, temporary fencing and waste would be removed. All disturbed areas would be rehabilitated to a stable, weed-free condition, unless designated as a permanent access track. This would include spreading topsoil, cleared and stockpiled at the beginning of construction, across the disturbed area to stabilise it to a state where natural regrowth can occur.
Operation	
Design life	About 50 years.
Maintenance	All project infrastructure would require regular maintenance to maintain serviceability and maximise its operational life. Maintenance activities would include: • transmission structure monitoring • annual aerial inspection • routine vegetation management on the easement and in the hazard tree zone • access tracks would be maintained in a trafficable condition. Should any irregularities be identified following routine inspections, a work crew would be dispatched from existing Transgrid maintenance depots to rectify any defects found. Periodic inspection and maintenance work would be managed by Transgrid as part of existing operations, with no additional personnel requirements.

Figure 1-2: Key features of the project.



1.3.1 Project footprint

The project footprint is generally undulating, with an elevation difference of up to 150 m between the highest and lowest points. Land within the immediate vicinity of the proposed transmission line is mostly cleared and part of existing transmission line easements.

The project footprint traverses a portion of the Gardens of Stone SCA. The SCA includes areas of undisturbed and disturbed vegetation and existing infrastructure such as existing transmission lines and access tracks. The project footprint is approximately 86.5 ha in area, comprising the new and widened easements along with access tracks that will require upgrade works.

The Coxs River flows from the north-east into the project footprint, passing directly adjacent to the former Wallerawang Power Station and the Wallerawang 330 kV substation before flowing into Lake Wallace south of the project footprint. The project footprint is intersected by Lamberts Creek and unnamed tributaries in the northwest.

1.4 ENVIRONMENTAL ASSESSMENT REQUIREMENTS

This Aboriginal Cultural Heritage Assessment report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) which were issued on the 22 May 2025. **Table 1-2** outlines the requirements relevant to this assessment.

Table 1-2: Relevant Secretary's Environmental Assessment Requirements – Cultural Heritage and Aboriginal Cultural heritage

Requirements	Where addressed in this report
an ACHAR prepared in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010) identifying, describing and assessing any impacts to Aboriginal cultural heritage sites or values associated with the project, including results of archaeological survey and test excavations (where required) undertaken in accordance with the relevant standards and requirements	Detailed compliance with the Code is provided in **Section 2.4**. The identification, description and assessment of impacts is presented in **Section 9**. The results of the archaeological survey and test excavation are provided in **Sections 6** and **7**, respectively.
evidence of adequate consultation with Aboriginal parties in determining and assessing impacts, identifying and selecting options for avoidance of Aboriginal cultural heritage and identifying appropriate mitigation measures (including the final proposed measures), having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010), including the consultation process outlined within	**Section 3**

1.5 PURPOSE AND STRUCTURE OF THIS REPORT

This report has been prepared by OzArk Environment & Heritage (OzArk) who were engaged GHD Pty Ltd (GHD) as part of the Environmental Impact Statement (EIS) for the project.

The purpose of this report is to assess potential Aboriginal cultural heritage impacts associated with the construction and operation of the project, and where required, identify feasible and reasonable mitigation and management measures.

The report is structured as follows:

- Section 1 provides an introduction to the project and the Aboriginal Cultural Heritage assessment.
- Section 2 describes the methodology and legislative requirements for the assessment.
- Section 3 provides an overview of the Aboriginal community consultation undertaken to inform the Aboriginal Cultural Heritage assessment and for the project.
- Section 4 describes the environmental context of the project footprint and how this relates to the potential for archaeological sites to present.
- Section 5 provides an overview of archaeological studies and data relevant to the project footprint. A model predicting the likelihood for archaeological site types and locations within the project footprint is also put forward.
- Section 6 provides the results of the archaeological survey.
- Section 7 provides the results of the test excavation program.
- Section 8 assesses the significance of the Aboriginal sites within the project footprint.
- Section 9 assesses the impacts of the project on the Aboriginal sites.
- Section 10 provides management and mitigation measures for Aboriginal sites.
- Section 11 provides the recommendations of the Aboriginal Cultural Heritage assessment for the project.

2 ASSESSMENT APPROACH AND METHODOLOGY

2.1 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). 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.

2.1.1 Commonwealth legislation

2.1.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water, 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 projects involving significant impacts to national/commonwealth heritage places.

2.1.1.2 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act) is aimed at the protection from injury and desecration of areas and objects that are of significance to Aboriginal Australians. The ATSIHP Act can prevail over state and territory laws in situations where a state or territory has approved an activity, but the Commonwealth Minister prevents the activity from occurring by making a declaration to protect an area or object.

Before making a declaration to protect an area or object in a state or territory, the Commonwealth Minister must consult the appropriate Minister of that state or territory.

2.1.1.3 Commonwealth Native Title Act 1993

The Commonwealth Native Title Act 1993 (Cth) provides the legislative framework to:

- recognise and protect native title
- establish ways in which future dealings affecting native title may proceed and to set standards for those dealings, including providing certain procedural rights for registered native title claimants and native title holders in relation to acts which affect native title
- establish a mechanism for determining claims to native title
- provide for, or permit, the validation of past acts invalidated because of the existence of native title.

The NSW Native Title Act 1994 was introduced to make sure the laws of NSW are consistent with the Commonwealth's Native Title Act 1993 on future dealings. It validates past and intermediate acts that may have been invalidated because of the existence of native title. The National Native Title Tribunal has a number of functions under the Native Title Act 1993, including maintaining the Register of Native Title Claims, the National Native Title Register and the Register of Indigenous Land Use Agreements and mediating native title claims.

2.1.1.4 Applicability to the project

It is noted there are no Commonwealth or National heritage listed places within the project footprint, and as such, the heritage provisions of the EPBC Act and other Commonwealth Acts do not apply. No declarations relevant to the project footprint have been made under the ATSIHP Act.

The project footprint includes land currently subject to Native Title Claim by Warrabinga-Wiradjuri #7 (NC2018/002, NSD857/2017). It is noted that most of the project footprint is freehold land apart from Crown roads which may be subject to NC2018/002. Land tenure of the project footprint is considered in Technical Report 4 – Land Use and Agriculture Assessment. Consultation regarding the project with the Registered Aboriginal Party (RAP) representing the claimants (Warrabinga Native Title Claimants Aboriginal Corporation) is outlined in Section 3.2.

2.1.2 State legislation

2.1.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) established requirements relating to land use and planning. The main parts of the EP&A Act that relate to development assessment and approval are Part 4 (development assessment) and Part 5 (environmental assessment). The purpose of the Part 5 assessment system is to ensure public authorities fully consider environmental issues before they undertake or approve activities that do not require

development consent from a council or the Minister. The Minister responsible for the Act is the Minister for Planning.

The EP&A Act currently provides the primary legislative basis for planning and environmental assessment in NSW. The objects of the EP&A Act include encouragement of:

- The proper management, development, and conservation of natural resources
- The provision and coordination of the orderly and economic use and development of land
- Protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats
- Ecologically sustainable development.

The objects also provide for increased opportunity for public involvement and participation in environmental planning and assessment.

The EP&A Act includes provisions to ensure that the potential environmental impacts of a development or activity are rigorously assessed and considered in the decision-making process.

The framework governing environmental and heritage assessment in NSW relevant to the project is contained in Part 5 of the EP&A Act.

Part 5 includes requirements for 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 covers the approvals process for state significant infrastructure. The Minister may also declare a development that is SSI to be Critical SSI (CSSI) if it is considered essential for the State for economic, environmental or social reasons.

Under Section 5.23 of the EP&A Act, the following approvals are not required for CSSI projects:

- an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the *National Parks and Wildlife Act 1974*

Applicability to the project

The project has been declared as CSSI, and if approved, Section 5.23 of the EP&A Act would apply and therefore an AHIP under section 90 of the NPW Act to harm Aboriginal objects would not be required. Instead, all management related to Aboriginal cultural heritage within the project footprint would be governed by the policies of an approved *Aboriginal Cultural Heritage Management Plan* (ACHMP) completed with reference to the SSI conditions of approval.

2.1.2.2 *National Parks and Wildlife Act 1974*

The *National Parks and Wildlife Act 1974* (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 Aboriginal 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.

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
- 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 NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) 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.

Applicability to the project

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

The Secretary of DCCEEW will be notified of the location of an Aboriginal object recorded by sending the relevant details to the AHIMS register.

2.2 COMPLIANCE WITH INDUSTRY CODES

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

The Aboriginal cultural heritage assessment followed the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (the Guide; OEH 2011) and the *Aboriginal cultural heritage consultation requirements for proponents* (ACHCRs) (DECCW 2010b).

2.3 PURPOSE AND OBJECTIVES

The purpose of this study is to identify and assess heritage constraints relevant to the proposed works.

The study has applied the Code of Practice, the Guide, and the ACHCRs in the completion of the Aboriginal cultural heritage assessment to meet the following objectives:

Objective One: Undertake background research on the project footprint to formulate a predictive model for site location within the project footprint

Objective Two: Identify and record Aboriginal cultural heritage values within the survey areas. This includes intangible cultural values, Aboriginal objects, and any landforms likely to contain further archaeological deposits

Objective Three: To assess the significance of any recorded Aboriginal cultural values, Aboriginal objects, or sites in consultation with the RAPs

Objective Four: Assess the likely impacts of the proposed work to Aboriginal cultural heritage values and provide management recommendations.

2.4 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. **Table2-1** tabulates the compliance of this report with the requirements established by the Code of Practice.

Table2-1: Report compliance with the Code of Practice.

Code of Practice Requirement	Context of the Requirement	Concordance in this report
Requirement 1a	Review previous archaeological work	**Section 5.2**
Requirement 1b	Review AHIMS searches	**Section 5.3**
Requirement 2	Review the landscape context	**Section 4**
Requirement 3	Summarise and discuss the local and regional character of Aboriginal land use and its material traces	**Section 5.4.1**
Requirement 4a	Develop predictive model	**Section 5.4**
Requirement 4b	Present predictive model results	**Section 6.7**
Requirement 5a	Archaeological survey sampling strategy	**Section 6.1**
Requirement 5b	Archaeological survey requirements	**Section 6.3** (Survey units defined in **Section 4.1.1**)
Requirement 5c	Archaeological survey units	**Section 4.1.1**
Requirement 6	Site definition	**Section 5.4.1**
Requirement 7a	Site recording information to be recorded	Site recording requirements were completed during the assessment, see **Section 6.4**
Requirement 7b	Site recording: scales for photography	All artefact photographs employed a centimetre scale bar (e.g. **Figure 6-10**)
Requirement 8a	Geospatial information	All artefact locations were logged using a non-differential handheld GPS.
Requirement 8b	Datum and grid coordinates	All coordinates are provided in GDA 2020 Zone 56
Requirement 9	Record survey coverage data	**Section 6.3**
Requirement 10	Analyse survey coverage	**Section 6.3**
Requirement 11	Archaeological Report content and format	This report adheres to this Requirement.
Requirement 12	Records	OzArk undertakes to maintain all survey records for at least five years.
Requirement 13a	Notifying Heritage NSW of breaches	Not applicable
Requirement 13b	Providing Heritage NSW with 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 15a	Consultation regarding test excavation	Consultation has included the ACHCRs, see **Section 3.2**.
Requirement 15b	Developing a test excavation sampling strategy	A test excavation methodology was produced (**Appendix 3**) and issued to Registered Aboriginal Parties for their information.
Requirement 15c	Providing Heritage NSW with notification of the test excavation	Heritage NSW was provided with a copy of the test excavation methodology via the heritage mailbox on 10 September 2024.
Requirement 16a	Test excavation that can be carried out in accordance with the Code of Practice	The test excavation program complied with this requirement; see **Appendix 3**
Requirement 16b	Objects recovered during test excavations	The test excavation methodology established that any artefacts recovered from the excavations would be held by OzArk until long-term management of the objects has been decided with RAPs.
Requirement 17	When to stop test excavations	The methodology of the test excavation adhered to this requirement; see **Appendix 3**
Requirement 18–20	Artefact recording	The procedures for artefact recording were adhered to during the investigation.

2.5 DATES OF ARCHAEOLOGICAL ASSESSMENT

The field survey was undertaken by OzArk and representatives of the RAPs over five days between March and November 2024. One day of assessment was completed on 25 March 2024, three days of assessment were completed from 7-9 May 2024 and a day of assessment was completed on 7 November 2024.

The test excavation component of this assessment was undertaken by OzArk from 23-27 September 2024.

2.6 OZARK INVOLVEMENT

2.6.1 Field survey

The involvement of RAPs in the survey is provided in **Table 3-3**. The archaeologists completing the survey were:

- Fieldwork Director: Dr Jodie Benton (OzArk Director, BA [Hons] and PhD [Archaeology] University of Sydney).
- Archaeologist: Harrison Rochford (OzArk Archaeologist, B Lib Studies [Hons] and M Phil, University of Sydney).

The involvement of RAPs in the test excavation is provided in **Table 3-4**. The archaeology team for the test excavation comprised:

- Fieldwork Director: Harrison Rochford
- Archaeologist: Imogen Crome, B Science Biological Anthropology, B Arts Archaeology, Australian National University and MA (Archaeology) [in progress] University of New England
- Archaeologist: Kelsey Bennett, BA (Hons) and MA, University of Kent.

2.6.2 Reporting

The reporting component of the heritage assessment was undertaken by:

- Report author: Harrison Rochford
- Contributor: Kelsey Bennett (Section 7)
- Reviewer: Dr Jodie Benton

2.6.3 Heritage NSW consultation

A meeting attended by representatives of Transgrid, GHD, OzArk, and Heritage NSW regarding the project was held on 1 April 2025. OzArk provided an overview of the assessment and consultation completed for the project. The draft versions of the results, impact and management

sections of this ACHAR (**Sections 6-10**) were also presented. The minutes from the meeting are provided as **Appendix 5**.

No concerns with the adequacy of the consultation or assessment were raised by Heritage NSW and no specific feedback was received that required addressing in the finalisation of the ACHAR.

3 ABORIGINAL COMMUNITY CONSULTATION

3.1 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.

australianstogether.org.au

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.

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

Living on this land for more than 50,000 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, as well as cultural and spiritual values like totemism that were fundamental in resource management. There was 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.

In much of eastern Australia, Aboriginal communities live their lives like most Australians. However, in certain crucial areas, particularly associated with family, leadership roles and caring for Country, Aboriginal lore continues, even in the most urbanised communities.

3.2 ABORIGINAL COMMUNITY CONSULTATION

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. The identification of cultural values is pursued through direct consultation with the Aboriginal community, which has followed the 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.

3.2.1 ACHCRs Stage 1

The aim of Stage 1 is to identify the RAPs who wish to be consulted about the project.

On the 15 and 20 September 2023 advertisements were placed in the *Lithgow Mercury* and *Koori Mail,* respectively, requesting expressions of interest in being consulted about the project (**Appendix 1 Figure 1**).

A letter seeking information regarding potential Aboriginal stakeholders with an interest in the Aboriginal sites and cultural values relevant to the project footprint was sent to various agencies on 15 September 2023 (**Appendix 1 Figure 2**). These agencies were: Heritage NSW; the Bathurst Local Aboriginal Land Council (LALC); the Office of The Registrar, *Aboriginal Land Rights Act 1983*; the National Native Title Tribunal; Native Title Services Corporation Limited (NTSCORP); the Lithgow City Council; and the Central Tablelands Local Land Services.

A letter was sent to the stakeholders on 6 October 2023 inviting them to register their interest in being consulted regarding the project (**Appendix 1 Figure 3**). Individuals or groups who have requested that their details be withheld are referred to as 'Stakeholders'.

By the closing date for registration, the following individuals/groups registered to be consulted:

- Bathurst Local Aboriginal Land Council.
- Didge Ngunawal Clan
- Girragirra Murun Aboriginal Corporation
- Gunjeewong Cultural Heritage Aboriginal Corporation
- Kamilaroi Yankuntjatjara Working Group
- Konanggo Aboriginal Cultural Heritage Service
- Koori Digs Services
- Mingaan Aboriginal Corporation (late registration 12 March 2024)
- Murra Bidgee Mullangari Aboriginal Corporation
- Stakeholder 1
- Thomas Dahlstrom
- Timothy Stubbs
- Warrabinga Native Title Claimants Aboriginal Corporation (NTCAC)
- Wingarra Wilay Aboriginal Corporation
- Wiradjuri Council of Elders

3.2.2 ACHCRs Stage 2

The aim of Stage 2 is to provide information about the project to the RAPs. A single assessment methodology was provided to the RAPs to satisfy the requirements of Stages 2 and 3 of the ACHCRs.

Detailed information about the project was provided in the assessment methodology that was issued to all RAPs for their consideration on 2 February 2024 (**Appendix 1 Figure 4**).

3.2.3 ACHCRs Stage 3

3.2.3.1 Assessment methodology

The aim of Stage 3 is to acquire information regarding Aboriginal cultural values associated with the project and input into appropriate assessment methods through RAP consultation.

To inform the RAPs of the assessment approach, a draft assessment methodology was issued to all RAPs for their consideration on 2 February 2024 (**Appendix 1 Figure 4**). This document provided the archaeological context of the project footprint and a description of the proposed survey. RAPs were invited to provide cultural information concerning Aboriginal sites and cultural values within the project footprint to contribute to the assessment of their significance and the development of appropriate management measures.

RAPs were provided the stipulated 28 days in which to review and comment on the assessment methodology as per Stage 3 of the ACHCRs. The closing date for comment was 13 March 2024.

Four responses were received from RAPs with regards to the proposed assessment. These responses are summarised in **Table 3-1**, and provided in full in **Appendix 1 Figure 5.** OzArk responded to these comments / queries as described in the final column of **Table 3-1**.

Table 3-1: Summary of RAP comments on the Assessment Methodology with OzArk responses

Individual/group	Date of comment	Comment	OzArk Response
Konanggo Aboriginal Cultural Heritage Service	24 February 2024	KACHS has reviewed the draft and acknowledged the information documented informative. Have no other comments to submit	Thanked for response
Warrabinga Native Title Claimants Aboriginal Corporation (NTCAC)	19 March 2024	Concern was raised about the adequacy of the proposed field survey methodology, especially regarding the proposed spacing of surveyors at 20 m apart in certain conditions.	This concern was acknowledged, and the wording in the methodology was updated to *spaced up to 20 m apart*. It was also noted that these specifics were governed by the principle of consensus between the archaeologists and RAPs on site regarding appropriate survey spacing.
		Clarification was requested regarding access track impacts, which were yet to be determined at this stage of the project.	It was noted that access tracks were yet to be determined due to land access constraints. It was made clear that all access routes would be appropriately assessed according to the methodology once determined.
		Comment was made regarding the need for long-term management measures.	It was agreed that this a key outcome of the assessment process and that specific management measures would be developed in consultation with Warrabinga and other RAPs during the field assessment and provided for their review in the draft ACHAR.
		Comment was made regarding the importance of further consultation, consideration for traditional knowledge and the development of robust management strategies.	The importance of consultation, traditional knowledge and cooperation in the development of management measures was acknowledged. The timeline for further consultation and development of management measures was described.
Thomas Dahlstrom	12 March 2024	Can I ask about the status of this project? I noticed there was no mention of any litho analysis of any rock material located, can I request this be done in the ACHAR and any salvage included please?	Responded with an update of project status and acknowledgement of query regarding the lithic analysis to be completed.
Timothy Stubbs	19 February 2024	I have reviewed the methodology for the above project and agree with it I'm also available for any field work that may happen	Responded with thanks.

3.2.3.2 Test excavation methodology

Following the completion of the survey component of the assessment, a draft test excavation assessment methodology was issued to all RAPs for their consideration on 23 August 2024 (**Appendix 1 Figure 6**). This document provided the archaeological context of the project footprint, a description of the proposed excavation, and asked whether there were any cultural values that should be considered in the assessment.

RAPs were provided the stipulated 28 days in which to review and comment on the assessment methodology as per Stage 3 of the ACHCRs. The closing date for comment was 20 September 2024.

RAP responses are recorded in **Table 3-2,** a full record of which is presented in **Appendix 1 Figure 7.**

Table 3-2: RAP Responses to the Test Excavation Methodology

Individual/group	Comment	Date of comment	OzArk Response
Girragirra Murun Aboriginal Corporation	Please note if any artefacts are found during site visits, recommendation is reburial on site.	9 September 2024	With thanks
Kamilaroi Yankuntjatjara Working Group	Thank you for your report for Stage 2-3 Mt Piper to Wallerawang. We would like to agree and support your test methodology to investigate further. We look forward to working alongside you on this project.	9 September 2024	With thanks
Murra Bidgee Mullangari Aboriginal Corporation	I have read the project information and test excavation methodology for the above project, I endorse the recommendations.	3 September 2024	With thanks
Wingarra Wilay Aboriginal Corporation	Wingarra Wilay agrees with the methodology and would like to point out if any Artefacts are found and need to be removed they need to have a smoking ceremony before they can be reburied.	16 September 2024	With thanks

3.2.3.3 Involvement of RAPs in field assessments

The field survey of the project footprint was undertaken with the assistance of RAP representatives and commenced with one day of survey completed on 25 March 2024. Most of the project footprint was assessed over three days from 7 May 2024 to 9 May 2024 and an additional day of survey after the completion of the test excavation was completed on 7 November 2024. **Table 3-3** provides a record of the organisations and site officers involved in the survey.

Table 3-3: Aboriginal community involvement in the survey.

Individual/group	Site officer	Day(s) of participation
Bathurst LALC	Matthew Sullivan	25 March 2024 7 May 2024 8 May 2024 9 May 2024
Warrabinga Native Title Claimants Aboriginal Corporation	Kelsey Fawcett-Williams	25 March 2024
	Brion Booth	7 May 2024 8 May 2024 9 May 2024
Thomas Dahlstrom	Thomas Dahlstrom	7 May 2024
Tim Stubbs	Chris Piper	8 May 2024
Wingawarra Wilay	Thomas Dahlstrom	9 May 2024
Mingaan Aboriginal Corporation	Sharon Riley	7 November 2024

Table 3-4 provides a log of the RAPs and their representatives who participated in test excavation. One representative from Warrabinga NTCAC was invited to participate each day in fieldwork, as were representatives from Mingaan Aboriginal Corporation and Bathurst LALC.

Table 3-4: Aboriginal community involvement in the test excavation.

Individual/group	Site officer	Day of participation
Bathurst LALC	Matt Sullivan	24 September
		25 September
		26 September
		27 September
Warrabinga NTCAC	Coral Williams	24 September
		25 September
		26 September
		27 September
Mingaan Aboriginal Corporation	Sharon Reilly	24 September
		25 September
	Patsy Wolfenden	26 September

3.2.4 ACHCRs Stage 4

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

The draft ACHAR was distributed to the RAPs for their review on 25 March 2025 with a closing date for feedback on 28 April 2025. Three comments on the draft were received from the RAPs during this time. The comments provided are presented in **Table 3-5** and provided in full as **Appendix 1 Figure 8**.

Table 3-5: RAP Responses to the draft ACHAR

Individual/group	Comment	Date of comment
Wiradjuri Council of Elders	I have no comments as this looks good to me	2 April 2025
Warrabinga Native Title Claimants Aboriginal Corporation	Warrabinga is happy with Draft methodology	4 April 2025
Murra Bidgee Mullangari Aboriginal Corporation	I have read the project information and draft ACHAR for the above project, I endorse the recommendations.	9 April 2025

3.3 CULTURAL VALUES

A concurrent cultural values assessment was completed by the proponent (Transgrid 2024). This assessment identified one location of cultural significance within the project footprint: the Coxs River (Diuwan) and four locations surrounding the project footprint. The results of the assessment contribute to the statement of significance for the project footprint (**Section 8.2.1**) and are discussed in the impact assessment (**Section 9.2.1**).

Quotes from the participants regarding their connection to the Coxs River are included below (Transgrid 2024: 12):

> *"The Coxs River holds significant cultural and historical importance for our people. It's a living link to our ancestors."*
>
> *“I can remember camping and fishing as a kid with my family on the Cox River. It was beautiful.”*
>
> *"I send the younger ones there so they can learn with the archaeologists and stuff, and they also take the students there. Aboriginal and non-Aboriginal to teach them."*

A request for the identification of further cultural values relevant to the project footprint and the Aboriginal sites identified by this assessment was also included as part of the stage 4 consultation process. No further information regarding the cultural values relevant to the project footprint were received from the RAPs during stage 4.

4 LANDSCAPE CONTEXT

An understanding of the environmental context of a project footprint is requisite in any Aboriginal 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 human-activated landscape processes, influence the degree to which the remains of material culture are retained in the landscape as archaeological sites; and the degree to which they are preserved, revealed and/or conserved in present environmental settings.

4.1 TOPOGRAPHY

The project footprint is generally undulating, with an elevation difference of up to 150 m between the highest and lowest points, ranging from 870 m Australian Heigh Datum (AHD) at the former Wallerawang Power Station at the southeast to 1020 m AHD on the upper slopes near Mount Piper in the northwest.

4.1.1 Survey units

Based on the varied topography of the project footprint, survey units were identified to capture the major topographical features. The designation of survey units allows a comparison of the archaeological potential of each major topographical feature within the project footprint to understand whether certain landform types are more likely to contain Aboriginal objects than others.

The assessment methodology developed in consultation with the RAPs assigned four survey units based on desktop landform modelling (**Appendix 2**). Following the survey and alterations to the extent of the project footprint, the survey units of the project footprint have been further refined and are described in **Table 4-1**. Representative views of the survey units are provided in **Figure 4-1** and are mapped on **Figure 4-2**.

Table 4-1: Survey units of the project footprint.

Survey Unit	Landforms	Survey Unit Area (ha)	Description
1	Gentle to moderate slopes	30.08	Gentle to moderately sloping landforms at the margins of the Coxs River valley at the southeast of the project footprint and higher upland slopes at the northwest.
2	Drainage	22.59	A 200 m buffer on the Coxs River capturing river channels, terraces and plains. Also includes some sections of modified or disturbed land related to the diversion of the Coxs River channel.
3	Steep slopes and gullies	22.59	Includes the rolling to steep slopes at the centre of the project footprint.
4	Disturbed land	9.08	Areas of high disturbance that were subject to limited assessment due to the absence of archaeological potential. This includes paved access roads where ancillary works would not affect undisturbed land at Mount Piper Power Station, the Springvale Coal Services facility access tracks constructed on overburden and the former Wallerawang Power Station.
5	Level	1.34	Level landforms distant from the Coxs River. Mostly at the south of the project footprint near the township of Wallerawang.
6	Crests	1.11	The project footprint includes one crest at the west of the project footprint, near the Centennial Springvale Coal Services facility.

Figure 4-1: Representative views of the survey units of the project footprint.

1. View east showing a gentle slope in the foreground and a moderate slope in the background within survey unit 1.

2. View north across a level drainage landform adjacent to the Coxs River within survey unit 2.

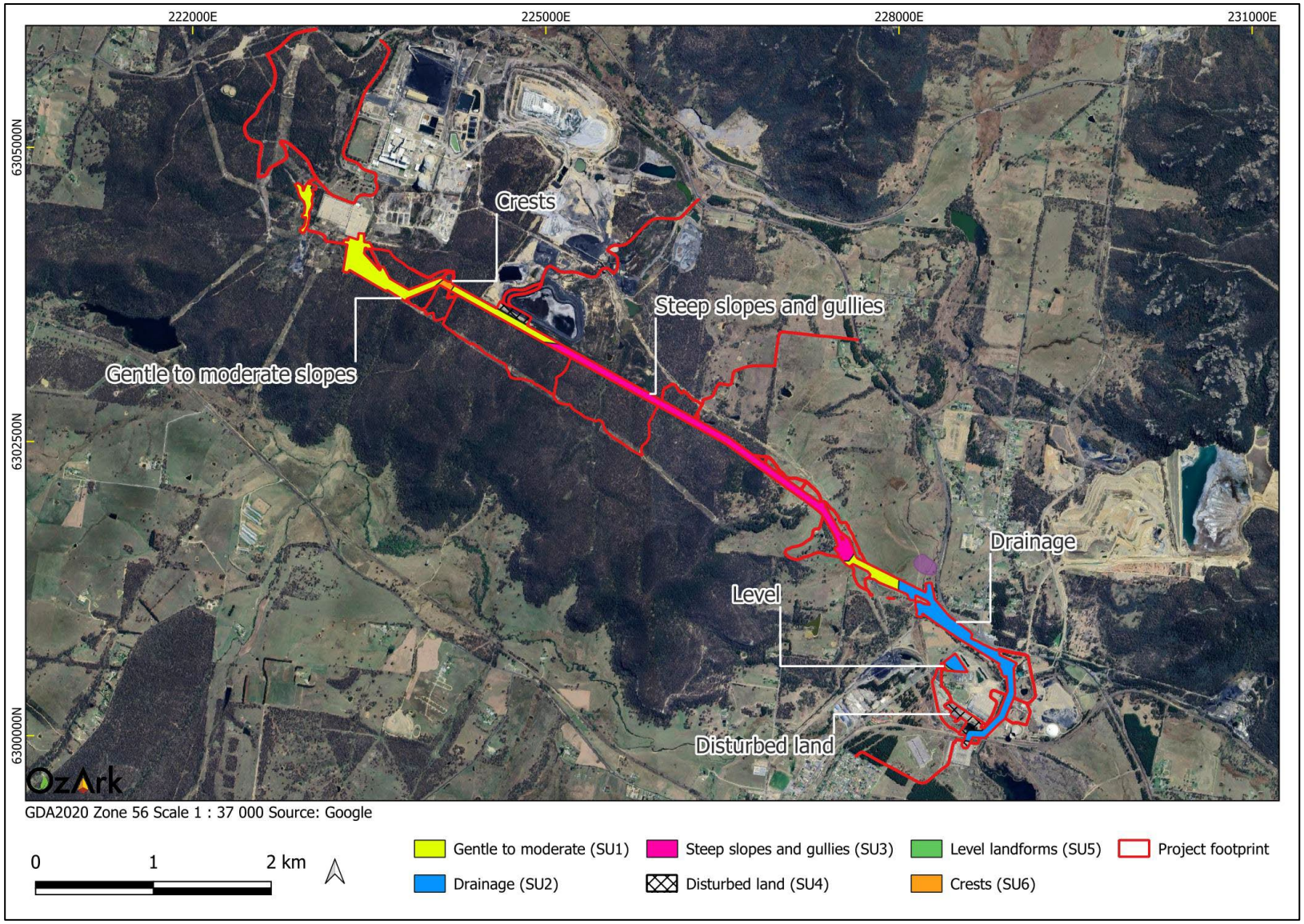
3. View southeast at the centre of the project footprint within the steep slopes and gullies survey unit (survey unit 3).

4. View west across a section of heavily modified land (survey unit 4) within the former Wallerawang Power Station at the east of the project footprint.

5. View south across a small section of level land (survey unit 5) at the west of the former Wallerawang Power Station within the project footprint.

6. View west across the narrow crest that comprises survey unit 6.

Figure 4-2: Aerial of the project footprint showing the location of survey units.



4.2 GEOLOGY AND SOILS

Soil analysis has important ramifications for archaeological research through the potential impact of different soils on human activity (such as agricultural exploitation) and the impact of the soils on archaeological evidence (such as post-depositional movement).

The project footprint is in the Sydney Basin - Capertee Plateau landscape unit as characterised by Mitchell (2002). This landscape type is characterised by wide valleys and rolling hills below sandstone cliffs on Permian conglomerates, sandstones and shales with coal at the base across the Sydney Basin and exposures of underlying Devonian rock.

The soils of the slopes and range landforms at the west of the project footprint consists of shallow stony texture-contrast profiles, usually with gritty well drained A-horizons, over tough yellow or grey poorly drained clays (Mitchell 2002: 107). Lower lying gradients can include swamp landforms consisting of organic rich sandy loams. The soil profile of these hilly sections of the project footprint are predominantly degrading landforms susceptible to erosion.

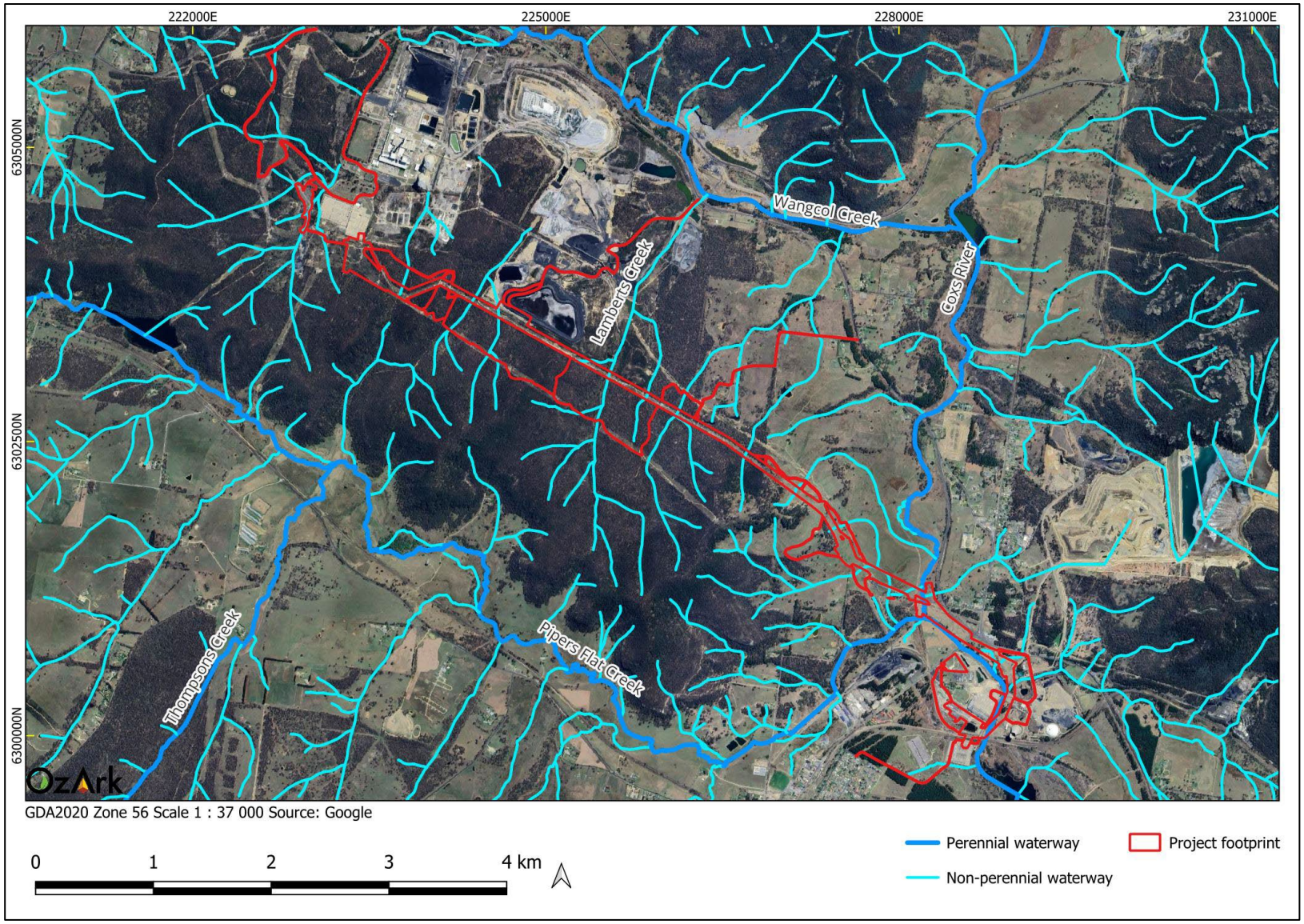
Sections of the project footprint along the alluvial formations of the Coxs River valley in the east are mostly recent alluvium, including deep deposits (100 cm) of grey-brown loams and leached loams with alluvial gravels (NSW DCCEEW 2024). Although some areas may be affected by isolated erosion and scalding on slope, the alluvial formation is one of aggrading soils.

4.3 HYDROLOGY

The Coxs River is the defining hydrological feature of the project footprint and its surrounds. The Coxs River flows from the north through the project footprint. The hydrology of the project footprint and surrounds is shown on **Figure 4-3**. The Coxs River and Pipers Flat Creek, which converge at the south of the project footprint, are the two permanent water sources of the local area. However, the course of the Coxs River was modified in the 1950s to prevent the flooding of the Main Western Rail Line, such that the current channel of the Coxs River may not directly correspond with the landforms of highest archaeological sensitivity.

In the northwest, the project footprint is intersected by Lamberts Creek and other ephemeral drainage lines that meet Wangcol Creek to the north of the project footprint before joining the Coxs River.

Figure 4-3: Hydrology of the project footprint and surrounds



4.4 VEGETATION

Prior to colonial clearing, the project footprint would have comprised woodland of rough-barked apple, red stringybark and scribbly gum on the hills at the west. The valley sections of the project footprint would have been an open woodland of yellow box and Blakely's red gum with an understory of shrubs and wallaby grass (Mitchell 2002: 107).

At present, much of the project footprint is cleared as a result of being part of existing transmission line easements, open grazing land and the former Wallerawang Power Station site. The sections of the project footprint within the Gardens of Stone State Conservation Area include areas of undisturbed woodland vegetation.

4.5 LAND USE HISTORY AND EXISTING LEVELS OF DISTURBANCE

Although the land use history of the project footprint is varied, the result has been generally high levels of disturbance to the landscape. In the northwest and centre, the project footprint follows an existing transmission line easement and its associated access tracks. These corridors have been cleared and include formed light vehicle tracks and discrete areas of high disturbance associated with the construction of transmission structures and the establishment of the transmission line easement.

In the centre and southeast, the project footprint is situated on grazing paddocks surrounding the Coxs River which include sections of more recent high disturbance, such as the construction of the Springvale coal conveyor. This section of the project footprint includes the diverted Coxs River channel, the Main Western Rail Line and multiple transmission lines.

At the very southeast, the project footprint includes a section located within the former Wallerawang Power Station site which is proposed for redevelopment for a mixture of uses.

4.6 CONCLUSION

The review of the environmental factors associated with the project footprint allows the following conclusions to be drawn in reference to past Aboriginal occupation:

- Topography and hydrology: the level and gently sloping landforms of the Coxs River valley would have been hospitable to the Aboriginal people of the area in the past. The presence of a permanent watercourse suggests that the project footprint includes areas that would have been highly favoured as repeated or long-term camp locations. In contrast, the moderate to steep slopes and ephemeral watercourses at the northwest of the project footprint would have offered fewer favourable habitation locations.

- Geology and soils: the conglomerate, sandstone and shale bedrock of the project footprint are unlikely to have provided many outcrops of rock suitable for tool manufacture. The Coxs River may have provided alluvial cobbles of quartz and other materials. While the alluvial soils at the Coxs River valley are conducive to the retention of archaeological

deposits, the steeper landscape and degrading soils at the northwest of the project footprint are unlikely to retain intact archaeological deposits.

- Vegetation: the project footprint would have once supported an open woodland, which would have provided some resources for Aboriginal subsistence in the past. Resources likely to have supported a large population of people would have been present along the Coxs River and its adjacent gently sloping or flat landforms. The potential for modified trees within the project footprint has been significantly reduced by the extensive clearing that has taken place within the transmission line easements and grazing paddocks.

- Land use: the project footprint includes areas of concentrated ground disturbance at which the potential for Aboriginal archaeological sites has effectively been removed. The generally high level of disturbance to the project footprint (through clearing, track use and grazing) reduces the likely integrity of archaeological sites and deposits, however it does not mean cultural material will not be present.

5 ARCHAEOLOGICAL CONTEXT

5.1 ETHNO-HISTORIC SOURCES OF REGIONAL ABORIGINAL CULTURE

According to Tindale (1974), the current project footprint falls within the eastern limits of the lands occupied by the Wiradjuri tribe. However, due to the location of this area at the western base of the mountains it has often been referred to as zone of interaction between the Wiradjuri, the Dharug to the east and the Gundungurra to the south (Bowdler 1983).

The Wiradjuri are the largest language group in New South Wales, with dialects spoken from Coonabarabran in the north, the Murray River to the south, western Blue Mountains in the east and Condobolin in the west. Plants were used for food, as well as in the manufacture of practical items, decorative items and medicines, with some species providing more than one resource. Grass stalks could be used for weaving or producing baskets. Large trees were useful in providing bark and fibres used for the manufacture of tools, containers and the construction of watercraft. The resin obtained from Grass Trees, for example, were an adhesive that could be used in hafting processes. Bark fibres were twisted into twine which could then be woven into traps, containers or baskets and a variety of wooden tools. Stone was also used for tools (RPS 2014).

The Blue Mountains offered a variety of resources to Aboriginal people, including flora, fauna and stone material. Gunyahs or bark huts were usually made from the broad-leafed paperbark, box or stringybark trees and were constructed mostly by women. They were generally located close to a reliable water source or opportunistically situated on trade routes. Rock shelters are common in the Blue Mountains region, and would likely have been occupied periodically as shelter or in association with camp sites. Camp sites were places commonly used for sleeping, eating, tool making, social activity and as a base for hunting and gathering (RPS 2014).

Recent oral histories of Aboriginal people in the area are documented to have been recorded by a resident of nearby Lidsdale, Fay Hasler (reproduced in part in Kelton 2002: 1213), which are held by the Lithgow and District Family Historical Society. The salient points derived from these notes are:

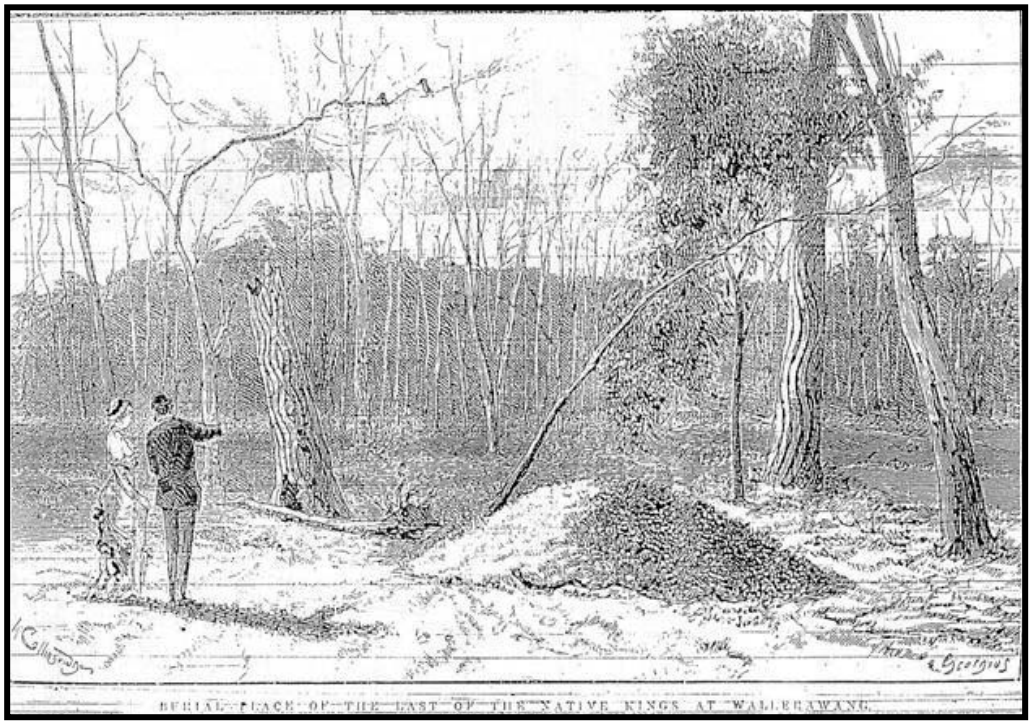
- A large Aboriginal settlement is described as being located at Pipers Flat, with the burial ground being located at Lidsdale
- The Pipers Flat Aboriginal group would regularly travel to Richmond to fight the local Aboriginal communities and bring back women to combat in-breeding
- The communities occupying the valleys in the area were wiped out by disease including measles and smallpox.

Interviews with Fay Hasler during March and May 1999 (Gay 1999) indicate that the burial ground at Lidsdale was located on the river flats either side of Coxs River. It is noted that the Western Main Railway was constructed through this area in the 1920s, and further disturbance would have

affected this area during the Coxs River realignment in the 1950s (Gay 1999: 15). The location of this burial ground and other sites is discussed further in **Section 5.3.3**.

Gay (1999: 16) also notes an historical reference to the burial of an Aboriginal Elder in the Wallerawang area. King Myall (Mylles) had worked for James Walker who had been granted land in the Wallerawang and Lidsdale districts during the 1820s. The burial site of King Myall was drawn and published in the Sydney Illustrated News in October 1880, showing a burial mound and carved trees (**Figure 5-1**). This may be part of the burial ground referred to by Fay Hasler (Gay 1999: 16).

Figure 5-1: Engraving from the Sydney Illustrated News (October 1880) depicting a burial mound and carved trees at Wallerwang (image sourced from MacIntyre 1993).



5.2 REGIONAL ARCHAEOLOGICAL CONTEXT

The Aboriginal occupation of Australia begins prior to 40,000 BP (years before present) and possibly earlier than 50,000 BP. Dates exceeding 20,000 years occur in almost all parts of Australia resulting in the expectation that most areas should have a Pleistocene (>12,000 BP) occupational signature. However, such dates remain relatively rare due to a range of factors, both behavioural and post-depositional. These factors include a possible low density of occupation in the Pleistocene period and poor preservation of archaeological materials (particularly dateable organic materials).

As the project footprint and its immediate surrounds have been covered by detailed archaeological assessments in the past (**Section 5.3.3**), a brief regional archaeological summary is provided here to contextualise the later more specific studies.

Initial interpretations of the archaeological evidence suggested the Upper Blue Mountains (inclusive of the Newnes Plateau and Lithgow region near the project footprint) may have been only intermittently occupied (Stockton 1970 and Johnson 1979), while the central and lower mountains to the east (as well as the plains to the west) were permanently occupied. This suggestion was based on the variation in site frequencies between these two zones. The conclusions drawn from this suggested that Aboriginal people may have carried out specialised food procurement activities in the highland areas related to a more limited set of plant and animal resources, or that the area was used more for ceremonial purposes, (as evidenced by the greater numbers of art / stone arrangement sites). However, an increase in archaeological research in the Upper Blue Mountains in the late 1990s and early 2000s led to the current consensus that the region, including the Newnes Plateau (Mills 1998) and the Coxs River valley supported year-round occupation (OzArk 2004:158-9). This is attributed to the reliable resources provided by hanging swamps on the plateau and more sedentary occupation strategies in the Bondian period (5, 000–3, 000 years before present).

A useful occupation strategy describing the expected distribution of archaeological sites within the Upper Blue Mountains was derived from studies in the Wolgan Valley and surrounds (9 km northeast of the project footprint) by AMBS (2006), as summarised in **Table 5-1**.

Table 5-1: Blue Mountains Aboriginal occupation strategy (adapted from AMBS 2006: 11).

Category	Description
Major site complexes	At the head of gullies and valleys and at junction points of main waterways and watercourses within the valleys where there is relatively easy access from ridgetops to the resources provided by permanent water sources;
	Plateaus where the location offers a good vantage point and specialist resources.
Small sites	Repeated transit use for purposes of hunting or travel; found along or near the end of ridgetops.
	Single use sites; found along access routes between major site complexes and resources.
Travel routes	Water routes are unlikely to be used as access routes due to harsh and difficult terrain (e.g., heavy undercutting and thick vegetation);
	Interconnecting ridges are the most probable travel routes, long interconnecting ridges provide the easiest travel routes within the plateau (e.g., Great Western Highway, Bells Line of Road)
	Occupation and travel routes outside the Blue Mountains Plateau are likely to be associated with major river valleys (e.g., Coxs River, Nepean River) as these are resource- and access-friendly environments

5.3 LOCAL ARCHAEOLOGICAL CONTEXT

Heritage database searches were undertaken to identify any previously recorded Aboriginal sites and places in the project footprint. The database search results are summarised in **Table 5-2**.

Table 5-2: Aboriginal heritage: summary of desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
Australian Heritage Database	21/9/2023	Lithgow LGA	No Aboriginal Places listed are within or near the project footprint
NSW Heritage Office State Heritage Register	21/9/2023	Lithgow LGA	No Aboriginal Places listed are within or near the project footprint. Maiyingu Marragu (Blackfellows Hand Cave) Aboriginal Place is 7 km northeast of the project footprint.
Aboriginal Heritage Information and Management System	19/9/2023	10 x 10 km centred on the project footprint	114 sites within the search area. Three sites within the project footprint (**Table 5-4**).
	10/6/2025	10 x 10 km centred on the project footprint	131 sites within the search area. Four sites within the project footprint. The only additional site within the project footprint is site 45-1-2967, which was recorded as part of this assessment.
National Native Title Claims Search	18/10/2023	Lithgow LGA	One Native Title claim covers the project footprint
Local Environment Plan (LEP)	21/9/2023	Lithgow LEP 2014	No Aboriginal Places listed are within or near the project footprint

As per **Table 5-2**, it is noted that the project footprint includes land currently subject to Native Title Claim by Warrabinga-Wiradjuri #7 (NC2018/002, NSD857/2017).

A search of the Heritage NSW administered Aboriginal Heritage Information Management System (AHIMS) database on 19 September 2023 returned 114 results for Aboriginal sites within a 10 km (east–west) by 10 km (north–south) area centred on the project footprint (GDA Zone 56 Eastings: 221496-230973, Northings: 6297352-6306553) (see **Appendix 4**). This search was updated on 10 June 2025 with the same parameters and returned 131 results. The additional AHIMS registrations are mostly associated with the Wallerawang Subdivision located approximately 250 m southeast of the project footprint at the closest point. One additional site is within the project footprint in the 2025 search, site 45-1-2967, which was recorded as part of this assessment (see **Section 6.4**). The updated search is provided in **Appendix 4** but the discussion of AHIMS sites in this section is based on the 2023 search.

The most frequently recorded site types are open sites which contribute 38% (n=43) of those in the vicinity of the project footprint. Isolated finds (17%, n=19) and other stone artefact sites (11%, n=13) are recorded in lower frequencies. It is of note that these site types are all stone artefact based, and if combined, they represent almost 66% of the total number of sites in the search area, suggesting that these site types are the most likely to be present within the project footprint. The site types and frequencies of sites within the search area are provided on **Table 5-3**.

Most of the sites are closely associated with the nonperennial watercourses, and the ridges and slopes to the south of the project footprint. As these same landforms occur within the project footprint, this indicates that there is elevated potential for unrecorded Aboriginal sites to be

present. The AHIMS search results include a diverse range of Aboriginal site types, indicating not only that the surrounding area was a focus for many Aboriginal activities but also that a range of site types could be present within the project footprint.

Figure 5-2 shows the location of previously recorded sites in the vicinity of the project footprint.

Table 5-3: AHIMS site types and frequency

Site Type	Number	% Frequency
Open site	43	38%
Isolated find	19	17%
Artefact (unspecified quantity)	13	11%
Shelter with deposit	9	8%
Artefact site & PAD	6	5%
PAD	4	4%
Grinding groove	3	3%
Grinding groove & shelter with deposit	3	3%
Grinding groove with shelter with art & shelter with deposit	3	3%
Artefact site with modified tree (carved or scarred)	2	1%
Isolated find & PAD	2	1%
Modified tree (carved or scarred)	2	1%
Artefact site with quarry and PAD	1	1%
Burial	1	1%
Burial with modified tree (carved or scarred)	1	1%
Shelter with art & shelter with deposit	1	1%
Stone arrangement	1	1%
Total	**114**	100

Figure 5-2. AHIMS sites in relation to the project footprint.

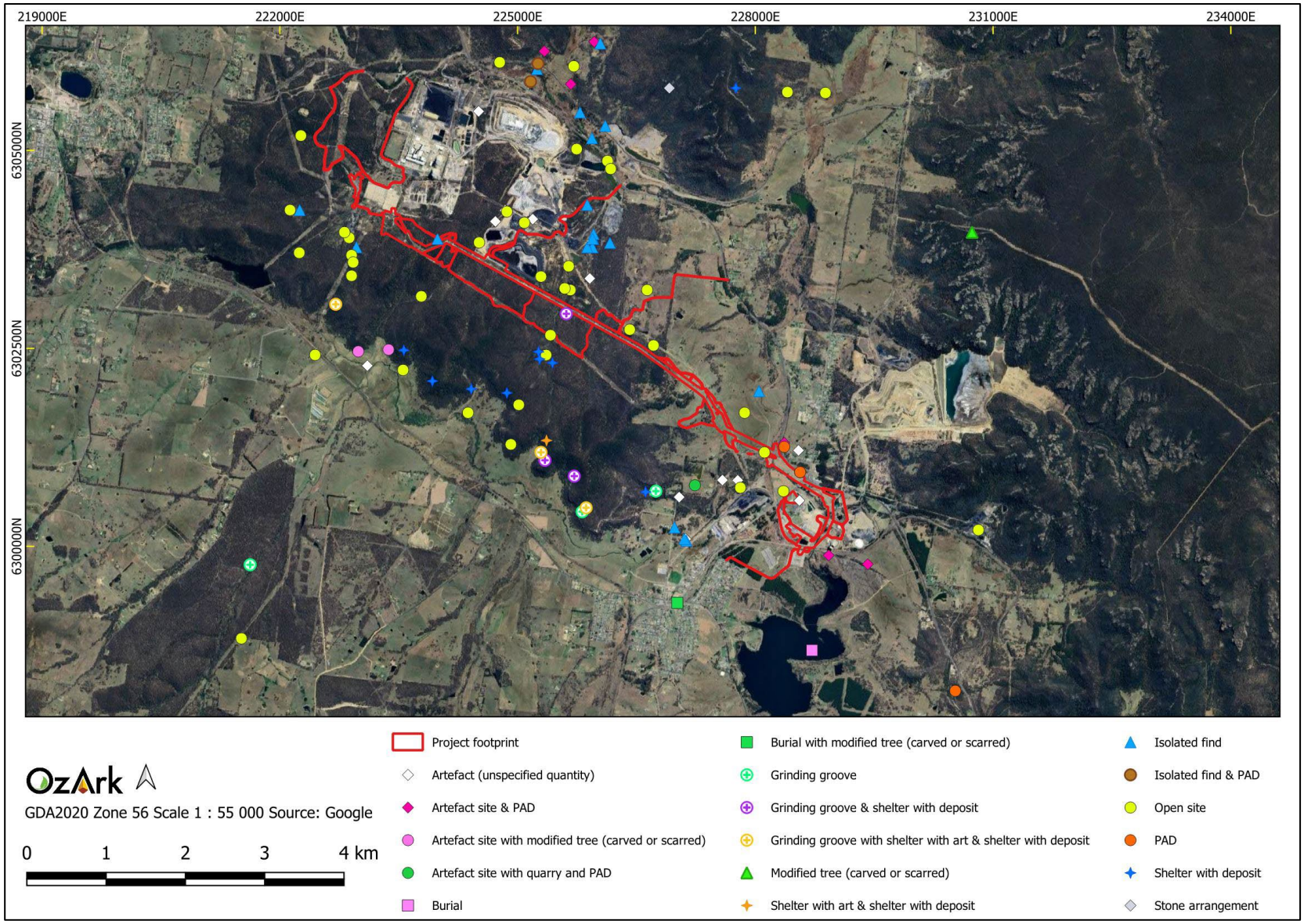


Figure 5-3. Detail of AHIMS sites at the eastern end of the project footprint

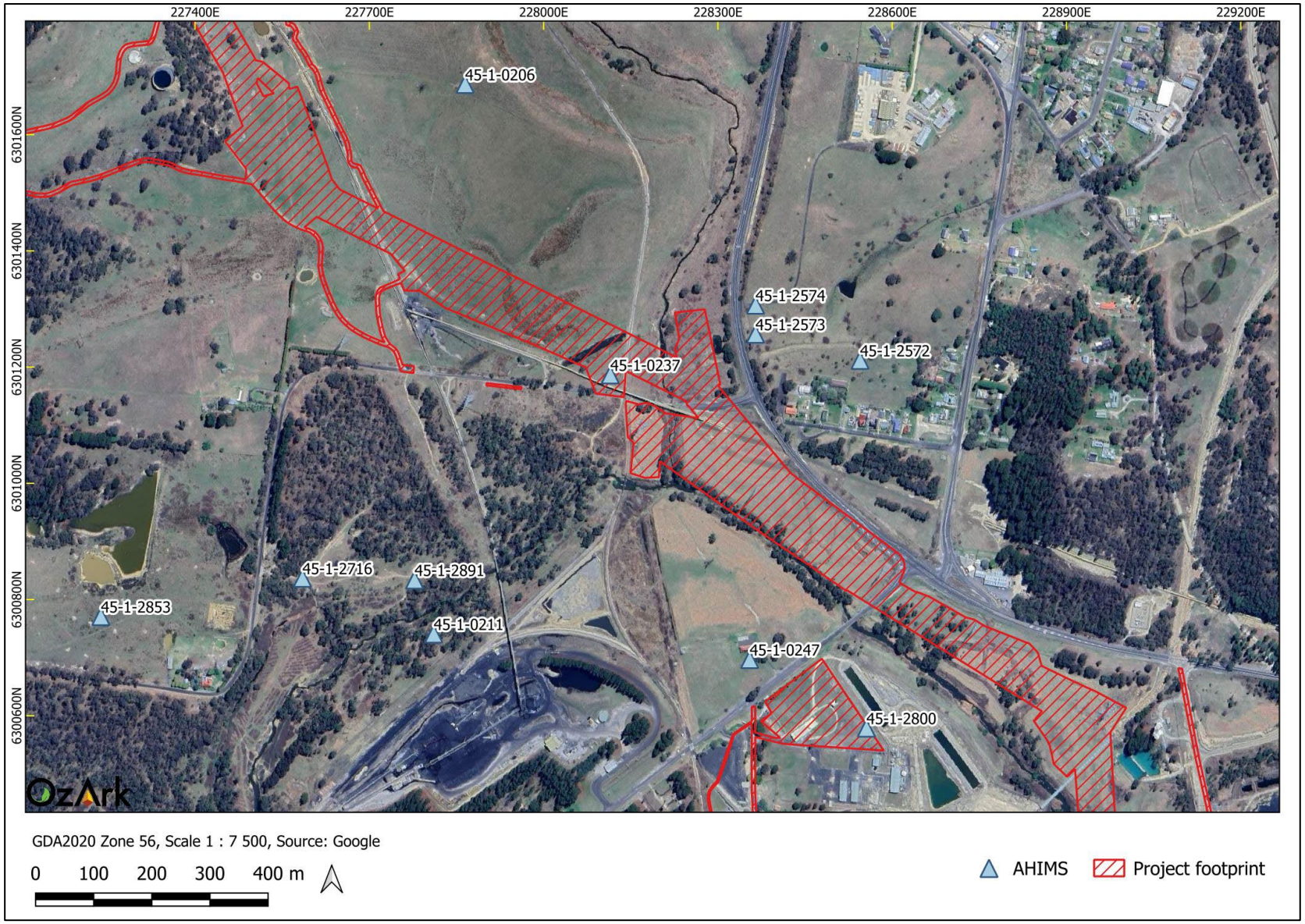


Figure 5-4. Detail of AHIMS sites at the centre of the project footprint.

5.3.1 AHIMS sites within the project footprint

There are three previously recorded AHIMS sites within the project footprint, shown on **Figure 5-5**. Although Site 45-1-0215 plots 8 m south of the project footprint boundary, the site was determined to extend into the project footprint during the survey and is included in this category. Although not included in this section, it is noted that a PAD area associated with site 45-1-2574 was also determined to extend into the project footprint during the survey. The details of this PAD and the AHIMS sites are described in **Section 6.4**. **Table 5-4** provides an overview of the AHIMS sites within the project footprint.

Table 5-4: Details of the AHIMS sites within the project footprint

AHIMS Site ID	Site Name	Site Type	GDA Zone 56 Coordinates	Location	Description
45-1-2800	WPS IF 1	Isolated find	228556E 6300579N	Wallerawang	Single chert flake recorded on a level landform within the former Wallerawang Power Station.
45-1-0215	Lamberts Creek 5	Open site	225425E 6302667N	Mount Piper	Seven artefacts identified along a vehicle track on a gently sloping landform. Although the site centroid is outside the project footprint, the site extent overlaps with the project footprint.
45-1-0237	Springvale Colliery	Open site (with subsurface deposit)	228115E 6301000N	Lidsdale	Subsurface; 50 artefacts identified including debitage and a possible hearth.

5.3.2 AHIMS sites relevant to the project footprint

One previously recorded AHIMS site (Lidsdale 2, 45-1-2574) plots 85 m to the east of the project footprint and was an extensive subsurface artefact site (**Figure 5-6**). The site was destroyed by the construction of the Castlereagh Highway in 2004 but it is possible that unimpacted landforms of high archaeological potential associated with the site could still be present within the project footprint.

Past excavations at site 45-1-2574 are summarised in **Section 5.3.3.5** and the potential for associated subsurface deposits within the project footprint associated with the site are assessed in **Section 6.4**.

Figure 5-5. AHIMS sites within the project footprint

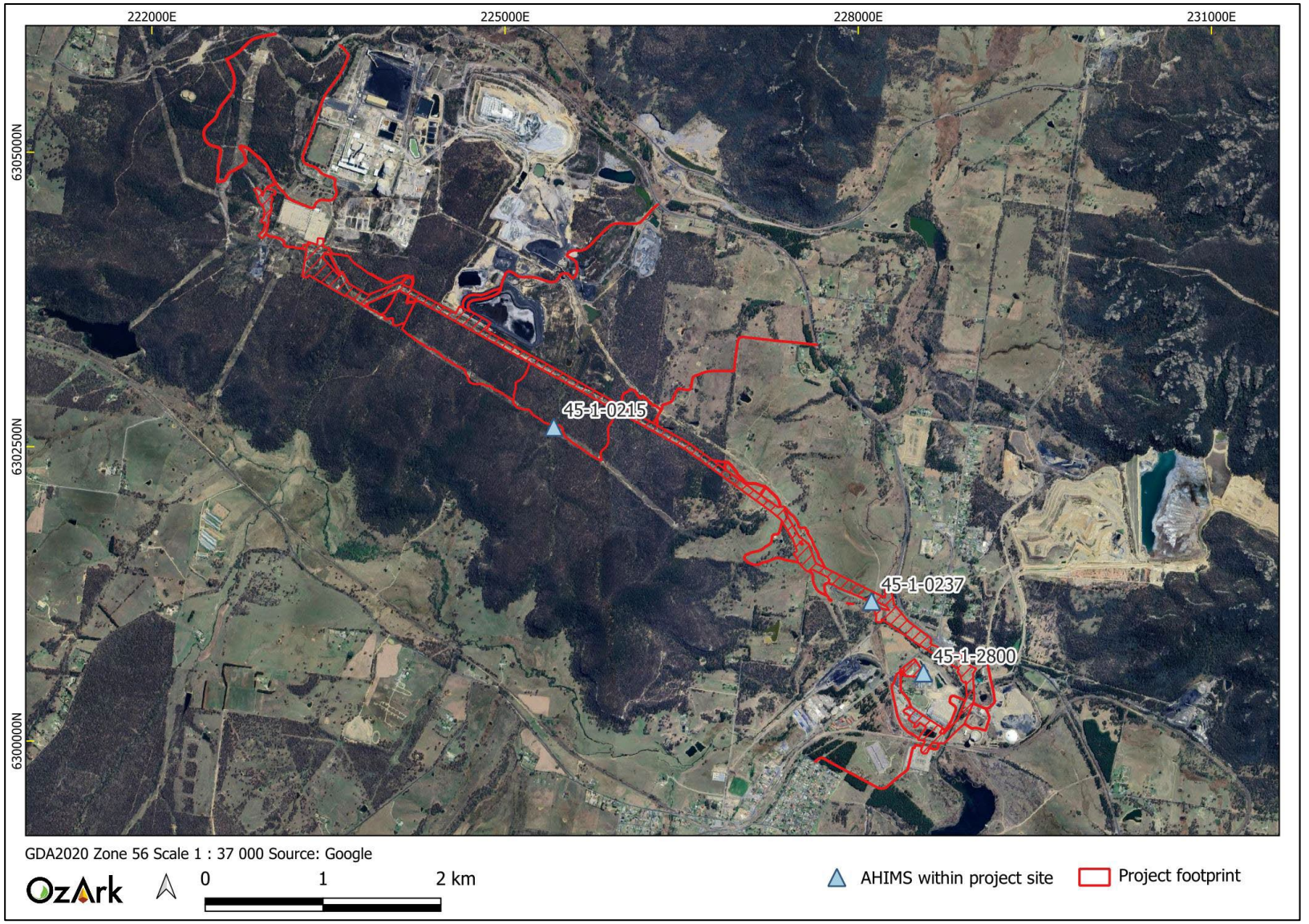


Figure 5-6. Site 45-1-2574 in relation to the project footprint

5.3.3 Previous studies in or near the project footprint

5.3.3.1 Springvale Colliery (Rich & Gorman 1992)

In 1992, a survey for Springvale Colliery operations, including an alternate alignment for the now constructed conveyor, recorded 35 sites, including two open sites, Sites 2 and 9, situated in the Coxs River valley near the project footprint. These sites are shown on **Figure 5-3**.

Site 2 (45-1-0211, 450 m southwest of the project footprint), located on the southern bank of Pipers Flat Creek, consisted of over 100 artefacts within a 200 x 40 m area. Two quartz knapping floors with artefact densities of over 25 artefacts per square metre (m^2) were identified, as were a smaller number of indurated mudstone artefacts.

Site 9 (45-1-0206, 200 m east of the project footprint) is located on a low ridge/ toe slope elevated above the western bank of the Coxs River, comprised of 26 artefacts, primarily quartz, with a maximum artefact density of 6 artefacts per m^2. As a result of this study, Rich argues that the larger sites within their project footprint lie closest to the Coxs River and Pipers Flat Creek (Rich and Gorman 1992:73).

5.3.3.2 Western Main Colliery, Lamberts Creek (Brayshaw & Haglund 1992)

Also in 1992, very limited test excavation was undertaken at two sites on the low flats close to Lamberts Creek (150 m northwest of the current project footprint, see **Figure 5-4**) – at sites 45-6-2355 and 45-6-2354. Pits measuring 1 m x 35 cm were dug at each site, with 16 artefacts retrieved from 45-6-2355 and 17 from 45-6-2354. Artefacts from both sites were predominantly quartz, including one bipolar flake, a backed blade fragment and possibly evidence of a minor knapping event (Brayshaw and Haglund 1992: 19-22). These sites were assessed as representing “one-off” occupation sites, likely to date within the last 3,000 years due to the presence of a backed blade and bipolar knapping technology.

5.3.3.3 Archaeological test excavation: Springvale coal project (McIntyre 1993).

In 1993, McIntyre carried out test excavation to investigate the possibility of an Aboriginal burial area being located close to the alignment of the Springvale coal conveyor, at a location within the current project footprint (McIntyre 1993). Oral history from an Aboriginal Elder (Fay Hasler) provided primary data for the location of the burial ground, as discussed in **Section 5.1**. During this work two areas were tested, one on the west side of the railway line and the second along the area proposed as a flood mitigation embankment. This second area, thought to be on the east side of the current Coxs River alignment, was tested using auger holes only.

No skeletal remains were uncovered during these excavations, although a small artefact deposit was identified on the western side of the railway line, subsequently recorded as 45-1-0237. This site was assessed as having low scientific significance. No site extent for site 45-1-0237 is

recorded on the site card, which only shows the location of the test excavation completed. The location of the test excavation is shown on **Figure 5-7**. The location of a reported carved tree location is shown on **Figure 5-7** by a purple arrow. This location was subsequently determined to be erroneous, with the location of the burial ground with which the carved trees were associated reported to be 250 m to the north (shown on **Figure 5-8**, see Gay 1999: 19-20)

It is unclear whether the discussed burial site includes the reported burial location of King Myall, which was depicted as a burial mound and with carved trees (see **Section 5.1**).

In relation to the reported burial location, McIntyre concluded that it may have been destroyed during the Coxs River deviation works in the 1950s, although there is still the possibility that skeletal material may occur east of the railway and river. She further notes that the presence of artefacts within the level ground adjacent to the river indicates the potential this landscape unit has for the occurrence of Aboriginal sites (McIntyre as reported in Gay 1999: 16–17). The location of the reported burial area as identified by Gay (1999 and 2000) is shown in relation to the project footprint on **Figure 5-8**.

Figure 5-7: Location of previous test excavations at site 45-1-0237 (blue) w and the approximate project footprint (red) (McIntyre 1993)

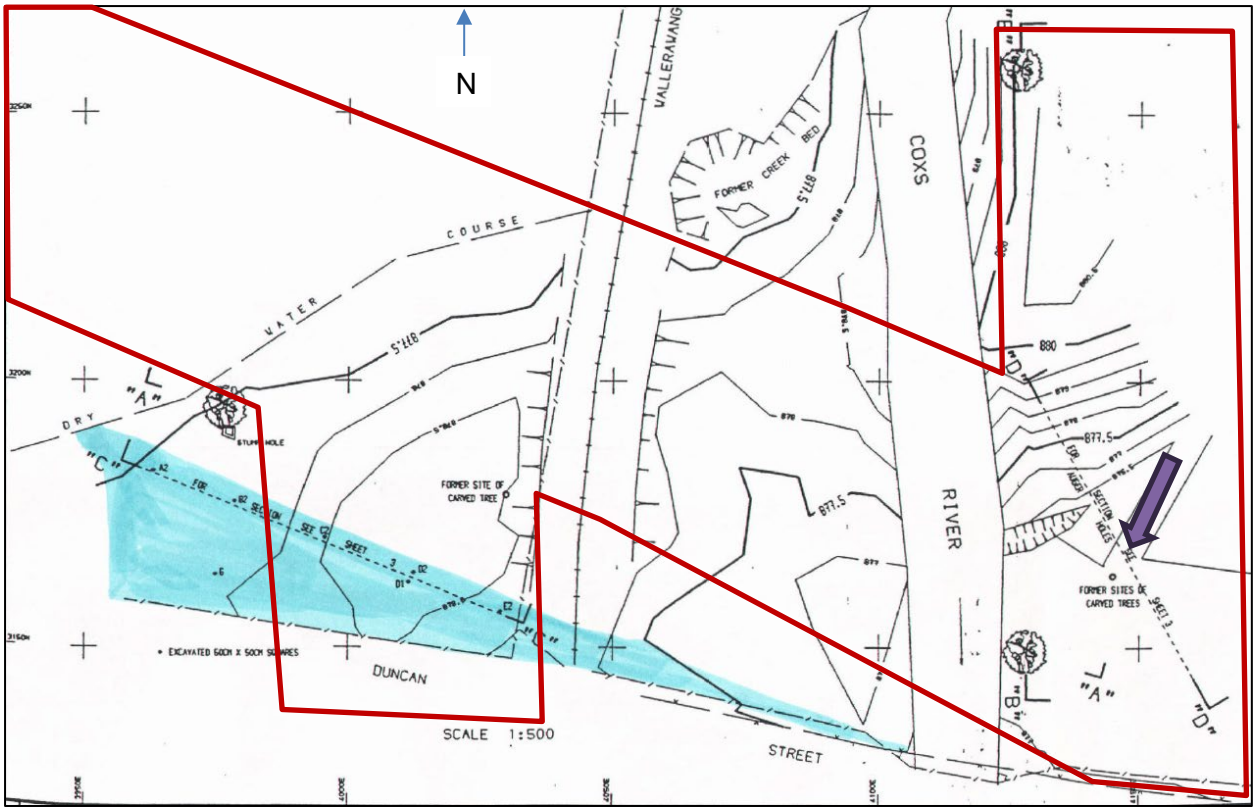
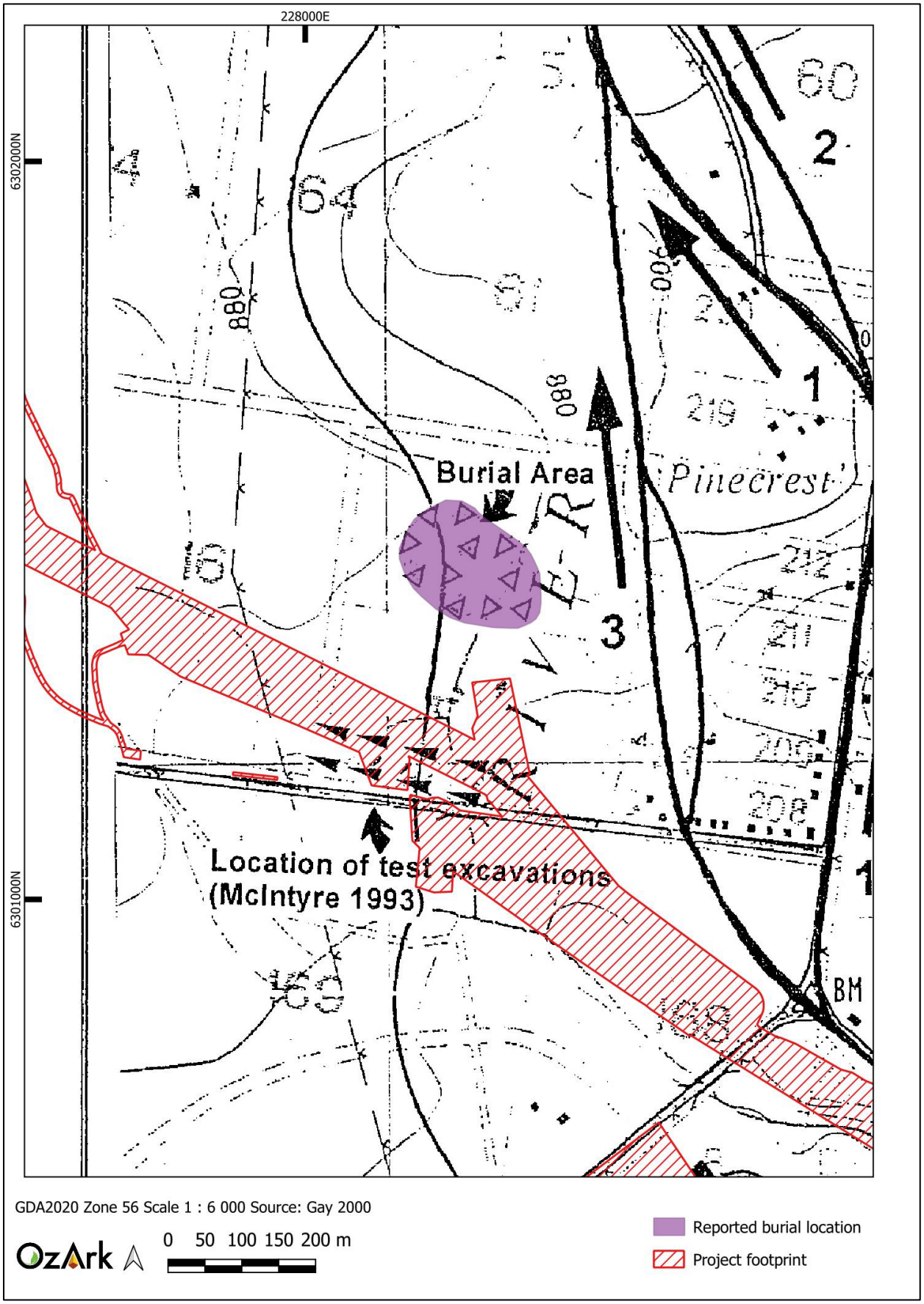


Figure 5-8: Location of the McIntyre (1993) excavations and reported burial location in relation to the project footprint (Gay 1999)



5.3.3.4 *Archaeological survey, salvage and test excavation: Augmentation works at Lyell Dam (Barton & McDonald 1995).*

Lyell Dam, situated in the Coxs River catchment approximately 12 km south of the project footprint, was formed by damming the Coxs River. Three open sites located on the slopes of spurs overlooking the Coxs River floodplain were investigated here in 1994, prior to raising the water level in the lake. All three sites were situated approximately 400 m from the river margin (Gay 1999: 14).

At open site Lyell Dam 3 (LD3) a quartz block fractured knapping floor was found. Although the assemblage was dominated by quartz, other raw materials such as indurated mudstone (silicified tuff) and stone of volcanic origin was also present. In terms of surface manifestations of this site, the highest artefact density recorded was three per square metre, with most sample areas showing lower densities. The excavated assemblage, however, was far larger and at higher density, with thousands of artefacts estimated to be present at this location. Barton and McDonald (1995: 35) interpreted this site as being repeatedly occupied by people carrying out the same range of tasks.

Conclusions of the Lyell Dam site investigation project can be summarised as follows (from Barton McDonald 1995: 67 as summarised in Gay 1999: 15):

- Cobbles of igneous, metamorphic and sedimentary rocks were procured locally, primarily from the bed of the Coxs River.
- Quartz was locally available and the ease with which it was procured eliminated the need to flake using the bipolar technique.
- Quartz was used to create medium sized flakes and some smaller retouched tools.
- Volcanic stone was used to create large or heavy tools.
- All three sites were interpreted as representing repeated short-term occupation areas that focused on acquiring resources such as specific plants or animals that favoured the swampy margins of the Coxs River.

5.3.3.5 *Castlereagh Realignment Test and Salvage excavations (OzArk 2003 and 2004)*

Test excavation of two PADs was undertaken by OzArk (2003) for potential impacts associated with the realignment of the Castlereagh Highway at Lidsdale, 150 m east of the project footprint on the eastern side of the (realigned) Coxs River. These PADs, located a low ridge above the Coxs River, had been identified by Gay (1999) and were recorded as PAD1 (also Lidsdale 1, 45-1-2573) and PAD2 (also Lidsdale 2, 45-1-2574). The results of the test excavation indicated the presence of an extensive open site with low to moderate artefact densities. The test excavation revealed that a variety of activities appear to have been carried out on the site, evidenced by the presence of hammers/anvils for on-site stone tool production or food preparation. The systematic

flaking of stone was carried out at several locations across the site, with one discrete knapping event, associated with a stone feature, showing the manufacture of backed artefacts (specifically bondi points). Quartz was the predominant raw material, although silicified tuff apparently increases in incidence in the upper portion of the profile. The excavated test pits revealed soil profiles indicative of an intact site with good structural integrity.

The salvage excavation (OzArk 2004) confirmed that PAD2 (45-1-2574) is a large and complex site. The site showed internal spatial variation in lithic assemblages. The deeper soil in Area I was found to have retained some cultural stratigraphy: the lithic assemblages from spits 1 and 2 differed from those in spits 3 and 4, indicating change over time at the site. Areas II and III were excavated in locations with more shallow soils, but the lower spits also retain slight variations in the frequencies of different raw material types, suggesting that early occupation of the site may have been widespread, not just confined to the area of deeper soils. Early occupation was assessed as pre-Bondaian, potentially dating to 13,500+/-1,000 years via OSL dating of sediments, while later phases were assessed as Bondaian (OzArk 2004).

Excavation of this site was extensive with a total of 132 m^2 excavated as part of the salvage work and an additional 22 m^2 excavated during the test excavation phase: a total of 154 m^2 of excavation. Almost 6,100 artefacts were recovered. Additional monitoring of the site during construction works yielded an additional 441 artefacts.

It is of relevance to this report that as result of the testing work undertaken, the PADs L2 and L1 were collapsed into one designation, to be known as Lidsdale 2 (L2) with the AHMIS designation 45-1-2574 (OzArk 2004: fn3, p.14). The location of site 45-1-2574 is shown on **Figure 5-3**.

5.3.3.6 Western Rail Coal Unloader, Pipers Flat, NSW (Navin Officer 2007)

Navin Officer (2007) conducted a field survey for the construction of a railway loop in Pipers Flat (2 km southeast of the project footprint, see **Figure 5-3**) to connect the Mudgee rail line between Portland and Wallerawang. One isolated find and seven potential archaeological deposits (PAD) were identified. The isolated find was a quartzite flake found on a gentle slope elevated above the head of a shallow, ephemeral drainage line. The PADs were all identified in similar landforms associated with Pipers Flat Creek and its ephemeral tributaries, though no further artefacts were found.

5.3.3.7 Wallerawang Power Station Aboriginal cultural heritage assessment report (Biosis 2017)

Biosis (2017) completed a heritage assessment for the decommissioning of the former Wallerawang Power Station. The assessment included a section of the project footprint within the former Wallerawang Power Station. One previously unrecorded Aboriginal cultural heritage site was identified during the field survey (Site 45-1-2800, an isolated artefact) and two areas of PAD

(not registered on AHIMS). Site 45-1-2800 and one of the PADs (WPS PAD 2) are within the project footprint (**Figure 5-3**).

5.4 PREDICTIVE MODEL FOR SITE LOCATION

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. Site location is also affected 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. Consequently, sites tend to be found along permanent and ephemeral water sources, along access or trade routes, or in areas that have good flora/fauna resources and appropriate shelter.

In formulating a predictive model for Aboriginal archaeological site location 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, shells, 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 European farming practices including grazing and cropping, land degradation, and farm related infrastructure. Scarred trees, due to their nature, may survive for up to several hundred years but rarely beyond.

5.4.1 Site types in the region of the project footprint

The site types listed in **Table 5-5** are present in the region of the project footprint. The likelihood of these sites being present in the project footprint is discussed in **Section 5.4.2**.

Table 5-5: Site types recorded in the region of the project footprint.

Site type	Site description
Isolated finds	May be indicative of random loss or deliberate discard of a single artefact, the remnant of a now dispersed and disturbed artefact scatter, or an otherwise obscured or subsurface artefact scatter. They may occur anywhere within the landscape but are more likely to occur in topographies where open artefact scatters typically occur.
Open artefact scatters	Artefact scatters are defined as two or more artefacts, not located within a rock shelter, and located no more than 50 metres away from any other constituent artefact. This site type may occur almost anywhere that Aboriginal people have travelled and may be associated with hunting and gathering activities, short- or long-term camps, and the manufacture and maintenance of stone tools. Artefact scatters typically consist of surface scatters or sub-surface distributions of flaked stone discarded during the manufacture of tools but may also include other artefactual rock types such as hearth and anvil stones. Less commonly, artefact scatters may include archaeological stratigraphic features such as hearths and artefact concentrations which relate to activity areas.

Site type	Site description
	Artefact density can vary considerably between and across individual sites. Small ground exposures revealing low density scatters may be indicative of a background scatter rather than a spatially or temporally distinct artefact assemblage. These sites are classed as 'open', that is, occurring on the land surface unprotected by rock overhangs, and are sometimes referred to as 'open camp sites'. Artefact scatters are most likely to occur on level or low gradient contexts, along the crests of ridgelines and spurs, and elevated areas fringing watercourses or wetlands. Larger sites may be expected in association with permanent water sources. Topographies which afford effective through-access across, and relative to, the surrounding landscape, such as the open basal valley slopes and the valleys of creeks, will tend to contain more and larger sites, mostly camp sites evidenced by open artefact scatters.
Culturally modified trees	Aboriginal scarred trees contain evidence of the removal of bark (and sometimes wood) in the past by Aboriginal people, in the form of a scar. Bark was removed from trees for a wide range of reasons. It was a raw material used in the manufacture of various tools, vessels, and commodities such as string, water containers, roofing for shelters, shields and canoes. Bark was also removed because of gathering food, such as collecting wood boring grubs or creating footholds to climb a tree for possum hunting. Due to the multiplicity of uses and the continuous process of occlusion (or healing) following removal, it is difficult to accurately determine the intended purpose for any example of bark removal. Scarred trees may occur anywhere old growth trees survive. The identification of scars as Aboriginal cultural heritage items can be problematical because some forms of natural trauma and European bark extraction create similar scars. Many remaining scarred trees probably date to the historic period when bark was removed by Aboriginal people for both their own purposes and for roofing on early European houses. Consequently, the distinction between European and Aboriginal scarred trees may not be clear.
Grinding grooves	Grinding grooves are the remnants of ground edge hatchet manufacture and sometimes from food preparation. The site is most likely to occur on flat outcrops of coarse-grained sandstone in the vicinity of water sources, however, grinding grooves have also been recorded on fine-grained granite and quartzite outcrops.
Rockshelters and art sites	Utilised in the past for both habitation and ceremonial purposes. The term ‘rock shelter site’ refers to rock shelters/rock overhangs that contain evidence such as stone artefacts and/or bones and/or plant remains (from meals eaten at the site) and/or hearths (fireplaces). Most rock shelter sites are secular in nature, however, those that also contain rock art or engravings are often believed to be non-secular in nature. The term ‘rock art site’ generally refers to Aboriginal ochre paintings or ochre or charcoal drawings located on a rock slab (generally in a sheltered place like the floor of a cave or rock shelter), boulder, cliff-face, cave or rock shelter wall or roof, or wall of a rock overhang. Most rock art sites are found in locations that are sheltered from the elements. This observation, however, is probably biased to some extent, as rock art would not preserve well in open positions. Rock art sites are generally believed to be non-secular in nature.
Burials	Generally found in soft sediments such as aeolian sand, alluvial silts, and rock shelter deposits. In valley floor and plains contexts, burials may occur in locally elevated topographies rather than poorly drained sedimentary contexts. Burials are also known to have occurred on rocky hilltops in some limited areas. Burials are generally only visible where there has been some disturbance of sub-surface sediments or where some erosional process has exposed them.
Bora/Ceremonial sites	Places which have ceremonial or spiritual connections. Ceremonial sites may comprise of natural landscapes or have archaeological material. Bora sites are ceremonial sites which consist of a cleared area and earthen rings.

5.4.2 Landform modelling of archaeological potential

Based on knowledge of the environmental contexts of the project footprint and a desktop review of the known local and regional archaeological record, the following predictions are made concerning the probability of landforms within the project footprint to contain Aboriginal objects (**Table 5-6**), and what types of sites may be present within the project footprint (**Table 5-7**).

Table 5-6: Likelihood of landforms within the project footprint to contain Aboriginal objects.

Survey Unit	Landform type	Likelihood to contain Aboriginal objects
1	Gentle to moderate slopes	While gentler slopes are degrading landforms, they are less likely to be severely affected by soil loss and erosion than steeper areas. The archaeological potential of these sloping landforms within the project footprint is determined by their proximity to reliable water. The low slopes of the Coxs River valley include the largest and most complex sites of the region (i.e. Lidsdale 2). These landforms also include lower density artefact scatters at higher elevations, further from the valley floor.
2	Drainage	Across Australia, archaeological study has shown that Aboriginal sites and objects are most likely to occur within 200 m of a permanent, reliable water supply. Within the project footprint, this landform is present in the east at the Coxs River. The archaeological sensitivity of the project footprint is highest in this region, especially where the proposed easement comes within 200 m of the confluence of Coxs River with Pipers Flat Creek.
3	Steep slopes and gullies	Steep slopes and V-shape valleys are generally low potential landforms. Steep slopes are degrading landforms in which soils are regularly subject to erosional processes such as sheetwash, which are likely to disturb the archaeological record, if present. These landforms are unsuitable for occupation and Aboriginal objects recorded in such landforms are likely to be in a secondary context. The exception is in localised flat benches and escarpments with sandstone overhangs, if they are present, where occupation may have been possible, and even desirable for shelter.
4	Disturbed land	This survey unit has been assigned to landforms with no archaeological potential due to intensive ground disturbance. There is no potential for intact archaeology in these areas.
5	Level	The project footprint contains several small areas of flat plains, perhaps with some undulation, which are distant to reliable water sources. These are generally low potential landforms with slightly higher potential along nonperennial drainage lines which would provide ephemeral water supply only in times of increased rainfall
6	Crest	Crests are generally degrading landforms susceptibly to erosion. Although this indicates they have low archaeological potential for most site types, open crests with vantage points over valleys were sought after camping locations in some areas and it is possible that the crest within the project footprint (**Figure 4-2**) offered such advantages. However, due to clearing and track disturbances, sites within this survey unit are expected to be in a secondary context.

Table 5-7: Likelihood of certain site types being present in the project footprint.

Site type	Likelihood of being present in the project footprint
Isolated finds	As isolated finds can occur anywhere, particularly within disturbed contexts, it is predicted that this site type could be recorded within the project footprint, and are possible in any of the landforms present, although more likely in survey units 1, 3, 4 and 6.
Open artefact scatters	Stone artefact sites of varying densities are some of the most common sites previously recorded in this area. Higher artefact density sites are located on elevated landforms adjacent to the Coxs River, most likely within survey unit 2. Lamberts Creek and unnamed drainage lines at higher elevations (survey unit 3) are predicted to contain lower density artefact sites as the most likely type in this landscape.
Culturally modified trees	Much of the project footprint has been subject to a high level of vegetation clearing and disturbance, reducing the likelihood of this type of site to occur. However, where trees of appropriate age and species are present, especially close to watercourses, it is feasible that this site type may be identified.
Rock shelters	Ten of this site type have previously been recorded in the AHIMS search area surrounding the project footprint. Should suitable rock overhangs be available, this site type may be recorded, with this only likely in survey unit 3.
Grinding grooves	Grinding grooves are relatively highly represented in the search area. If there is suitable outcropping rock (most likely sandstone), there is the possibility for there to be grinding grooves. These are most likely in survey unit 3 (if within an overhang/rocks shelter or an elevated gully), or survey unit 2 closer to the Coxs River.
Burials	Two possible burials have been identified in the surrounding region, one known by documentary evidence. Although it is possible, it is considered an unlikely site type to be present given high levels of land modification. A known potential burial site was investigated in the past with no positive evidence recovered. If present, these would most likely be in survey unit 2.
Bora/Ceremonial sites	This site type does not necessarily follow landform predictability and is, overall, a rare site type with a low likelihood of being present and remaining extant. These sites are generally identified through consultation with the RAPs.

5.4.3 Conclusion

In terms of the distribution of Aboriginal archaeological sites, the available evidence indicates that the project footprint contains landforms of high and low archaeological potential. The following predictive model will guide the assessment of the project footprint:

- Artefact sites are expected to be the most likely site type to be identified within the project footprint.
    - In the higher elevation areas of the project footprint at the northwest, artefact sites are anticipated to be low-density and in a secondary context due to both historic disturbance and the poor preservation conditions of the steeper landforms.
    - At the Coxs River valley, artefact sites (if present) are expected to have higher density and possibly contain features such as knapping floors if preserved in good condition.
- Culturally modified trees (carved or scarred) are represented in a relatively low density in the surrounding area, likely due to the extent of land clearing conducted in post-settlement times for agricultural land use. It is feasible to identify this site type within the project footprint if native trees of an appropriate age are present, particularly near the permanent or semi-permanent water sources.

- Ten rock shelter sites have been recorded in the local region associated with the elevated, forested areas south of the project footprint. This site type may be present at the northwest and centre of the project footprint, if there are overhangs of suitable material.
- Grinding grooves are relatively highly represented in the surrounding area. If there is suitable outcropping rock (most likely sandstone), there is the possibility for there to be grinding grooves. The highest likelihood for this site type is along the ephemeral drainage lines within survey unit 3.
- Two burials have been investigated in the area surrounding the project footprint, one documented in archival evidence and one reported by a local knowledge holder. The investigation did not identify any positive evidence concerning the location of the burials. It is considered unlikely that this type of site would be present in the project footprint given the high levels of land modification.

In terms of the characteristics of sites of higher archaeological significance, data from nearby test and salvage excavations indicates that:

- Excavations within the Coxs River valley show that larger and more complex sites are located on elevated landforms (low ridges) rather than those immediately adjacent to the Coxs River. In relation to site 45-1-0237 within the project footprint, the characteristics of this site are expected to be of lower density and complexity than sites on more elevated landforms (e.g. Lidsdale 2). The expected low-moderate density of artefacts at the site may reflect occupation in certain climactic conditions or specific activities, rather than more continuous habitation at Lidsdale 2.
- Level landforms near smaller waterways and watercourses, such as Lamberts Creek, have the potential to contain low-density artefact deposits, despite their distance from the more permanent water source (the Coxs River).
- Quartz is the predominant material for stone artefacts, followed by silicified tuff (mudstone), which is more common in the east, such as at Marrangaroo Creek (30% in some assemblages), and less common along the Coxs River at Wallerawang and Lidsdale (17%), and even more rare in the hilly country west of the Coxs River (8%).
- Estimated dates for sites near the project footprint are predominantly within the last 3,000 years (e.g. sites 45-6-2355 and 45-6-2354 at Lamberts Creek), although the complex site at the Coxs River (Lidsdale 2) has a phase of occupation dated to the pre-Bondaian period (6,000-14,000 BP).

5.5 RESEARCH QUESTIONS

Several research questions were developed in the assessment methodology and focused test excavation methodology for the project. These research questions include:

- What resources were available to the Aboriginal people using the land within the project footprint (food, stone and water) and what resources were transported to the area?
- What tasks were Aboriginal people undertaking at sites, if recorded?
- Is there potential for burials to be present in the landscape?

- Are there outcropping rock materials present suitable for stone tool procurement and manufacture?
- Is there evidence to suggest that Aboriginal people were using the area earlier than the mid to late Holocene? Can dates be obtained for the Aboriginal use of the area?
- Does the known archaeological deposit at site 45-1-0237 continue into the project footprint?
- How do the recorded artefacts and other site characteristics compare to other archaeological excavations undertaken in the local area and the region, such as at Lidsdale 2?
- Are there intact stratigraphic deposits present that are of conservation value? Can intact deposits (if present) provide datable material or soil luminescence samples?
- How do the findings within the project footprint contribute to the well documented archaeological profile of the surrounding area described in **Section 5.3**?

6 RESULTS OF ABORIGINAL ARCHAEOLOGICAL ASSESSMENT

6.1 SAMPLING STRATEGY AND FIELD METHODS

Standard archaeological field survey and recording methods were employed in this study (Burke & Smith 2004).

The assessment methodology established that full pedestrian survey of the project footprint would be completed, however sections of the project footprint would not be surveyed if the RAPs and archaeologists agreed they are too disturbed to have archaeological potential. These disturbed areas that were not subject to full pedestrian survey have been defined as as survey unit 4 (disturbed land) as shown on **Figure 4-2**.

6.2 ASSESSMENT CONSTRAINTS

No significant constraints to the assessment were encountered and all sections of the project footprint were accessed by the survey team.

6.3 EFFECTIVE SURVEY COVERAGE

Two of the key factors influencing the effectiveness of archaeological survey are ground surface visibility (GSV) and ground surface exposure (GSE). These factors are quantified to ensure that the survey data provides adequate evidence for the evaluation of the archaeological materials across the landscape. For the purposes of the current assessment, these terms are used in accordance with the definitions provided in the Code of Practice.

GSV is defined as:

> *… the amount of bare ground (or visibility) on the exposures which might reveal artefacts or other archaeological materials. It is important to note that visibility, on its own, is not a reliable indicator of the detectability of buried archaeological material. Things like vegetation, plant or leaf litter, loose sand, stone ground or introduced materials will affect the visibility. Put another way, visibility refers to 'what conceals'* (DECCW 2010: 39).

GSE is defined as:

> *… different to visibility because it estimates the area with a likelihood of revealing buried artefacts or deposits rather than just being an observation of the amount of bare ground. It is the percentage of land for which erosion and exposure was sufficient to reveal archaeological evidence on the surface of the ground. Put another way, exposure refers to 'what reveals'* (DECCW 2010: 37).

Table 6-1 calculates the effective survey coverage within the project footprint. In general, **Table 6-1** presents an approximation of the amount of ground surface able to be seen at any location within specific landform units. The calculations reflect the highly variable GSE and GSV across the project footprint. The gentle to moderate slopes, steep slopes and crest survey units (1, 3 and 5) have high levels of exposure due to track disturbances and erosion. In these landforms, approximately 30% of the ground surface could be seen. The levels of GSE and GSV were much lower elsewhere across the project footprint, especially within the drainage landforms surrounding the Coxs River, where there was little exposed ground surface at all (5%).

Table 6-1: Effective survey coverage within the project footprint.

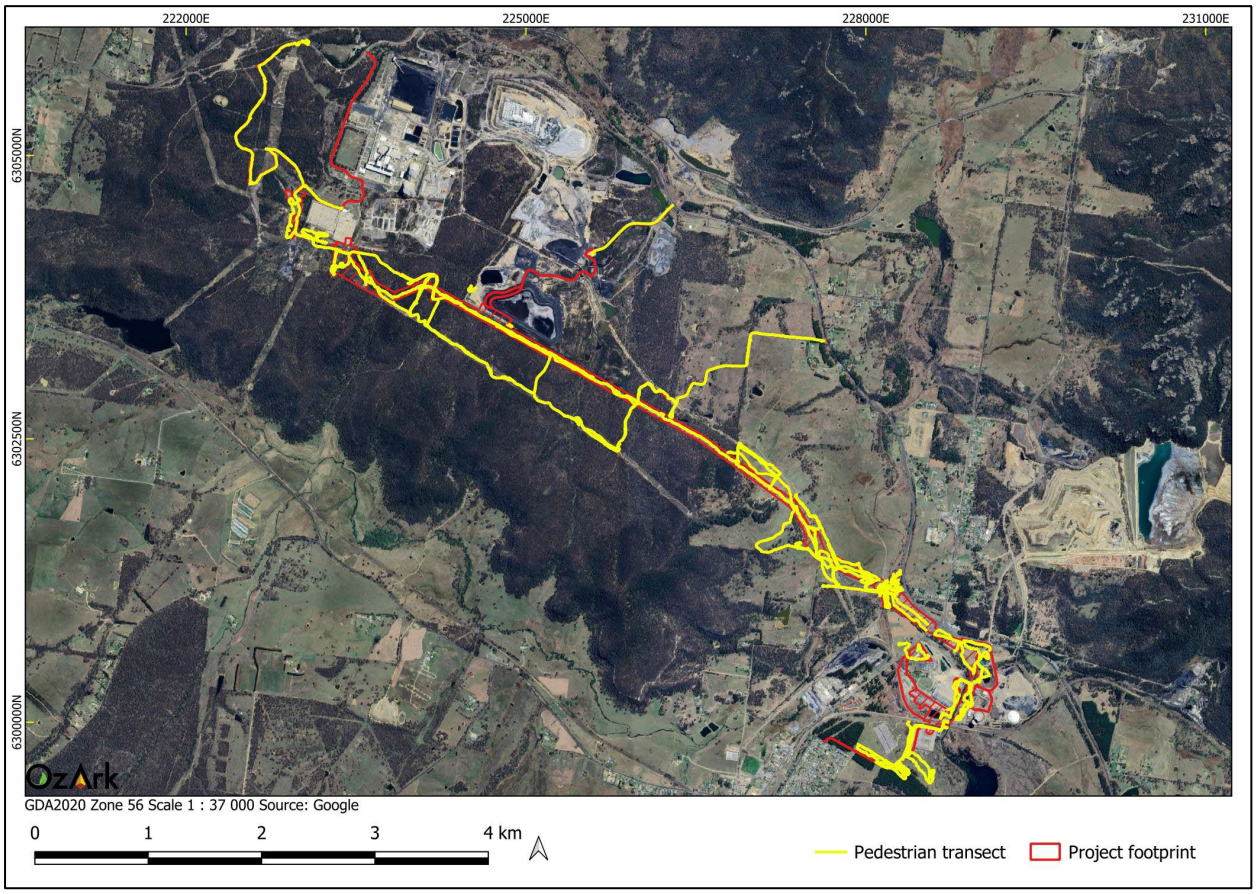
Survey Unit	Landform	Survey Unit Area (sq m)	Visibility %	Exposure %	Effective Coverage Area (sq m)	Effective Coverage %
1	Gentle to moderate slopes	300443.55	50	70	105155.24	35.0%
2	Drainage	201316.66	30	5	3019.75	1.5%
3	Steep slopes and gullies	234398.43	60	5	70319.53	30.0%
4	Disturbed land	105832.89	0	0	0.00	0.0%
5	Level	13345.42	20	20	533.82	4.0%
6	Crest	11051.96	50	60	3315.59	30.0%

Table 6-2 demonstrates that although the survey efficacy within drainage landforms was lowest, Aboriginal sites were still identified within the survey unit. This is a result of previous assessment and the declaration of PAD areas in high potential landforms with no GSV. The survey efficacy rates within survey units 1 and 3 indicates that the isolated find and low-density artefact scatter identified in each, respectively, is likely an accurate representation as there can be confidence that further sites have not been overlooked. **Figure 6-1** shows the survey coverage of the project footprint during the survey.

Table 6-2: Effective survey coverage and incidences of site recording.

Survey Unit	Landform	Landform area (sq m)	Area Effectively Surveyed	% of Landform Effectively Surveyed	Number of Sites
1	Gentle to moderate slopes	300443.55	105155.24	35.0%	1
2	Drainage	201316.66	3019.75	1.5%	3
3	Steep slopes and gullies	234398.43	70319.53	30.0%	1
4	Disturbed land	105832.89	0.00	0.0%	0
5	Level	13345.42	533.82	4.0%	0
6	Crest	11051.96	3315.59	30.0%	0

Figure 6-1: Pedestrian coverage of the project footprint



6.4 ABORIGINAL SITES RECORDED

Table 6-3 summarises the Aboriginal cultural heritage site recorded during the survey of the project footprint. Further details on the sites follows. **Table 6-4** provides the details of previously recorded sites and PADs inspected during the survey. The location of the sites and PADs in relation to the project footprint is provided on **Figure 6-2**

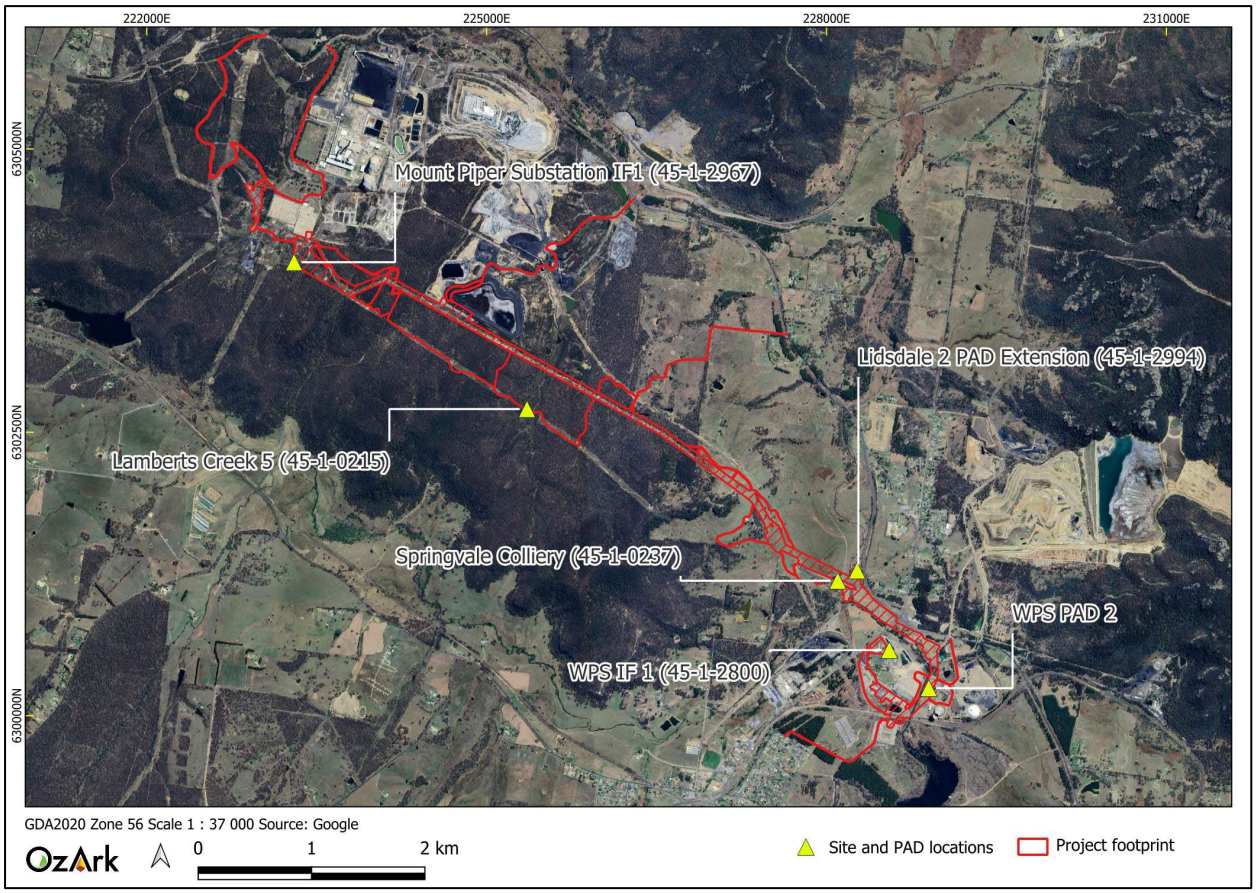
Table 6-3: Aboriginal cultural heritage sites recorded during the survey.

AHIMS ID	Site name	Site type	Coordinates (GDA Zone 56) East	Coordinates (GDA Zone 56) North	Survey Unit
45-1-2967	Mount Piper Substation IF1	Isolated find	223300	6304001	1
45-1-2994	Lidsdale 2 PAD Extension	PAD	228255E	6301269N	2

Table 6-4: Previously recorded sites and PADs inspected during the survey

AHIMS ID	Site name	Description	Coordinates (GDA Zone 55) East	Coordinates (GDA Zone 55) North	Survey Unit
45-1-0237	Springvale Colliery	Artefact site	228115	6301000	2
45-1-0215	Lamberts Creek 5	Artefact scatter with PAD	225425	6302667	3
Not applicable	WPS PAD2	PAD	228904	6300243	2
45-1-2800	WPS-IF1	Isolated find	228556	6300579	2

Figure 6-2: Location of identified and inspected sites within the project footprint



Site 45-1-2967 (Mount Piper Substation IF1)

Site type: Isolated find

GPS coordinates: GDA 2020 Zone 56 223300E 6304001N

Location of site: Mount Piper Substation IF1 is located on an unsealed access track on a midslope landform 560 m south of the entrance gate to the Mount Piper Substation. The track leads south to transmission line structure TL 70/27. The site is 3.1 km east of the township of Portland. The location of the site is shown on **Figure 6-3** and views of the site and artefact are shown on **Figure 6-3**.

Description of site: Mount Piper Substation IF1 is a large quartz flake that may have been used as a flaked piece (used as a source for further flakes) after being knapped (**Table 6-5**). The object is located on the eastern edge of an overgrown access track on a gently inclined midslope landform, approximately 150 m east of an unnamed, first-order tributary that would have met Wangcol Creek to the north prior to the construction of the Mount Piper Power Station. GSE at the site was approximately 50% with GSV of 40% within the exposed sections of the track.

As the object is in a secondary context and located on a graded access track, the site is not assessed to have potential for subsurface deposits. The surrounding landforms are gentle to moderate slopes distant to water, assessed as having low archaeological potential. No other Aboriginal objects were identified in the vicinity of the site.

Table 6-5: Mount Piper Substation IF1 artefact attributes.

Artefact type	Raw material	Artefact integrity	Stage of reduction	Size (LxWxD) mm
Flake	Quartz	Complete	Tertiary	51x38x21

Figure 6-3: Mount Piper Substation IF1. View of site and artefact.

1. View south at Mount Piper Substation IF1 showing transmission structure TL 70/27 in the background.

2. The dorsal surface of the quartz flake at Mount Piper Substation IF1.

Site 45-1-2994 (Lidsdale 2 PAD Extension)

Site type: Potential artefact deposit

GPS coordinates: GDA 2020 Zone 56 228255E 6301269N

Location of site: Site 45-1-2994 is located on a low slope between the Castlereagh Highway and the modified channel of the Coxs River at Lidsdale. The site is bounded in the south by an area of high disturbance associated with construction works for the Castlereagh Highway realignment works in 2004. Views of the site are shown on **Figure 6-4** and the extent of the PAD area is shown on **Figure 6-5**. Site 45-1-2994 is within the project footprint at a proposed brake and winch site associated the stringing of the proposed transmission line on the eastern side of the channelised Coxs River.

Description of site: Lidsdale 2 (Site 45-1-2574) is a now destroyed artefact deposit located on a low slope/spur above the Coxs River. The site is considered to be destroyed as large-scale archaeological salvage and monitoring excavations were completed at the site prior to it being impacted by the realignment of the Castlereagh Highway (OzArk 2004).

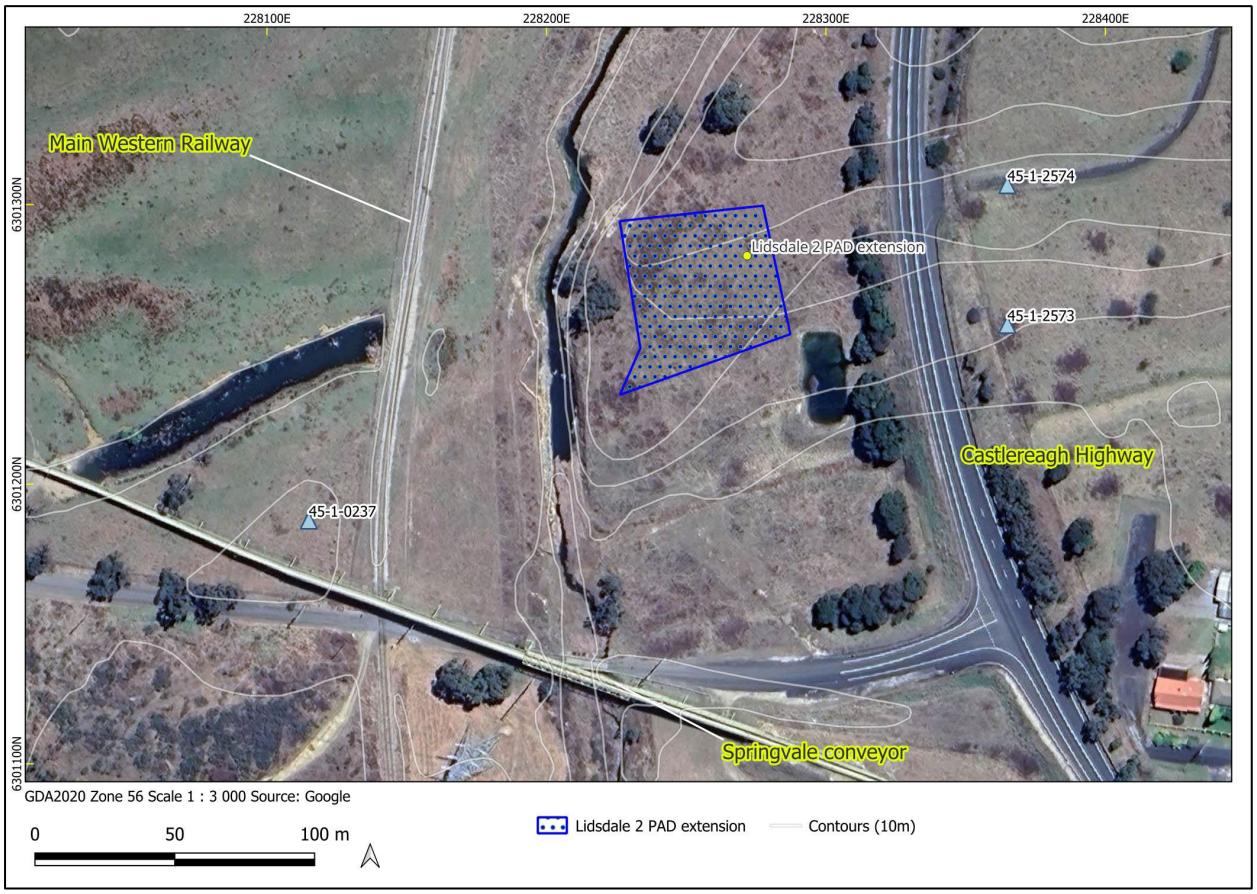
However, the same hill slope landform associated with the artefact deposit with high archaeological significance (see **Section 5.3.3.5**) does continue into the current project footprint.

While the archaeological potential of much of this landform has been reduced by earthworks associated with the Castlereagh Highway realignment, a small area of the low slope does not appear to have been significantly modified and retains archaeological potential. This area has been recorded as a PAD within the project footprint and, for administrative purposes, is registered as a new site: Lidsdale 2 PAD Extension (Site 45-1-2994).

Figure 6-4: Extension of site 45-1-2994. View of location.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>1. View north across the PAD area remaining associated with Lidsdale 2 (Site 45-1-2574). The modified Coxs River is at the left of frame (out of shot)</td><td>2. View south from the northern boundary of the project footprint showing the gentle slope and then the lower river terrace in the background past the tree at right of frame.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>3. View south showing one of the open area excavations completed in 2004 (OzArk 2004 plate 2). The project footprint for the current assessment is at the right of frame between the excavation areas and the Springvale Coal Conveyor that can be seen in the background.</td><td>4. View south during the monitoring phase of the 2004 excavations showing the levels of disturbance to the level landforms closer to Duncan Street/Brays Lane.</td></tr>
</table>

Figure 6-5: Site 45-1-2994 PAD extent



6.5 PREVIOUSLY RECORDED ABORIGINAL SITES AND PADS WITHIN THE PROJECT FOOTPRINT

WPS PAD 2 (not registered on AHIMS)

Site type: Potential Archaeological Deposit

GPS coordinates: GDA 2020 Zone 46 228904E 6300243N

Location of site: WPS PAD 2 is located within the former Wallerawang Power Station, 220 m northwest of the remaining cooling tower. WPS PAD 2 is approximately 1.8 km northeast of the township of Wallerawang. Views of the PAD are shown on **Figure 6-6** and its location is shown on **Figure 6-7**. WPS PAD 2 is within the proposed transmission line easement north of the Wallerawang 330 kV Substation.

Description of site: The PAD consists of a 50 x 30 m area of a level, secondary terrace landform on the eastern bank of the Coxs River. The PAD was identified by Biosis (2017) who assessed the potential site as in good condition. The site is currently demarcated by star pickets with no fencing wire. GSV at the location was 0%, obscured by grass and weed ground cover.

The original recorder did not registered WPS PAD 2 on AHIMS and may have reasons for doing so. It is the responsibility of the recorder to manage AHIMS listing for sites and OzArk does not propose to register the site from the limited available information. The absence of an AHIMS recording for WPS PAD 2 does not affect its proposed management.

Figure 6-6: WPS PAD 2. View of PAD location.

	
1. View of the exclusion zone signage at WPS PAD 2.	2. View west across WPS PAD 2. The channelised Coxs River is behind the saplings in the background.

Figure 6-7: Location of WPS PAD2 in relation to the project footprint

Site 45-1-0237 (Springvale Colliery)

Site type: Artefacts in deposit

GPS coordinates: GDA 2020 Zone 56 228115E 6301000N

Location of site: Site 45-1-0237 is located on the western bank of the Coxs River, 220 m west of the intersection of the Castlereagh Highway and Brays Lane at Lidsdale. The site is bounded in the east by the Coxs River, in the south by the Springvale Coal Conveyor and in the northwest by a low, water-holding depression. The site is bisected by the Main Western Rail Line. Views of the site are shown on **Figure 6-8**. Portions of Site 45-1-0237 overlap with the transmission line easement and with a proposed access track within the project footprint.

Description of site: Site 45-1-0237 is a level landform thought to be the original eastern river terrace of the Coxs River prior to its realignment in the 1950s to the eastern side of the Main Western Railway. Initial investigation of the site was completed by McIntyre (1993) along the alignment of the now constructed Springvale Coal Conveyor, recording 50 subsurface artefacts.

The current assessment identified the adjacent landforms as having potential for the artefact deposit to continue north of the area investigated by McIntyre. This was presented in the test excavation methodology and subsequently tested (**Section 7**). Following the completion of the

test excavation program, the boundaries of the artefact deposit area are better understood and are shown on **Figure 6-9**. The characteristics of the deposits are described in further detail in **Section 7**. The deposit at the site is described as a raised landforms on the western side of the Main Western Rail Line in which artefacts are present at depth and that includes areas of moderate to high artefact density (yellow on **Figure 6-9**). The section of the site on the eastern side of the Main Western Rail Line is interpreted as a lower density of artefacts within the upper 20 cm of the soil profile consistent with a background scatter of artefacts across the landform (orange on **Figure 6-9**).

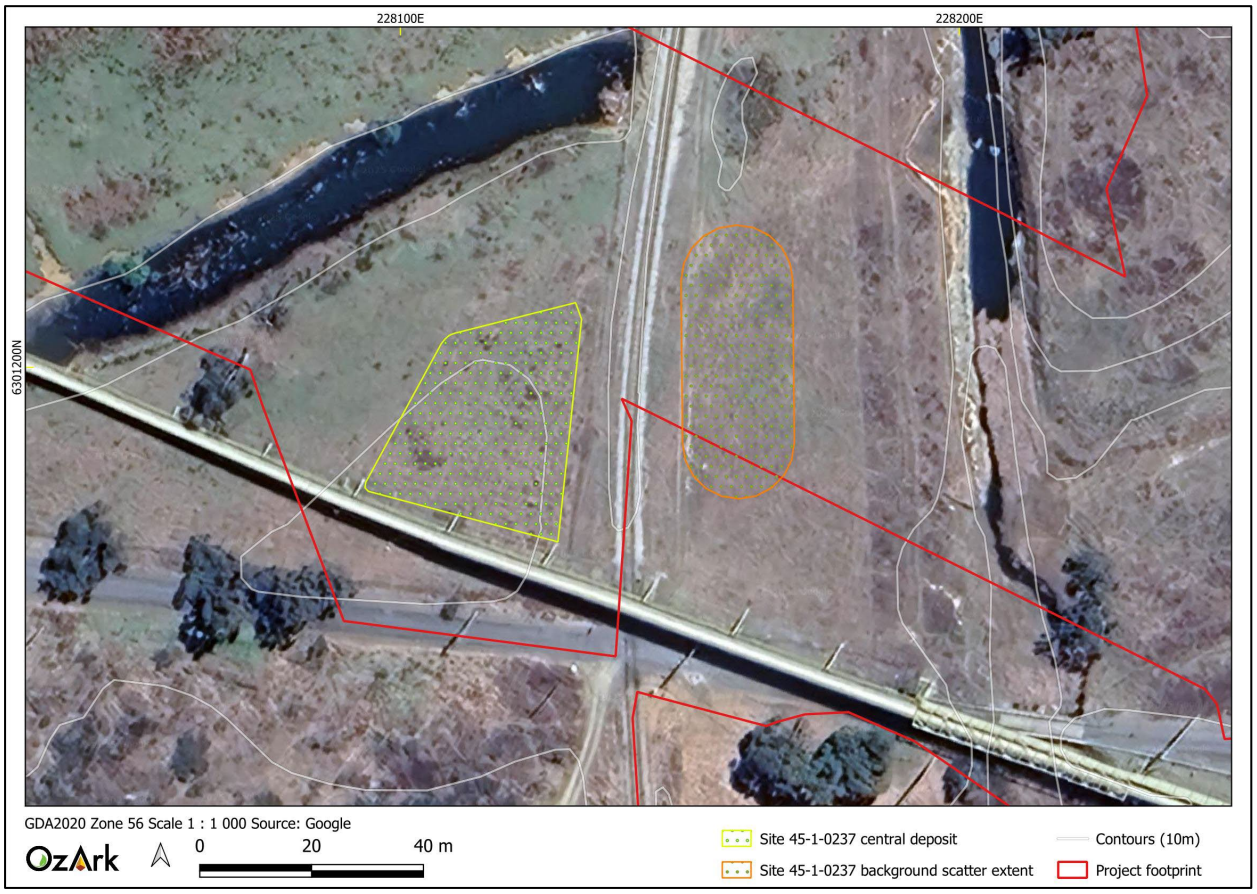
GSV at the site is typically 0% due to thick grass cover. Disturbances within the identified PAD area are generally low, as the boundary has been defined by excluding the areas of high disturbance from the railway.

Figure 6-8: View of Site 45-1-0237..

1. View south across Site 45-1-0237 from the northern boundary showing the level landform and the Springvale Coal Conveyor/Brays Lane in the background.

2. View north across the landform showing the deviated Coxs River (right).

Figure 6-9: Site 45-1-0237 artefact deposit extent



Site 45-1-0215 (Lamberts Creek 5)

Site type: Artefact scatter with PAD

GPS coordinates: GDA 2020 Zone 56 225425E 6302667N

Location of site: Site 45-1-0215 is located on an access track along the existing 330 kV easement between Mount Piper and Wallerawang 330 kV substations and is located about 380 m south of the proposed transmission line. The site is situated on a gentle low slope to the west of Lamberts Creek, 2.7 km southeast of the entrance gate to the Mount Piper Substation. Views of the site are shown on **Figure 6-10** and the site extent is shown on **Figure 6-11**. Please note that the underlying aerial on **Figure 6-11** does not accurately reflect the location of the artefacts and project footprint at such a fine scale. The project footprint and artefacts are located on the cleared track.

Description of site: Site 45-1-0215 consists of a low-density artefact scatter along an access track and an associated area of PAD on either side of the track. The site was identified by Brayshaw (1993) noting a surface scatter of seven artefacts and the areas of PAD.

Three artefacts were identified during the current assessment (**Table 6-6**). The surface artefact scatter measures approximately 50 x 3 m along the vehicle track with a larger area of PAD (approximately 120 x 40 m) on either side of the track. The surface artefacts are located in secondary context on an eroded vehicle track with high GSV (30%). The site card also identifies a rock shelter with PAD along Lamberts Creek, to the south of the project footprint. The location was visited during the assessment and confirmed to be 25 m south of the project footprint.

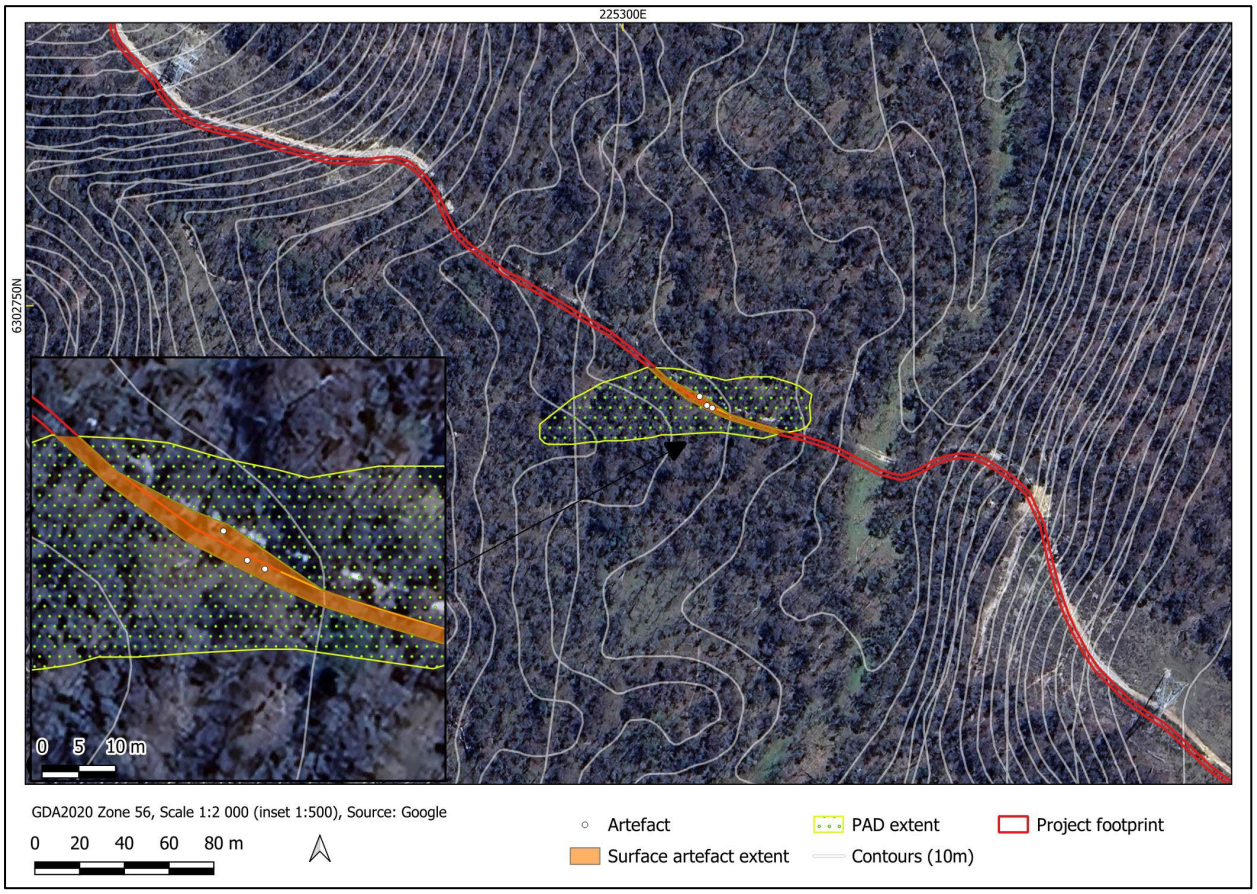
Table 6-6: Site 45-1-0215 artefact attributes.

Artefact type	Raw material	Artefact integrity	Stage of reduction	Size (LxWxD) mm
Flake	Quartz	Complete	Tertiary	27x19x5
Shatter	Quartz	Not applicable	Tertiary	32 (max size)
Flake	Quartz	Complete	Tertiary	32x25x10

Figure 6-10: Site 45-1-0215. View of location and artefacts.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>1. View southeast across Site 45-1-0215. The slope declines to Lamberts Creek in the background.</td><td>2. Ventral surface of one of the quartz flakes identified at Site 45-1-0215.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>3. View southeast at the site showing the level landforms identified with PAD to the south of the track (outside the project footprint)</td><td>4. View of a low overhang south of the project footprint thought to be an area of PAD associated with site 45-1-0215.</td></tr>
</table>

Figure 6-11: Site 45-1-0215



Site 45-1-2800 (WPS-IF1)

Site type: Isolated find

GPS coordinates: GDA 2020 Zone 56 228556 E 6300579N

Location of site: Site 45-1-2800 is located on a level landform within the former Wallerawang Power Station. The site is located at a security fence separating a clear, grassy area from a holding pond on the southern bank of the Coxs River. Views of the site are shown on **Figure 6-12** and the location is shown on **Figure 6-7**. The site is located at an area proposed for a construction compound for the project.

Description of site: Site 45-1-2800 is a single chert flake located in a secondary context (**Table 6-7**). The grassy area where the object was originally recorded is on a mowed and maintained area and is generally in a highly modified landscape. The site was not identified with the potential for associated subsurface deposits.

The object itself could not be located during the 2024 survey. Although there were some small exposures, GSV was low at the site (5%) due to grass and gravel cover. The location of the recording is assessed as accurate and the position of the artefact is marked by a star picket.

Table 6-7: Site 45-1-2800 artefact attributes.

Artefact type	Raw material	Artefact integrity	Stage of reduction	Size (LxWxD) mm
Flake	Chert	Complete	Tertiary	14 x 24 x 4

Figure 6-12: Site 45-1-2800. View of location and artefacts.

1. View north across Site 45-1-2800. The star picket in the foreground marks the location of the site.

2. View of the ventral surface of the chert flake at Site 45-1-2800 from the site card.

6.6 ABORIGINAL COMMUNITY COMMENTS ON THE SURVEY

No comments referring to cultural values specific to the project footprint were made by the RAPs during the survey.

6.7 SUMMARY OF SURVEY RESULTS

One newly recorded site was identified during the survey and four previously identified sites were inspected. The condition and site details of the previously identified sites are accurate, although it should be noted that a landform associated with site 45-1-2574 was identified to have PAD. It is not proposed to alter the site status of site 45-1-2574 from destroyed and the PAD has been registered as a new recording (site 45-1-2994).

6.7.1 Discussion

The results of the survey conform to the well-documented archaeological characteristics of the Coxs River valley and the surrounding hills and ranges. The identification of one isolated find within the gentle to moderate slopes of the project footprint (survey unit 1) is consistent with the expected archaeological characteristics of this landscape, especially within the project footprint where levels of disturbance are generally high and reliable water distant.

The predictive model developed for the project footprint indicated that sites were most likely within survey unit 2, the drainage landforms surrounding the Coxs River. No new sites were identified within survey unit 2. This result can be attributed to the high level of prior archaeological assessment that has been completed in this area of the project footprint and surrounds. There can be confidence that the extant archaeological record within the Coxs River valley at the project footprint has been captured during past assessments of the area (sites 45-1-0237 and 45-1-2574).

In terms of site features, the wide range of site types returned in the AHIMS results surrounding the project footprint was not reflected in the survey results. The absence of rock shelters and grinding groove sites can be attributed to the fact that the project footprint is a narrow cross section of the landscape that includes only a small sample of the gully and upper slope landforms in which these features are more prevalent. The absence of modified tree sites was anticipated in the predictive model due to high levels of clearing.

All surface artefacts identified during the survey are quartz (the chert flake at site 45-1-2800 could not be located), which conforms to the expected site characteristics for the area.

6.7.2 Responses to the research questions

In **Section 5.5** several research questions were advanced to guide the survey of the project footprint. Following the survey, responses to these research questions are set out below. Questions specific to the test excavation program are addressed in **Section 7.5.2.**

- What resources were available to the Aboriginal people using the land within the project footprint (food, stone and water) and what resources were transported to the area?
    - The southeastern sections of the project footprint near the Coxs River are within a resource rich zone of occupation for Aboriginal people in the past.
    - Stone resources appear to have been limited within the project footprint, as indicated by the prevalence of quartz that is likely to have been sourced from river cobbles.
    - The northwestern section of the project footprint is a more resource scarce landscape, with little reliable water available to attract habitation or game for hunting.
- What tasks were Aboriginal people undertaking at sites, if recorded?
    - Mount Piper Substation IF-1 (45-1-2967) is an isolated find from which it is difficult to determine specific activities. However, its location on a sloping landform distant from a major watercourse or waterway would indicate that it could be associated with a transit route or resource gathering trip from a more reliable camping area.
- Is there potential for burials to be present in the landscape?

- The potential for burials within the project footprint is very low. Although archival and oral records indicate the presence of burials along the Coxs River (Gay 1999, **Section 5.3.3**), the potential for these sites to remain within the project footprint has been comprehensively tested by excavations completed by McIntyre (1993), OzArk (2003 and 2004) and further supplemented by the test excavation component of this assessment (**Section 7**). The best available information for the location of the reported burial area indicates that it is 100 m north of the project footprint (**Figure 5-8**).

- Are there outcropping rock materials present suitable for stone tool procurement and manufacture?
    - No, the outcropping rock sources within the project footprint were limited to sandstone and shale not suitable for stone tool manufacture.

7 TEST EXCAVATION PROGRAM

7.1 EXCAVATION METHODOLOGY

7.1.1 Purpose of the test excavation program

The test excavation program was completed over three days from 24 – 26 September 2024.

The purpose of the test excavation program was to understand more completely the nature of the subsurface material across the project footprint. Data obtained from the test excavation program will inform the mitigation and management options in this ACHAR.

The aims were to:

1. Establish the presence, extent and nature of the subsurface archaeological deposits
2. Use the data gained from the test excavation program to better evaluate the archaeological significance and potential of the identified PAD
3. Develop, in consultation with the RAPs and the proponent, an informed strategy for the management of any Aboriginal cultural heritage likely to be impacted by the project.

7.1.2 Rationale of the test excavation program

The test excavation methodology is provided in **Appendix 3** and 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 known archaeological deposit at site 45-1-0215 continue into the project footprint?
- How do the recorded artefacts and other site characteristics compare to other archaeological excavations undertaken in the local area and the region, such as at Lidsdale 2?
- Are there intact stratigraphic deposits present that are of conservation value? Can intact deposits (if present) provide datable material or soil luminescence samples?
- Is there evidence providing insight into the tasks Aboriginal people were undertaking?

7.2 SAMPLING METHODOLOGY FOR THE TEST EXCAVATION PROGRAM

The excavation program was undertaken by archaeologists and representatives of RAPs in compliance with the requirements outlined in the Code of Practice. The complete sampling methodology is outlined in **Appendix 3**.

Three areas were to be tested however, as the design for the project was refined further, it was determined that there would be no ground disturbing impacts at site 45-1-0215 or WPS PAD 2 (see **Section 10**). Therefore, no excavation was undertaken at these locations.

Table 7-1: Test excavation and sampling strategy

Site name	Test excavation methodology	Landform description	0.5% of landform area	Rationale
Springvale Colliery (Site 45-1-0237)	Comprising two sections: west and east. As the Coxs River terrace landform surrounding the Springvale Colliery (Site 45-1-0215) PAD has been substantially altered, a 10 x 10 m grid was proposed for test excavation for both west and east sections, rather than parallel linear transects of TUs. Up to 36 TUs would be excavated at 10 m intervals within the PAD area.	Level valley floor landforms adjacent to the original alignment of the Coxs River (now modified).	Proposed excavation area was 9 m^2. Maximum excavation area (0.5%) would be 21.9 m^2	Testing of a previously identified PAD area within the project footprint.

7.3 THE ARTEFACT CATALOGUE

7.3.1 Analysis terminology

The abbreviations shown in **Table 7-2** have been used in the catalogue of the artefact assemblage from the test excavation program.

Table 7-2: Abbreviations used in the artefact catalogue

Artefact Analysis Abbreviations		
Artefact Type		
F	flake	An unmodified artefact that is broader than it is long
B	blade	An unmodified artefact that is longer than it is broad (normally twice as long as it is broad). Parallel dorsal ridges
FP	flaked piece	A flake that has subsequently had other flakes removed (i.e. the flake becomes a core). Easier to determine if removal is from the ventral surface of a flake
BF	backed flake	Displays intentional retouch, not just edge wear/chattering
BB	backed blade	Displays intentional retouch, not just edge wear/chattering
M	microlith	Small, backed tools of geometric form usually having a point or backed edge
ES	end scraper	Retouch to proximal **or** distal end only
SS	side scraper	Retouch to marginal edge, may include end/s as well
A	ground edge axe	A flake or cobble that displays evidence of being ground to form an edge
AB	ground edge axe blank	Normally a cobble that displays bifacial shaping to form an ovoid shape ready for edge grinding
C	core	Any core, including fragments
AH	anvil/hammerstone	Containing obvious crushing/pitting
O	other	Rarely recorded: artefacts such as adzes or eloueras. Glass artefacts are also recorded in this category
S	shatter	Shatter does not refer solely to heat shatter but also chips of raw material clearly the result of the knapping process
Raw Material		
MS	mudstone	
S	silcrete	
C	chert	
T	tuff	
B	basalt	
V	volcanics (other)	
PW	petrified wood	
QZ	quartzite	
Q	quartz	
O	other	
Integrity		
C	complete	
PF	proximal fragment	i.e. the distal is missing
DF	distal fragment	i.e. the proximal is missing
LB	longitudinal break	Broken down through the platform
MB	medial break	Broken across the angle of strike
Reduction		
1	Primary: greater than c. 50% cortex, dorsal surface entirely cortex	
2	Secondary: displaying cortex but either incomplete on dorsal surface or less than c. 50%	
3	Tertiary: no cortex	
Size		
Size range 1		0–10 mm
Size range 2		10–20 mm
Size range 3		20–30 mm

Artefact Analysis Abbreviations		
Artefact Type		
Size range 4	30–50 mm	
Size range 5	50–100 mm	
Size range 6	Over 100 mm	
Rotation		
P	Previous flakes have been removed in a parallel (direct or opposed) orientation to the flake	
R	Previous flakes have been removed in a non-parallel (direct or opposed) orientation to the flake	
N	Not discernible	
Platform type		
S	Simple	Platform commonly struck from a previous flake removal presenting as an unfaceted surface
P	Point	Denotes a single point of contact often as a result of in-direct percussion
C	Cortex	Platform displaying cortex on part of the platform
CR	Crushed	A platform that is crushed, often obscuring the original form of the platform
F	Flaked	A platform displaying faceting
Platform size		
1		Point
2		Very small: up to 3 mm
3		Small: up to 5 mm
4		Moderate: up to 10 mm
5		Large: over 10 mm
Termination		
F	Feather	Termination has a smooth distal without steps or steep angles
SH	Step/Hinge	Termination that has steps or ‘breaks’ at the distal: often associated with flakes removed from an almost exhausted core
P	Plunge	Flakes that have a marked curvature denoting a flake removed for core rejuvenation purposes
Cores		
U	unidirectional	Core with a single platform and flakes removed with the same orientation
B	bidirectional	Core with two platforms, often opposed platforms but also where flakes are removed in two orientations from a single platform
M	multidirectional	Multiple platforms
Core features		
B	bladelet core	Parallel ridge scars on the core
R	reduced/globular	Exhausted cores, normally small, globular, multidirectional cores but also reduced bladelet cores
O	‘opportunistic’	A core where two or three flakes have been removed in an opportunistic way to test a cobble. Majority of core is un-flaked
F	fragment	A broken or shattered core
Retouch		
proximal	Retouch is confined primarily to the proximal end (i.e. platform has been removed)	
distal	Retouch is confined primarily to the distal end (i.e. platform is intact)	
margin	Retouch is confined primarily to one or both margins	
steep	Retouch is closer to ninety degrees (i.e. vertical retouch)	
semi-steep	Retouch is closer to forty-five degrees (i.e. sloping retouch)	
fine	Very fine nibbling	
invasive	Retouching where retouch extends into the body of the artefact (regular retouch)	

Artefact Analysis Abbreviations	
Artefact Type	
unifacial	Retouch is on one side of an artefact only
bifacial	Retouch is on both ventral and dorsal surfaces

A discussion on why these attributes were analysed follows.

Artefact type

Description: Possible artefact types include flakes, blades, retouched flakes/blades, cores, scrapers, shatter/fragments and other (hammerstones, grindstones, ground-edge hatchets) 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 (e.g. core provisioning as opposed to flake provisioning), 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, raw materials expected to be present include silcrete, quartz, and chert.

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. Illustrations are provided in **Figure 7-1** to remove the ambiguity often associated with stone raw material identification. By far the most common stone utilised for artefact manufacture in the project footprint is quartz which comes in white tones often mixed with yellows and oranges. Quality of quartz is often discussed, a high-quality piece will be a milky, opaque white without inclusions and banding, in some cases crystal quartz is also present and is translucent or even transparent. Low quality quartz usually contains inclusions, impurities and cortex and lacks purity in its white hues.

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.

Figure 7-1: Examples of raw material types from the test excavation within the project footprint.

		
Chert	Glass	Mudstone
		
Quartz	Quartzite	Volcanic

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. Quantifying breakage allows a more accurate approximation of artefact numbers to be made.

Dimensions[1]

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. However, it may be the case that a few moderate to large flakes will be discarded at the site as they are exhausted through excessive/heavy retouch or simply thrown away prior to a reprovisioning event. In such a case, a histogram of artefact size should show bimodality regarding length (a small peak in the moderate range and a large peak in the small range).

Reduction

Description: This category refers to the level of reduction evident on an artefact, 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 of time. 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). The nature of cortex—its shape and texture—will vary depending on where the raw material was sourced. 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

[1] From experience OzArk does not routinely weigh artefacts as this information has been found to closely correlate either to artefact size or the raw material from which the flake has been struck. Thus, smaller artefacts are lighter than larger artefacts when made from the same material and artefacts made from denser stone (such as volcanics) are heavier than comparably sized artefacts from lighter (less-dense) stones such as mudstone. In practice, the category cataloguing the maximum size of the artefact is analogous with the artefact's weight.

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. Differences between the proportions of artefacts retaining cortex between different raw material indicates relative differences in distance to source. This does not necessarily mean distance in terms of measurable distance across the landscape; it may also reflect length of time since leaving the source. For example, the last campsite when a group is returning to the source of the raw material may be very close to the source in terms of distance, but distant in terms of time elapsed since the group left the source. If artefacts with cortex are occurring in sites a long distance from the place of origin of the natural cobble, then it is likely that cobbles were being transferred to the site when still only slightly reduced. This would imply an attempt to maximise the amount of stone being provisioned with the weight of transported material being a relatively minor concern.

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 footprint 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. This has advantages in terms of the amount of the flake edge that can be used for cutting and makes the flake more amenable to subsequent retouching or resharpening activities. Detaching flakes with feather terminations also has minimal impact on the effective platform angle of the core, and so platform angle thresholds are reached relatively slowly while feather terminating flakes continue to be produced.

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.

Plunging or *outrepasse* flakes have the opposite effect on core morphology to step and hinge flakes, in that they remove the entire core face and part of the core bottom. As a result, such flakes may be used to rejuvenate cores in which core angles have become high, but which still

retain useable potential (e.g. are still quite large). The presence of *outrepasse* flakes may be taken to indicate core rejuvenation and the requirement to increase core use-life.

7.3.2 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.

7.3.2.1 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).

7.3.2.2 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). It may be possible to refit or conjoin artefacts and analyse the evidence from those activities (White 1999).

On very heavily disturbed sites the artefacts themselves may be very broken, making it harder to analyse them.

7.3.2.3 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.

A few variables were noted to provide a basic description of each assemblage. 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.

7.4 TEST EXCAVATION SUMMARY AND RESULTS

Test excavation was completed over the areas of site 45-1-0237 that interacts with the project footprint over three days by OzArk Archaeologists Harrison Rochford (excavation director), Kelsey Bennett and Imogen Crome. Three site officers from the RAP group for the project were present on each of the days. A log of RAP site officers attending during the excavation program is provided in **Table 3-4**.

Across the project footprint, 18 test units (TUs) were excavated, their surface area totalling 9 m^2.

7.4.1 Description of excavation areas

7.4.1.1 Stratigraphy

The first TUs at each excavation area were excavated in 5 cm spits as per the Code of Practice before it was determined that intact stratigraphy was not present, and that the remaining TUs could be excavated in 10 cm spits. **Figure 7-2** shows the location of the test excavation in the context of the project footprint and the layout of the TUs. **Table 7-3** provides individual descriptions of the soil profile at each TU. The general soil sequence was a layer of brown and red loamy-topsoil (A Horizon) transitioning into a layer of red, leeched loam (B Horizon) and then looser, damp clay-loam with large gravel, shale and alluvial inclusions.

Figure 7-2: Location of the test excavation area in relation to the project footprint

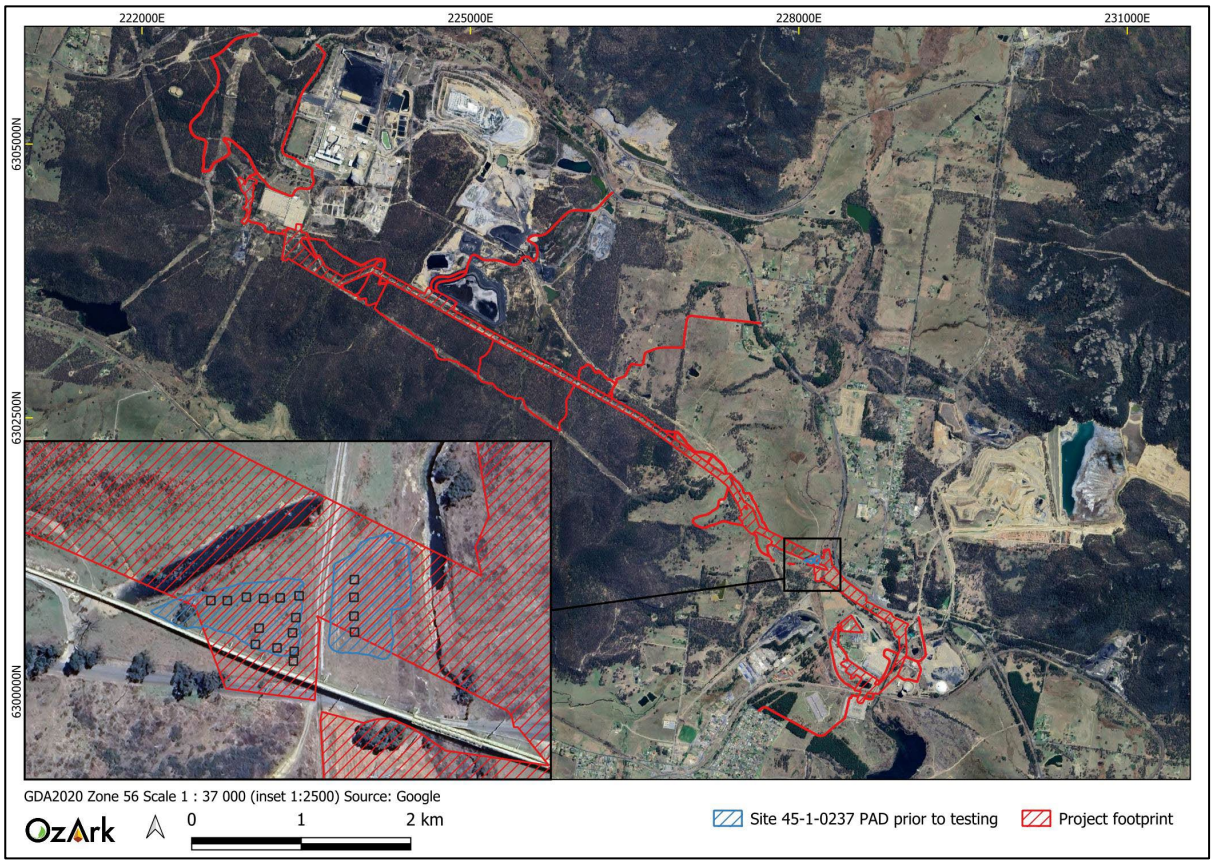


Figure 7-3: Transect and Test Unit locations at site 45-1-0237

Table 7-3: Test Units and soil profile descriptions.

Transect & Square	GDA2020 Zone 56 East	GDA2020 Zone 56 North	Description
Site 45-1-0237			
Transect 1 TU1	228081	6301202	Excavated in 5 cm spits. Layer A: 0–20 cm. Soft red loam, some gravel inclusions Layer B: 20–48 cm. Coarse, loose loam, many river cobble and shale inclusions. Layer C 48-80 cm (culturally sterile base): red clay base
Transect 1 TU2	228091	6301202	Excavated in 5 cm spits. Layer A: 0–30 cm. Dry, compact red clay loam with small gravel inclusions Layer B: 30-80+ cm. Softer clay loam with abundant cobble and angular shale inclusions. Some cobble quartz and coal.
Transect 1 TU3	228101	6301204	Excavated in 5 cm spits. Layer A: 0-34 cm. Dry, compact light brown-red loam with small gravel inclusions Layer B: 34-80+ cm. Loose, damp loam with common-many inclusions of small, angular gravels and river cobbles. Large shale, size increasing with depth.
Transect 1 TU4	228112	6301203	Excavated in 5 cm spits. Layer A: 0-36 cm. Light brown-red leeched loam with small gravel inclusions Layer B: 36-65 cm. Red clay loam with many inclusions of gravel and cobble. Layer C: 65-70+ cm. Orangey-red clay between large angular slate / shale inclusions.
Transect 1 TU5	228118	6301203	Excavated in 5 cm spits. Layer A: 0-19 cm. Red-brown leeched loam with some small gravel inclusions. Layer B: 29-75+ cm. Red clay loam with large angular shale, cobbles and pebble inclusions. Rock increases with depth.
Transect 1 TU6	228130	6301204	Excavated in 5 cm spits. Layer A: 0-26 cm. Dry, compact, red-brown leeched loam. Few gravel inclusions. Layer B: 60+ cm. Soft red clay loam, few small gravel inclusions.
Transect 2 TU6	228128	6301193	Excavated in 5 cm spits. Layer A: 0-18 cm. Dry, compact red-brown leeched loam. Layer B: 18-53 cm. red clay loam, soft, few inclusions. Layer C: 53-60+ cm. Rocky base layer, clay loam, many large inclusions
Transect 3 TU4	228108	6301187	Excavated in 5 cm spits. Layer A: 0-9 cm. Topsoil, common-few inclusions. Layer B: 9-58 cm. Soft sandy loam, few inclusions, Layer C: 58+ cm. Clay loam, common inclusions.
Transect 3 TU6	228127	6301184	Excavated in 5 cm spits. Layer A: 0-22 cm. Red-brown leeched loam, few inclusions Layer B: 22-52 cm. Red clay loam, soft with few inclusions Layer C: 52-63+ cm. Stony base layer, river cobbles and gravel with red clay loam
Transect 4 TU4	228106	6301177	Excavated in 5 cm spits. Layer A: 0-12 cm. Dark brown topsoil, few inclusions Layer B: 80 cm. Red sandy loam, soft with few inclusions Layer C: 84+ cm. Top of alluvial gravel layer, clay loam

Transect & Square	GDA2020 Zone 56 East	GDA2020 Zone 56 North	Description
Transect 4 TU5	228117	6301176	Excavated in 5 cm spits. Layer A: 0-13 cm. Dark brown loamy topsoil, few inclusions. Layer B: 13-70+ cm. Red sandy loam, soft with few inclusions
Transect 4 TU6	228127	6301174	Excavated in 5 cm spits. Layer A: 0-11 cm. Brown-red loamy topsoil Layer B: 11-78 cm. Red loam, high sand and clay content. Loose and damp, few inclusions - increasing with depth. Layer C: 78-84 cm. Red clay loam, higher clay content with cobble and gravel inclusions, increasing to top of alluvial stone layer.
Transect 5 TU6	228127	6301169	Excavated in 5 cm spits. Layer A: 0-23 cm. Brown loamy topsoil with few inclusions, gradual transition to B. Layer B: 23-80 cm. Red sandy loam with a few inclusions and some charcoal flecks Layer C: 84+ cm. Top of alluvial gravel and stone cobble layer
Transect A TU1	228160	6301214	Excavated in 5 cm spits. Layer A: 0-8 cm. Dark brown loamy topsoil, common small gravel inclusions. Layer B: 8-47+ cm. Red clay loam, common-many inclusions, blocky and angular.
Transect A TU2	228160	6301205	Excavated in 5 cm spits. Layer A: 0-8 cm. Dark brown loamy topsoil, common gravel inclusions Layer B: 8-36 cm. Red, soft clay loam with many inclusions Layer C: 40+ cm. Larger and higher clay content and stone cobbles.
Transect A TU3	228158	6301193	Excavated in 5 cm spits. Layer A: 0-10 cm. Brown-red topsoil, loamy Layer B: 10-55 cm. Red clay loam, compact but soft with fewer inclusions Layer C: 55-70 cm. Red, soft clay loam with clay increasing.
Transect A TU4	228160	6301184	Excavated in 5 cm spits. Layer A: 0-12 cm. Dark brown loamy topsoil Layer B: 12-40+ cm. Red clay loam, few inclusions

Figure 7-4. Example images of Test Unit stratigraphy.

	
Site 45-1-0237 Transect 1 TU1. View of south section.	Site 45-1-0237 Transect 1 TU1. Aerial view of TU.
	
Site 45-1-0237 Transect 1 TU2. View of south section.	Site 45-1-0237 Transect 1 TU2. Aerial view of TU.
	
Site 45-1-0237 Transect 1 TU3. View of north section.	Site 45-1-0237 Transect 1 TU2. Aerial view of TU.

	
Site 45-1-0237 Transect 1 TU4. View of north section.	Site 45-1-0237 Transect 1 TU4. Aerial view of TU.
	
Site 45-1-0237 Transect 1 TU5. View of west section.	Site 45-1-0237 Transect 1 TU5. Aerial view of TU.
	
Site 45-1-0237 Transect 1 TU6. View of south section.	Site 45-1-0237 Transect 1 TU6. Aerial view of TU.

	
Site 45-1-0237 Transect 2 TU6. View of south section.	Site 45-1-0237 Transect 2 TU6. Aerial view of TU.
	
Site 45-1-0237 Transect A TU1. View of west section.	Site 45-1-0237 Transect A TU1. Aerial view of TU.
	
Site 45-1-0237 Transect A TU2. View of north section.	Site 45-1-0237 Transect A TU2. Aerial view of TU.

	
Site 45-1-0237 Transect A TU3. View of east section.	Site 45-1-0237 Transect A TU3. Aerial view of TU.
	
Site 45-1-0237 Transect A TU4. View of west section.	Site 45-1-0237 OS5 Transect A TU4. Aerial view of TU.
	
Site 45-1-0237 Transect 4 TU6. View of south section.	Site 45-1-0237 Transect 4 TU6. Aerial view of TU.

	
Site 45-1-0237 Transect 4 TU5. View of east section.	Site 45-1-0237 Transect 4 TU5. Aerial view of TU.
	
Site 45-1-0237 Transect 4 TU4. View of south section.	Site 45-1-0237 Transect 4 TU4. Aerial view of TU.

7.4.1.2 Artefact distribution

139 artefacts were recorded during the test excavation program. A full tabulation of these artefacts is presented at the end of the results section in **Table 7-7**.

No artefacts were identified at a greater depth than spit 8 (60-70 cm) across the excavation area. Most artefacts were recorded in spit 1 (0-10 cm), n=62 (44.60%). Artefact quantities generally decreased with depth, with a sharper decline at depths greater than spit 3 (20-30 cm). The artefact count per spit is shown on **Table 7-4**.

Transect 3 had the most artefacts of all transects across the excavation areas, at a count of 65 (46.75%), the full count of artefacts per transect can be found in **Table 7-5**. Transect 3 TU 4 had the most artefacts of all squares across the excavation area, at a count of 59 (52.45%), the full count of artefacts per square can be found in **Table 7-6**.

Table 7-4: Artefact count per 10 cm spit.

Spit	Artefact Count
1	62
2	40
3	23
4	8
5	3
6	2
7	1
8	0
9	0
10	0
11	0

Table 7-5: Artefact count per transect.

Transect	Artefact Count
3	65
4	39
1	13
A	12
2	5
5	5

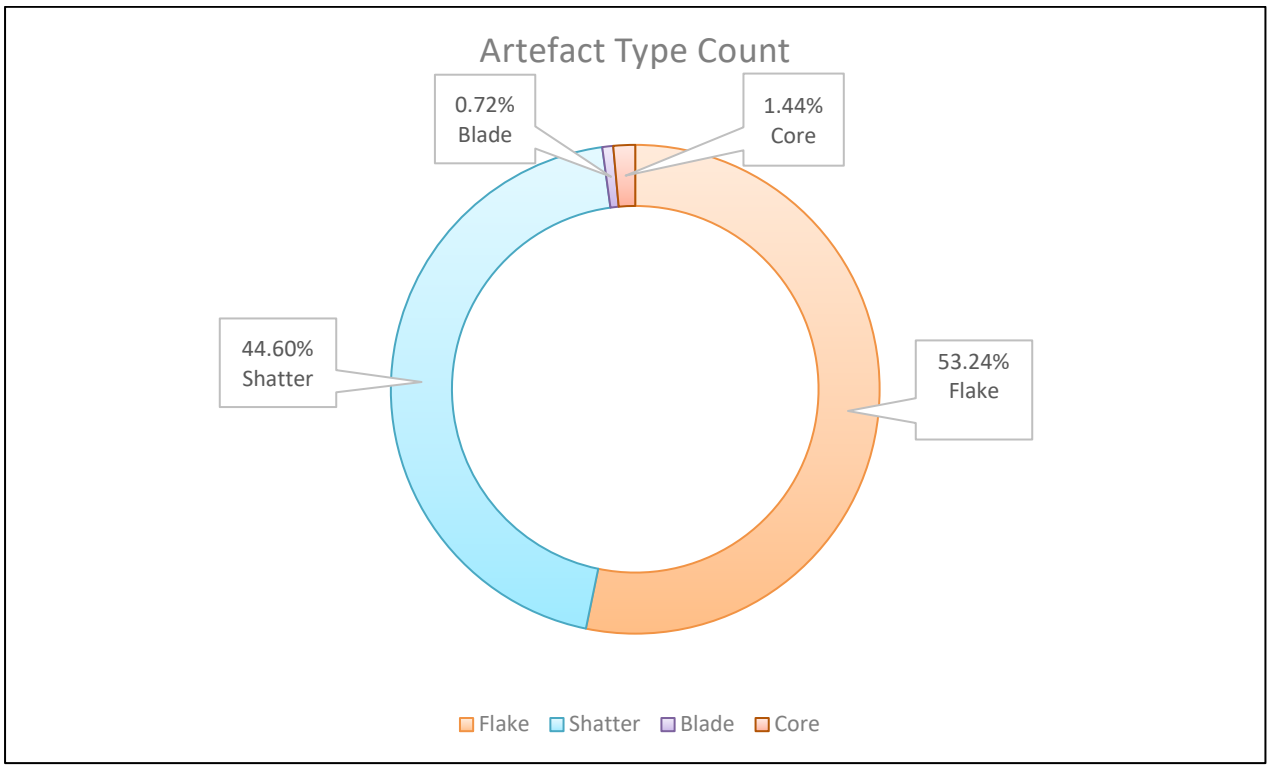
Table 7-6: Artefact count per TU.

TU	Artefact Count
Transect 3 TU 4	59
Transect 4 TU 6	20
Transect 4 TU 4	13
Transect 1 TU 5	7
Transect 1 TU 6	6
Transect 4 TU 5	6
Transect A TU 2	6
Transect 2 TU 6	5
Transect 5 TU 6	5
Transect 3 TU 1	4
Transect A Square 1	4
Transect 3 Square 6	2
Transect A Square 3	1
Transect A Square 4	1

7.4.1.3 *Artefact types*

Most artefacts recorded during the test excavation were unmodified flakes (n=74, 53.24%), followed by shatter (n=62, 44.60%). There were also two cores (1.44%) and one blade (0.72%) recorded. A chart representing the proportion of each artefact type is displayed in **Figure 7-5**.

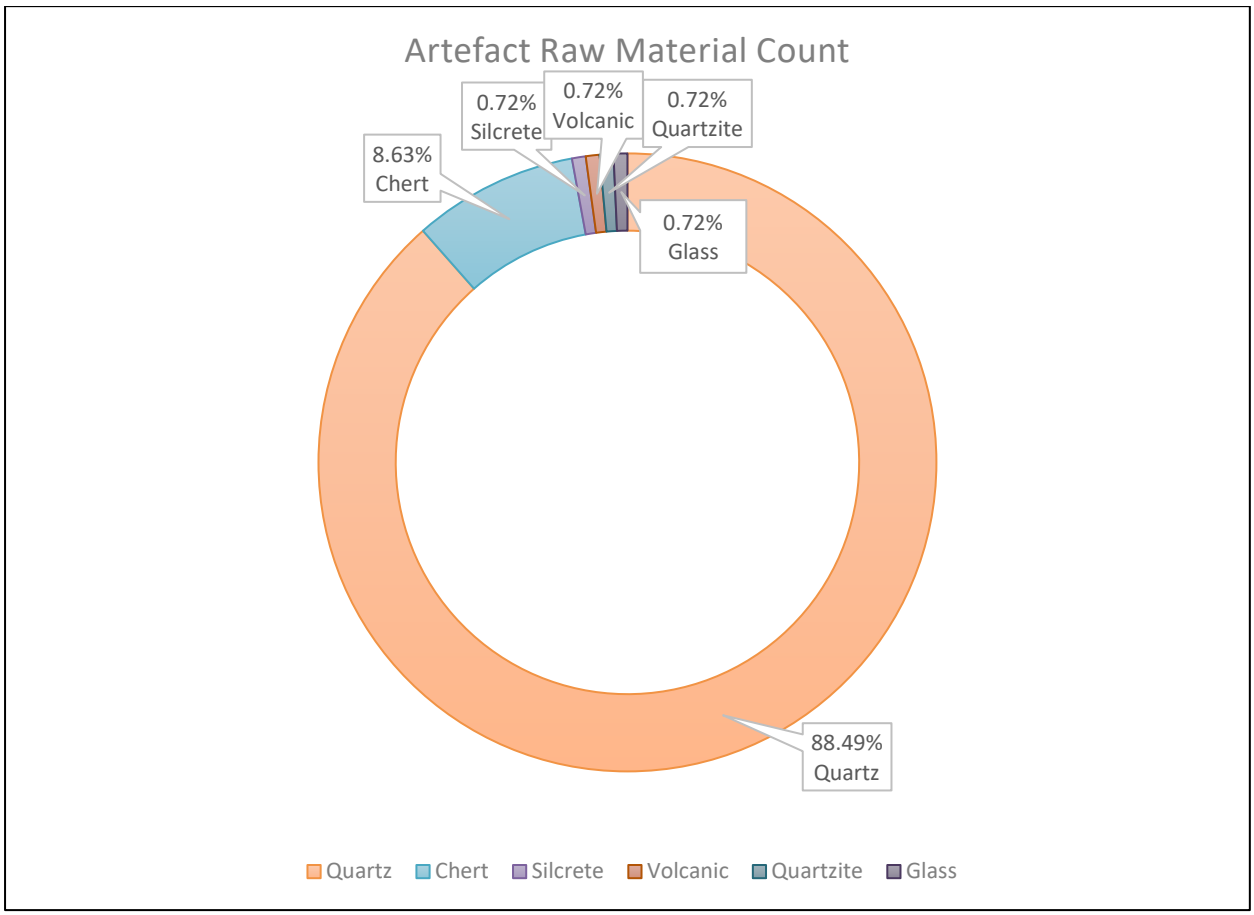
Figure 7-5: Chart displaying a count of artefact types.



7.4.1.4 *Raw materials*

The majority of artefacts from the test excavation assemblage were made of quartz (123, 88.49%). 12 artefacts were made of chert (8.63%) and there was one recorded artefact of silcrete, glass, quartzite and volcanic material (0.72% respectively). **Figure 7-6** shows a chart with the proportion of each raw material.

Figure 7-6: Chart displaying a count of raw materials.



7.4.1.5 Artefact size, integrity and reduction

All artefacts were assigned a size class based on their size in length:

- Size Class One = 0-2 cm
- Size Class Two = 2-4 cm
- Size Class Three = 4-6 cm
- Size Class Four = 6-8 cm
- Size Class Five = 8-10 cm
- Size Class Six = 10 cm +

Figure 7-7 displays the artefact sizes in relation to one another. The most frequent artefact was size class two, at a count of 69 (49.64%), meaning most artefacts can be considered small. There were some larger artefacts, with seven in size class four (5.04%) and three artefacts in size class five (2.16%), all size class frequencies are shown in **Figure 7-7**.

In terms of integrity (**Figure 7-8**), 46 of the 74 flakes, were complete and 28 broken, meaning there was a moderate rate of artefact breakage across the excavation area. The generally small size and high proportion of artefacts at the tertiary stage of reduction (117, 84.17%) suggests that

the artefacts being manufactured at the site were from small and well-worked cores. The proportion of reduced artefacts is shown on **Figure 7-9**.

Figure 7-7: Chart displaying a count of artefact sizes

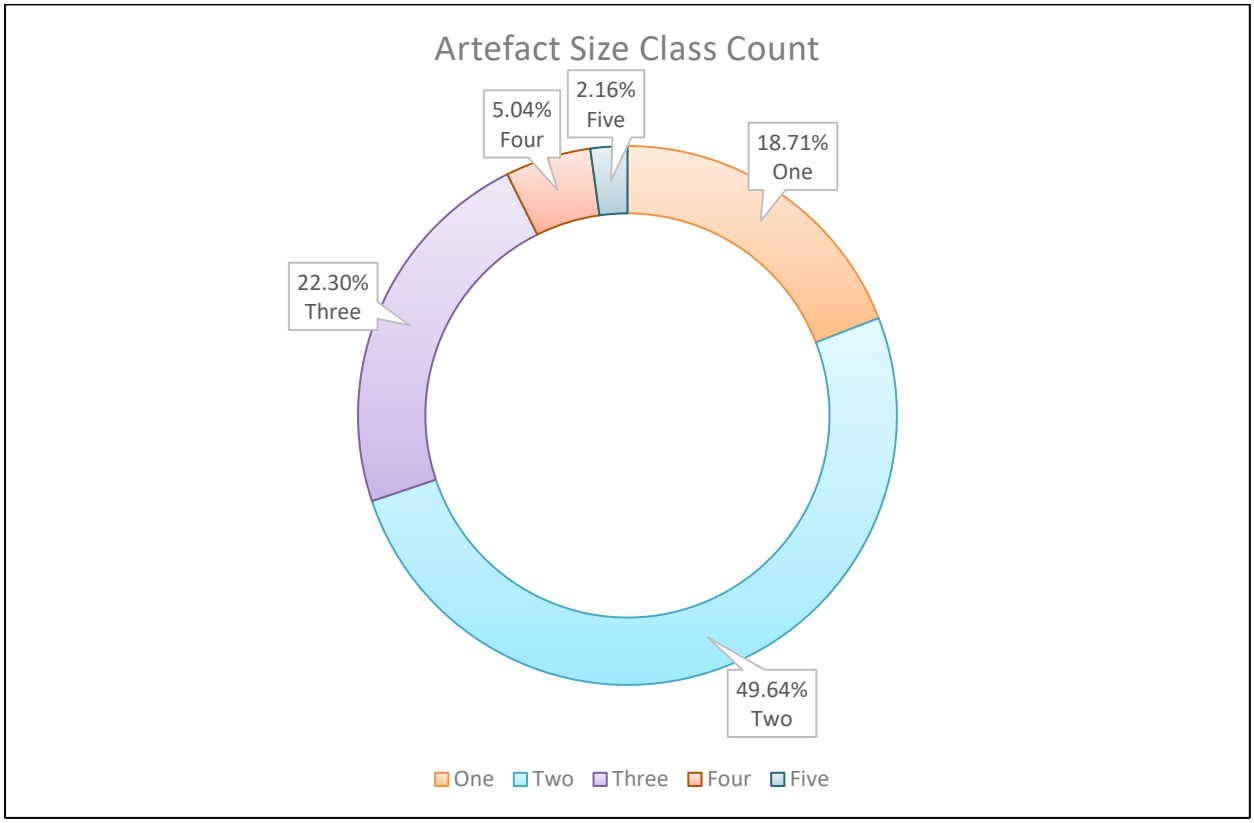


Figure 7-8: Chart displaying the artefact integrity count.

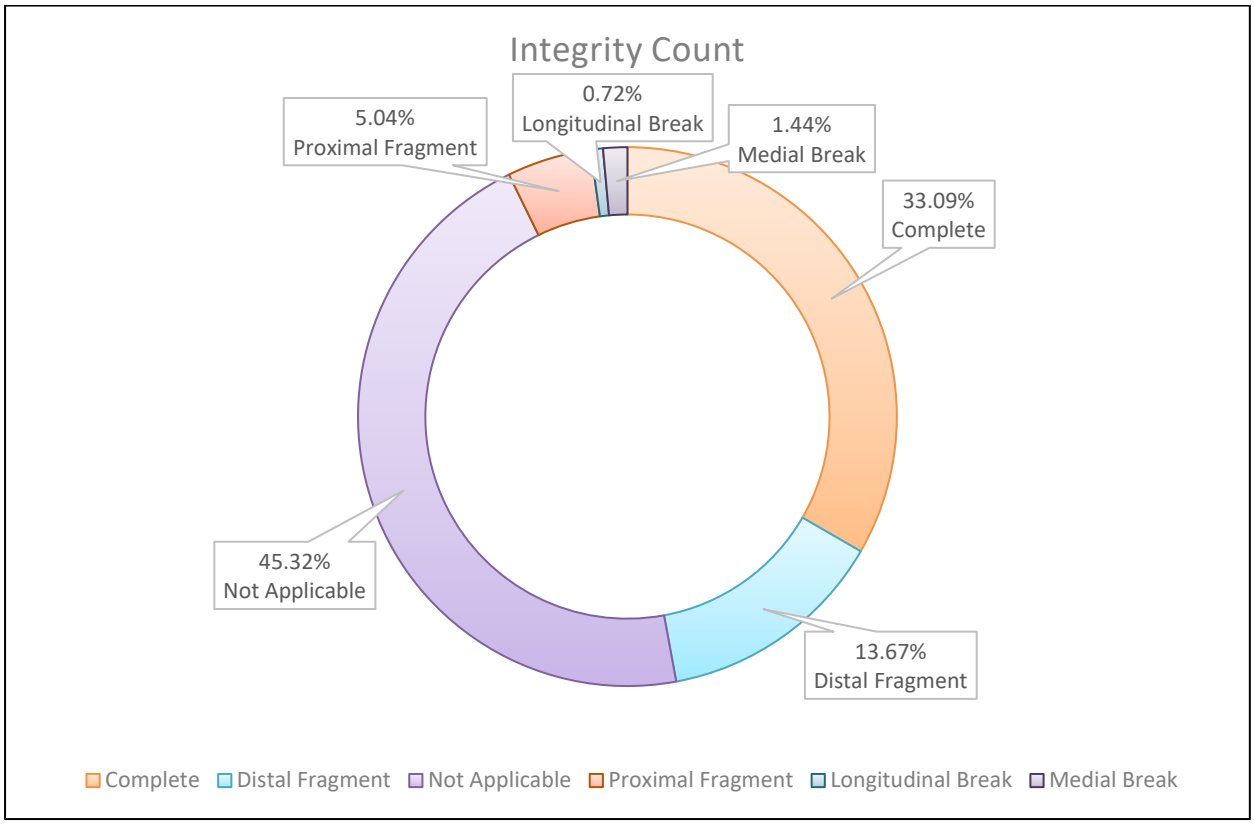
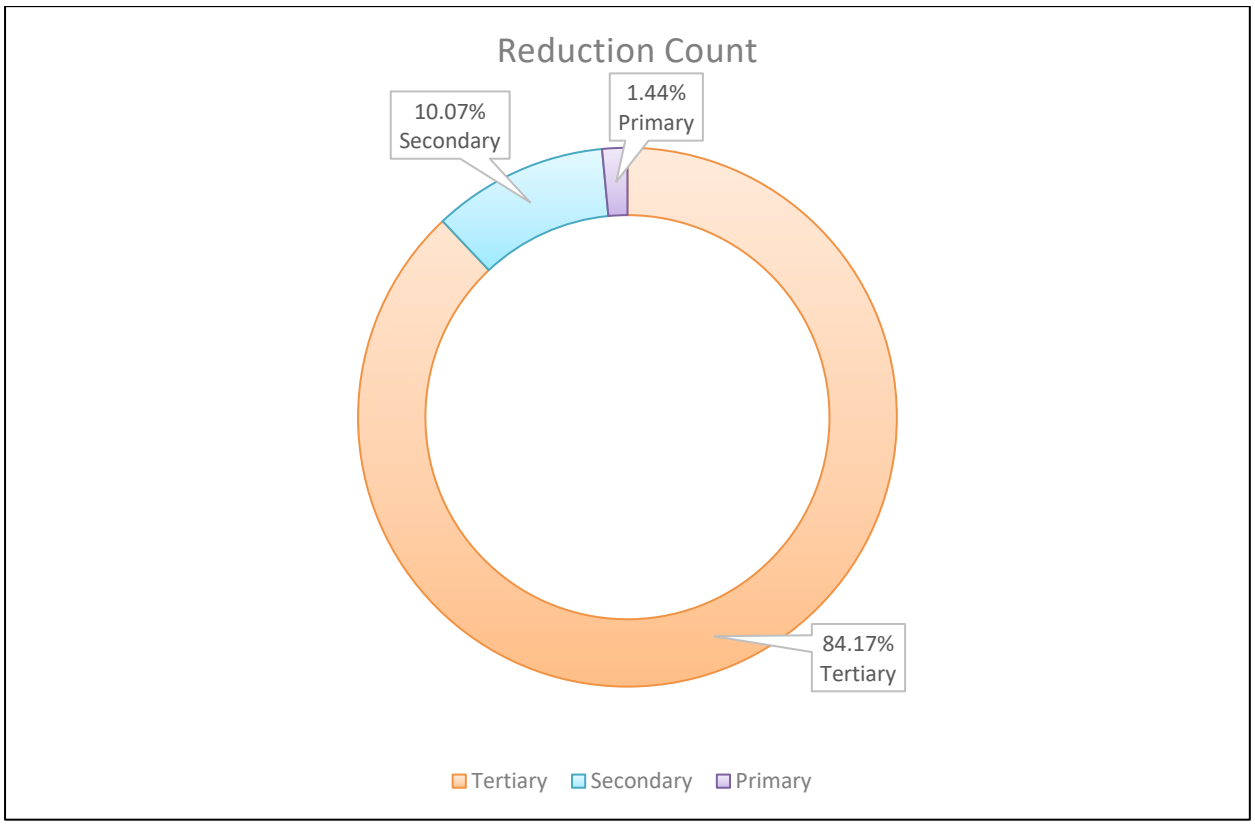


Figure 7-9: Chart displaying artefact reduction count



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7.4.1.6 Artefact catalogue

Table 7-7 presents the artefact catalogue, organised by transect. **Table 7-8** shows the artefact attributes of the recorded cores. Please refer to **Table 7-2** for the abbreviations used in the artefact catalogue.

Table 7-7: Artefact catalogue.

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Size class	Reduction	Platform type	Platform size	Termination type	Artefact no.	Notes
Site 45-1-0237													
1	5	1	1	F	Q	C	1	T	ND	S	2	F	
1	5	1	2	F	Q	D	2	T	ND	NA	NA	F	Broken longitudinally
1	5	1	3	F	Q	D	3	T	ND	NA	NA	F	
1	5	1	4	S	Q	NA	2	T	NA	NA	NA	NA	
1	5	1	5	S	Q	NA	2	T	NA	NA	NA	NA	
1	5	1	6	S	Q	NA	2	T	NA	NA	NA	NA	
1	5	1	7	S	Q	NA	2	T	NA	NA	NA	NA	
1	6	2	8	B	C	C	3	T	P	S	2	AXIAL	
1	6	2	9	F	C	D	2	T	ND	NA	NA	F	
1	6	2	10	S	C	NA	2	T	NA	NA	NA	NA	
1	6	2	11	S	C	NA	3	T	NA	NA	NA	NA	
1	6	2	12	S	C	NA	3	T	NA	NA	NA	NA	
1	6	2	13	S	C	NA	3	T	NA	NA	NA	NA	
2	6	2	14	F	Q	C	5	T	ND	S	4	F	
2	6	3	15	F	Q	P	2	T	ND	S	2	NA	
2	6	3	16	F	Q	P	3	T	ND	S	2	NA	
2	6	3	17	F	Q	C	3	T	P	S	3	F	
2	6	3	18	S	Q	NA	2	T	NA	NA	NA	NA	
3	1	1	19	F	Q	D	2	T	P	NA	NA	F	

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Size class	Reduction	Platform type	Platform size	Termination type	Artefact no.	Notes
3	1	2	20	F	Q	C	2	S	ND	p	1	F	
3	1	2	21	F	Q	D	2	T	ND	NA	NA	F	
3	1	2	22	S	Q	NA	4	S	NA	NA	NA	NA	
3	4	1	23	F	Q	D	1	T	ND	NA	NA	F	
3	4	1	24	F	Q	C	1	T	ND	p	1	F	
3	4	1	25	F	Q	D	2	T	ND	NA	NA	F	
3	4	1	26	F	Q	D	2	T	ND	NA	NA	F	
3	4	1	27	F	Q	D	2	T	ND	NA	NA	F	
3	4	1	28	F	Q	C	2	T	ND	p	1	F	
3	4	1	29	F	Q	C	2	T	p	S	3	F	
3	4	1	30	F	Q	C	3	S	ND	S	2	F	
3	4	1	31	F	Q	C	D	T	ND	NA	NA	F	
3	4	1	32	F	S	C	3	S	r	cr	4	F	
3	4	1	33	S	Q	NA	1	S	NA	NA	NA	NA	
3	4	1	34	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	1	35	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	1	36	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	1	37	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	1	38	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	39	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	40	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	41	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	42	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	43	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	44	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	45	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	46	S	Q	NA	2	T	NA	NA	NA	NA	

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Size class	Reduction	Platform type	Platform size	Terminatio n type	Artefact no.	Notes
3	4	1	47	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	48	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	49	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	50	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	1	51	S	Q	NA	2	T	ND	NA	NA	NA	
3	4	1	52	S	Q	NA	3	S	NA	NA	NA	NA	
3	4	2	53	F	Q	C	1	T	ND	S	2	F	
3	4	2	54	F	Q	P	2	T	P	S	3	NA	
3	4	2	55	F	Q	C	3	S	P	F	3	F	
3	4	2	56	C	Q								
3	4	2	57	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	2	58	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	2	59	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	2	60	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	2	61	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	2	62	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	2	63	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	2	64	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	3	65	F	Q	D	1	T	ND	NA	NA	F	
3	4	3	66	F	Q	C	3	T	P	S	2	F	
3	4	3	67	F	Q	C	3	T	P	S	3	F	
3	4	3	68	F	Q	C	3	T	P	S	3	F	Broken medially
3	4	3	69	F	Q	C	3	T	ND	S	4	SH	
3	4	3	70	F	Q	LB	4	T	P	S	4	F	
3	4	3	71	F	V	C	5	T	R	S	5	F	Basalt?
3	4	3	72	S	Q	NA	1	T	NA	NA	NA	NA	

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Size class	Reduction	Platform type	Platform size	Terminatio n type	Artefact no.	Notes
3	4	3	73	S	Q	NA	1	T	NA	NA	NA	NA	
3	4	3	74	S	Q	NA	3	T	NA	NA	NA	NA	
3	4	4	75	F	Q	D	1	T	ND	NA	NA	F	
3	4	4	76	F	Q	D	2	T	ND	NA	NA	F	
3	4	4	77	F	Q	D	2	T	ND	NA	NA	F	
3	4	4	78	F	Q	M	2	T	ND	NA	NA	NA	
3	4	4	79	F	Q	C	2	T	ND	S	2	F	
3	4	4	80	S	Q	NA	2	T	NA	NA	NA	NA	
3	4	4	81	S	Q	NA	3	T	NA	NA	NA	NA	
3	6	3	82	F	Q	C	1	T	ND	P	1	F	
3	6	3	83	F	QZ	C	3	T	ND	S	2	F	
4	4	1	84	F	Q	T	3	T	ND	P	1	F	
4	4	1	85	S	Q	NA	1	T	NA	NA	NA	NA	
4	4	1	86	S	Q	NA	3	T	NA	NA	NA	NA	
4	4	2	87	F	Q	D	3	T	p	NA	NA	F	
4	4	2	88	S	Q	NA	3	T	NA	NA	NA	NA	
4	4	3	89	C	Q								
4	4	3	90	F	Q	C	2	S	P	S	3	F	
4	4	3	91	F	Q	C	2	T	ND	1	1	F	
4	4	3	92	F	Q	P	3	T	ND	S	3	NA	
4	4	3	93	S	Q	NA	2	S	NA	NA	NA	NA	
4	4	3	94	S	Q	NA	2	T	NA	NA	NA	NA	
4	4	3	95	S	Q	NA	2	T	NA	NA	NA	NA	
4	4	4	96	S	Q	NA	2	T	NA	NA	NA	NA	
4	5	1	97	F	C	C	2	T	P	S	2	F	
4	5	1	98	F	Q	C	2	T	P	3	3	F	
4	5	1	99	S	Q	NA	2	T	NA	NA	NA	NA	

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Size class	Reduction	Platform type	Platform size	Termination type	Artefact no.	Notes
4	5	2	100	F	C	D	2	T	ND	NA	NA	F	
4	5	2	101	S	Q	NA	1	T	NA	NA	NA	NA	
4	5	2	102	S	Q	NA	3	T	NA	NA	NA	NA	
4	6	1	103	F	GLASS	C	2	S	ND	ND	ND	F	
4	6	1	104	F	Q	C	1	T	R	S	2	F	
4	6	1	105	F	Q	P	1	T	ND	S	2	NA	
4	6	1	106	F	Q	D	3	T	P	NA	NA	F	
4	6	1	107	F	Q	C	3	T	P	P	3	F	
4	6	1	108	F	Q	C	3	T	ND	S	2	F	
4	6	1	109	F	Q	C	5	S	ND	S	3	F	
4	6	1	110	S	Q	NA	2	T	NA	NA	NA	NA	
4	6	1	111	S	Q	NA	4	T	NA	NA	NA	NA	
4	6	2	112	F	Q	C	1	T	ND	P	1	F	
4	6	2	113	F	Q	C	1	T	P	S	2	F	
4	6	2	114	F	Q	C	2	S	R	S	2	F	
4	6	2	115	F	Q	C	2	T	ND	S	2	F	
4	6	2	116	F	Q	C	2	T	P	S	3	F	
4	6	2	117	F	Q	D	3	T	ND	ND	ND	F	Broken longitudinally
4	6	2	118	S	Q	NA	2	T	NA	NA	NA	NA	
4	6	5	119	F	Q	C	2	P	NS	S	2	F	
4	6	5	120	S	Q	NA	2	T	NA	NA	NA	NA	
4	6	6	121	F	Q	P	2	T	P	CR	2	NA	
4	6	7	122	F	Q	M	2	T	ND	NA	NA	NA	
5	6	1	123	F	Q	C	2	T	P	S	3	F	
5	6	1	124	F	Q	C	3	S	P	S	2	F	
5	6	1	125	S	Q	NA	2	P	NA	NA	NA	NA	

Transect	Square	Spit	Artefact ID	Artefact type	Material	Integrity	Size class	Reduction	Platform type	Platform size	Terminatio n type	Artefact no.	Notes
5	6	5	126	F	Q	C	2	T	p	cr	2	F	
5	6	6	127	F	Q	C	1	T	ND	P	1	F	
A	1	1	128	F	Q	C	2	S	P	S	2	F	
A	1	1	129	F	Q	P	2	T	R	P	1	NA	
A	1	1	130	S	C	NA	3	T	NA	NA	NA	NA	
A	1	2	131	F	Q	C	4	T	P	S	5	F	
A	2	1	132	F	Q	C	2	T	ND	NA	NA	F	
A	2	1	133	F	Q	C	3	T	R	P	2	F	
A	2	1	134	S	Q	NA	2	T	NA	NA	NA	NA	
A	2	2	135	F	C	D	2	T	ND	NA	NA	NA	
A	2	2	136	S	C	NA	4	T	NA	NA	NA	NA	
A	2	2	137	S	C	NA	4	T	NA	NA	NA	NA	
A	3	2	138	F	Q	C	4	T	P	S	4	F	
A	4	2	139	F	Q	D	2	T	ND	NA	NA	F	

Table 7-8: Recorded core attributes catalogue.

Recorded TU	Type	Material	Maximum size (mm)	Direction	# Flake scars	% Cortex	Core Features	Notes
Transect 3 TU 4 Spit 2	Core	Quartz	41	Multidirectional	4	35	R	Quartz pebble
Transect 4 TU 3	Core	Quartz	18	Unidirectional	6	0	R	Exhausted

Figure 7-10: Sample images of artefact assemblage

	
Transect A Square 1 Spit 2	Transect A Square 2 Spit 1
	
Transect A Square 2 Spit 2	Transect 1 Square 6 Spit 1
	
Transect 1 Square 6 Spit 2	Transect 3 Square 3 Spit 3

	
Transect 3 Square 4 Spit 1	Transect 3 Square 4 Spit 3
	
Transect 4 Square 4 Spit 3	Transect 4 Square 4 Spit 2

7.5 DISCUSSION OF THE TEST EXCAVATION PROGRAM

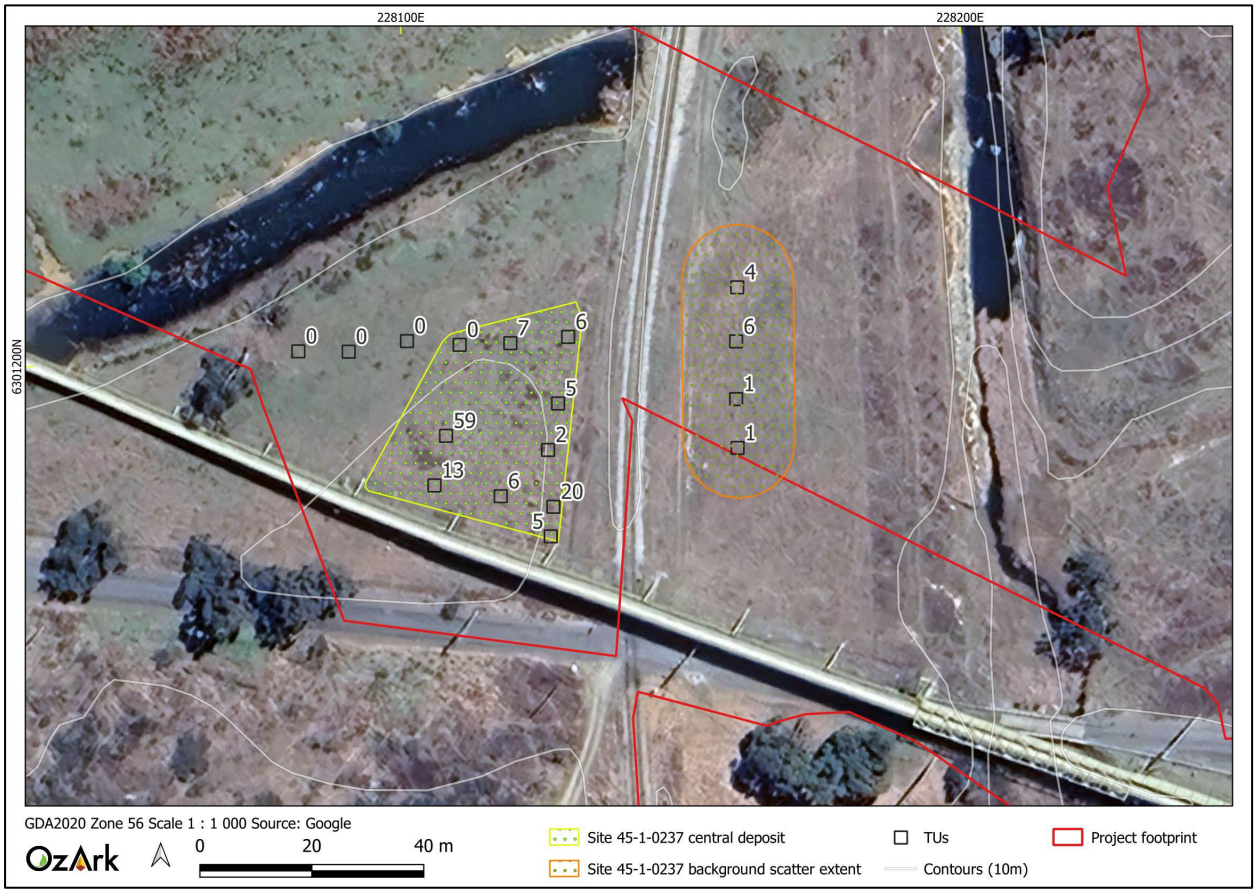
7.5.1 Test excavation summary

The test excavation program confirmed the presence of a subsurface archaeological deposit across the excavation area associated with site 45-1-0237. There is a moderate-high density of artefacts at Transect 3 TU 4 and a low-moderate density across the rest of the excavation area (**Figure 7-11**). The areas of low density within areas of higher disturbance (Transect A) on the eastern side of the Main Western Railway have been excluded from the central deposit extent shown on **Figure 7-11** and defined as a background scatter associated with the site.

Within Transect 3 TU 4, most artefacts (30) were recorded in Spit 1 (0-10cm), with a lower density of artefacts disturbed through the soil profile at depth. This characteristic, along with the high

proportion of angular shatter (2:1 shatter to flakes) within Spit 1 is consistent with a knapping event, which is further supported by the presence of a quartz core in Spit 2.

Figure 7-11: Artefact count per TU at site 45-1-0237



7.5.2 Research questions

In **Section 7.1.2**, several research questions were posed for the test excavation program. These have been answered below.

- Does the known archaeological deposit at site 45-1-0237 continue into the project footprint?
    - Yes, the excavations confirmed that the artefact deposit of site 45-1-0237 does extend into the project footprint.
    - The artefact deposit has moderate to high concentrations in places but appears to have a relatively confined extent. The deposit is shallower and less dense on the eastern side of the Main Western Rail Line.
- How do the recorded artefacts and other site characteristics compare to other archaeological excavations undertaken in the local area and the region, such as at Lidsdale 2 (45-1-2574)?
    - Although one likely knapping event was identified, the density and complexity of site 45-1-0237 is lower than that recorded during past excavations at Lidsdale 2 (site 45-1-2574, OzArk 2004).

  - The excavation results within the project footprint conform to the expected patterning of sites within the Coxs River valley. Proximity to the watercourse at site 45-1-0237 would have attracted use and that is reflected in the deposit. However, the results of OzArk (2003 and 2004) suggested that elevation above the valley floor was a desirable habitation feature associated with Lidsdale 2 (site 45-1-2574), which appears to be a much more complex site that exhibits repeated occupation.

  - Quartz was the predominant material found in the excavation area, which matches the pattern of the local area. However, the absence of tuff, which was well represented in the deposit at Lidsdale 2 (site 45-1-2574) and the sites at Lyell Dam, is notable. This possibly supports a more one-off or activity-based type of site rather than one of repeated / long-term occupation.

- Are there intact stratigraphic deposits present that are of conservation value? Can intact deposits (if present) provide datable material or soil luminescence samples?

- The deposit does not have clear signs of post-deposition disturbance and is considered to be relatively intact. That being said, there is a significant amount of disturbance from agricultural clearing, and the construction of the nearby Western Main Railway, the realigning of the Coxs River and the construction of the Springvale Coal Conveyor. The concentration of the deposit in Spits 1 and 2 (**Table 7-4**) and very low density of artefacts at a greater depth than Spit 4 strongly suggest that the multiple phases of occupation that were evident at Lidsdale 2 (site 45-1-2574) are not present at site 45-1-0237.

  - No dateable carboniferous samples, such as charcoal, were identified in the deposit and soil luminescence dating of the shallow deposit, which has suffered some disturbance, is unlikely to provide a reliable date.

  - A knapped glass artefact was recorded in Transect 3 TU 4 at a depth of 20-30 cm. This may indicate that this level of the deposit can be dated to the post-contact period, although disturbance and bioturbation can result in the movement of artefacts, especially small artefacts, vertically through the soil profile.

- Is there evidence providing insight into the tasks Aboriginal people were undertaking?

  - The manufacture of stone tools is evident through the recovery of a considerable number of quartz flakes and shatter. The data from Spits 1 and 2 in Transect 3 TU 4 is consistent with a knapping event, which is a feature associated with stone tool manufacture. Manufacture of tools may occur as one-off activity sites, or in areas of repeated or longer-term occupation.

7.5.3 Research considerations

Section 7.3.2 presented some research considerations to be applied to any excavation. Some concluding remarks will be made in the following sections regarding these.

7.5.3.1 Sample size

The retrieved artefact assemblage comprises a moderate sample size of 139 artefacts. While this is a relatively small sample, it is sufficient to allow for most of the research questions above to be meaningfully answered. The assemblage provides a clear indication that one location within the project footprint was an activity locale with an artefact density that suggests an intensive one-off activity (knapping event), and possibly further activities over time/space.

7.5.3.2 Condition

The moderate rate of artefact breakage (37%, n=28) within the assemblage may be an indicator that the site has undergone disturbance. However, there is at least partial site integrity in that a knapping event was preserved in Spits 1 and 2 in Transect 3 TU 4. This indicates variable site preservation with areas of higher integrity and areas of potentially higher post-deposition disturbance.

8 SIGNIFICANCE ASSESSMENT

8.1 INTRODUCTION TO SIGNIFICANCE ASSESSMENT

8.1.1 Identifying cultural significance

The concept of cultural significance is used in Australian heritage practice and legislation to encompass all the cultural values and meanings that might be recognised in a place. The Burra Charter's definition of cultural significance is broad and encompasses places that are significant to Indigenous cultures.

The Burra Charter definition of 'place' is also broad and encompasses Indigenous places of cultural significance. 'Place' includes locations that embody spiritual value (such as Dreaming places, sacred landscapes, and stone arrangements), social and historical value (such as massacre sites), as well as scientific value (such as archaeological sites). In fact, one place may be all these things or may embody all these values at the same time.

In some cases, the find-spot of a single artefact may constitute a 'place'. Equally, a suite of related locations may together comprise a single 'place', such as the many individual elements that make up a Songline. These more complex places are sometimes called a cultural landscape or cultural route.

The Guide notes that cultural significance is comprised of an assessment of social values, scientific values, aesthetic values, and historic values. These values are described below.

8.1.1.1 Social or cultural value

Social or cultural value refers to the spiritual, traditional, historical, or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them (Articles 1.1, 1.2, 1.12, 5, and 8–11: Burra Charter).

Places of social or cultural value have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods, or events. Communities can experience a sense of loss should a place of social or cultural value be damaged or destroyed.

There is not always consensus about a place's social or cultural value. Because people experience places and events differently, expressions of social or cultural value do vary and, in some instances, will be in direct conflict. When identifying values, it is not necessary to agree with or acknowledge the validity of each other's values, but it is necessary to document the range of values identified.

Social or cultural value can only be identified through consultation with Aboriginal people. This could involve a range of methodologies, such as cultural mapping, oral histories, archival documentation, and specific information provided by Aboriginal people specifically for the investigation.

Cultural value 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.

8.1.1.2 Scientific (archaeological) value

This refers to the importance of a landscape, area, place or object because of its rarity, representativeness, and the extent to which it may contribute to further understanding and information (Articles 1.2, 5, and 8: Burra Charter).

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?

Information about scientific values will be gathered through any archaeological investigation undertaken.

Often scientific values are informed by social values that allow a contemporary understanding of the archaeological data to be understood.

8.1.1.3 Aesthetic value

This refers to the sensory, scenic, architectural, and creative aspects of the place (Articles 1.12 and 8: Burra Charter). 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.

8.1.1.4 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 (Articles 1.12–1.16: Burra Charter).

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.

8.2 ASSESSED SIGNIFICANCE OF THE RECORDED SITES

Table 8-1 presents a summary of the significance assessment of Aboriginal cultural heritage sites recorded during this assessment. Further details of each of the assessment criteria are provided below.

Social or Cultural Value

Aboriginal people are the sole determinants of the social and cultural significance of Aboriginal sites and objects. Aspects of social value include assessment of sites, items, and landscapes that are traditionally significant or that have contemporary importance to the Aboriginal community.

The consultation undertaken for the project to date has indicated that all Aboriginal sites identified by the assessment have high cultural value.

Archaeological/Scientific Value

Site 45-1-0237 is a low-moderate density artefact deposit in fair, if variable, condition. The assemblage has limited research potential but does provide further data to support an established model of site distribution in the local area. The site has been assigned low-moderate archaeological value.

Site 45-1-2574 (Lidsdale 2) is known to be a site of high integrity and high archaeological significance based on the test and salvage excavation undertaken in 2003 and 2004 (OzArk) for the realigned Castlereagh Highway. If the identified PAD area (site 45-1-2994) within the project footprint has similar characteristics to site 45-1-2574, then it may have high archaeological significance. However, no excavation has been completed in this newly identified area as there will be no ground disturbance in this area and the PAD will not be impacted by the project.

There will be no ground disturbance at the PAD identified within the former Wallerawang Power Station (WPS PAD 2). As such, WPS PAD 2 was not investigated via test excavation and no conclusion could be drawn regarding its scientific value. Sites 45-1-0215, 45-1-2800 and 45-1-2967 are a low-density artefact scatter and two isolated artefacts, all of which are located in disturbed contexts. These sites have little potential to contribute to archaeological research questions and have been assigned low archaeological value.

Aesthetic Value

Although the aesthetic values of the Coxs River valley and the surrounding ranges are recognised, the landscape of the project footprint has been substantially altered by the construction and maintenance of electrical, rail, road and mining infrastructure, which has impacted the aesthetics of the area.

In terms of the individual archaeological sites recorded, they are not easily recognisable to the public and all are assessed as having low aesthetic significance.

Historic Value

The non-Aboriginal heritage assessment completed for the project summarises significant non-Aboriginal heritage values surrounding the project footprint are related to early industrial infrastructure and churches (OzArk 2024). None of the Aboriginal sites within the project footprint have known associations with these historical themes. However, the identification of a knapped glass artefact at site 45-1-0237 suggests that the recent phases of the site can be dated to the post-contact period and there is potential for the site to be associated with significant historical values from this period. However, as no specific historical values are appreciable at the site from the current information, it has been assigned low historical significance.

Table 8-1: Aboriginal cultural heritage: significance assessment.

Site Name	AHIMS ID	Social or Cultural Value	Archaeological / Scientific Value	Aesthetic Value	Historic Value
Mount Piper Substation IF1	45-1-2967	High	Low	Low	None
Springvale Colliery	45-1-0237	High	Low-moderate	Low	Low
Lamberts Creek 5	45-1-0215	High	Low	Low	None
WPS-IF1	45-1-2800	High	Low	Low	None

8.2.1 Statement of significance

The cultural significance of the four identified Aboriginal sites within the project footprint is understood to be high. Site 45-1-0237 is considered to have low-moderate archaeological significance as a contributory dataset to the archaeological profile of the local area. The scientific value of the remaining artefact sites is low due to high levels of disturbance. The two PADs that will not be impacted have unknown significance.

Site 45-1-0237 includes a knapped glass artefact, linking the site to the post-contact area. The significance of the historical values of the site, limited to a single glass artefact, has been assessed as low. The other Aboriginal sites within the project footprint do not have known historical associations.

The cultural values assessment (Transgrid 2024) identified one location of cultural significance within the project footprint, the Coxs River (Diuwan). The significance of the Coxs River is derived from its role as a traditional movement corridor that facilitated trade, social interactions and cultural practices (Transgrid 2024: 12). Site 45-1-0237 has a clear association with the Coxs River, and the identification of an intact knapping event at the site provides an insight into the traditional tool making practices of the Aboriginal inhabitants of the area who used the movement and habitation corridor of the Coxs River.

9 ASSESSING HARM

9.1 AVOIDING AND MINIMISING HARM

9.1.1 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)).

Two primary objectives when managing harm to an Aboriginal objects, places and cultural values are:

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

9.1.2 Opportunities to conserve Aboriginal cultural heritage values

The assessment has identified four Aboriginal sites and two PADs within the project footprint. Impact to four of these sites and PADs can be avoided (Site 45-1-0237, WPS PAD 2, 45-1-2994 and 45-1-2800). One site will be totally impacted (45-1-2967) and one site will be partially impacted (45-1-0237 and 45-1-0215).

The project can conserve the Aboriginal cultural heritage values associated with three sites that will be avoided with no resulting loss of value. The project has developed management measures to avoid ground disturbance within the remaining extents of the PAD areas and conserve their identified or potential deposits *in situ* (see **Section 10**).

9.2 LIKELY IMPACTS TO ABORIGINAL HERITAGE FROM THE PROJECT

Table 9-1 presents a summary of potential impacts to Aboriginal cultural heritage associated with the project. Blue shading indicates total impact and orange indicates partial impact. The assessment of harm considers both construction and operational impacts.

Table 9-1: Aboriginal cultural heritage: impact assessment

AHIMS ID	Site Name	Description of works	Type of Harm (Direct/Indirect / None)	Degree of Harm (Total/Partial / None)	Consequence of Harm (Total/Partial/No Loss of Value)
45-1-2967	Mount Piper Substation IF1	The site is located on an access track that would be used during construction and operation of the project. The site may also be impacted by the construction of a nearby structure for the transmission line.	Direct	Total	Total loss of value
45-1-0215	Lamberts Creek 5	Artefacts at the site are present on an access track that will be subject to minor ongoing maintenance during the operation of the project within the extent of the existing track and then used by light vehicles only. The artefacts within the project footprint will be salvaged and the PAD area outside the project footprint will be avoided.	Direct	Partial	Partial loss of value
45-1-0237	Springvale Colliery	An access track will be constructed across the site. Within the extent of the deposit, the ground surface will be covered with fill and the track built up. The track will be retained during operation.	None	None	No loss of value
45-1-2800	WPS-IF1	The site is at the edge of a construction compound and will be avoided. The compound is not required during operation.	None	None	No loss of value
45-1-2994	Lidsdale 2 PAD Extension	The PAD area may be used as a brake and winch site that would be used by light vehicles and trucks. Ground disturbance within the PAD area will not be required to complete the proposed works.	None	None	No loss of value

AHIMS ID	Site Name	Description of works	Type of Harm (Direct/Indirect / None)	Degree of Harm (Total/Partial / None)	Consequence of Harm (Total/Partial/No Loss of Value)
Not on AHIMS	WPS-PAD 2	WPS PAD 2 is located within the new transmission line easement. Vegetation clearing and stringing will be required during construction and the easement will need to be maintained free of tall growing vegetation during operation. Ground disturbance in WPS PAD 2 will be avoided during vegetation clearing and stringing. This will include retention of root balls and use of appropriate methods to avoid ground disturbance by vehicles.	None	None	No loss of value

9.2.1 Likely impacts to identified cultural heritage values

The Coxs River has been identified as a location with significant cultural values within the project footprint. The project footprint crosses the Coxs River at two locations, within the former Wallerawang Power Station and at Brays Lane near site 45-1-0237. The project footprint runs parallel to the Coxs River between these two points. At both crossing locations, the natural course of the river has been diverted or channelised and the adjacent landforms have been substantially modified. While it is acknowledged that these modifications do not reduce the cultural significance of the Coxs River as a whole, the existing alterations to the natural landscape do affect the assessment of the potential impacts to cultural values associated with the project.

As outlined above, the project will avoid impacts to one archaeological deposit (site 45-1-0237) and one PAD (45-1-2994) that are associated with the Coxs River. Retention of this site and PAD in the landscape conserves the connection between the Coxs River and the archaeological signature of past Aboriginal occupation within the project footprint.

There are already transmission lines along the Coxs River in the vicinity of the project footprint. The proposed transmission line will be adjacent to an existing transmission line and will therefore make a relatively minor contribution to the cumulative alteration of the natural landscape surrounding the Coxs River. The participants in the cultural values assessment (Transgrid 2024: 13) noted the cultural value of the Coxs River; however, they did not raise concerns regarding the impact of the project on the Coxs River or the area surrounding it.

9.3 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. Regarding Aboriginal cultural heritage, ESD can be achieved by applying the principle of intergenerational equity and the precautionary principle.

9.3.1 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.

9.3.2 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 heritage values, the precautionary principle should be applied if:

- The project involves a risk of serious or irreversible damage to Aboriginal objects or places or to the value of those objects or places
- There is 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 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 considered in applying environmental objectives.

9.3.4 Applicability to the project

The results of the survey and test excavation indicate that the project will have a total impact to one Aboriginal site and have a partial impact to one Aboriginal site. The impacted sites have low archaeological significance. The impact to one site and partial impact to the one site is a minor contribution to the diminution of intergenerational equity in terms of the available archaeological resource in the local area. **Table 9-2** summarises how ESD principles have been applied.

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

ESD principle	Response
Avoiding and minimising harm	Avoidance of impacts to Aboriginal heritage was considered during the corridor and route selection phases of the project. Mitigation measures aim to minimise impacts on Aboriginal sites that cannot be avoided by undertaking salvage and recording prior to impacts. **Section 10** sets out the detailed measures by which harm has been avoided or minimised at the sites within the project footprint.
The integration principle	The project has considered the environmental impact of the development. While there will be harm to two Aboriginal sites within the project footprint, no sites with high scientific value will be harmed. Mitigation measures have been developed in consultation with the RAPs and will be implemented to minimise the loss of cultural values.
The precautionary principle	The Aboriginal cultural heritage investigation and preparation of a robust Aboriginal cultural heritage assessment has improved the understanding of Aboriginal objects and cultural values in the project footprint. The survey adopted a precautionary principle when it came to describing and assessing landforms within the survey areas and the test excavation program was undertaken to provide a clear understanding of the nature of subsurface deposits. Where impacts cannot be avoided, the proposed salvage and recording of surface artefacts and subsurface deposits, represents a precautionary measure against the harm to archaeological material at these locations.
The intergenerational equity principle	The project will result in diminution of the archaeological record of Aboriginal use of the landscape within the project footprint. While the loss of two sites in the landscape removes their potential to be present for future cultural or educational use, a salvage program will take place to ensure as much information is gained prior to sites being harmed and that the artefacts themselves will be available for future use by the Aboriginal community, if so desired. The project will lead to the addition of another transmission line adjacent to an existing transmission line. The project will be a minor contribution to the cumulative alteration of the natural landscape surrounding the Coxs River.

9.4 CUMULATIVE IMPACTS

Section 21.2 of the EIS outlines the methodology for the assessment of cumulative impacts including the methods for identifying what projects have been considered as part of the issue-specific cumulative impact assessments for the project. The assessment has been undertaken in accordance with the Cumulative Impact Assessment Guidelines for State Significant Projects (DPIE 2022).

The following 10 projects within 20 kilometres of the project footprint were identified for consideration as part of the cumulative impact assessment and are shown in **Figure 9-1:**

- Wallerawang Battery Energy Storage System
- Mount Piper Battery Energy Storage System
- Great Western Battery Energy Storage System
- Pinecrest Battery Energy Storage System
- Lake Lyell Pumped Hydro Energy Storage
- Ben Bullen Wind Farm
- Sunny Corner Wind Farm
- Wallerawang Power Station Ash Dam
- Wallerawang residential subdivision (DA226/22)
- Wallerawang Station upgrades.

Table 9-3 outlines the potential cumulative impacts relevant to each project.

Figure 9-1: Projects considered in the cumulative assessment

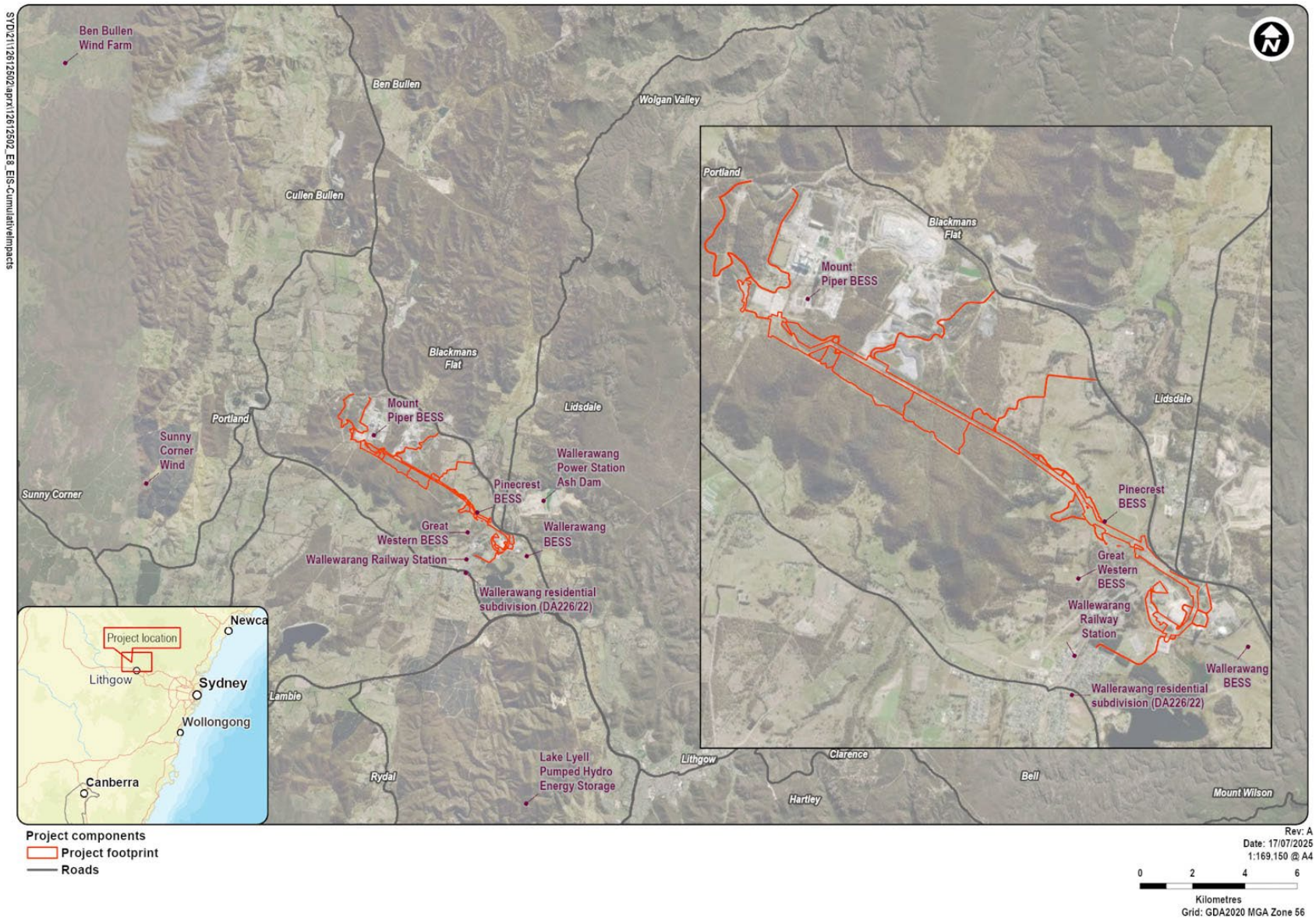


Table 9-3: Potential cumulative impacts of relevant future projects

Relevant future project	Scope	Approximate location	Status/timeframe/operational period	Overview of Aboriginal heritage and impacts (or potential impacts)	Potential for cumulative impacts
Wallerawang BESS	Design changes to optimise the layout of the approved Wallerawang BESS (500 MW and 1,000 MWh of battery storage capacity)	500 m east of the project footprint	Approved 4/8/2022 Current modification at response to submissions stages Construction period of 1 to 2 years, expected to commence from 2025, construction does not appear to have commenced Operational period unchanged	One isolated find with PAD was identified in the assessment. The project impacts were redesigned to avoid impact to the site and the project was assessed as having no impact on Aboriginal heritage sites (Wallerawang BESS SSD Report: 13).	None, as identified sites have been avoided.
Mount Piper BESS	Development of a grid-scale BESS with a capacity of up to 500 MW	Immediately north of the project footprint	Approved 15/11/2024 Construction period of 18-24 months expected to commence from mid-2026 at the earliest Potentially operational by 2027/2028 and would operate for about 20 years	No Aboriginal sites or PADs were identified by the assessment.	None, as no sites were identified.
Great Western BESS	Development of a 500 MW / 1,000 MWh BESS and associated infrastructure	300 m west of the project footprint	Approved 2/11/2023 Project has not yet commenced construction and construction start date is not known however is expected to occur over 12-14 months The BESS is intended to have an operational life of up to 20 years	AECOM 2022 identified two Aboriginal sites within the impact footprint for the project (45-1-2716 and 45-1-2852). One of the sites was to be avoided and one was to be partially impacted. Proposed ground disturbance activities within the study area are anticipated to result in a near-complete loss of value for stone quarry GWB-STQ1-21 and no loss of value for artefact scatter SU1a-A5.	One site was impacted as a result of the project. Minor contribution to cumulative impacts.
Pinecrest BESS	Development of 500 MW battery storage capacity and 1,000 MWh of storage with (2-hour duration) connecting to the grid via underground cabling	Layout shown in scoping report is located within project footprint, with Transgrid undertaking ongoing consultation with Banpu Energy regarding positioning of the site.	Scoping report prepared with SEARs not yet issued EIS is expected to be submitted in early 2026 Construction period of 18 months commencing in late 2026 if approved. Operations proposed to start in 2028	Project is at development phase with no detailed heritage assessments undertaken, potential heritage impacts of the project not yet available. The scoping report notes that there are four Aboriginal sites within the project area (Premise 2025: 70).	Unclear as the impacts have not yet been assessed.
Lake Lyell Pumped Hydro Energy Storage	Development of the Lake Lyell Pumped Hydro Energy Storage Scheme (that will provide between 300 to 350 MW of electricity generating capacity for up to 8 hours during peak demand	10 km south of the project footprint	EIS in preparation Technical design expected to conclude in 2025. Construction expected commence in late 2026 and to take four years with operation commencing in 2029	No detailed heritage assessment has been completed to date. However, the scoping report notes that there are two previously recorded Aboriginal heritage sites within the project area, both low density artefact scatters.	Unclear as the impacts have not yet been assessed.

Relevant future project	Scope	Approximate location	Status/timeframe/operational period	Overview of Aboriginal heritage and impacts (or potential impacts)	Potential for cumulative impacts
Ben Bullen Wind Farm	Construction of approximately 64 wind turbine generators, a BESS and ancillary infrastructure	20 km north-west of the project footprint	EIS in preparation Construction in 2028 for 18-24 months Operational life of 35 years+	No detailed heritage assessment has been completed to date, however the AHIMS data presented in the scoping report indicates that there are no registered sites within the project area (EMM 2025: 60).	Unclear as the impacts have not yet been assessed.
Sunny Corner Wind Farm	Construction of approximately 80 wind turbine generators, a BESS and ancillary infrastructure	6 km west of the project footprint	EIS in preparation Construction in 2030 for 36 months Operational life of 30 years	There are nine Aboriginal sites within the project area and four within the proposed development footprint.	Unclear as the impacts have not yet been assessed or are not available.
Wallerawang Power Station Ash Dam	Use of part of the lands lying north of the Castlereagh Highway that were once used by the former Wallerawang Power Station as coal ash dam repositories	Immediately north of the project footprint	Approved 13/10/2023 The modification proposes an additional ten years for the importation of capping material	The latest modification is for the extension of existing operations approved as part of earlier stages of the project.	No cumulative impacts on heritage items or values have been identified.
Wallerawang Residential subdivision (DA226/22)	Torrens Subdivision - 1 Lot into 54 Residential Allotments, 4 New Roads, 2 lots for drainage and public reserve Allotment	19 Barton Avenue Wallerawang 2 km south-west of the project footprint	Currently being re-exhibited till 13 June 2025	No heritage assessment for the subdivision available. .	Unclear as the impacts have not yet been assessed or are not available.
Wallerawang Railway Station upgrade	Works to upgrade the existing station, closed in 1989, so that passenger services can be restated.	850 m southwest of project footprint	Project has been announced on Transport for NSW website Early enabling works will be carried out from March to August 2025. Once the design is finalised, construction will commence later in 2025, with re-opening of the station planned for late 2026	The proposed works at the Wallerawang Station involve minor repairs and improvements to the station services and buildings. The project is not expected to impact Aboriginal cultural heritage sites or values.	No cumulative impact has been identified.

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 project. **Section 8.2** and **Section 9.2** describe, respectively, the significance / potential of the recorded sites and the likely impacts of the project. 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 project to avoid 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, the Aboriginal heritage sites will be managed in accordance with the ACHMP, which would be prepared and implemented prior to and during construction.

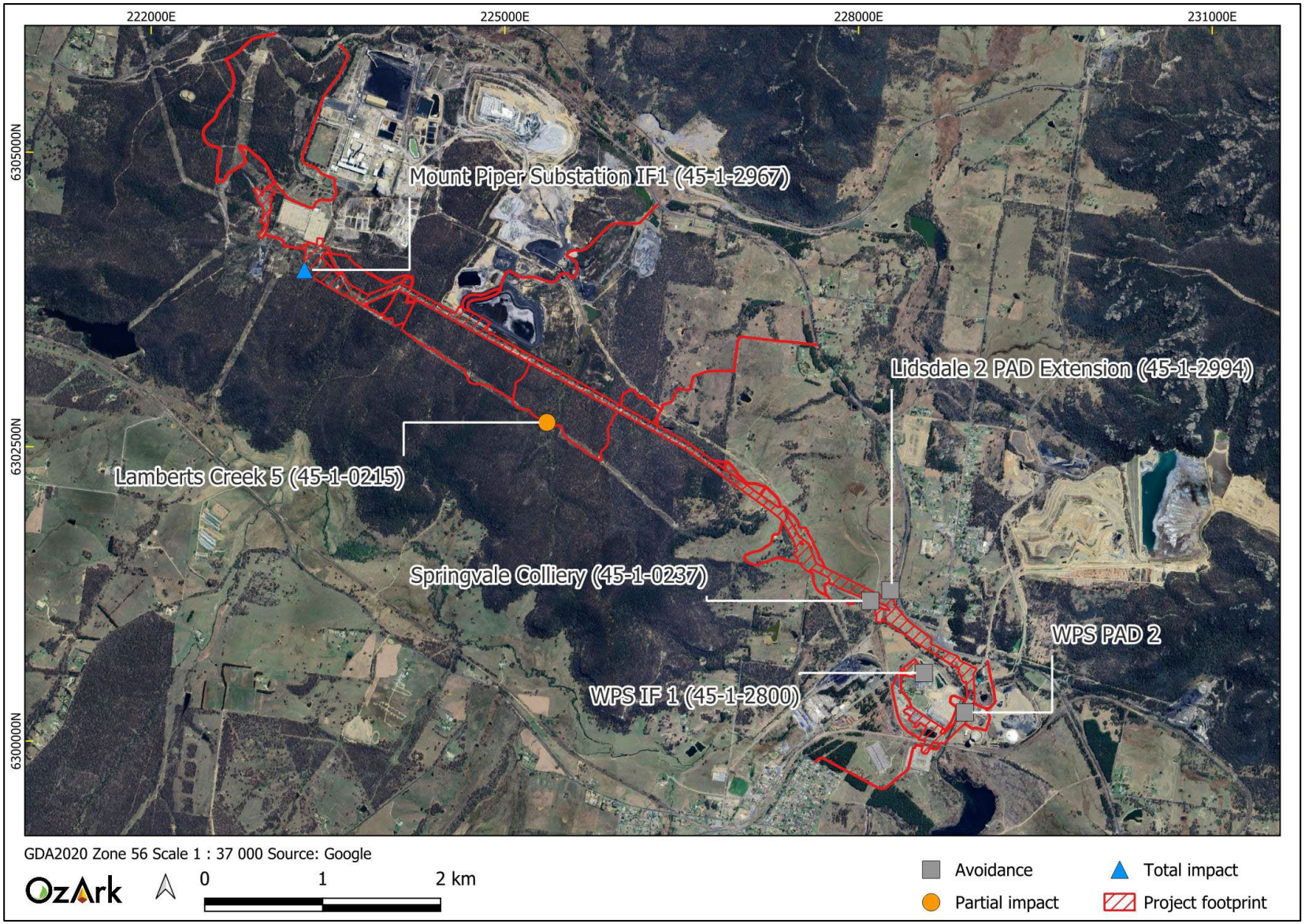
10.2 MANAGEMENT AND MITIGATION OF RECORDED ABORIGINAL SITES

Table 10-1 provides the management and mitigation measures appropriate to the four Aboriginal sites and the two PADs within the project footprint. Blue shading indicates sites to be impacted, orange indicates partial impact. Further details on the proposed management categories is provided below the table. The location of the impacted, partially impacted and avoided sites in relation to the project footprint are shown in **Figure 10-1**.

Table 10-1: Management categories for the sites within the project footprint

AHIMS ID	Site Name	Impact	Description of works	Management categories
45-1-2967	Mount Piper Substation IF1	Total	The site is located on an access track that would be used during construction and operation of the project. The site may also be impacted by the construction of a nearby structure for the transmission line.	Surface collection
45-1-0215	Lamberts Creek 5	Partial	The site extends across an existing access track that will be subject to minor repairs and used during construction by light four wheel drive vehicles only. The track is not required for maintenance of the transmission line built as part this project, but will continue to be used to access the existing double circuit 330 kV transmission line. The artefacts within the project footprint will be salvaged and the PAD area outside the project footprint will be avoided.	Surface collection (within project footprint) and avoidance of PAD areas outside of the project footprint.
45-1-0237	Springvale Colliery	None	An access track will be constructed across the site. Within the extent of the deposit, the ground surface will be covered with fill and the track built up. The track will be retained during operation.	Avoidance of ground disturbance
45-1-2800	WPS-IF1	None	The site is at the edge of a construction compound and will be avoided. The compound is not required during operation.	Avoidance of ground disturbance
Not registered	WPS PAD 2	None	WPS PAD 2 is located within the new transmission line easement. Vegetation clearing and stringing will be required during construction and the easement will need to be maintained free of tall growing vegetation during operation. Ground disturbance in WPS PAD 2 will be avoided during vegetation clearing and stringing. This will include retention of root balls and use of appropriate methods to avoid ground disturbance by vehicles.	Avoidance of ground disturbance
45-1-2994	Lidsdale 2 PAD Extension	None	Portions of the PAD area are within a brake and winch site to be used during stringing.. The proposed works will be completed without ground disturbance. The brake and winch site is not required during operation.	Avoidance of ground disturbance

Figure 10-1: Impact and management categories of sites in relation to the project footprint



10.2.1 Surface collection

It is recommended that two sites (45-1-2967 and 45-1-0215) be salvaged through the recording and collection of the surface artefacts, prior to construction works proceeding. This recommendation is made due to:

- The high cultural value of the sites and their importance to the Aboriginal community
- The nature of the impacted site (low-density artefact scatter)
- The low archaeological value assigned to the site precludes more intensive archaeological investigations
- Sites such as these have a limited ability to further inform the community about the history and culture of the area. While any potential research questions are limited, some information can nevertheless be gained.

The recommended methodology for the salvage will be finalised after the approvals process as part of the ACHMP, but will include the following measures with reference to the determined processes for the long-term management of any salvaged objects (**Section 10.5**):

1. The visible artefacts will be flagged in the field
2. The site will be photographed after flagging and before recording
3. The following artefact information will be recorded for each artefact:
    - Location
    - Artefact class
    - Artefact type
    - Size
    - Reduction level
    - Raw material
    - Notes.
4. A selection of artefacts, particularly any formal tool types, will be photographed
5. A salvage report will be completed within 12 months of the salvage to record the results of the salvage
6. An Aboriginal Site Impact Recording Form (ASIRF) will be submitted by the archaeologist to the AHIMS database detailing the salvage process at the site.

10.2.2 Avoidance of ground disturbance

10.2.2.1 45-1-2800

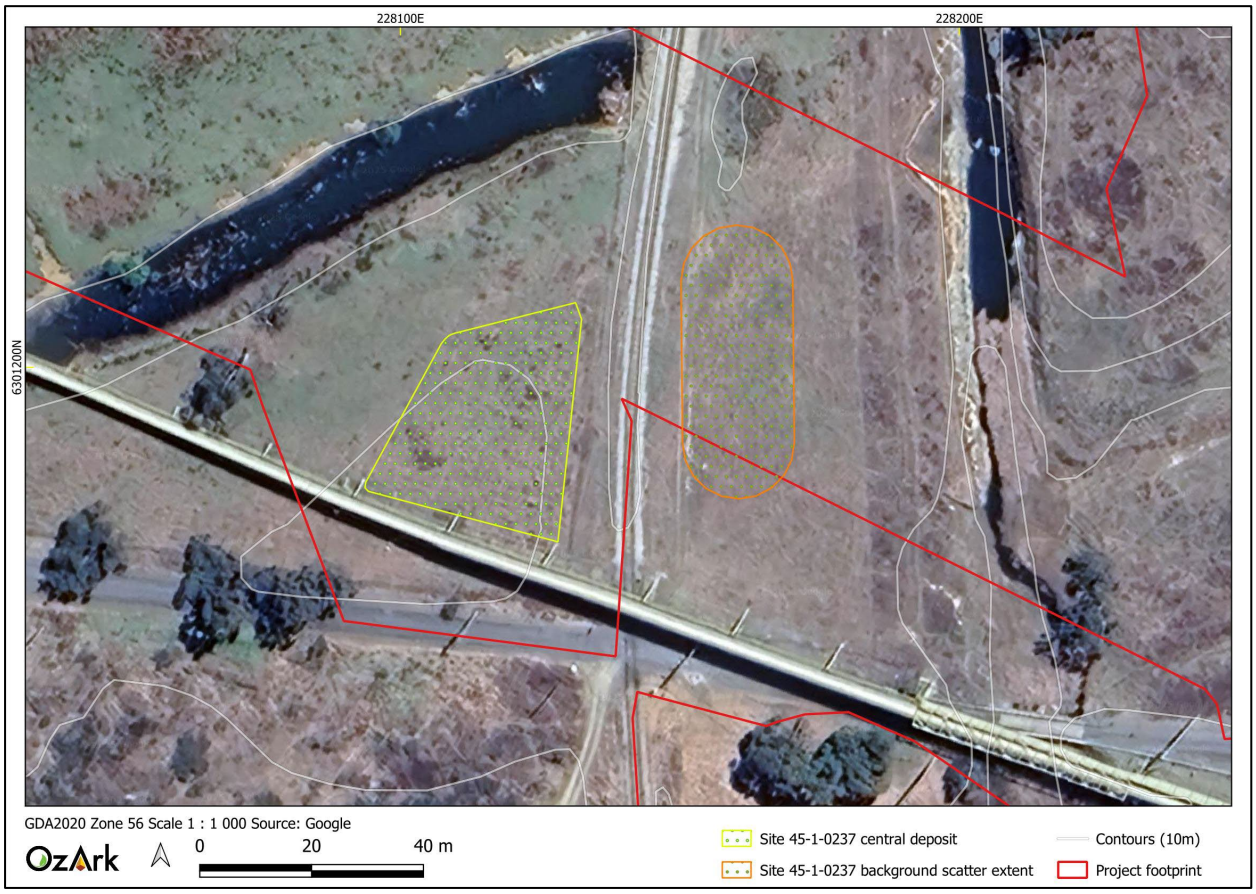
One isolated find site (45-1-2800) within the project footprint will be within a proposed construction compound but can be avoided by ground disturbing works. Site 45-1-2800 is already marked by a star picket and the object itself could not be located in the field. Therefore, fencing is not considered an appropriate measure for this site. The design of the construction compound will avoid a 5 m buffer area around the location of the site.

The site should be clearly marked on construction documents and all sites that will remain within the project footprint will be recorded on Transgrid Geographic Information Systems to reduce the risk of inadvertent impacts to the site during the construction and operational phase of the project.

10.2.2.2 45-1-0237

Ground disturbance within the central deposit at 45-1-0237, the yellow area on **Figure 10-2**, will be avoided by importing fill to armour the ground surface where the proposed access track crosses the site. Ground disturbance will be avoided during transmission line stringing within the background scatter extent associated with the site 45-1-0237, the orange area on **Figure 10-2**.

Figure 10-2: Site 45-1-0237 artefact deposit extent



10.2.2.3 PADs

The two PADs (WPS PAD 2 and 45-1-2994) within and one PAD adjacent to the project footprint (45-1-0215) can be avoided provided that the following management measures are followed.

Site 45-1-0215 (note the PAD areas relating to this site are outside the project footprint)

Following the completion of the surface salvage of artefacts on the track at the site, there will be no ground-disturbing impacts over the PAD areas associated with site 45-1-0215, which fall outside the project footprint.

Although outside the project footprint, avoidance of harm to the PAD areas on either side of the track during the construction and operation of the project should be pursued through demarcation of the PAD area to reduce the risk of inadvertent ground disturbance. The ACHMP will formalise the specific demarcation methods. For example, placing of signs to inform users of the track (which is not accessible to the public) to remain on the established track for the 50 m stretch of track that bisects the PAD area. Star pickets and signage at the edge of the PAD area identifying this area will be more effective than exclusion fencing that would require more maintenance.

The PAD areas at site 45-1-0215 outside the edge of the track should be clearly marked on construction documents and will be recorded on Transgrid Geographic Information Systems to

reduce the risk of inadvertent impacts to the site during the construction and operational phase of the project.

WPS PAD 2

The works at the location of WPS PAD 2 entail line-stringing, and non-ground disturbing vegetation management. The proponent will employ a vegetation management methodology that will not disturb the ground surface (i.e. trimming trees to ground level and not removing tree stumps) and use imported fill or mats when using vehicles within the WPS PAD 2 boundary.

If ground-disturbing construction impacts were anticipated within 20 m of the WPS PAD 2 boundary, temporary fencing of an appropriate buffer area would be required to minimise the risk of inadvertent disturbance within the PAD area.

WPS PAD 2 should be clearly marked on construction documents and will be recorded on Transgrid Geographic Information Systems to reduce the risk of inadvertent impacts to the site during the construction and operational phase of the project.

Site 45-1-2994

No direct construction impacts are proposed within the site 2994 PAD area. The area is within the project footprint as a brake and winch area, which involves vehicles traversing the PAD area during the construction of the nearby transmission structure.

The proposed works can be completed following a methodology that does not involve disturbance of the ground surface. This would include placing solid plastic bog mats across the work area to distribute the weight of vehicles across the ground surface within the PAD extension related to site 45-1-2994.

Following the completion of the use of the brake and winch site during construction, the PAD area should be recorded on Transgrid Geographic Information Systems. There is considered to be low risk of inadvertent access into the area during the operation phase of the project as the PAD area is outside of the operational area. There is also a natural barrier presented by deep surface drains on the level area downslope (south) of the PAD area, reducing the risk of inadvertent access to the area during the operational phase of the project.

10.3 UNANTICIPATED FINDS PROTOCOL

An ACHMP would be developed in consultation with the RAPs, DPHI and Heritage NSW. The ACHMP will contain procedures should a new discovery of Aboriginal artefacts be made during construction of the project. The procedure in **Section 10.3.1** is an example of an unanticipated finds protocol that could be incorporated into the ACHMP.

10.3.1 Unanticipated finds protocol example

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 consider scientific and educational value.

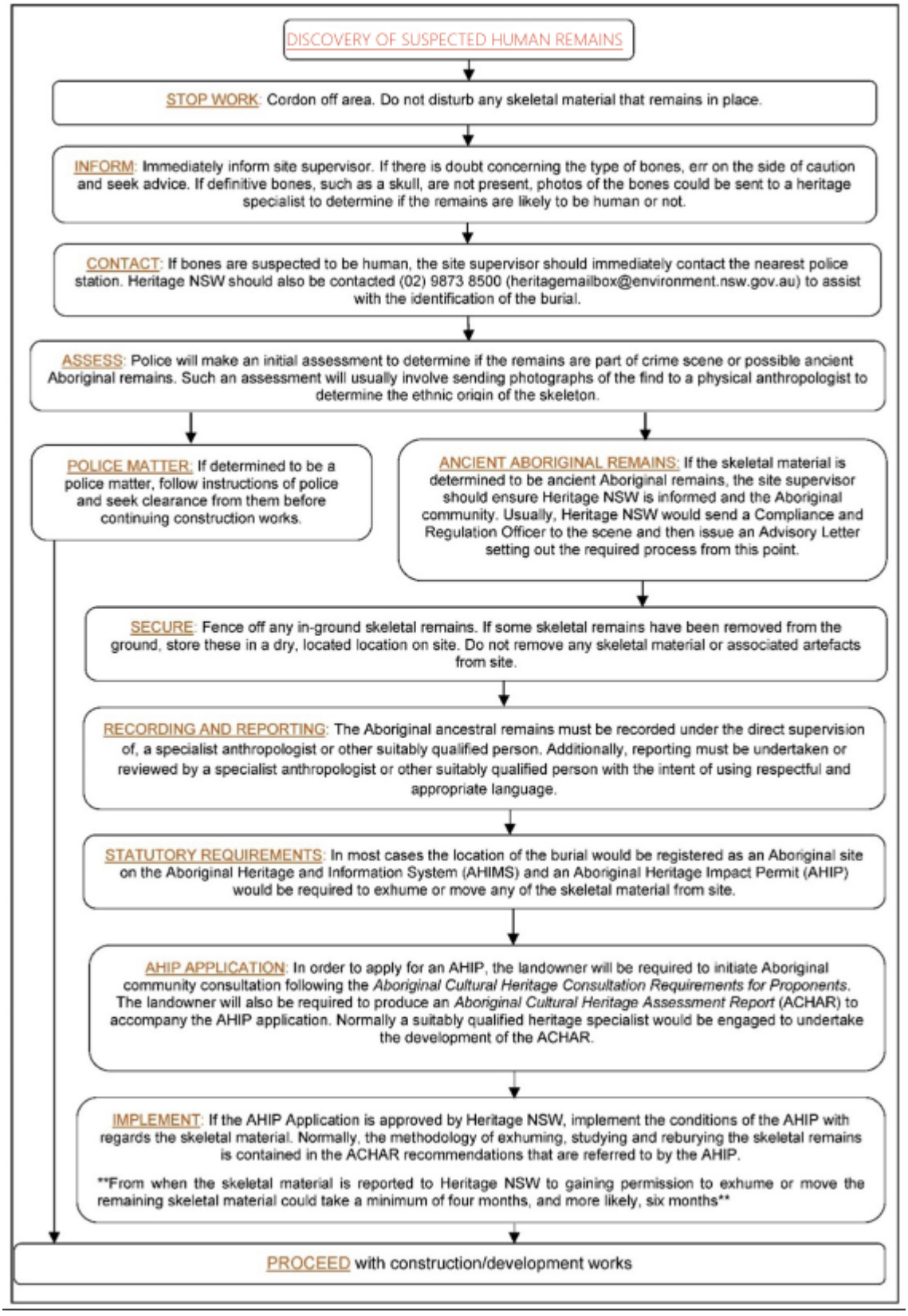
Protocol to be followed if previously unrecorded or unanticipated Aboriginal object(s) are encountered:

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 to avoid further harm to the Aboriginal object
    d. Notify Heritage NSW on (02) 9873 8500 (heritagemailbox@environment.nsw.gov.au) and the Department of Planning, Housing and Infrastructure (DPHI) Compliance (compliance@planning.nsw.gov.au), 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. If 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
    c. The development and implementation of appropriate management strategies, including consultation with stakeholders and the assessment of the significance of the find(s). Depending on the nature of the find, the salvage methodologies presented in **Section 10.2** could be enacted, if formalised in the ACHMP.
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 AHIP or through the procedures of an approved ACHMP).

10.4 UNANTICIPATED SKELETAL REMAINS PROTOCOL

Should development consent for the Project be gained, an ACHMP would be developed in consultation with RAPs, DPHI and Heritage NSW. The ACHMP would contain procedures to be followed should a discovery of suspected human skeletal remains be made during construction or operation of the project. A potential flow-chart relating to the discovery of human skeletal remains is shown on **Figure 10-3**.

Figure 10-3: Example of a human skeletal remains procedure.



10.5 LONG TERM MANAGEMENT OF SALVAGED ABORIGINAL OBJECTS

The ACHMP would include protocols for the long-term management of the Aboriginal sites salvaged for the project, as well as any additional artefacts discovered during construction of the project.

Regarding stone artefacts, suitable procedures for the long-term management could include the reburial of artefacts at a location outside of impacts that adheres to Requirement 26 of the Code of Practice. Another option for the long-term management of the objects could be housing at the Wiradjuri keeping place located at Transgrid's Discovery Hub (27 Kincaid Street, Wagga Wagga).

During consultation regarding the test excavation methodology, Girragirra Murun Aboriginal Corporation expressed a preference for any recovered objects to be buried on Country at the completion of works (**Table 3-2**). No other RAPs have indicated a preference for the long-term resting place for salvaged object.

11 RECOMMENDATIONS

Under Section 89A of the NPW Act it is mandatory that all newly recorded Aboriginal sites be registered with AHIMS. As a professional in the field of cultural heritage management it is the responsibility of OzArk to ensure this process is undertaken.

To this end it is noted that one previously unrecorded Aboriginal site (45-1-2967) and one extension to a PAD (45-1-2994) was identified during the assessment.

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

1. An ACHMP will be prepared in consultation with the RAPs and DPHI, with input from Heritage NSW. The ACHMP will include:
    - an Unexpected Heritage Finds Protocol for any new discovery of Aboriginal artefacts as per the detailed methodology described in the ACHAR
    - an unanticipated skeletal find protocol as described in detail in the ACHAR
    - a process for engaging with RAPs prior to and during construction of the project
    - salvage methodology
    - heritage induction procedures
    - provisions for the long-term management of the Aboriginal objects that are salvaged.
2. Impacts on Aboriginal heritage sites will be avoided for Springvale Colliery (45-1-0237), WPS-IF1 (45-1-2800), WPS PAD 2 and Lidsdale 2 PAD Extension (45-1-2994) by implementing:
    - a no-go zone for 45-1-2800
    - adopting construction and maintenance work methods that avoid ground disturbance for the remaining sites. These methods are outlined in **Section 10.2.2** and will be monitored during operation and maintained as necessary.
3. All Aboriginal heritage sites within the project footprint and PAD sites that extend outside the project footprint will be clearly marked on construction plans, and mapped and recorded in Transgrid's GIS to avoid impacts.
4. Impact to sites 45-1-0215 and 45-1-2967 cannot be avoided and the sites will be salvaged through the recording and collection of the surface artefacts, prior to construction in accordance with the salvage methodology described in the ACHAR (**Section 10.2.1**).

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APPENDIX 1: COMMUNITY CONSULTATION

Appendix 1 Table 1: Aboriginal Consultation Log

Date	Organisation	Comment	Method
15.9.23	Lithgow Mercury	Catherine Burrowes (CB) rang newspaper. Will be published 15.9.23 Closing date 5.10.23.	Phone/email
20.9.23	Koori Mail	CB confirmed & proof for publication 20.9.23 closing date 5.10.23	Email
15.9.23	Heritage NSW	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
15.9.23	Bathurst LALC	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
15.9.23	Office of The Registrar, ALRA	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
15.9.23	National Native Title Tribunal	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
15.9.23	NTSCORP	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
15.9.23	Lithgow City Council	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
15.9.23	Central Tablelands Local Land Services	CB sent stage 1 agency letter requesting potential stakeholders. **Closing date 5.10.23**	Email
20.9.23	Warrabinga NTCAC	CB received email registering for the project	Email
20.9.23	Warrabinga NTCAC	CB replied with thanks for the registration	Email
21.9.23	Murra Bidgee Mullangari Aboriginal Corporation	CB received email registering for the project	Email
21.9.23	Murra Bidgee Mullangari Aboriginal Corporation	CB replied with thanks for the registration	Email
26.9.23	Didge Ngunawal Clan	CB received email registering for the project	Email
26.9.23	Didge Ngunawal Clan	CB replied with thanks for the registration	Email
6.10.23	Barraby Cultural Services	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email

Date	Organisation	Comment	Method
6.10.23	Bill Allen	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Corroboree Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Dhuuluu-Yala Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Didge Ngunawal Clan	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Gilay Consultants	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Gundungurra Aboriginal Heritage Association Inc.	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Gundungurra Tribal Council Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Gunjeewong Cultural Heritage Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Hawkesbury- Nepean Catchment Management Authority	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Kamilaroi Yankuntjatjara Working Group	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Konanggo Aboriginal Cultural Heritage Services	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Koori Digs Services	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Mingaan Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Murra Bidgee Aboriginal Corporation, Cultural Heritage	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	North- Eastern Wiradjuri	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Thomas Dahlstrom	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Timothy Stubbs	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Warrabinga Native Title Claimants Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Wiradjuri Council of Elders	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Yurrandaali	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Yurwang Gundana Consultancy Cultural Heritage Services	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email

Date	Organisation	Comment	Method
6.10.23	Dharramalin	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Girragirra Murun Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Wingarra Wilay Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Guthers Aboriginal Corporation	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Email
6.10.23	Lyn Syme	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Post
6.10.23	Trevor Robinson	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Post
6.10.23	Wiradjuri Interim Working Party	CB sent stage 1 Community letter requesting potential stakeholders. **Closing date 20.10.23**	Post
6.10.23	Thomas Dahlstrom	CB received email registering for the project	Email
6.10.23	Thomas Dahlstrom	CB replied with thanks for the registration	Email
8.10.23	Konanggo Aboriginal Cultural Heritage Services	CB received email registering for the project	Email
8.10.23	Konanggo Aboriginal Cultural Heritage Services	CB replied with thanks for the registration	Email
8.10.23	Timothy Stubbs	CB received email registering for the project	Email
8.10.23	Timothy Stubbs	CB replied with thanks for the registration	Email
8.10.23	Kamilaroi Yankuntjatjara Working Group	CB received email registering for the project	Email
8.10.23	Kamilaroi Yankuntjatjara Working Group	CB replied with thanks for the registration	Email
9.10.23	Wingarra Wilay AC	CB received email registering for the project	Email
9.10.23	Wingarra Wilay AC	CB replied with thanks for the registration	Email
9.10.23	Girragirra Murun Aboriginal Corporation	CB received email registering for the project	Email
9.10.23	Girragirra Murun Aboriginal Corporation	CB replied with thanks for the registration	Email
10.10.23	Wiradjuri Council of Elders	CB received email registering for the project	Email
11.10.23	Wiradjuri Council of Elders	CB replied with thanks for the registration	Email
11.10.23	Koori Digs Services	CB received email registering for the project	Email

Date	Organisation	Comment	Method
11.10.23	Koori Digs Services	CB replied with thanks for the registration	Email
15.10.23	Corroboree Aboriginal Corporation	CB received email registering for the project	Email
16.10.23	Corroboree Aboriginal Corporation	CB replied with thanks for the registration	Email
17.10.23	Gunjeewong Cultural Heritage Aboriginal Corporation	CB received email registering for the project	Email
17.10.23	Gunjeewong Cultural Heritage Aboriginal Corporation	CB replied with thanks for the registration	Email
18.10.23	Bathurst LALC	CB received email registering for the project	Email
18.10.23	Bathurst LALC	CB replied with thanks for the registration	Email
2.11.23	Heritage NSW & LALC	CB advised via email of those who have registered	Email
15.11.23	Murra Bidgee Aboriginal Corporation, Cultural Heritage	CB received email asking if any updates on project	Email
15.11.23	Murra Bidgee Aboriginal Corporation, Cultural Heritage	CB replied no updates at present	Email
14.2.24	Murra Bidgee Mullangari Aboriginal Corporation	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Didge Ngunawal Clan	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Warrabinga Native Title Claimants Aboriginal Corporation	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Thomas Dahlstrom	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Konanggo Aboriginal Cultural Heritage Services	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Tim Stubbs	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Kamilaroi Yankuntjatjara Working Group	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Wingarra Wilay AC	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Girragirra Murun Aboriginal Corporation	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Wiradjuri Council of Elders	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Stakeholder 1	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Gunjeewong Cultural Heritage Aboriginal Corporation	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email
14.2.24	Bathurst LALC	CB emailed Stage 2-3 draft methodology **closing date 13.3.24**	Email

Date	Organisation	Comment	Method
19.2.24	Tim Stubbs	CB received email response - *I have reviewed the methodology for the above project and agree with it*	Email
20.2.24	Tim Stubbs	CB replied with thanks	Email
24.2.24	Konanggo Aboriginal Cultural Heritage Services	CB received email response - *KACHS has reviewed the draft an acknowledged the information documented informative. Have no other comments to submit*	Email
26.2.24	Konanggo Aboriginal Cultural Heritage Services	CB replied with thanks	Email
28.2.24	Warrabinga Native Title Claimants Aboriginal Corporation	CB received email response - details in folder	Email
11.3.24	Thomas Dahlstrom	CB received email Can I ask about the status of this project? I noticed there was no mention of any litho analysis of any rock material located, can I request this be done in the ACHA and any salvage included please ?	Email
12.3.24	Thomas Dahlstrom	ITC responded - details in folder	Email
12.3.24	Mingaan Aboriginal Corporation	HR added as late registration per communication with Transgrid	Email
23.8.24	Murra Bidgee Mullangari Aboriginal Corporation	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Didge Ngunawal Clan	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Warrabinga Native Title Claimants Aboriginal Corporation	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Thomas Dahlstrom	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Konanggo Aboriginal Cultural Heritage Services	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Tim Stubbs	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Kamilaroi Yankuntjatjara Working Group	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Wingarra Wilay AC	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Girragirra Murun Aboriginal Corporation	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Wiradjuri Council of Elders	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Stakeholder 1	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Gunjeewong Cultural Heritage Aboriginal Corporation	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Bathurst LALC	CB emailed Stage 2-3 draft test excavation methodology **closing date 20.9.24**	Email
23.8.24	Mingaan Aboriginal Corporation	HR sent and followed up with call 23.8.24	Email

Date	Organisation	Comment	Method
23.8.24	Didge Ngunawal Clan	CB received email - *It all seems fine by us towards your Mount Piper to Wallerawang methodology*	Email
23.8.24	Thomas Dahlstrom	CB received email - *I have had a good read. I have no issues with the proposed methodology. It would be good to find the location of the resting place of King Miles. Look forward to getting out to do some digging and sieving.*	Email
24.8.24	Wiradjuri Council of Elders	CB received email - *Many thanks for the update, No comments from me*	Email
26.8.24	Tim Stubbs	CB received email - *Thank u for sending the methodology I have reviewed it and agree with the proposed methodology. And are available for field work if required*	Email
27.8.24	Didge Ngunawal Clan	CB replied with thanks	Email
27.8.24	Thomas Dahlstrom	CB replied with thanks	Email
27.8.24	Wiradjuri Council of Elders	CB replied with thanks	Email
27.8.24	Tim Stubbs	CB replied with thanks	Email
3.9.24	Murra Bidgee Mullangari Aboriginal Corporation	CB received email - *I have read the project information and test excavation methodology for the above project, I endorse the recommendations.*	Email
6.9.24	Murra Bidgee Mullangari Aboriginal Corporation	CB replied with thanks	Email
9.9.24	Kamilaroi Yankuntjatjara Working Group	CB received email - *We would like to agree and support your test methodology to investigate further*	Email
9.9.24	Kamilaroi Yankuntjatjara Working Group	CB replied with thanks	Email
9.9.24	Girragirra Murun Aboriginal Corporation	CB received email - *Please note if any artefacts are found during site visits, recommendation is reburial on site.*	
10.9.24	Mingaan Aboriginal Corporation	HR emailed FW invite	Email
10.9.24	Bathurst LALC	HR emailed FW invite	Email
10.9.24	Warrabinga NTCAC	HR emailed FW invite	Email
13.9.24	Girragirra Murun Aboriginal Corporation	CB replied with thanks	Email
16.9.24	Wingarra Wilay AC	CB received email - *Wingarra Wilay agrees with the methodology and would like to point out if any Artifacts are found and need to be removed they need to have a smoking ceremony before they can be reburied.*	Email
17.9.24	Wingarra Wilay AC	CB replied with thanks	Email
19.9.24	Bathurst LALC	EM attempted to call but received the answering service on all available numbers.	Phone
25.3.25	Murra Bidgee Mullangari Aboriginal Corporation	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Didge Ngunawal Clan	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Warrabinga Native Title Claimants Aboriginal Corporation	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email

Date	Organisation	Comment	Method
25.3.25	Thomas Dahlstrom	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Konanggo Aboriginal Cultural Heritage Services	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Tim Stubbs	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Kamilaroi Yankuntjatjara Working Group	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Wingarra Wilay AC	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Girragirra Murun Aboriginal Corporation	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Wiradjuri Council of Elders	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Stakeholder 1	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Gunjeewong Cultural Heritage Aboriginal Corporation	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Bathurst LALC	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Mingaan Aboriginal Corporation	CB emailed Stage 4 draft ACHAR **closing date 28.4.25**	Email
25.3.25	Wiradjuri Council of Elders	CB received reply - *I have no comments as this looks good to me*	Email
2.4.25	Warrabinga Native Title Claimants Aboriginal Corporation	CB received reply - *Warrabinga is happy with Draft methodology*	Email
4.4.25	Murra Bidgee Mullangari Aboriginal Corporation	CB received email - *I have read the project information and draft ACHAR for the above project, I endorse the recommendations.*	Email
9.4.25	Murra Bidgee Mullangari Aboriginal Corporation	CB replied with thanks	Email

Appendix 1 Figure 1: Advertisement

Transgrid

Mount Piper to Wallerawang Transmission Line Upgrade Project

Notice and registration of Aboriginal interests

Transgrid is proposing a new 330 kilovolt (kV) electricity transmission line between Mount Piper and Wallerawang in the Lithgow Local Government Area, NSW to transmit power from renewable energy generators in the Central-West Orana Renewable Energy Zone to the Sydney basin.

The key elements of the project include:

- A new 8-kilometre, double circuit 330 kilovolt (kV) transmission line and support structures between the existing substations at Mount Piper and Wallerawang.
- Removal of some redundant wooden structures supporting the existing 132 kV transmission line within the same corridor.
- Widening the existing easement from 45 metres to 60 metres to accommodate the new 330 kV transmission line and the existing 132 kV transmission line.
- Upgrading existing access tracks and installing new tracks to provide access to the project area.
- Other ancillary works at the two substations to facilitate the project.

Transgrid and OzArk Environment & Heritage are seeking registrations of interest from Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places within the vicinity of the project. The purpose of consultation with Aboriginal people is to assist Transgrid to prepare an environmental impact assessment for the project.

Following registrations of interest, we will work with the registered Aboriginal people to determine our preferred consultation approach and assessment methodology over the coming months.

You can register your interest by writing (email or letter) to:

Catherine Burrowes
OzArk Environment & Heritage
145 Wingewarra St
Dubbo NSW 2830

Telephone: 02 68820118
Email: catherine@ozarkehm.com.au

Registrations must be received by close of business 5 October 2023.

Public Notices

Transgrid

Mount Piper to Wallerawang Transmission Line Upgrade Project

Notice and registration of Aboriginal interests

Transgrid is proposing a new 330 kilovolt (kV) electricity transmission line between Mount Piper and Wallerawang in the Lithgow Local Government Area, NSW to transmit power from renewable energy generators in the Central-West Orana Renewable Energy Zone to the Sydney basin.

The key elements of the project include:

- A new 8-kilometre, double circuit 330 kilovolt (kV) transmission line and support structures between the existing substations at Mount Piper and Wallerawang.
- Removal of some redundant wooden structures supporting the existing 132 kV transmission line within the same corridor.
- Widening the existing easement from 45 metres to 60 metres to accommodate the new 330 kV transmission line and the existing 132 kV transmission line.
- Upgrading existing access tracks and installing new tracks to provide access to the project area.
- Other ancillary works at the two substations to facilitate the project.

Transgrid and OzArk Environment & Heritage are seeking registrations of interest from Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal objects andr places within the vicinity of the project. The purpose of consultation with Aboriginal people is to assist Transgrid to prepare an environmental impact assessment for the project. Following registrations of interest, we will work with the registered Aboriginal people to determine our preferred consultation approach and assessment methodology over the coming months.

You can register your interest by writing (email or letter) to:

Catherine Burrowes
OzArk Environment & Heritage
145 Wingewarra St
Dubbo NSW 2830.

Telephone: **02 68820118**
Email: catherine@ozarkehm.com.au

Registrations must be received by close of business 5 October 2023.

Appendix 1 Figure 2: Agency Letter

OzArk Environment & Heritage
Dubbo | Queanbeyan
Wollongong | Newcastle
Katoomba
T: 02 6882 0118
enquiry@ozarkehm.com.au
www.ozarkehm.com.au
ABN 59 104 582 354
145 Wingewarra St
PO Box 2069
DUBBO NSW 2830

15 September 2023

Office of the Registrar, ALRA
PO Box 5068
Parramatta NSW 2124
02 8633 1266
aboriginalowners@oralra.nsw.gov.au

ABORIGINAL CULTURAL HERITAGE ASSESSMENT
TRANSGRID MOUNT PIPER TO WALLERAWANG TRANSMISSION LINE UPGRADE PROJECT, LITHGOW LGA, NSW

Dear Sir/Madam,

OzArk Environment & Heritage (OzArk) has been engaged on behalf of Transgrid (the proponent) to undertake Aboriginal community consultation for the above project in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010).

Transgrid is proposing to construct a new 8-kilometre, double circuit 330 kilovolt (kV) transmission line and support structures between the existing substations at Mount Piper and Wallerawang (**Figure 1**). The new 330 kV transmission line would be constructed partly within the same corridor as an existing 132 kV transmission line which runs along most of the route. The easement for the section of the route comprising both the 330 kV transmission line and the existing 132 kV transmission line would be widened from 45 metres to 60 metres and become a shared easement. Additionally, there will be new access tracks created as well as upgrades to existing tracks and some ancillary works areas for equipment and materials laydown, etc. These activities may result in harm to Aboriginal cultural heritage if present.

Transgrid are therefore seeking Expressions of Interest from relevant Aboriginal stakeholder groups and individuals in the area who hold cultural knowledge relevant to determining the significance of Aboriginal objects or places within the Mount Piper – Wallerawang area.

This consultation group will assist OzArk in preparing the Aboriginal Cultural Heritage Assessment Report (ACHAR) and to assist Heritage NSW in their consideration and determination of the project.

If your organisation can recommend and provide contact details for any known Aboriginal groups or individuals with cultural knowledge relevant to determining the impacts to the cultural significance of the above-mentioned project, please advise our office.

OzArk Environment & Heritage

We would appreciate it if you could provide any feedback, by responding to this email catherine@ozarkehm.com.au, regarding these Aboriginal stakeholder groups by 5 October 2023, or sooner if possible.

Kind regards,

Catherine Burrowes
Office Manager/ Community Liaison

Attachment: Project Locality Figure

Appendix 1 Figure 3: Stage 1 Community Letter

OzArk Environment & Heritage
Dubbo | Queanbeyan
Wollongong | Newcastle
Katoomba
T: 02 6882 0118
enquiry@ozarkehm.com.au
www.ozarkehm.com.au
ABN 59 104 582 354
145 Wingewarra St
PO Box 2069
DUBBO NSW 2830

6 October 2023

ABORIGINAL CULTURAL HERITAGE ASSESSMENT
TRANSGRID MOUNT PIPER TO WALLERAWANG TRANSMISSION LINE UPGRADE PROJECT, LITHGOW LGA, NSW

Dear Sir/Madam,

OzArk Environment & Heritage (OzArk) has been engaged on behalf of Transgrid (the proponent) to undertake Aboriginal community consultation for the above project in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010).

Transgrid is proposing to construct a new 8-kilometre, double circuit 330 kilovolt (kV) transmission line and support structures between the existing substations at Mount Piper and Wallerawang (**Figure 1**). The new 330 kV transmission line would be constructed partly within the same corridor as an existing 132 kV transmission line which runs along most of the route. The easement for the section of the route comprising both the 330 kV transmission line and the existing 132 kV transmission line would be widened from 45 metres to 60 metres and become a shared easement. Additionally, there will be new access tracks created as well as upgrades to existing tracks and some ancillary works areas for equipment and materials laydown, etc. These activities may result in harm to Aboriginal cultural heritage if present.

Accordingly, we are seeking Expressions of Interest from relevant Aboriginal groups and individuals in the Lithgow area, to form a consultation group. This consultation group will assist OzArk in preparing the Aboriginal Cultural Heritage Assessment Report (ACHAR) to assist Heritage NSW and the Department of Planning and Environment in their consideration and determination of the project.

If you hold cultural knowledge relevant to determining the impacts to the cultural significance of this project area, please register your interest by contacting our office on (02) 6882 0118 or responding to this email catherine@ozarkehm.com.au. The closing date for expressions of interest is 20 October 2023.

If you wish to register interest it is noteworthy that as per the Heritage NSW guidelines, we are required to provide your details to Heritage NSW and the Local Aboriginal Lands Council unless we are advised that you do not wish your details to be released.

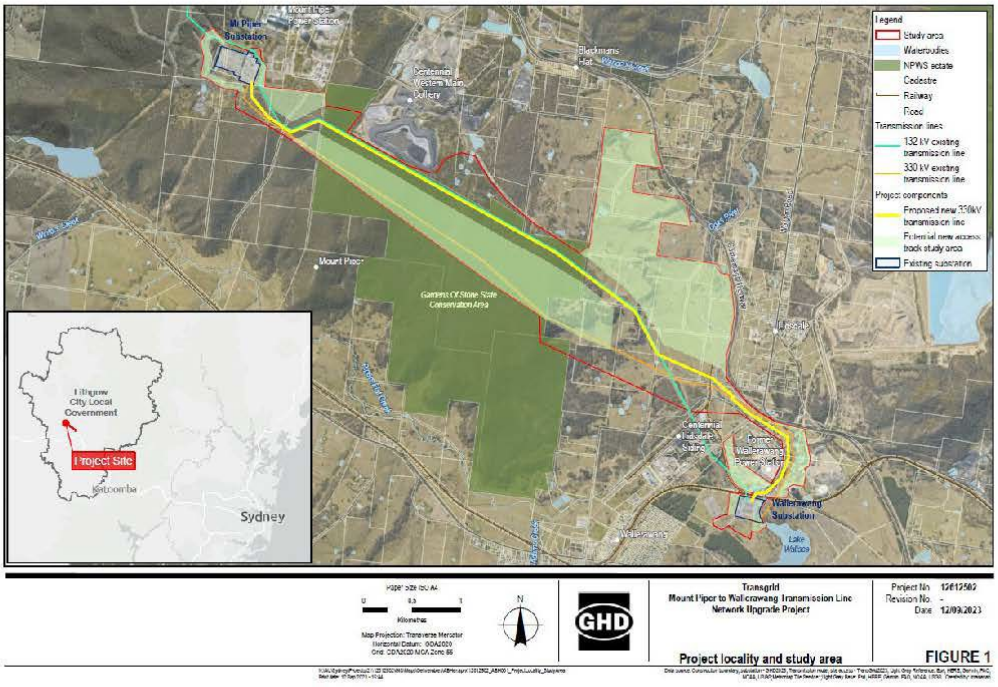
Once relevant groups and individuals have been identified, they will form part of the formal consultation process for the project.

Kind regards,

Catherine Burrowes
Office Manager/ Community Liaison

OzArk Environment & Heritage

Attachment: Project Locality Figure



Appendix 1 Figure 4: Stage 2 Assessment Methodology Letter

OzArk Environment & Heritage
Dubbo | Queanbeyan
Wollongong | Newcastle
Katoomba
T: 02 6882 0118
enquiry@ozarkehm.com.au
www.ozarkehm.com.au
ABN 59 104 582 354
145 Wingewarra St
PO Box 2069
DUBBO NSW 2830

14 February 2024

ABORIGINAL CULTURAL HERITAGE ASSESSMENT FOR THE MOUNT PIPER TO WALLERAWANG TRANSMISSION LINE UPGRADE PROJECT

Dear Members,

Thank-you for your registration of interest to become a Registered Aboriginal Party (RAP) to be consulted for the proposed Mount Piper to Wallerawang Transmission Line Upgrade Project. OzArk are currently undertaking an Aboriginal & Historic Cultural Heritage Assessment for GHD Pty Ltd , on behalf of TransGrid.

The purpose of the ACHA is to determine any impacts the proposed development will have on Aboriginal heritage values present within the study area and to assist in developing/modifying designs in order to minimise the impacts on Aboriginal heritage values.

The following project information and assessment methodology has been provided in accordance with section 4.2 and section 4.3 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010a). The aim of this letter is to invite you to comment on the enclosed draft methodology for the Aboriginal Cultural Heritage Assessment Methodology, Mount Piper to Wallerawang Transmission Line Upgrade Project.

In addition to comments on the draft report, if you can share any Aboriginal cultural heritage knowledge relevant to the proposed study area, we welcome this input to improve our assessment outcomes and to ensure Aboriginal cultural values are considered. OzArk is required to give you 28 days to supply feedback on the attached documents. **This period closes 5pm on 13 March 2024.**

If you need any help supplying feedback or have any queries in relation to the enclosed information, please do not hesitate to contact our office.

Kind regards,

Catherine Burrowes
Customer Liaison

Appendix 1 Figure 5: RAP Responses to Assessment Methodology

Konanggo Aboriginal Cultural Heritage Service

From: [redacted]
To: Catherine Burrowes
Subject: Re: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project
Date: Saturday, 24 February 2024 9:24:10 AM

Dear Catherine,

KACHS has reviewed the draft an acknowledged the information documented informative. Have no other comments to submit

Yours In Culture,

[redacted]

From: Catherine Burrowes <catherine@ozarkehm.com.au>
Sent: Wednesday, 14 February 2024 4:11 PM
To: [redacted]
Subject: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project

Hello Members,

Please find attached draft stage 2 information package for Mt Piper to Wallerawang Transmission Line Upgrade Project.

I look forward to hearing from you with any feedback you may have by Wednesday 13 March 2024.

Regards, Catherine

Catherine Burrowes
OzArk Environment & Heritage
Office Manager
(02) 6882 0118

Warrabinga NTCAC

From: admin
To: Catherine Burrowes
Cc: Carl Little
Subject: Wallerawang - Mt piper draft comments
Date: Wednesday, 28 February 2024 9:10:00 AM
Attachments: Outlook-slqefnw3

Warrabinga- Wiradjuri #7 Native Title Claimants
-c/o Warrabinga Native Title Claimants Aboriginal Corporation
[redacted]

Ozark Environment and Heritage

Dear Catherine,

We have carefully reviewed the draft methodology for the Aboriginal Heritage Assessment within the Mount Piper to Wallerawang Transmission Line Upgrade Project and would like to offer some feedback, particularly regarding concerns about potential impacts to heritage values.

Firstly, I commend the effort to conduct a thorough assessment of Aboriginal heritage within the study area. Recognizing and preserving cultural heritage is of paramount importance, and such assessments are crucial steps in ensuring the protection of sacred sites, cultural landscapes, and artifacts that hold significant meaning for Aboriginal communities.

However, upon review, several concerns have emerged regarding the potential impacts to heritage values within the study area:

Inadequate Field Survey Methods: The draft methodology outlines field survey methods, but it is essential to ensure that these methods are sufficiently robust to identify and document all relevant heritage sites and features. Inadequate survey methods such as transect by surveyors at 20 metres apart could result in the oversight or underestimation of heritage values within the study area.

Potential for Development Impacts: If the assessment is being conducted in conjunction with a development project or land use change, there is a risk that heritage values could be compromised due to construction activities, habitat destruction, or other forms of environmental impact. This is very evident with the mapping of the establishment of the new access tracks which are relative in proximity to Heritage sites. Also we would like clarification on which access tracks remain undefined? It is essential that the methodology includes measures to mitigate these risks and protect heritage sites from harm.

Long-Term Monitoring and Management: Finally, the draft methodology should address long-term monitoring and management of heritage sites within the study area. Effective management strategies are essential for ensuring that heritage values are preserved for future generations and that any ongoing threats or impacts are addressed in a timely manner.

In conclusion, while the draft methodology represents a positive step towards assessing Aboriginal heritage within the study area, it is essential to address the concerns outlined above to ensure that heritage values are adequately protected. I recommend further consultation with

Aboriginal communities, refinement of survey methods, consideration of traditional knowledge, and the development of robust management strategies to mitigate potential impacts.

Thank you for considering these concerns, and I look forward to seeing the final methodology reflecting a more comprehensive approach to Aboriginal heritage assessment.

Sincerely,
Kylie Manson
Warrabinga NTCAC
[redacted]

OzArk Response to Warrabinga

From: Sophia Grubnic
To: [redacted]
Cc: Jodie Benton; Catherine Burrowes
Subject: RE: Wallerawang - Mt piper draft comments
Date: Tuesday, 19 March 2024 11:12:00 AM
Attachments: image001.jpg

Dear Kylie,

I am writing in response to your comments provided regarding our assessment methodology for the Mt Piper to Wallerawang project.

First of all, I would like to thank you for taking the time to review the methodology in detail and provide us with thorough and well considered feedback.

Your concerns are addressed below:

1. Spacing of surveyors in that transects spaced at 20 metres apart will be inadequate. We have taken this concern on board and updated the text in 'Section 5.3 Survey Methodology' to reflect this. Where the text previously described the pedestrian survey being done in transects "spaced approximately 20 m apart" we have now written they will be "spaced *up to* 20 m apart". I would also like to note that in the same section of the methodology we ensure that there is flexibility in how distances between transects are set and that this flexibility is considered in terms of ground surface visibility (GSV). This ensures that there is ample room for RAPs and archaeologists to determine in the field where distances should be shortened so that the survey is adequate. This is especially the case where archaeological potential and ground surface visibility is high. As you would be aware, much of the study area for this project is likely to offer very low GSV, but please be assured that wherever there is good GSV the survey transects will narrow to ensure that all areas are adequately assessed for the presence of Aboriginal objects. It is our goal too to ensure that all Aboriginal are identified.

2. Undefined access tracks. The design of construction access tracks for the project is an ongoing and changeable component of the project. There are issues with land ownership, and finding tracks that will enable the right vehicles and materials to access the route. It is likely that we won't have a final understanding of access tracks for some time. We will, however, ensure that all options are surveyed. Regardless, wherever there are known heritage sites in proximity to these routes we will visit and ground-truth each location to make a sound assessment about potential impacts. It is entirely our aim to discover their current condition and to protect them from harm if at all feasible within project design. That is also the goal of TransGrid.

3. Mitigation measures and long-term monitoring and site management. These concerns will be addressed in the ACHAR once a full understanding of the Aboriginal heritage resource in the study area is understood and this can be overlaid with a final project design. These management measures can be discussed with your field staff when we are surveying in regard to specific sites, and further Warrabinga will have a full opportunity to review a draft ACHAR with draft measures and mitigation well ahead of it being finalised. The contents of the current methodology is limited to the desktop research, archaeological contexts and predictive modelling required prior to survey. Once we have

completed the fieldwork we will be able to fully address the project risks and impacts to heritage and the necessity for effective management. We value that you have raised these concerns as they are important considerations around long-term management strategies.

We encourage your field officers to keep all these concerns in mind during the survey and to discuss issues with the OzArk team whenever they deem it necessary. It is important to us that the survey truly reflects an adequate assessment of the study area and that your field officers contribute to that.

We are looking forward to working with Warrabinga, and, in the meantime, please don't hesitate to email or call should you wish to discuss anything further.

Kind regards,

Sophia

Sophia Grubnic
OzArk Environment & Heritage
Archaeologist
(02) 6882 0118

Thomas Dahlstrom

From: Thomas Dahlstrom [redacted]
Sent: Monday, March 11, 2024 11:35 am
To: Catherine Burrowes <catherine@ozarkehm.com.au>
Subject: Re: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project

Hi Catherine

Can I ask about the status of this project? I noticed there was no mention of any litho analysis of any rock material located, can I request this be done in the ACHA and any salvage included please ?

Kind regards

Thomas Dahlstrom

On 14 Feb 2024, at 4:10 pm, Catherine Burrowes <catherine@ozarkehm.com.au> wrote:

Hello Members,

Please find attached draft stage 2 information package for Mt Piper to Wallerawang Transmission Line Upgrade Project.

I look forward to hearing from you with any feedback you may have by Wednesday 13 March 2024.

Regards, Catherine

Catherine Burrowes
OzArk Environment & Heritage
Office Manager
(02) 6882 0118

OzArk Response to Thomas Dahlstrom

From: Imogen Crome
To: Thomas Dahlstrom
Cc: Catherine Burrowes; Jodie Benton
Subject: RE: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project
Date: Tuesday, 12 March 2024 9:08:00 AM
Attachments: image001.png
image002.png
image003.jpg

Hi Tom,

Just responding on behalf of Catherine who is on leave this week

Thanks for sending through your comment and I've made note of it for the team managing the project

Regarding the project status the methodology is still currently open for review, so we are just waiting to receive any final comments

As the methodology is a survey methodology only, an additional methodology would be prepared should test or salvage excavation be required into the future, which would include stone tool analysis and raw material if warranted.

If artefacts are encountered during the survey, their material and typological features will be recorded as per the appropriate accepted protocols, but they will be left *in situ*

Cheers,
Imogen

Imogen Crome
Archaeologist

OzArk Environment & Heritage
PO Box 2069 DUBBO 2830
02 6882 0118
imogen@ozarkehm.com.au;
www.ozarkehm.com.au

OzArk and staff respectfully acknowledge the traditional custodians and Elders of the Country on which we work.

Timothy Stubbs

From: tim stubbs
To: Catherine Burrowes
Subject: Re: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project
Date: Monday, 19 February 2024 5:04:51 PM

Hi Catherine,

I have reviewed the methodology for the above project and agree with it
I'm also available for any field work that may
Happen

Kind regards Tim
Sent from my iPhone

Appendix 1 Figure 6: Stage 2 Test Excavation Cover Letter

OzArk Environment & Heritage
Dubbo | Queanbeyan
Wollongong | Newcastle
Katoomba
T: 02 6882 0118
enquiry@ozarkehm.com.au
www.ozarkehm.com.au
ABN 29 675 720 564
145 Wingewarra St
PO Box 2069
DUBBO NSW 2830

23 August 2024

Aboriginal Cultural Heritage Assessment: Test Excavation Methodology: Mount Piper to Wallerwang Transmission Line Upgrade Project

Dear Members,

Thank-you for your continued participation as a Registered Aboriginal Party (RAP) to be consulted regarding the proposed Mount Piper to Wallerwang Transmission Line Upgrade Project (the project) The proponent is proposing to construct a new 8-kilometre, double circuit 330 kilovolt (kV) transmission line and support structures between the existing substations at Mount Piper and Wallerawang, in the Lithgow Local Government Area.

The purpose of this letter is to invite you to comment on the enclosed draft test excavation methodology for the Aboriginal cultural heritage assessment.

In addition to comments on the draft methodology, if you can share any Aboriginal cultural heritage knowledge relevant to the assessment areas, we welcome this input so as to improve our assessment outcomes and to ensure Aboriginal cultural values are considered.

OzArk Environment & Heritage is required to give you 28 days to supply feedback on the attached documents. This period closes 5pm on **Friday 20 September 2024.**

If you need any help supplying feedback or have any queries in relation to the enclosed information, please do not hesitate to contact our office.

Kind regards,

Catherine Burrowes
Customer Liaison

Appendix 1 Figure 7: Stage 3 RAP Responses to Test Excavation Methodology

Girragirra Murun Aboriginal Corporation

From: Girra Murun
To: Catherine Burrowes
Subject: Re: Stage 2-3 Mt Piper to Wallerawang Test Excavation Methodology
Date: Monday, 9 September 2024 6:45:44 PM

Good evening,

Please note if any artefacts are found during site visits, recommendation is reburial on site.

On Friday 23 August 2024 at 02:49:07 pm AEST, Catherine Burrowes <catherine@ozarkehm.com.au> wrote:

Hello Members,

Please find attached stage 2 information package for the **Draft Test Excavation Methodology for the proposed Mt Piper to Wallerawang Transmission Line Upgrade.**

I look forward to hearing from you with any feedback you may have by **Friday 20 September 2024.**

Regards, Catherine

Catherine Burrowes
OzArk Environment & Heritage
Office Manager
(02) 6882 0118

Kamilaroi Yankuntjatjara Working Group

From: [redacted]
To: Catherine Burrowes
Subject: Re: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project
Date: Saturday, 24 February 2024 9:24:10 AM

Dear Catherine,

KACHS has reviewed the draft an acknowledged the information documented informative.
[redacted]ments to submit

Yours In Culture,

[redacted]

From: Catherine Burrowes <catherine@ozarkehm.com.au>
Sent: Wednesday, 14 February 2024 4:11 PM
To: [redacted]
Subject: Stage 2 - Mt Piper to Wallerawang Transmission Line Upgrade Project

Hello Members,

Please find attached draft stage 2 information package for Mt Piper to Wallerawang Transmission Line Upgrade Project.

I look forward to hearing from you with any feedback you may have by Wednesday 13 March 2024.

Regards, Catherine

Catherine Burrowes
OzArk Environment & Heritage
Office Manager
(02) 6882 0118

Murra Bidgee Mullangari Aboriginal Corporation

From: [redacted]
To: Catherine Burrowes
Subject: Re: Stage 2-3 Mt Piper to Wallerawang Test Excavation Methodology
Date: Tuesday, 3 September 2024 4:56:19 PM

Hi Catherine
I have read the project information and test excavation methodology for the above project, I endorse the recommendations.
Kind regards
[redacted]

On Friday 23 August 2024 at 02:49:06 pm AEST, Catherine Burrowes <catherine@ozarkehm.com.au> wrote:

Hello Members,

Please find attached stage 2 information package for the **Draft Test Excavation Methodology for the proposed Mt Piper to Wallerawang Transmission Line Upgrade.**

I look forward to hearing from you with any feedback you may have by **Friday 20 September 2024.**

Regards, Catherine

Catherine Burrowes

OzArk Environment & Heritage

Office Manager

(02) 6882 0118

Wingarra Wilay Aboriginal Corporation

From: [redacted]
To: Catherine Burrowes
Subject: Re: Stage 2-3 Mt Piper to Wallerawang Test Excavation Methodology
Date: Monday, 16 September 2024 5:09:36 PM

Hi Catherine,

[redacted]
Wingarra Wilay agrees with the methodology and would like to point out if any Artifacts are found and need to be removed they need to have a smoking ceremony before they can be reburied.

Look forward to working the excavation work.

Regards
[redacted]

Yahoo Mail: Search, organise, conquer

Appendix 1 Figure 8: Stage 4 Draft ACHAR responses

Wiradjuri Council of Elders

From: [redacted]
To: Catherine Burrowes
Subject: Re: Stage 4 - Mt Piper to Wallerwang Transmission Line Upgrade project Draft ACHAR
Date: Tuesday, 25 March 2025 5:28:15 PM
Attachments: image001.png
image001.png

Catherine, I have no comments as this looks good to me.
[redacted]

On Tue, Mar 25, 2025, 4:01 PM Catherine Burrowes <catherine@ozarkehm.com.au> wrote:

> Hello Members,
>
> Please find attached the draft stage 4 information package letter attached & (Link below) for the Mt Piper to Wallerwang Transmission Line Upgrade project.
>
> V2.8 Draft_MP2W_ACHAR_2025.pdf
>
> I look forward to hearing from you with any feedback you may have by Monday 28 April 2025.
>
> Regards, Catherine
>
> **Catherine Burrowes**
>
> OzArk Environment & Heritage
>
> Office Manager
>
> (02) 6882 0118

Warrabinga NTCAC

From: admin
To: Catherine Burrowes
Subject: Re: Stage 4 - Mt Piper to Wallerwang Transmission Line Upgrade project Draft ACHAR
Date: Wednesday, 2 April 2025 8:57:07 AM
Attachments: image001.png
Outlook-4kufjlfw

Hi Catherine

Warrabinga is happy with Draft methodology

Kind Regards,
Warrabinga NTCAC.
[redacted]

From: Catherine Burrowes <catherine@ozarkehm.com.au>
Sent: 25 March 2025 4:01 PM
Subject: Stage 4 - Mt Piper to Wallerwang Transmission Line Upgrade project Draft ACHAR

Hello Members,
Please find attached the draft stage 4 information package letter attached & (Link below) for the Mt Piper to Wallerwang Transmission Line Upgrade project.
V2.8 Draft_MP2W_ACHAR_2025.pdf
I look forward to hearing from you with any feedback you may have by Monday 28 April 2025.
Regards, Catherine

Catherine Burrowes
OzArk Environment & Heritage
Office Manager
(02) 6882 0118

Murra Bidgee Mullangari Aboriginal Corporation

From: [redacted]
To: Catherine Burrowes
Subject: Re: Stage 4 - Mt Piper to Wallerwang Transmission Line Upgrade project Draft ACHAR
Date: Friday, 4 April 2025 6:11:42 PM
Attachments: image001.png

Hi Catherine,
I have read the project information and draft ACHAR for the above project, I endorse the recommendations.
Kind regards
[redacted]

On Tuesday 25 March 2025 at 04:01:15 pm AEDT, Catherine Burrowes <catherine@ozarkehm.com.au> wrote:

Hello Members,

Please find attached the draft stage 4 information package letter attached & (Link below) for the Mt Piper to Wallerwang Transmission Line Upgrade project.

V2.8 Draft_MP2W_ACHAR_2025.pdf

I look forward to hearing from you with any feedback you may have by Monday 28 April 2025.

Regards, Catherine

Catherine Burrowes

OzArk Environment & Heritage

Office Manager

(02) 6882 0118

APPENDIX 2: ASSESSMENT METHODOLOGY

View east overlooking the existing Mount Piper to Wallerawang transmission line and easement.

ABORIGINAL & HISTORIC CULTURAL HERITAGE ASSESSMENT METHODOLOGY

MOUNT PIPER TO WALLERAWANG TRANSMISSION LINE UPGRADE PROJECT

LITHGOW LOCAL GOVERNMENT AREA, NSW

FEBRUARY 2024

Report prepared by

OzArk Environment & Heritage

for TransGrid

OzArk
Environment & Heritage

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(PO Box 2069)
Dubbo NSW 2830

Phone: (02) 6882 0118
Fax: (02) 6882 0630
enquiry@ozarkehm.com.au
www.ozarkehm.com.au

Official

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DOCUMENT CONTROLS

Proponent	TransGrid
Client	GHD Pty Ltd
Document Description	Aboriginal and Historic Heritage Assessment Methodology: Mount Piper to Wallerawang Transmission Line Upgrade Project
File Location	OzArk Job No.
OzArk EHM Data > Clients > GHD Sydney > Transgrid Mt Piper to Wallerawang May 2023 > Assessment Methodology	3908

Document Status: V3.2 FINAL	Date: 18 February 2024
Draft V1: OzArk internal edits	V1.0 SG author 18/10/2023 V1.1 JB review 21/12/2023 V1.2 SG edit 21/12/2023
Draft V2: OzArk and client edits	V2.0 OzArk to Client 21/12/2023 V2.1 OzArk amends with GHD comments 18/1/24 V2.2 OzArk amends with proponent comments 6/2/24
Final V3: Final documents	V3.0 SG finalises draft 08/2/24 V3.1 SG amends 13/2/24 V3.2 SG amends following RAP review period 18/3/24
Prepared for	Prepared by
Jenny McKinney Technical Director – Environment GHD Level 15 133 Castlereagh Street Sydney NSW 2000 Jenny.mckinney@ghd.com	Sophia Grubnic Archaeologist OzArk Environment & Heritage 145 Wingewarra Street (PO Box 2069) Dubbo NSW 2830 P: 02 6882 0118 sophia@ozarkehm.com.au

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Acknowledgement

In the spirit of reconciliation OzArk acknowledges the Traditional Custodians of the lands where we work, the lands we travel through and the places in which we live.

We pay respects to the people and Elders, past, present and emerging and celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters of NSW and ACT.

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CONTENTS

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FIGURES

TABLES

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1 INTRODUCTION

OzArk Environment & Heritage (OzArk) has been engaged by GHD (the Client) on behalf of TransGrid (the Proponent) to prepare an assessment methodology for the proposed new transmission line for the Mount Piper to Wallerawang Transmission Line Upgrade Project (the project).

The project is located 14 kilometres (km) northwest of the Lithgow township CBD in the Central Tablelands of New South Wales. (**Figure 1-1**). The project is within the Lithgow Local Government Area and falls within the Bathurst Local Aboriginal Land Council (LALC) boundary and the Warrabinga Native Title Group traditional lands.

This methodology is in accordance with Stage 3 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRs; DECCW 2010b). The project information provided here also complies with Stage 2 of the ACHCRs.

1.1 PROJECT OVERVIEW

To support the connection of the Central-West Orana Renewable Energy Zones (CWOREZ) and changes to power flows within the electricity transmission network, augmentation works are required within TransGrid's existing network both within the Renewal Energy Zone (REZ) area and the wider region. One of these augmentations is a new transmission line between TransGrid's Mount Piper and Wallerawang substations.

The project proposes to deliver a new 330 kilovolt (kV) transmission line between Mount Piper and Wallerawang substations, to enable increased power flows from the REZ to the main load areas (for example Sydney) via the existing transmission network.

The proposed project includes the following key components:

- Construction and operation of a new approximately 8 kilometre (km) long 330 kV transmission line and double circuit transmission structures between the Mount Piper 330 kV/500 kV substation and the Wallerawang 330 kV switching station within a 60 m easement
- Demolition and removal of redundant wooden support poles from sections of the existing 132 kV transmission line 94E, occurring in the shared easement with the 330 kV transmission line, and incorporation of the existing 132 kV transmission line conductors onto the new transmission structures
- Adjustment of transmission structures in the vicinity of the Mount Piper 330 kV/500 kV substation to minimise crossover of transmission lines
- Establishment of new and upgraded access tracks to the transmission line easement for construction and maintenance during operation

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- Other ancillary works required to support construction of the Project, including establishment of temporary laydown areas and site compounds.

Access to the easement will be required for the delivery of equipment, plant and materials during construction. Some access will be retained for ongoing maintenance during operation. Several access tracks already exist across the study area. Th project intends to upgrade selected existing access tracks so that they are safely trafficable and can cater for construction equipment. Additional new access tracks may be required. The scope and location of all access tracks required for construction and operation is still being developed and will be assessed. The proposed easement, potential new access tracks and potential laydown areas are henceforth collectively referred to as the project area.

The investigation set out in this methodology aims to identify Aboriginal cultural values, both tangible and intangible, that exist in the project area. The results of this investigation will be presented in an *Aboriginal Cultural Heritage Assessment Report* (ACHAR).

1.2 PROJECT AREA

The project area describes the area in which project components associated with the project would be located (**Figure 1-2**).

The project area is located approximately 10 kilometres (km) northwest of Lithgow, 750 m east of Wallerawang (eastern end of alignment) and 4 km east of Portland (western end of alignment). The project would connect into the existing Mount Piper Substation located on the northwestern side of the project area via a proposed new transmission line (along predominately the alignment of an existing smaller capacity transmission line) to the existing Wallerawang Substation in the southeast.

As shown in **Figure 1-2,** the project area is comprised of three elements: the proposed easement, the potential laydown areas, and the *potential new access track area*. The proposed easement and the potential laydown areas represent specific areas allocated to works and associated infrastructure zones, i.e. the impact footprint. Notably, the *potential new access track area*, represents a buffer zone within which defined track corridors will ultimately be proposed for project impact.

The majority of access track works are likely to be contained within this buffer zone as depicted in **Figure 1-2**, however, the route is yet to be determined and may include track sections that extend outside of these boundaries. **Appendix 1** provides a figure of indicative access track locations; note that this is liable to change and that not all the depicted route options may be required for the project.

For the time being, the whole of the *potential new access track area* is considered to be a part of the project area. Once known however, only the specific track corridors will be subject to survey

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and will include all track sections irrespective of whether they are within the *potential new access track area* or not. The final project area is expected to consist of approximately 50 ha.

Figure 1-1: Location of the project area.

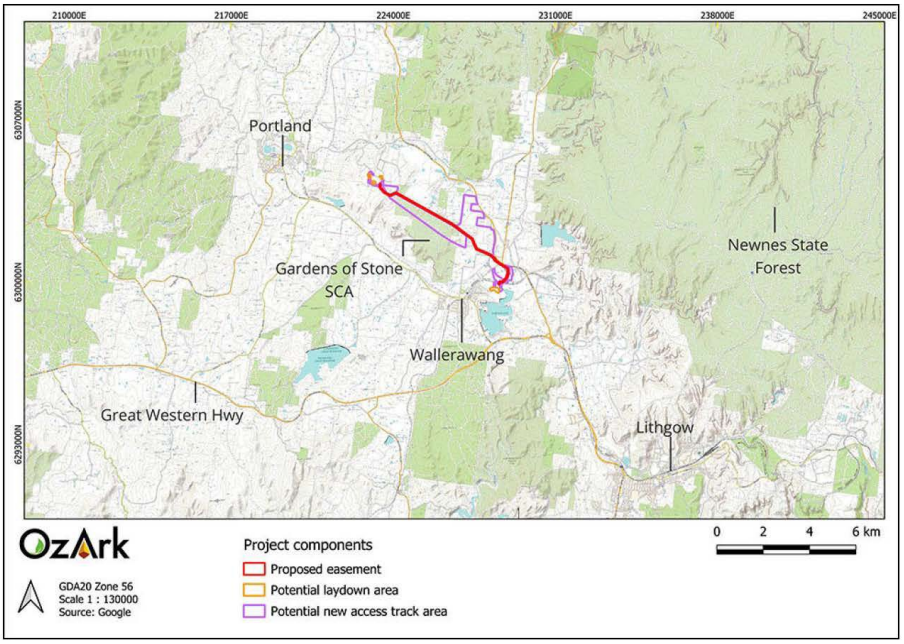
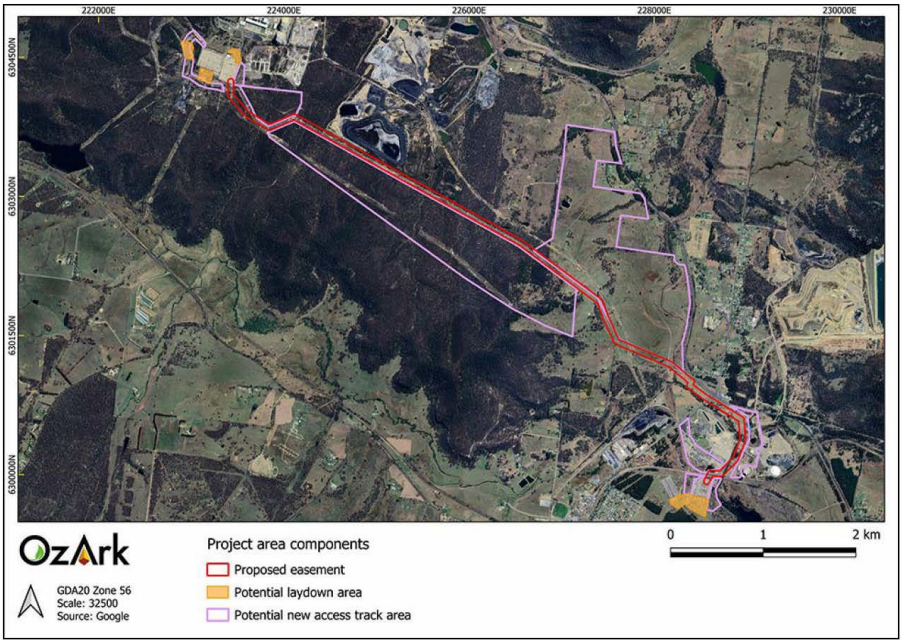


Figure 1-2. Aerial of the project area.



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1.3 CONSULTATION ON THIS METHODOLOGY

Consultation for this project has followed the guidelines established in the ACHCRs (DECCW 2010b) whereby an advertisement was placed in the local press and relevant agencies were contacted to ascertain if they were aware of groups or individuals who may have cultural knowledge of the region containing the project.

On 15 and 20 September 2023 advertisements were placed in the *Lithgow Mercury* and *Koori Mail,* respectively, requesting expressions of interest in being consulted about the project. In addition, the following agencies were contacted to identify potential stakeholders for the area: Heritage NSW; the Bathurst Local Aboriginal Land Council (LALC); the Office of The Registrar, *Aboriginal Land Rights Act 1983*; the National Native Title Tribunal; Native Title Services Corporation Limited (NTSCORP); the Lithgow City Council; and the Central Tablelands Local Land Services.

As a result, the following 14 individuals/groups registered to be consulted about the project:

- Warrabinga Native Title Claimants Aboriginal Corporation
- Murra Bidgee Mullangari Aboriginal Corporation
- Didge Ngunawal Clan
- Thomas Dahlstrom
- Konanggo Aboriginal Cultural Heritage Service
- Timothy Stubbs
- Kamilaroi Yankuntjatjara Working Group
- Wingarra Wilay Aboriginal Corporation
- Girragirra Murun Aboriginal Corporation
- Wiradjuri Council of Elders
- Koori Digs Services
- Stakeholder 1
- Gunjeewong Cultural Heritage Aboriginal Corporation
- Bathurst Local Aboriginal Land Council.

These individuals/groups constitute the Registered Aboriginal Parties (RAPs) for the project.

1.4 LANDSCAPE CHARACTERISTICS OF THE PROJECT AREA

The project area is located at the northeastern edge of the NSW South Eastern Highlands bioregion where it borders with the Sydney Basin bioregion. Specifically, it lies in the Capertee

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Uplands sub-region and is characterised in Mitchell's (2002) *Descriptions for NSW Landscapes* as akin to the Sydney Basin - Capertee Plateau landscape unit. This landscape type is characterised by wide valleys and rolling hills below sandstone cliffs on Permian conglomerates, sandstones and shales with coal at the base across the Sydney Basin and exposures of underlying Devonian rock. The general elevation is between 800–1000 m (Mitchell 2002: 107). The topography of the project area varies from gentle slopes and flats in the southeast to steep slopes and ridgelines in the northwest, with the highest point lying in the southern boundary of the potential access track area with an elevation of 1052 m above sea level.

The soils inside the project area consists primarily of shallow stony texture-contrast profiles typical of steep and moderate slopes in the bioregion, usually with gritty well drained A-horizons, over tough yellow or grey poorly drained clays. Lower lying gradients can include swamp landforms consisting of organic rich sandy loams, while in flatter slopes and valley floors, soils change to red brown structured loams.

Examination of the aerial imagery (see **Figure 1-2**) shows that much of the project area has been cleared, although there is an approximate 150 ha overlap with the Gardens of Stone State Conservation Area (SCA).

The project area comes within a 100 m distance of the confluence of two permanent watercourses, Coxs River and Pipers Flat Creek, marking an area of comparatively high archaeological sensitivity. As well as this, several first and second order unnamed waterways traverse the project area in a northeasterly direction to ultimately flow into Wangcol Creek, a tributary of Coxs River approximately 1.5 km north of the project area. (see **Figure 1-3**).

Much of the project area exists in disturbed lands associated with the existing easement, access tracks, and Mount Piper and Wallerawang substations. However, remaining parts of the project area, particularly in the undefined sections allocated for the potential new access tracks contain some land that has not been changed in a clear and observable manner. These areas are more likely to contain intact archaeological deposits if present, and, in the highly vegetated portions which lie within the Gardens of Stone State Conservation Area, may contain culturally modified trees.

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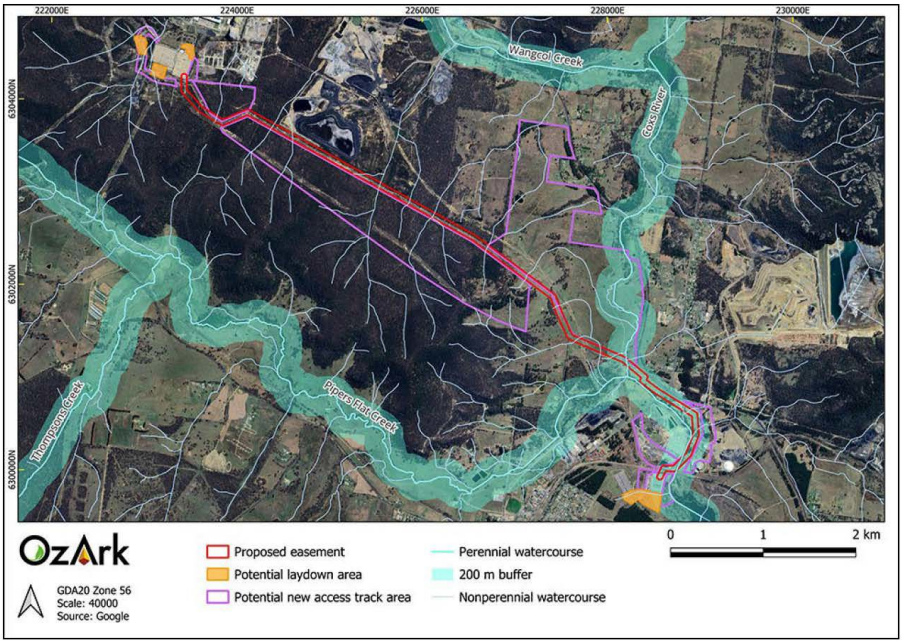
Figure 1-3: Hydrology of the project area.



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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

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2.1.2 Managing Country

Living on this land for over 50,000 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 must 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 much of eastern Australia, Aboriginal communities live their lives like most Australians. 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 ACHAR's management recommendations.

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During the survey, the OzArk archaeologists will hold targeted conversations with the RAPs to determine if any cultural values are known which relate to the project area. If such information is provided by RAPs, this will be captured by the OzArk archaeologists and included in the ACHAR.

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. Should any RAPs have knowledge of cultural values regarding the project area that they wish to share or that may affect the survey methodology set out in **Section 5**, OzArk invites them to contact us so that these values can be recorded and/or responded to in the methodology. Details for contacting OzArk via phone and email are provided in the Document Controls page at the top of this document.

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 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 available to Heritage NSW for their consideration of the project and 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.

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3 ARCHAEOLOGICAL CONTEXT

3.1 ABORIGINAL PEOPLE OF THE PROJECT AREA

According to Tindale (1974), the current project area falls within the eastern limits of the lands occupied by the Wiradjuri tribe. However, due to the location of this area at the western base of the mountains it has often been referred to as zone of interaction between the Wiradjuri, the Dharug to the east and the Gundungurra to the south (Bowdler 1983).

Although tribal boundaries still retain some uncertainty, it is thought that the Dharug people occupied much of the Sydney area, and west towards the Hawkesbury, Blue Mountains and Nepean District. The Wiradjuri people were the largest language group in New South Wales, with dialects spoken from Coonabarabran in the north, the Murray River to the south, western Blue Mountains in the east and Condobolin in the west. The Gundungurra people lived chiefly in the southern highlands, but reached as far north as western Sydney near Liverpool, west to parts of the Blue Mountains and south to Lake George.

Although separate nations, all three language groups were neighbours and shared certain similarities with other Aboriginal groups in south-eastern Australia. Plants were used for food, as well as in the manufacture of practical items, decorative items and medicines, with some species providing more than one resource. Grass stalks could be used for weaving or producing baskets. Large trees were useful in providing bark and fibres used for the manufacture of tools, containers and possibly the construction of watercraft. The resin obtained from Grass Trees, for example, were an adhesive that could be used in hafting processes. Bark fibres were twisted into twine which could then be woven into traps, containers or baskets and a variety of wooden tools. Stone was also used for tools (RPS 2014).

The Blue Mountains offered a variety of resources to Aboriginal people, including flora, fauna and stone material. Gunyahs or bark huts were usually made from the broad leafed paperbark, box or stringybark trees and were constructed mostly by women. They were generally located close to a reliable water source or opportunistically situated on trade routes. Rock shelters are common in the Blue Mountains region, and would likely have been occupied periodically as shelter or in association with camp sites. Camp sites were places commonly used for sleeping, eating, tool making, social activity and as a base for hunting and gathering (RPS 2014).

More recently, oral histories of recorded of Aboriginal people in the area were noted to have been recorded by a resident of nearby Lidsdale, Fay Hasler (reproduced in part in Kelton 2002: 12–13), which are held by the Lithgow and District Family Historical Society. The salient points derived from these notes are as follows.

- A large Aboriginal settlement is described as being located at Pipers Flat, with the burial ground being located at Lidsdale

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- The Pipers Flat Aboriginal group would regularly travel to Richmond to fight the local Aboriginal communities and bring back women to combat in-breeding
- The communities occupying the valleys in the area were wiped out by disease including measles and small pox.

Interviews with Fay Hasler during March and May 1999 (Gay 1999) indicate that the burial ground at Lidsdale was located on the river flats either side of Coxs River. It is noted that the colliery railway line was constructed through this area in the 1920s, and further disturbance would have affected this area during the Coxs River realignment in the 1950s (Gay 1999: 15).

Gay (1999: 16) also notes an historical reference to the burial of an Aboriginal Elder in the Wallerawang area. King Myall (Mylles) had worked for James Walker who had been granted land in the Wallerawang and Lidsdale districts during the 1820s. The burial site of King Myall was drawn and published in the Sydney Illustrated News in October 1880, showing a burial mound and carved trees. This may be part of the burial ground referred to by Fay Hasler (Gay 1999: 16).

3.2 DESKTOP DATABASE SEARCHES

Heritage database searches were undertaken to identify any previously recorded Aboriginal sites and places in the project area. The database search results are summarised in **Table 3-1**.

Table 3-1: Aboriginal heritage: summary of desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
Australian Heritage Database	21/9/2023	Lithgow LGA	No Aboriginal Places listed are within or near the project area
NSW Heritage Office State Heritage Register	21/9/2023	Lithgow LGA	No Aboriginal Places listed are within or near the project area
Aboriginal Heritage Information and Management System	19/9/2023	10 x 10 km centred on the project area	114 sites within the search area. Six sites within the project area (**Table 3-3**).
National Native Title Claims Search	18/10/2023	Lithgow LGA	One Native Title claim covers the project area
Local Environment Plan (LEP)	21/9/2023	Lithgow LEP 2014	No Aboriginal Places listed are within or near the project area

As per **Table 3-1**, it is noted that the project area includes land currently subject to Native Title Claim by Warrabinga-Wiradjuri #7 (NC2018/002, NSD857/2017). The Proponent will need to obtain legal advice as to whether any land tenure subject to the project will require Native Title consultation.

A search of the Heritage NSW administered Aboriginal Heritage Information Management System (AHIMS) database on 19 September 2023 returned 114 results for Aboriginal sites within a 10 km (east–west) by 10 km (north–south) area centred on the project area (GDA Zone 56 Eastings: 221496-230973, Northings: 6297352-6306553) (see Error! Reference source not found. for site types and frequencies).

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The most frequently recorded site types are open sites which contribute 38% (n=43) of those in the vicinity of the project area. Isolated finds (17%, n=19) and other stone artefact sites (11%, n=13) are recorded in lower frequencies (Error! Reference source not found.). It is of note that these site types are all stone artefact based, and if combined, they represent almost 66% of the total number of sites in the search area.

Most of the sites are closely associated with the nonperennial waterways, and the ridges and slopes of regional State Forest areas. As these same landforms / waterway associations occur within the project area, this elevates the potential for unrecorded Aboriginal sites to be present.

shows the location of previously recorded sites in the vicinity of the project area.

Table 3-2: AHIMS site types and frequency

Site Type	Number	% Frequency
Artefact (unspecified quantity)	13	**11%**
Artefact site & PAD	6	**5%**
Artefact site with modified tree (carved or scarred)	2	**1%**
Artefact site with quarry and PAD	1	**1%**
Burial	1	**1%**
Burial with modified tree (carved or scarred)	1	**1%**
Grinding groove	3	**3%**
Grinding groove & shelter with deposit	3	**3%**
Grinding groove with shelter with art & shelter with deposit	3	**3%**
Isolated find	19	**17%**
Isolated find & PAD	2	**1%**
Modified tree (carved or scarred)	2	**1%**
Open site	43	**38%**
PAD	4	**4%**
Shelter with art & shelter with deposit	1	**1%**
Shelter with deposit	9	**8%**
Stone arrangement	1	**1%**
Total	**114**	100

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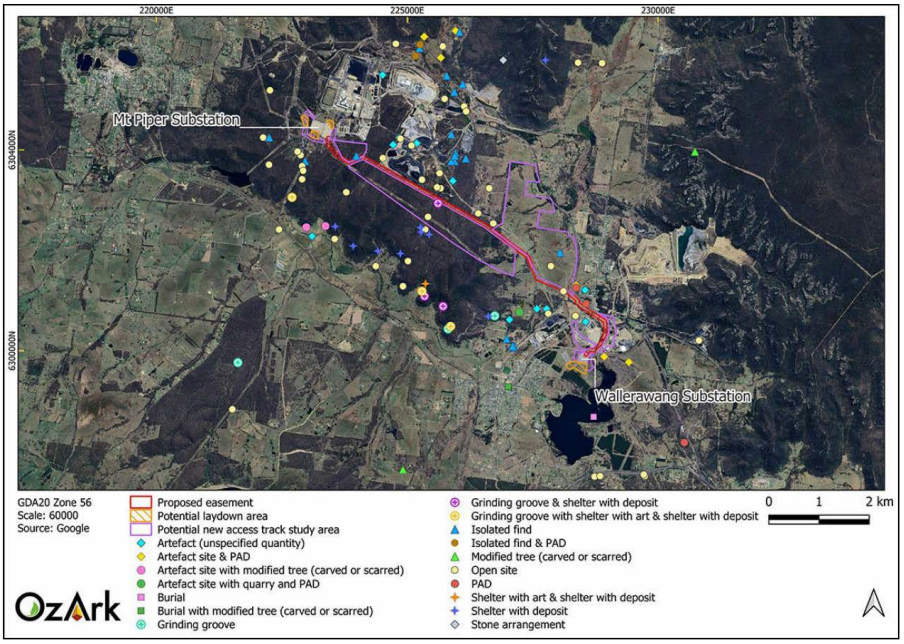
Figure 3-1. AHIMS sites in relation to the project area.



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3.2.1 Aboriginal sites within the project area

Six AHIMS sites are registered inside the project area (**Figure 3-2**); three open sites (45-1-0215, 45-1-0206, 45-1-0237), two isolated finds (45-1-2602, 45-1-2715) and one grinding groove and shelter with deposit (45-1-0019). Site 45-1-0237 is the only site within the proposed easement. The remaining sites are noted as they occur within the bounds of the potential access track project area. Potential harm to these recorded sites will be reassessed once specific locations and impacts associated with the access track designs are confirmed. No sites are recorded within the potential laydown areas.

Table 3-3 provides the details of the AHIMS sites within the project area.

Table 3-3: Details of the AHIMS sites within the project area.

Site Name	AHIMS Site ID	Site Type	GPS Coordinates	Location	Description
WCU1	45-1-2602	Isolated find	223989E, 6303882N	Mount Piper	One quartzite flake. Located on a gentle slope in proximity to an ephemeral watercourse.
SU1a-A4	45-1-2715	Isolated find	228046E, 6301960N	Lidsdale	Single silcrete core showing three scars. Located along a light vehicle track in proximity to a drainage line.
Lamberts Creek 5	45-1-0215	Open site	225425E, 6302667N	Mount Piper	Seven artefacts identified along a vehicle track on gentle sloping landform.
Site 9	45-1-0206	Open site	227750E, 6301687N	Lidsdale	Twenty-six artefacts recorded on the ground surface. They included 3 cores, 4 complete flakes, 11 broken flakes and 8 flaked pieces. Located on flat land between two drainage lines.
Springvale Colliery	45-1-0237	Open site	228115E, 6301000N	Lidsdale	Subsurface; 50 artefacts identified including debitage and a possible hearth.
Irondale	45-1-0019	Grinding groove & shelter with deposit	225625E, 6302937N	Ben Bullen State Forest	Shelter of sandstone outcrop located on a low ridge. Three grinding grooves are present within the shelter.

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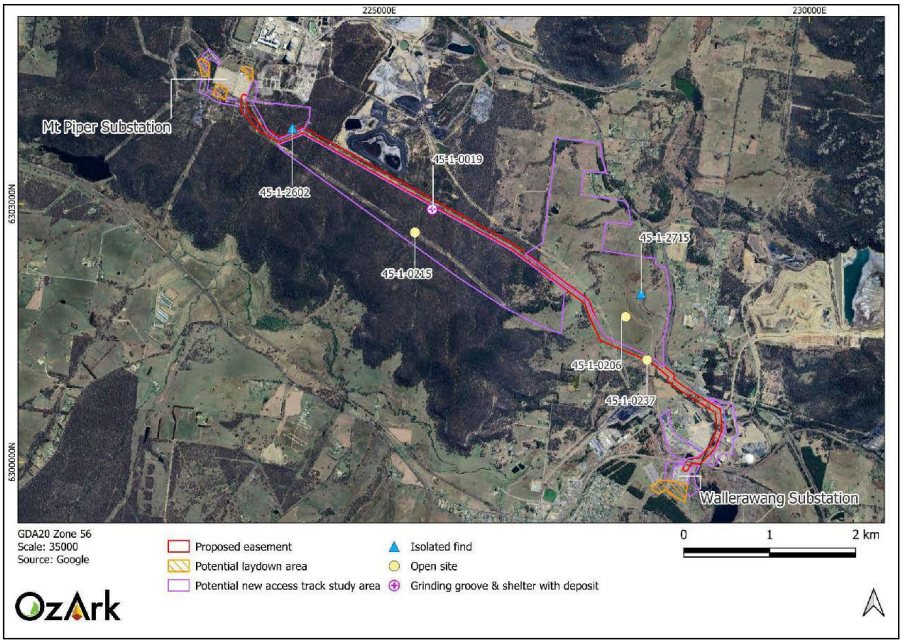
Figure 3-2. AHIMS sites within the project area



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3.3 REGIONAL ARCHAEOLOGICAL CONTEXT

The Aboriginal occupation of Australia begins prior to 40,000 BP (years before present) and possibly earlier than 50,000 BP. Dates exceeding 20,000 years occur in almost all parts of Australia resulting in the expectation that most areas should have a Pleistocene (>12,000 BP) occupational signature. However, such dates remain relatively rare due to a range of factors, both behavioural and post-depositional. These factors include a possible low density of occupation in the Pleistocene period and poor preservation of archaeological materials (particularly dateable organic materials).

There are a number of broad scale regional archaeological studies which either cover the project area itself or are in general proximity to it. These studies have been summarised below.

3.3.1 National Parks and Wildlife Services Archaeological Investigations on Newnes Plateau (Gollan 1987)

The National Parks and Wildlife Services (NPWS) commissioned Gollan (1987), to complete a regional study of the Newnes Plateau to provide a comprehensive assessment of the archaeological resources of the area and their corresponding regional and local significance. Through this research, several regional archaeological patterns based on the relationship between site types and land use were identified. Gollan concluded that the overall plateau area provided suitable resources for Aboriginal occupation. Gollan proposed that artefact scatters (and isolated finds) are likely to be found on fringes of swamps, as lithic material and food resources were available in these areas. There was also evidence of the grinding of stone artefacts with several grinding groove sites and ground edge artefacts recorded. Shelters with art were also present in areas of the plateau where suitable rock types such as pagodas and interbedded sandstone and claystone rock outcrops were found. Gollan considered the plateau to be a landform of high scientific and social significance based on the diversity of Aboriginal cultural heritage sites, including the forested upland areas with the potential to have provided substantial archaeological resources for an upland hunter gatherer economy (Gollan 1987).

3.3.2 Archaeological Survey for Feldmast Coal Project, Cullen Bullen, NSW (Mills 1996)

Mills (1996) assessed over 3000 ha of land surrounding Cullen Bullen to the north and west for the proposed Feldmast Coal project. Areas assessed as having increased archaeological potential prior to the survey included creek lines (Red Springs Creek, Cullen Creek and Ben Bullen Creek); hill slope areas including Tyldesley Hill, Kirby's Hill and a sandstone outcrop and the hill slope east of the Cullen Bullen cemetery; and all sandstone ridge tops. There were Aboriginal sites recorded during the survey, including an artefact scatter, an isolated find and a grinding groove site. The artefact scatter (RSC-OS-1 [45-1-2543]) was identified on the eastern bank of Red Springs Creek in a confined area subject to sheet wash and erosion. Three artefacts,

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including a chert flake, chert scraper and a quartzite millstone were recorded. The isolated find (CC-IF1 [45-1-2541]) was located on the southern bank of Cullen Creek and includes a quartzite hammerstone measuring 95 millimetres (mm). FL-GG-1 [45-1-2542], the grinding groove site, was located on an exposed area of sandstone, within an ephemeral drainage line, approximately 2.7 km south of the current project area. There were 12 grooves identified over an area measuring 150 centimetre (cm) x 250 cm, and all grooves were orientated on a north-south plane.

3.3.3 Coalpac Consolidation Project Aboriginal Archaeological and Cultural Heritage Impact Assessment (AECOM 2011)

AECOM (2011) completed a detailed assessment for a previously proposed expansion of Invincible Colliery and Cullen Valley Mine, approximately 5 km north of the project area. The assessment provided a review of the Aboriginal sites identified in previous assessments in the region surrounding Invincible. Fifteen sites, including six previously recorded sites, were identified as a part of the survey. The majority of sites identified consisted of artefact scatters and isolated finds. Other site types included rock shelters (including rock shelters with art or PAD), PAD and grinding grooves. The sites, in particular the artefact scatters and grinding grooves, were identified in proximity to waterways including ephemeral drainage lines. The raw materials commonly recorded within stone artefact assemblages include quartz, chert, mudstone, tuff and quartzite. Where they were described, the artefact types commonly included broken flakes, complete flakes and cores (including bipolar reduction) with very small numbers of blades and retouched artefact types.

3.3.4 Invincible Southern Extension Project, Aboriginal Cultural Heritage and Archaeological Assessment (Umwelt 2016)

In 2016, Umwelt completed an archaeological assessment over 60 ha of land for the Southern Extension Area at Invincible Colliery, approximately 5 km north of the project area. Two new sites were identified during the survey (IC 1 [45-1-2791] and IC 2 [45-1-2792]), both isolated finds. IC 1 consists of an isolated artefact on an upper slope below a spur crest and the confluence of two minor drainage lines. The artefact is a tuff flake with use wear on the right margin. IC 2 consists of an isolated artefact located on the mid slope of a gently inclined spur. It consists of a quartzite scraper with large portions of cortex remaining. Previously recorded sites 45-1-0069, 45-1-0070, 45-1-2708 and 45-1-2714, all artefact scatters, were visited during the survey however artefacts at many of the sites were unable to be located.

Four additional new sites were also identified during a due diligence inspection to the north of the Southern Extension Area. IC 3 [45-1-2793] consists of an isolated chert flake identified on a lower slope, gently inclined to the north. IC 4 [45-1-2790] consists of an artefact scatter located within a highly modified drainage ditch. Six flakes and broken flakes of tuff and chert were identified in an area of 12 m x 5 m. IC 5 [45-1-2789] consists of an isolated chert flake adjacent to a windrow,

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and IC ST [45-1-2794] consists of a scarred tree located within a pile of pushed over trees, next to the windrow, at the edge of the current open cut pit. The tree is not in situ and is poor condition; being dead lying on its side. A previously recorded rock shelter CV-RCK1-10 (45-1-2712) was revisited during the survey and a small number of artefacts were identified at the drip line of the shelter.

3.4 LOCAL ARCHAEOLOGICAL CONTEXT

3.4.1 Archaeological investigations near the project area

3.4.1.1 Springvale Colliery (Rich & Gorman 1992)

In 1992, a survey of nearby lands (Rich 1992) recorded 35 sites, including two open sites, Sites 2 and 9, situated in the Cox's River Valley. Site 2, located on the southern bank of Pipers Flat Creek, consisted of over 100 artefacts within a 200 x 40 m area. Two quartz knapping floors with artefact densities of over 25/m2 were identified at Site 2 as were a smaller number of indurated mudstone artefacts. Site 9, located about 700 m west of Duncan street, on elevated terrain above and on the west side of the Cox's River, was comprised of 26 artefacts, primarily quartz, with a maximum artefact density of 6/m^2. As a result of this study, Rich argues that the larger sites within their project area lie closest to the Cox's River and Pipers Flat Creek (Rich 1992:73).

3.4.1.2 Western Main Colliery, Lamberts Gully (Brayshaw & Haglund 1992)

Also in 1992, very limited test excavation was undertaken at two sites on the low flats close to Lamberts Creek (northwest of the current project area) – at sites 6 and 7. Pits measuring 1 m x 35 cm were dug at each site, with sixteen (16) artefacts retrieved from Site 6 and seventeen (17) from Site 7. Artefacts from both sites were predominantly quartz, including one bipolar flake, a backed blade fragment and possibly evidence of a minor knapping event (Brayshaw and Haglund 1992: 19-22). These sites were assessed as representing "one-off" occupation sites, likely to date within the last 3,000 years due to the presence of a backed blade and bipolar knapping technology.

3.4.1.3 Archaeological test excavation: Springvale coal project (McIntyre 1993).

In 1993, McIntyre carried out test excavation to investigate the possibility of an Aboriginal burial area being located close to the Springvale coal project (McIntyre 1993). Oral history from a local informant provided primary data for the location of the burial ground. During this work two areas were tested, one on the west side of the railway line and the second along the area proposed as a flood mitigation embankment. This second area, thought to be on the east side of the current river alignment, was tested using auger holes only. No skeletal remains were uncovered during these excavations, although a minor open site was identified on the west side of the railway line (45-1-0237), where stone tools were said to have been manufactured or repaired. This site was

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assessed as having low scientific significance. McIntyre concluded that the reported burial ground may have been destroyed during the Cox's River deviation works in the 1950s, although there is still the possibility that skeletal material may occur east of the railway and river. She further notes that the presence of artefacts within the level ground adjacent to the river indicates the potential this landscape unit has for the occurrence of Aboriginal sites (McIntyre as reported in Gay 1999: 16–17).

3.4.1.4 Archaeological survey, salvage and test excavation: Augmentation works at Lyell Dam (Barton & McDonald 1995; Gay 1999).

Lyell Dam, situated in the Coxs River catchment, was formed by damming the Coxs River. Three open sites located on the slopes of spurs overlooking the Coxs River floodplain were investigated here in 1994, prior to raising the water level in the lake. All three sites were situated about 400 m from the river margin (Gay 1999: 14).

At open site Lyell Dam 3 (LD3) a quartz block fractured knapping floor was found. Although the assemblage was dominated by quartz, other raw materials such as indurated mudstone and stone of volcanic origin was also present. In terms of surface manifestations of this site, the highest artefact density recorded was 3/m^2, with most sample areas showing lower densities (Barton & McDonald 1995: 25). The excavated assemblage, however, was far larger, with estimated thousands of artefacts present at this location. Barton & McDonald (1995: 35) interpreted this site as being repeatedly occupied by people carrying out the same range of tasks.

Conclusions of the Lyell Dam site investigation project can be summarised as follows (from Barton & McDonald 1995: 67 as summarised in Gay 1999: 15):

- Cobbles of igneous, metamorphic and sedimentary rocks were procured locally, primarily from the bed of the Coxs River
- Quartz was locally available and the ease with which it was procured eliminated the need to flake using the bipolar technique
- Quartz was used to create medium sized flakes and some smaller retouched tools
- Volcanic stone was used to create large or heavy tools
- All three sites were interpreted as representing repeated short-term occupation areas that focussed on acquiring resources such as specific plants or animals endemic to the swampy margins of the Coxs River.

3.4.1.5 Archaeological Test Excavation of PADs 1 and 2 (AHIMS #45-1-2573 & 45-1-2574), Lidsdale (OzArk 2003)

Test excavation of two PADs was undertaken by OzArk (2003) for potential impacts associated with the realignment of the Castlereagh Highway at Lidsdale, 10 km southeast of the project area. These PADs, located on terraces above the Coxs River, had been identified by Gay (1999) and were recorded as PAD1 (45-1-2573) and PAD2 (45-1-2574). The results of the test excavation

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indicated the presence of an extensive open site with low to moderate artefact densities. The test excavation revealed that a variety of activities appear to have been carried out on the site, evidenced by the presence of hammers/anvils for on-site stone tool production or food preparation. The systematic flaking of stone was carried out at several locations across the site, with one discrete knapping event, associated with a stone feature, showing the manufacture of backed artefacts (specifically bondi points). Quartz was the predominant raw material, although silicified tuff apparently increases in incidence in the upper portion of the profile. The excavated test pits revealed soil profiles indicative of an intact site with good structural integrity.

3.4.1.6 Salvage Excavation of Site L2 (AHIMS #45-1-2573 & 2574), Lidsdale (OzArk 2004)

The salvage excavation confirmed that PAD2 (45-1-2574) is a large and complex site. The site showed internal spatial variation in lithic assemblages. The deeper soil in Area I was found to have retained some cultural stratigraphy: the lithic assemblages from spits 1, 2 and 3+4 differing and showing change over time. Areas II and III were excavated in locations with more shallow soils, but the lower spits also retain slight variations in the frequencies of different raw material types, suggesting that early occupation of the site may have been widespread, not just confined to the area of deeper soils.

Excavation of this site has been quite extensive with a total of 132 m^2)excavated as part of the salvage work, and an additional 22 m^2 excavated during the test excavation phase: a total of 154 m^2 of excavation. Almost 6,100 artefacts were recovered. Additional monitoring of the site during construction works provided an additional 441 artefacts.

3.4.1.7 Western Rail Coal Unloader, Pipers Flat, NSW (Navin Officer 2007)

Navin Officer (2007) conducted a field survey for the construction of a railway loop in Pipers Flat (2 km southeast of the project area) to connect the Mudgee rail line between Portland and Wallerawang. One isolated find and seven potential archaeological deposits (PAD) were identified. The isolated find was a quartzite flake found on a gently slope elevated above the head of a shallow, ephemeral drainage line. The PADs were all identified in similar landforms associated with Pipers Flat Creek and its ephemeral tributary creek lines, though no further artefacts were found.

3.5 ARCHAEOLOGICAL CONTEXT: CONCLUSION

The archaeological investigations surrounding the project area as summarised in **Sections 3.3** and **3.4** indicate that:

- the most common site type will be stone artefact sites; either low density artefact scatters or isolated finds, located in proximity to permanent water

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- culturally modified trees are rare due to the level of historical clearing yet they may be present where mature native vegetation remains
- PADs may be recorded where there are undisturbed deposits on elevated landforms above permanent water sources
- site types such as rock shelters with art and deposit, and grinding grooves are identified in the search area and are generally associated with landscape features such as suitable outcropping rock and overhangs, and rock platforms containing good quality sandstone suitable for sharpening stone tools
- burials are uncommon and have been previously recorded in areas with less ground disturbance and with more suitable landscape features than those of project area. The potential for burials in nearby landscapes (near the Coxs River) has been investigated and these results help inform the current assessment.

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4 PREDICTIVE MODEL

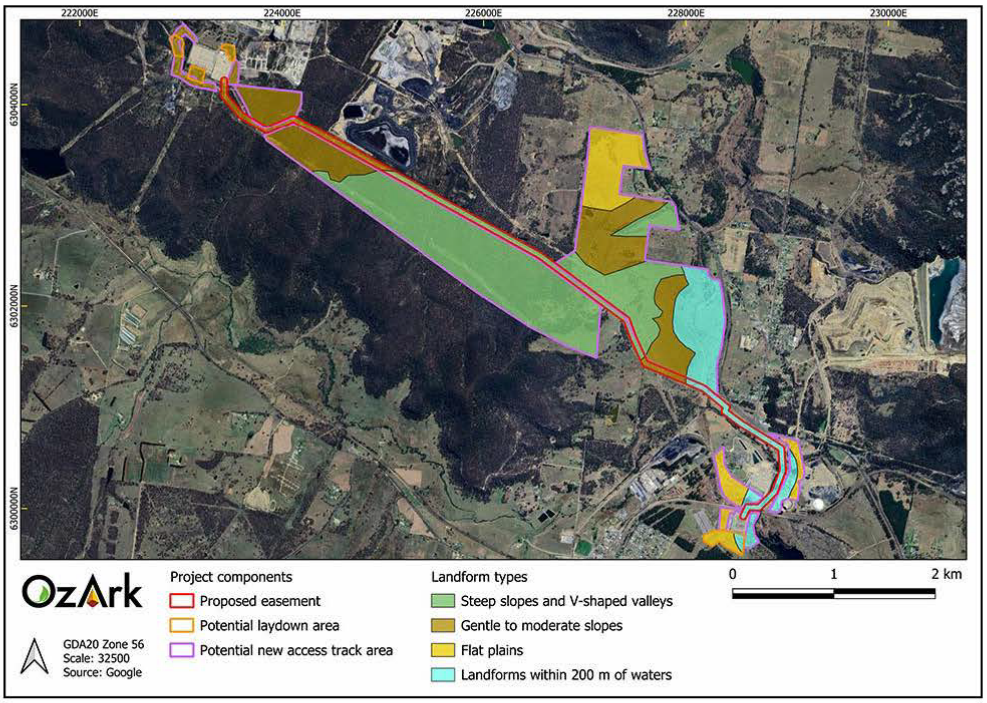
4.1 LANDFORM MODELLING

The topography of the project area contains gentle and steep slopes as well as some flatter areas, with the highest point along the southern boundary of the project area having an elevation of 1052 m (see **Figure 1-3**). Previous studies in the district indicate that gentle slopes or flats are likely to contain intact sites, especially near the watercourses which intersect with the project area.

Preliminary landform mapping within the project area indicates there are four main landform types (**Figure 4-1**):

- perennial and non-perennial water courses with a 200 m buffer around them
- gentle to moderate slopes
- steep slopes and V-shaped valleys
- flats across the northern parts of the project area.

Figure 4-1: Landforms within the project area.



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4.2 PREDICTIVE MODEL FOR THE PROJECT AREA

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. Site location is also affected 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. Consequently, sites tend to be found along permanent and ephemeral water sources, along access or trade routes or in areas that have good flora/fauna resources and appropriate shelter.

In formulating a predictive model for Aboriginal archaeological site location 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. Scarred trees, by their nature, may survive for up to several hundred years but rarely beyond.

4.2.1 Site types in the region of the project area

The site types listed in **Table 4-1** are present in the region of the project area. The likelihood of these sites being present in the project area is discussed in **Section 4.2.3**.

Table 4-1: Site types recorded in the region of the project area.

Site type	Site description
Isolated finds	May be indicative of random loss or deliberate discard of a single artefact, the remnant of a now dispersed and disturbed artefact scatter, or an otherwise obscured or subsurface artefact scatter. They may occur anywhere within the landscape but are more likely to occur in topographies where open artefact scatters typically occur.
Open artefact scatters	Artefact scatters are defined as two or more artefacts, not located within a rock shelter, and located no more than 50 metres away from any other constituent artefact. This site type may occur almost anywhere that Aboriginal people have travelled and may be associated with hunting and gathering activities, short- or long-term camps, and the manufacture and maintenance of stone tools. Artefact scatters typically consist of surface scatters or sub-surface distributions of flaked stone discarded during the manufacture of tools but may also include other artefactual rock types such as hearth and anvil stones. Less commonly, artefact scatters may include archaeological stratigraphic features such as hearths and artefact concentrations which relate to activity areas. Artefact density can vary considerably between and across individual sites. Small ground exposures revealing low density scatters may be indicative of a background scatter rather than a spatially or temporally distinct artefact assemblage. These sites are classed as 'open', that is, occurring on the land surface unprotected by rock overhangs, and are sometimes referred to as 'open camp sites'. Artefact scatters are most likely to occur on level or low gradient contexts, along the crests of ridgelines and spurs, and elevated areas fringing watercourses or wetlands. Larger sites may be expected in association with permanent water sources. Topographies which afford effective through-access across, and relative to, the surrounding landscape, such as the open basal valley slopes and the valleys of creeks, will tend to contain more and larger sites, mostly camp sites evidenced by open artefact scatters.

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Site type	Site description
Culturally modified trees	Aboriginal scarred trees contain evidence of the removal of bark (and sometimes wood) in the past by Aboriginal people, in the form of a scar. Bark was removed from trees for a wide range of reasons. It was a raw material used in the manufacture of various tools, vessels, and commodities such as string, water containers, roofing for shelters, shields and canoes. Bark was also removed because of gathering food, such as collecting wood boring grubs or creating footholds to climb a tree for possum hunting. Due to the multiplicity of uses and the continuous process of occlusion (or healing) following removal, it is difficult to accurately determine the intended purpose for any example of bark removal. Scarred trees may occur anywhere old growth trees survive. The identification of scars as Aboriginal cultural heritage items can be problematical because some forms of natural trauma and European bark extraction create similar scars. Many remaining scarred trees probably date to the historic period when bark was removed by Aboriginal people for both their own purposes and for roofing on early European houses. Consequently, the distinction between European and Aboriginal scarred trees may not be clear.
Quarry sites	Typically consist of exposures of stone material where evidence for human collection, extraction and/or preliminary processing has survived. Typically, these involve the extraction of siliceous or fine grained igneous and meta-sedimentary rock types for the manufacture of artefacts. The presence of quarry/extraction sites is dependent on the availability of suitable rock formations.
Grinding grooves	Grinding grooves are the remnants of ground edge hatchet manufacture and sometimes from food preparation. The site is most likely to occur on flat outcrops of coarse-grained sandstone in the vicinity of water sources, however, grinding grooves have also been recorded on fine-grained granite and quartzite outcrops.
Rockshelters and art sites	Utilised in the past for both habitation and ceremonial purposes. The term 'rock shelter site' refers to rock shelters/rock overhangs that contain evidence such as stone artefacts and/or bones and/or plant remains (from meals eaten at the site) and/or hearths (fireplaces). Most rock shelter sites are secular in nature, however, those that also contain rock art or engravings are often believed to be non-secular in nature. The term 'rock art site' generally refers to Aboriginal ochre paintings or ochre or charcoal drawings located on a rock slab (generally in a sheltered place like the floor of a cave or rock shelter), boulder, cliff-face, cave or rock shelter wall or roof, or wall of a rock overhang. Most rock art sites are found in locations that are sheltered from the elements. This observation, however, is probably biased to some extent, as rock art would not preserve well in open positions. Rock art sites are generally believed to be non-secular in nature.
Rock engravings or petroglyphs	A type of Aboriginal art that are often located on high vantage points along ridge lines at the headwaters of creeks but can be located on any suitable fine-grained stone surface. Examination into the rock engraving process notes that it presumably first included sketching the outline of the motif; then a series of holes was drilled along the line, using a pointed stone or shell. Finally, the holes were joined by rubbing a sharp stone along the line.
Hearths/ovens	Features used by Aboriginal people for the preparation of food and would generally be in the vicinity of available resources, such as water sources to procure fish and shellfish, and on elevated ground to avoid impact from environmental threats.
Burials	Generally found in soft sediments such as aeolian sand, alluvial silts, and rock shelter deposits. In valley floor and plains contexts, burials may occur in locally elevated topographies rather than poorly drained sedimentary contexts. Burials are also known to have occurred on rocky hilltops in some limited areas. Burials are generally only visible where there has been some disturbance of sub-surface sediments or where some erosional process has exposed them.
Bora/Ceremonial sites	Places which have ceremonial or spiritual connections. Ceremonial sites may comprise of natural landscapes or have archaeological material. Bora sites are ceremonial sites which consist of a cleared area and earthen rings.

4.2.2 Landform modelling of archaeological potential

The archaeological studies undertaken in the vicinity of project area provide an insight into the nature and distribution of archaeological sites within the area. However, the location of sites can only reflect what has been identified, usually as a result of infrastructure/development-driven projects, thus presenting the site data as clustered or on linear alignments. Generally, sites have been recorded in proximity to a recognised water source, in locations that have been subject to reduced landform disturbance, and on gentle, elevated landforms. However, landform disturbance may also explain why Aboriginal objects become revealed on the ground surface, such as within modified and disturbed landforms.

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Based on knowledge of the environmental contexts of the project area and a desktop review of the known local and regional archaeological record, the following predictions are made concerning the probability of relevant site types being recorded:

- As isolated finds can occur anywhere, particularly within disturbed contexts, it is predicted that this site type could be recorded within the project area.
- Stone artefact distributions of variable artefact densities are some of the most common Aboriginal objects found within the region. A general correlation between landform and the nature of the evidence of past Aboriginal occupation is evident, and artefact sites of higher density are complexity are located on elevated landforms adjacent to waterways. The project area contains several unnamed drainage lines which flow into permanent watercourses (i.e. Wangcol Creek and Cox's River) and these intersections can be considered as holding elevated potential for artefact sites and/or scatters to occur.
- Culturally modified trees (carved or scarred) are represented in a relatively low density in the surrounding area, possibly due to the extent of land clearing conducted in post-settlement times for agricultural land use. It is feasible to identify this site type within the project area if endemic trees of an appropriate age are present, particularly near the permanent or semi-permanent water sources.
- Ten rock shelter sites have been recorded in the local region associated with the elevated, forested areas south of the project area. The large, southern portion of the potential new access track area contains similar landforms and shelters may be recorded should rocky outcrops and overhangs of suitable material be present.
- Grinding grooves are relatively highly represented in the search area. If there is suitable outcropping rock (most likely sandstone), there is the possibility for there to be grinding grooves.
- Two burials have been identified in the surrounding region, one known by documentary evidence. Although it is possible, it is considered a rare site type given high levels of land modification. A known potential burial site was investigated in the past with no positive evidence recovered.
- The distribution of ceremonial sites and Bora grounds across the landscape is somewhat unpredictable as the choice of their location appears to be based on spiritual reasons rather than simply landscape features and resources. As site types such as modified trees and art sites have been recorded in the district, although in low numbers, their presence in the project area cannot be discounted. Overall, this site type is rare with a low likelihood of being present and remaining extant. These sites are generally identified through consultation with the RAPs.

4.2.3 Conclusion

Based on knowledge of the environmental contexts of the project area and a desktop review of the known local and regional archaeological record, the following predictions are made concerning the probability of landforms within the project area to contain Aboriginal objects (**Table 4-2**), and what types of sites may be present within the project area (**Table 4-3**).

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Table 4-2: Likelihood of landforms within the project area to contain Aboriginal objects.

Survey Unit	Landform type	Likelihood to contain Aboriginal objects
1	Steep slopes and V-shaped valleys	Steep slopes and V-shape valleys are generally low potential landforms. Steep slopes are degrading landforms in which soils are regularly subject to erosional processes such as sheetwash, which are likely to disturb the archaeological record, if present. These landforms are unsuitable for occupation and Aboriginal objects recorded in such landforms are likely to be in a secondary context. The exception is in localised flat benches, if they are present, where occupation may have been possible; or sandstone overhangs that may be present on steeper slopes if the geology allows.
2	Gentle to moderate slopes	While gentler slopes are also degrading landforms, they are less likely to be severely affected by soil loss and erosion. In the project area, the gentle and moderate slopes represent simple slopes associated with steeper elevation. In some cases, these lower slopes can have a higher potential to hold Aboriginal objects in secondary contexts which have arrived from higher land due to processes such as sheetwash. Generally, however, these are less favoured areas for occupation, particularly when distant from water.
3	Flat / undulating plains	The project area contains several areas of flat plains, perhaps with some undulation, which are at distance to reliable water sources. These are generally low potential landforms with slightly higher potential along nonperennial drainage lines which would provide a semi-permanent water supply in times of increased rainfall. Aboriginal objects recorded in these landforms are likely to be low density and low complexity, reflecting transitory zones rather than sites of long-term occupation.
4	Landforms within 200 m of waters	Across Australia, archaeological study has shown that Aboriginal sites and objects are most likely to occur within 200 m of a permanent, reliable water supply. Within the project area, this landform is present in the eastern portion in association with the Coxs River. The archaeological sensitivity of the project area is highest in this region, especially where the proposed easement comes within 200 m of the confluence of Coxs River with Pipers Flat Creek (refer to **Figure 1-3**). However, aerial imagery also indicates that this portion of the project area has been thoroughly cleared and significantly disturbed through land use. Nevertheless, if Aboriginal objects are recorded here, they will be more likely to reflect occupational sites and complex activities. If there is remnant vegetation of suitable age and species, it is possible that culturally modified trees may be recorded.

Table 4-3: Likelihood of certain site types being present in the project area.

Site type	Likelihood of being present in the project area
Isolated finds	As isolated finds can occur anywhere, particularly within disturbed contexts, it is predicted that this site type could be recorded within the project area, and are possible in any of the landforms present, although more likely in survey units 2-4.
Open artefact scatters	Stone artefact sites of varying densities are some of the most common sites previously recorded in this area. Higher artefact density sites are located on elevated landforms adjacent to waterways. As the project area contains several unnamed drainage lines which flow into permanent watercourses (i.e. Wangcol Creek and Cox's River), these areas (survey units 3 and 4) should be considered as holding elevated potential for artefact sites and/or scatters to occur.
Culturally modified trees	Much of the project area has experienced vegetation clearance and disturbances (i.e. agricultural, industrial, infrastructural) reducing the likelihood of this type of site to occur. However, where trees of appropriate age and species are present, especially close to watercourses, it is feasible that this site type may be identified.
Rockshelters	Ten of this site type have previously been recorded in the area. Should suitable rock overhangs be available, this site type may be recorded, with this only likely in survey unit 1.
Grinding grooves	Grinding grooves are relatively highly represented in the search area. If there is suitable outcropping rock (most likely sandstone), there is the possibility for there to be grinding grooves. These are most likely in survey unit 1 (if within an overhang/rockshelter), or survey unit 4 closer to permanent water
Burials	Although it is possible that this site type could be found within the project area, it is considered a rare site type especially given the disturbance that has occurred. If present, these would most likely be in survey unit 4..
Bora/Ceremonial sites	This site type does not necessarily follow landform predictability and are, overall, a rare site type with a low likelihood of being present and remaining extant. These sites are generally identified through consultation with the RAPs.

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4.3 RESEARCH QUESTIONS

A number of research questions can meaningfully be applied to the investigation of the project area. These research questions include:

- What resources were available to the Aboriginal people using the land within the project area (food, stone and water) and what resources were transported to the area?
- What tasks were Aboriginal people undertaking at sites, if recorded?
- If there are hearths present, do they contain remains (animal/plant) that may indicate what people were cooking/eating?
- Is there potential for burials to be present in the landscape?
- Are there outcropping rock materials present suitable for stone tool procurement and manufacture?
- Is there evidence to suggest that Aboriginal people were using the area earlier than the mid to late Holocene? Can dates be obtained for the Aboriginal use of the area?
- Do the findings within the project area (if any) accord with the regional archaeological context examined in **Section 3.3**?
- Do the survey results support the predictive model set out in **Section 4.2.3**?

The survey methodology set out in **Section 5** is framed to help answer these questions; should sites of sufficient significance be encountered. However, based on the results of previous assessments and past disturbances, it not expected that the land within the project area will contain sites of sufficient significance to help answer those research questions that require a robust data set.

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5 SURVEY METHODOLOGY

5.1 ASSESSMENT APPROACH

The Aboriginal cultural heritage assessment of the project area will follow the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (Code of Practice; DECCW 2010). The field inspection will follow the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (The Guide, OEH 2011).

Survey for Aboriginal cultural heritage values will concentrate on the project area where project impacts will be located.

5.2 SURVEY AIMS

The aim of any archaeological survey is not to locate each artefact in a landscape but to undertake investigations so that the archaeological potential and archaeological characteristics of all landforms within the project area are known. Therefore, the aims of the survey will be to:

- Inspect all landform types in the project area so that their archaeological potential can be determined
- Evaluate whether the predictive model set out in **Section 4.2** is valid
- Determine if the research questions set out in **Section 4.2.2** can be answered
- Determine if any landforms of the project area require test excavation to understand the archaeological potential at a particular location
- Undertake sufficient assessment to satisfy Sections 2.2, 2.4, 2.5, 2.6, and 2.7 in the Guide
- Collect sufficient data so that the results can be presented in an ACHAR as set out in Section 3 in the Guide
- Undertake survey and record keeping satisfying Requirements 1–13 of the Code of Practice.

5.3 SURVEY METHODOLOGY

Standard archaeological field survey and recording methods will be employed in this assessment (Burke & Smith 2004) and will follow the Code of Practice. The project area will be assessed via 'full pedestrian survey' consisting of systematic transects walked by surveyors spaced up to 20 m apart throughout the landform or area being surveyed. The spacing of transects will be closer in areas of high potential or GSV in discussion with RAP site officers.

It is currently envisioned that the fieldwork will be conducted for the areas specifically designated for project works and associated impacts, i.e. the proposed easement corridor and the potential laydown areas. If the specific routes for the access tracks upgrades are available at the time of fieldwork, then all components will be included in the survey. This includes access track locations which may extend outside of the shown potential new access track area (refer to **Section 1.2**). If,

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at such time, the access track areas remain undefined, they will be surveyed in a subsequent fieldwork assessment and in accordance with the presented methodology.

As such, the field assessment will include:

- Full pedestrian survey of the project area
- All trees deemed to be of sufficient maturity to contain cultural modification will be inspected, as well as any areas with outcropping rock
- The location of previously recorded sites within the project area (45-1-2602, 45-1-2715, 45-1-0215, 45-1-0206, 45-0237, 45-1-0019) will be visited by the survey team to groundtruth their location and current condition
- Some areas may not be physically surveyed if the RAPs and OzArk staff agree they are too disturbed or possess a very low likelihood of sites. This may include areas deemed unsafe for survey on site.

The survey will consist of two archaeologists with the assistance of a team of RAPs investigating the area in transects spaced up to 20 m apart. Transect distance will be lengthened or shortened as necessary and at the direction of the archaeologist, and in consultation with the attending RAPs, while on site depending on ground surface visibility and disturbance conditions.

In the field, OzArk staff will identify, record and evaluate physical (i.e., archaeological) evidence. Site recording will capture all the information required to complete current AHIMS site recording forms (e.g., site location, site boundary, site plan, representative photographs, artefact recording and feature recording). RAPs will participate in the survey, identifying Aboriginal objects, determining the cultural significance of Aboriginal objects and identifying cultural places or non-physical site types within the project area. OzArk staff understand that cultural knowledge may not be provided in some instances due to cultural sensitivities (e.g., men's and/or women's places). Under these circumstances, to assess the potential impacts, OzArk staff will need to be told, only in general terms, why a particular place is important, and what the significance of the impact will be. OzArk staff will liaise with RAPs on a case-by-case basis to determine how to record the location in a culturally sensitive manner.

5.4 TEST EXCAVATION

It is possible that the survey may identify landforms where test excavation under the Code of Practice (Requirements 14–17) is required. Should such landforms be identified during the survey, the test excavation methodology will be prepared as a separate document that will be circulated to all RAPs for review and comment.

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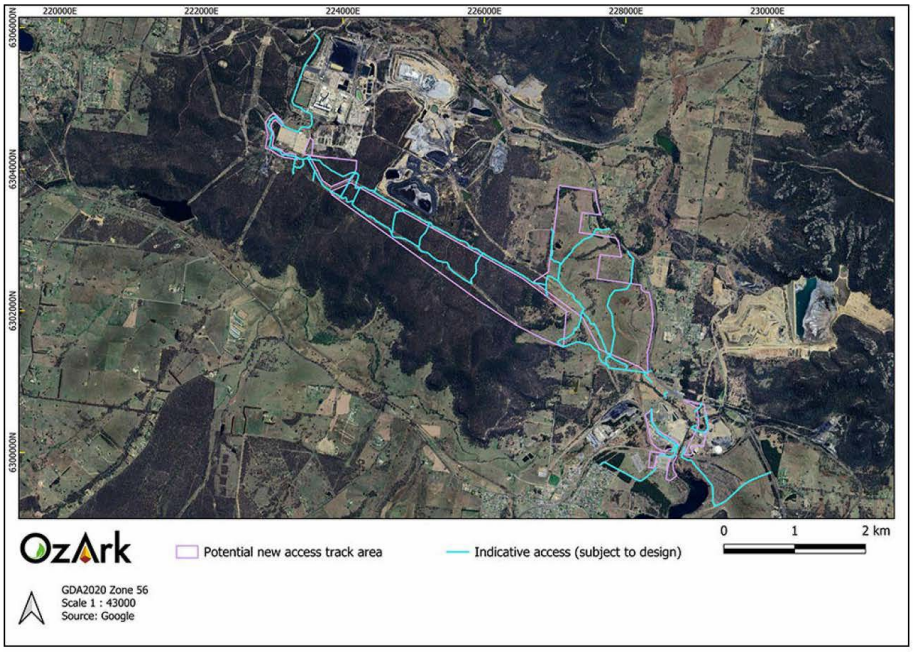
APPENDIX 1



APPENDIX 3: TEST EXCAVATION METHODOLOGY

View southeast within the project area towards Wallerawang.

ARCHAEOLOGICAL TEST EXCAVATION METHODOLOGY

MOUNT PIPER TO WALLERAWANG TRANSMISSION LINE UPGRADE PROJECT

LITHGOW LOCAL GOVERNMENT AREA

SEPTEMBER 2024

Report prepared by

OzArk Environment & Heritage

for Transgrid

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Acknowledgement

OzArk acknowledge the Traditional Custodians 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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CONTENTS

FIGURES

TABLES

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1 INTRODUCTION

1.1 PREAMBLE

OzArk Environment & Heritage (OzArk) has been engaged by GHD on behalf of Transgrid (the proponent) to prepare an archaeological test excavation methodology and conduct archaeological test excavations in accordance with the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (Code of Practice; DECCW 2010a) for the proposed Mount Piper to Wallerawang Transmission Line Upgrade Project (the project). Archaeological test excavation is required to determine if subsurface archaeological material is present and to provide management recommendations in relation to the findings.

This methodology has been prepared in accordance with Stage 3 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRs; DECCW 2010b). A Stage 2/3 Methodology was developed with the Registered Aboriginal Parties (RAPs) for the project in March 2024.

1.2 BRIEF PROJECT OVERVIEW

Transgrid proposes to upgrade the transmission line network between Mount Piper and Wallerawang substations within the City of Lithgow local government area (LGA). The project is required to provide increased transmission capacity between renewable energy generators in the Central-West Orana Renewable Energy Zone (CWO REZ) and the Greater Sydney region. The project would include a new 330 kilovolt (kV) transmission line and double circuit transmission structures, and incorporate sections of the existing, single-circuit 132 kV transmission line (known as Line 94E), where the two transmission lines would share a widened easement and transmission structures, between these two locations

1.3 PROJECT AREA

The area through which the project would be constructed is bounded by the Castlereagh Highway to the north, the Coxs River to the east, Gardens of Stone State Conservation Area (SCA), Pipers Flat Road to the south, and the Mount Piper Power Station to the northwest. It is located approximately 14 km north-west of Lithgow situated on the western fringes of the Blue Mountains.

The project area is generally undulating, with an elevation difference of up to 100 m between the highest and lowest points. Land within the immediate vicinity of the proposed transmission line is mostly cleared as a result of being part of existing transmission line easements.

The project area traverses a portion of the Gardens of Stone SCA. The SCA includes areas of undisturbed and disturbed vegetation and also existing infrastructure such as existing transmission lines and access tracks.

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The Coxs River flows from the north-east into the project area, passing directly adjacent to the former Wallerawang Power Station and the Wallerawang 330 kV substation before flowing into Lake Wallace south of the project area. The project area is intersected Lamberts Creek and unnamed tributaries in the northwest. The project area is shown on **Figure 1-1**.

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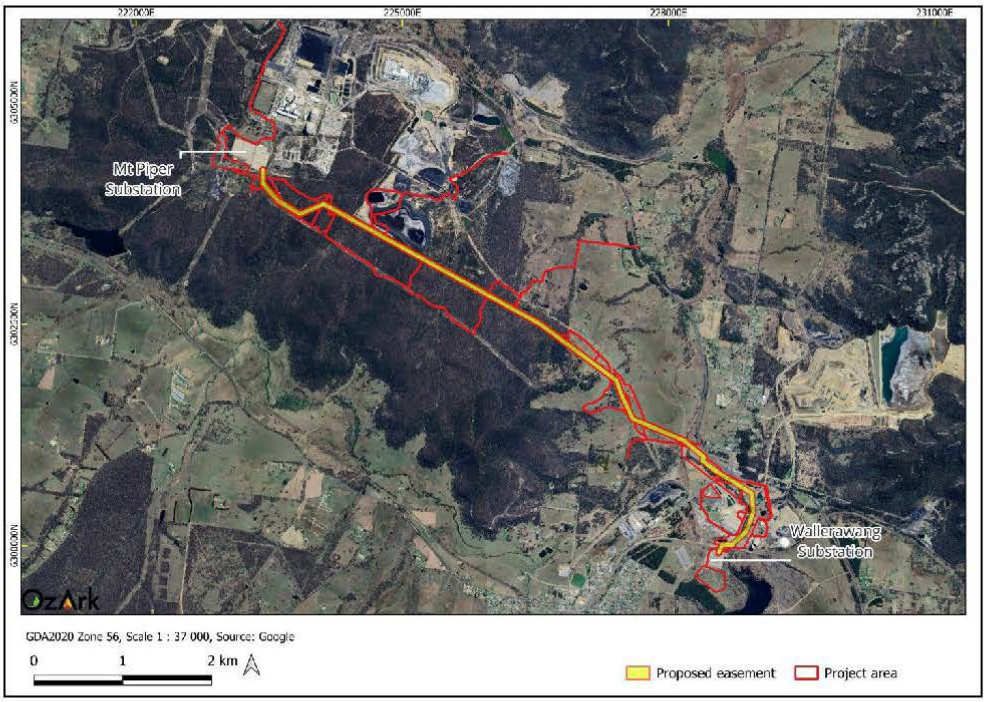
Figure 1-1: Aerial of the project area.



1.4 BACKGROUND TO THE TEST EXCAVATION PROGRAM

1.4.1 Survey summary

The field survey of the project area was undertaken by OzArk (Dr Jodie Benton and Harrison Rochford) over four days between March and May 2024. Day one of the assessment was completed on 25 March 2024 and the remainder of the project area was assessed over three days from 7-9 May 2024. The Registered Aboriginal Party (RAP) site officers who completed the survey are provided in **Table 1-1**.

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Table 1-1: Aboriginal community involvement in the fieldwork.

Individual/group	Name	Day(s) of participation
Bathurst LALC	Matthew Sullivan	25 March 2024 7 May 2024 8 May 2024 9 May 2024
Warrabinga Native Title Claimants Aboriginal Corporation	Kelsey Fawcett-Williams	25 March 2024
	Brion Booth	7 May 2024 8 May 2024 9 May 2024
Thomas Dahlstrom	Thomas Dahlstrom	7 May 2024
Tim Stubbs	Chris Piper	8 May 2024
Wingawarra Wilay	Thomas Dahlstrom	9 May 2024

1.4.2 Survey results

One previously unidentified site was recorded during the survey (Mount Piper Substation IF-1) and three sites previously recorded on the Aboriginal Heritage Information Management System (AHIMS) were confirmed to be present within the project area. One previously recorded Potential Archaeological Deposit (PAD) is also present within the project area (WPS PAD 1). The details of these sites and the PAD are presented in **Table 1-2** and are shown on **Figure 1-2**. The site extents are shown in further detail in **Section 3**.

Table 1-2: Identified Aboriginal sites and PADs at the project area.

Site name	AHIMS ID	Description	Relation to the test excavation program.	Reference
Mount Piper Substation IF-1	Pending	An isolated find recorded on gentle slope to the south of the Mount Piper Substation. The quartz flake is in a secondary context and can be avoided by the project.	Test excavation is not proposed at this location.	OzArk (in prep.)
Lamberts Creek 5	45-1-0215	Seven artefacts identified along a vehicle track on gentle sloping landform. An associated area of PAD is present adjacent to the southern boundary of the project area on the level landforms along Lamberts Creek.	Sections of the PAD are within the project area for access track upgrades. Test excavation proposed according to the methodology below (**Section 3**)	Brayshaw and Haglund 1992
Springvale Colliery	45-1-0237	Subsurface deposit identified during the assessment for the Springvale conveyor. Subsequent excavation recovered 50 artefacts, including debitage, and a possible hearth.	Sections of the PAD area for this site are within the project area and may be impacted by the construction of the 330kv transmission line. Test excavation proposed according to the methodology below (**Section 3**)	MacIntyre 1993
WPS PAD 2	N/A	A 50 x 30 metre (m) area of PAD on a level terrace landform on the eastern bank of the Coxs River within the Wallerawang Power Station.	It is anticipated that this PAD area can be avoided by the project. However, if this is not feasible, then the test excavation methodology in **Section 3** would be completed.	Biosis 2017

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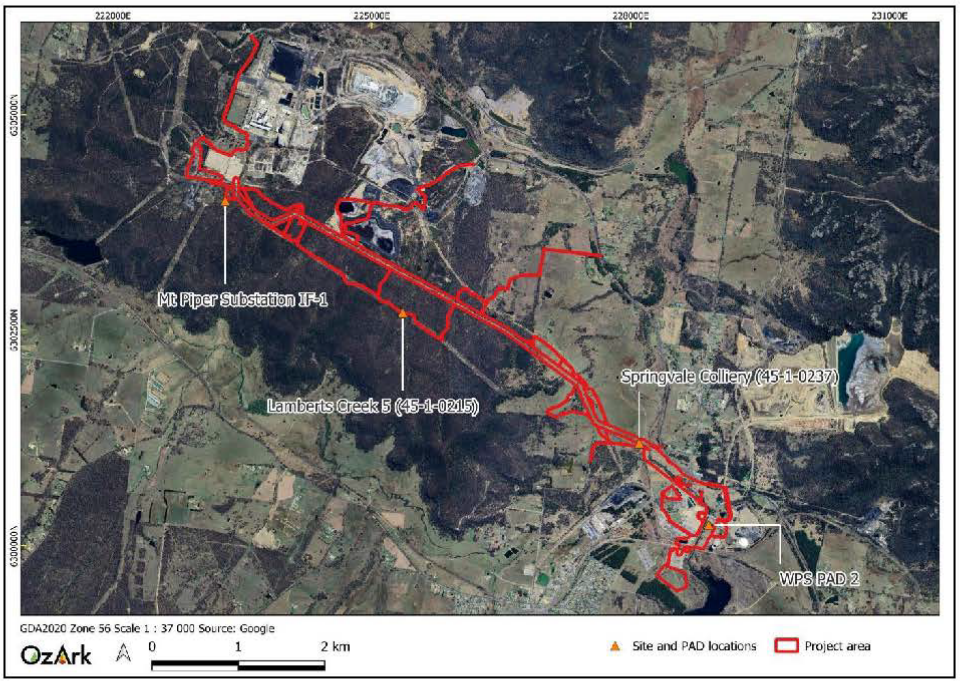
Figure 1-2: Identified Aboriginal sites and PADs at the project area.



1.4.3 Anticipated staging for the test excavation program

The impact footprint for the project is still being refined and the nature of any impacts that may affect the PAD areas described in **Table 1-2** is still being confirmed through development of construction methodologies. Consideration of the construction methodology will continue to seek to identify methods which minimise the potential disturbance of land within the identified PAD areas.

This methodology has been prepared on the assumption that all identified PAD landforms within the project area have the potential to be impacted. However, with design development (including construction methodologies) still ongoing, there is potential that there will be a reduction in impacts or complete avoidance of impacts on the sites and PADs in **Table 1-2**. Depending on the confirmed degree of impacts on the sites and PADs, the proposed test excavation program may be reduced or not required at some sites and PADs.

It is currently expected that excavation at the identified PAD areas may be completed in a staged manner, commencing at the Lamberts Creek 5 and Springvale Colliery excavation areas in September/October 2024. The need for proposed test excavation at WPS PAD 2 would be undertaken at a later date following further confirmation of proposed construction methods and the resulting impacts on the site. Where the need for excavation is confirmed it would be undertaken according to the methodology set out in **Section 3**.

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1.5 CODE REQUIREMENTS FOR THE TEST EXCAVATION PROGRAM

Excavations undertaken as per the Code of Practice do not require an Aboriginal Heritage Impact Permit (AHIP) under the *National Parks and Wildlife Act 1974* (NPW Act).

The Code of Practice lists several requirements pertaining to test excavation. These requirements are provided below.

- **Requirement 14** (Test excavation which is not excluded from the definition of harm):

  Sub-surface investigation will not be excluded from harm where they are carried out in the following areas:

  a) in or within 50 metres (m) of an area where burial sites are known or are likely to exist

  b) in or within 50 m of a declared Aboriginal place

  c) in or within 50 m of a rock shelter, shell midden or earth mound

  d) in areas known or suspected to be Aboriginal missions or previous Aboriginal reserves or institutes

  e) in areas known or suspected to be conflict or contact sites.

  - The test excavation locations are not located in the vicinity of the items listed under Requirement 14 of the Code of Practice. Previous investigations regarding a possible Aboriginal burial have been undertaken near the project area, but the proposed excavation is not within an area where burial sites are known or likely. These investigations are outlined in **Section 2.1**.

- **Requirement 15a** (Consultation): As the proposed archaeological test excavation program is part of the project, consultation has been ongoing with the RAPs and has been completed to the stage described in subclause 60C (6) of the *National Parks and Wildlife Regulation 2019* (NPW Regulation).

- **Requirement 15b** (Test excavation sampling strategy): This document sets out the proposed sampling strategy for the test excavation program.

- **Requirement 15c** (Notification):

  - the location of the proposed test excavation and the subject area.

    - This document sets out the proposed location of the test excavation program (see **Section 3**).

  - the name and contact details of the legal entity with overall responsibility for the project.

    - Transgrid Mount Piper-Wallerawang Transmission Line Project: Project Director – Daryn Mullen, 180 Thomas Street, Haymarket NSW 2000.

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- the name and contact details of the person who will be carrying out the test excavations where this is different to the legal entity with overall responsibility for the project.
  - Dr Jodie Benton and Harrison Rochford, OzArk Environment & Heritage, 145 Wingewarra St, Dubbo NSW 2830
- the proposed date of commencement, and estimated date of completion, of the test excavations.
  - Anticipated commencement: September/October 2024
  - Anticipated completion: September/October 2024

  Weather permitting, the projected period for the excavation is four days.
- the location of the temporary storage location for any Aboriginal objects uncovered during the test excavations.
  - Aboriginal objects recovered during the excavations will be temporarily stored in a locked cupboard at 145 Wingewarra Street, Dubbo, NSW (OzArk office) for analysis. Other objects, such as faunal or charcoal samples, may be sent to third party specialists for analysis.

- **Requirement 16a** (Test Excavation):
  - The test excavation program will adhere to Requirement 16a of the Code of Practice as set out in this document (see **Section 3.3**).
- **Requirement 16b** (Objects recovered during test excavations):
  - If further analysis Aboriginal objects recovered during the excavations will be analysed at 145 Wingewarra Street, Dubbo, NSW (OzArk office). When not being analysed, the objects will be temporarily stored in a locked cupboard at 145 Wingewarra Street, Dubbo, NSW. The long-term management of any recovered artefacts will be determined in consultation with the RAPs.
- **Requirement 17** (When to stop test excavations): the test excavation program will adhere to the requirements set out in the Code of Practice: *Any test excavation carried out under this requirement will cease when suspected human remains area encountered; or when enough information has been recovered to adequately characterise the objects present with regard to their nature and significance.*
  - OzArk shall ensure that this requirement is adhered to during the test excavation program. This will include ceasing work as soon as human skeletal material is noted and immediately notifying the police. If the skeletal material is determined to be Aboriginal, Heritage NSW will be immediately notified. The proponent will also be contacted and can provide support to RAPs through the Transgrid Indigenous team, if required.

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1.6 CONSULTATION ON THIS METHODOLOGY

Consultation for this project to date has followed the guidelines established in the ACHCRs whereby an advertisement was placed in the local press and relevant agencies were contacted to ascertain if they were aware of groups or individuals who may have cultural knowledge of the region containing the project.

On the 15 and 20 September 2023 advertisements were placed in the *Lithgow Mercury* and *Koori Mail,* respectively, requesting expressions of interest in being consulted about the project. In addition, the following agencies were contacted to identify potential stakeholders for the area: Heritage NSW; the Bathurst Local Aboriginal Land Council (LALC); the Office of The Registrar, *Aboriginal Land Rights Act 1983*; the National Native Title Tribunal; Native Title Services Corporation Limited (NTSCORP); the Lithgow City Council; and the Central Tablelands Local Land Services.

As a result, the following individuals/groups registered to be consulted about the project:

- Warrabinga Native Title Claimants Aboriginal Corporation
- Murra Bidgee Mullangari Aboriginal Corporation
- Didge Ngunawal Clan
- Thomas Dahlstrom
- Konanggo Aboriginal Cultural Heritage Service
- Timothy Stubbs
- Kamilaroi Yankuntjatjara Working Group
- Wingarra Wilay Aboriginal Corporation
- Girragirra Murun Aboriginal Corporation
- Wiradjuri Council of Elders
- Koori Digs Services
- Corroboree Aboriginal Corporation
- Gunjeewong Cultural Heritage Aboriginal Corporation
- Bathurst Local Aboriginal Land Council.

These individuals/groups constitute the Registered Aboriginal Parties (RAPs) for the project. This Stage 3 Test Excavation methodology will be shared with the RAPs for their consideration and comment per the ACHCRs.

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2 ARCHAEOLOGICAL BACKGROUND TO THE TEST EXCAVATION

The test excavation program follows the completion of the field survey of the project area. (**Section 1.2**). The results of previous subsurface investigations across the Coxs River Valley are summarised below to gain an understanding on the nature of subsurface deposits that may be encountered within the project area.

2.1 SUBSURFACE INVESTIGATIONS NEAR THE PROJECT AREA

Lamberts Creek Excavations (Brayshaw and Haglund 1993)

In 1992, limited test excavation was undertaken at two sites on the low flats close to Lamberts Creek, referred to as Sites 6 and 7. These sites were 600 m downstream (north) of Site 5 (Lamberts Creek 5), which is within the current project area, on similar level landforms adjacent to Lamberts Creek.

Pits measuring 1 x 1 m were dug at each site, with sixteen (16) artefacts retrieved from Site 6 and seventeen (17) from Site 7. Artefacts from both sites were predominantly quartz, including one bipolar flake, a backed blade fragment and possible evidence of a minor knapping event (Brayshaw and Haglund 1992: 19-22). These sites were assessed as representing "one-off" occupation sites, likely to date within the last 3,000 years due to the presence of a backed blade and bipolar knapping technology.

Lyell Dam Excavations (Barton and McDonald 1995)

Lyell Dam, situated in the Coxs River catchment approximately 12 km south of the current project area, was formed by damming the Coxs River. Three open sites located on the slopes of spurs overlooking the Coxs River floodplain were investigated here in 1994, prior to raising the water level in the lake. All three sites were situated approximately 400 m from the river margin (Gay 1999: 14).

At open site Lyell Dam 3 (LD3) a quartz block fractured knapping floor was found. Although the assemblage was dominated by quartz, other raw materials such as indurated mudstone (silicified tuff) and stone of volcanic origin was also present. In terms of surface manifestations of this site, the highest artefact density recorded was three per square metre, with most sample areas showing lower densities. The excavated assemblage, however, was far larger and at higher density, with thousands of artefacts estimated to be present at this location. Barton and McDonald (1995: 35) interpreted this site as being repeatedly occupied by people carrying out the same range of tasks.

Conclusions of the Lyell Dam site investigation project can be summarised as follows (from Barton McDonald 1995: 67 as summarised in Gay 1999: 15):

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- Cobbles of igneous, metamorphic and sedimentary rocks were procured locally, primarily from the bed of the Cox's River.
- Quartz was locally available and the ease with which it was procured eliminated the need to flake using the bipolar technique.
- Quartz was used to create medium sized flakes and some smaller retouched tools.
- Volcanic stone was used to create large or heavy tools.
- All three sites were interpreted as representing repeated short-term occupation areas that focused on acquiring resources such as specific plants or animals endemic to the swampy margins of the Cox's River.

Springvale Conveyor Further Excavations (MacIntyre 1993)

In 1993, McIntyre carried out test excavation to investigate the possibility of an Aboriginal burial area being located close to the Springvale Conveyor, which is partially within the current project area (McIntyre 1993). Oral history from a local informant provided primary data for the location of the burial ground. During this excavation, two areas were tested, one on the west side of the railway line and the second along the area proposed as a flood mitigation embankment. This second area, thought to be on the east side of the current river alignment, was tested using auger holes only.

No skeletal remains were uncovered during these excavations, although a minor open site was identified on the west side of the railway line (45-1-0237), where stone tools were said to have been manufactured or repaired. This site was assessed as having low scientific significance. McIntyre concluded that the reported burial ground may have been destroyed during the Coxs River deviation works in the 1950s, although there is still the possibility that skeletal material may occur east of the railway and river. She further notes that the presence of artefacts within the level ground adjacent to the river indicates the potential this landscape unit has for the occurrence of Aboriginal sites (McIntyre as reported in Gay 1999: 16–17).

Gay (1999) completed a follow-up analysis of the potential for a burial ground to be present along the Coxs River at this location and determined its likely location to be further north through consultation with local knowledge holders.

A diagram of the approximate location of MacIntyre's test excavation is shown in relation to the PADs identified during the current survey are on **Figure 2-1**. The former carved tree locations shown on **Figure 2-1** are in error, they are shown at the eastern (right) edge of the triangular PAD area and to the east of the Coxs River. The location of the former carved trees and burial ground was subsequently determined to be approximately 250 m to the north (not shown on the figure, see Gay 1999: 19-20).

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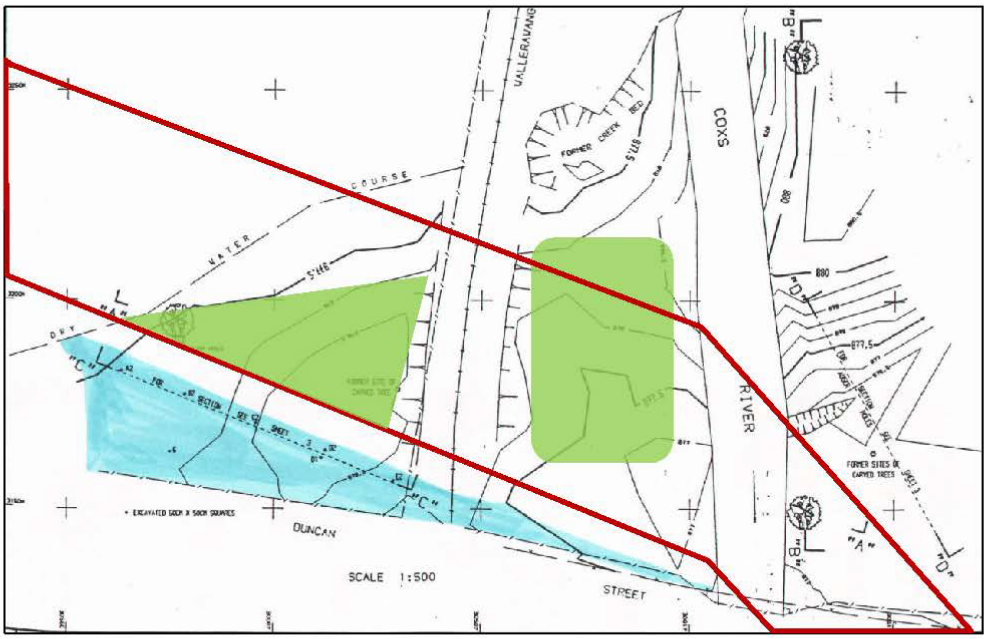
Figure 2-1: Location of previous test excavations at site 45-1-0237 (blue) with remaining areas of PAD (green) and the approximate project area (red). (McIntyre 1993). North at top.



Castlereagh Realignment Test and Salvage excavations (OzArk 2003 and 2004)

Test excavation of two PADs was undertaken by OzArk (2003) for potential impacts associated with the realignment of the Castlereagh Highway at Lidsdale, 150 m east of the project area on the eastern side of the (realigned) Coxs River. These PADs, located a low ridge above the Coxs River, had been identified by Gay (1999) and were recorded as PAD1 (also Lisdale 1, 45-1-2573) and PAD2 (also Lisdale 2, 45-1-2574). The results of the test excavation indicated the presence of an extensive open site with low to moderate artefact densities. The test excavation revealed that a variety of activities appear to have been carried out on the site, evidenced by the presence of hammers/anvils for on-site stone tool production or food preparation. The systematic flaking of stone was carried out at several locations across the site, with one discrete knapping event, associated with a stone feature, showing the manufacture of backed artefacts (specifically bondi points). Quartz was the predominant raw material, although silicified tuff apparently increases in incidence in the upper portion of the profile. The excavated test pits revealed soil profiles indicative of an intact site with good structural integrity.

The salvage excavation (OzArk 2004) confirmed that PAD2 (45-1-2574) is a large and complex site. The site showed internal spatial variation in lithic assemblages. The deeper soil in Area I was found to have retained some cultural stratigraphy: the lithic assemblages from spits 1 and 2 differed from those in spits 3 and 4, indicating change over time at the site. Areas II and III were excavated in locations with more shallow soils, but the lower spits also retain slight variations in

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the frequencies of different raw material types, suggesting that early occupation of the site may have been widespread, not just confined to the area of deeper soils.

Excavation of this site was extensive with a total of 132 m^2 excavated as part of the salvage work and an additional 22 m^2 excavated during the test excavation phase: a total of 154 m^2 of excavation. Almost 6,100 artefacts were recovered. Additional monitoring of the site during construction works yielded an additional 441 artefacts.

2.2 ARCHAEOLOGICAL CONTEXT: SUMMARY

Salient points from the archaeological data from nearby test and salvage excavations are:

- Excavations within the Coxs River valley indicate that larger and more complex sites are located on elevated landforms (low ridges) rather than those immediately adjacent to the Coxs River. In relation to site 45-1-0237, the characteristics of this site within the project area are expected to be of lower density and complexity than sites on more elevated landforms (e.g. Lisdale 2). The expected low-moderate density of artefacts at the site may reflect occupation in certain climactic conditions or specific activities, rather than more continuous habitation at Lisdale 2.
- Level landforms near smaller waterways, such as Lamberts Creek, have the potential to contain low-density artefact deposits, despite their distance from the more permanent water source (the Coxs River).
- Quartz is the predominant material for stone artefacts, followed by silicified tuff (mudstone), which is more common in the east, such as at Marrangaroo Creek (30% in some assemblages), and less common along the Coxs River at Wallerawang and Lidsdale (17%), and even more rare in the hilly country west of the Coxs River (8%).
- Estimated dates for sites near the project area are predominantly within the last 3,000 years (e.g. LD3 and the Lamberts Gully sites), although the complex site at the Coxs River (Lisdale 2) has a phase of occupation dated to the pre-Bondaian period (6,000-14,000 BP)

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3 TEST EXCAVATION METHODOLOGY

3.1 PURPOSE OF THE TEST EXCAVATION METHODOLOGY

The purpose of the test excavation program is to understand more completely the nature of the subsurface material across the PAD areas. Data obtained from the test excavation program will inform the mitigation and management options in the forthcoming Aboriginal Cultural Heritage Assessment Report (ACHAR).

The aims are therefore to:

1. Establish the extent, nature and integrity of the potential subsurface archaeological deposits
2. Use the data gained from the test excavation program to better evaluate the archaeological significance of the PADs
3. Develop, in consultation with the RAPs and the proponent, an informed strategy for the management of impacts to any Aboriginal cultural heritage likely to be impacted by the project.

3.2 PROPOSED TEST EXCAVATION AREAS

Three locations where test excavation could provide a clearer picture of the subsurface archaeological potential across the project area have been identified. The reasons why these locations have been selected are outlined in **Table 3-1**. The general location of these three areas is shown on **Figure 3-1**, with detail of the excavation areas on the following figures.

Figure 3-2 to **Figure 3-4** show the preliminary layout of transects to adequately investigate the subsurface potential of the PADs within the project area. However, the ultimate location of the transects and their associated Test Units (TUs) will be determined in the field so that both are placed at the most advantageous locations (i.e. away from localised disturbances). Similarly, if revisions to the project area are made then the transect, grid and TU locations may also require revision. Consultation between the OzArk archaeologists and the RAPs will take place in the field if this is to occur.

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Table 3-1: Potential areas proposed for test excavation and sampling strategy.

Site name	Test excavation methodology	Landform description	0.5% of landform area	Rationale
WPS PAD 2	Two parallel transects will be excavated within the PAD area. Each transect to have five TUs. TUs to be 0.5 x 0.5 m and spaced at 10 m intervals.	Level terrace landform adjacent to the Coxs River.	Proposed excavation area is 2.5 square metres (m^2). Maximum excavation area (0.5%) would be 20.5 m^2	Testing of a previously identified PAD area within the project area.
Lamberts Creek 5 (Site 45-1-0215)	Comprising two sections: west and east. Two parallel transects will be excavated within the west PAD area which falls within the project area. Each transect to have five TUs. TUs to be 0.5 x 0.5 m and spaced at 10 m intervals.	Level creek flat landform adjacent to Lamberts Creek	Proposed excavation area is 2.5 m^2. Maximum excavation area (0.5%) would be 14.9 m^2	Testing of a previously identified PAD and artefact scatter within the project area.
Springvale Colliery (Site 45-1-0237)	Comprising two sections: west and east. As the Coxs River terrace landform surrounding the Springvale Colliery (Site 45-1-0215) PAD has been substantially altered, a 10 x 10 m grid will guide the test excavation for both west and east sections, rather than parallel linear transects of TUs. Up to 36 TUs will be excavated at 10 m intervals within the PAD area. I	Level valley floor landforms adjacent to the original alignment of the Coxs River (now modified).	Proposed excavation area is 9 m^2. Maximum excavation area (0.5%) would be 21.9 m^2	Testing of a previously identified PAD area within the project area.

Figure 3-1: Location of the proposed areas for test excavation.

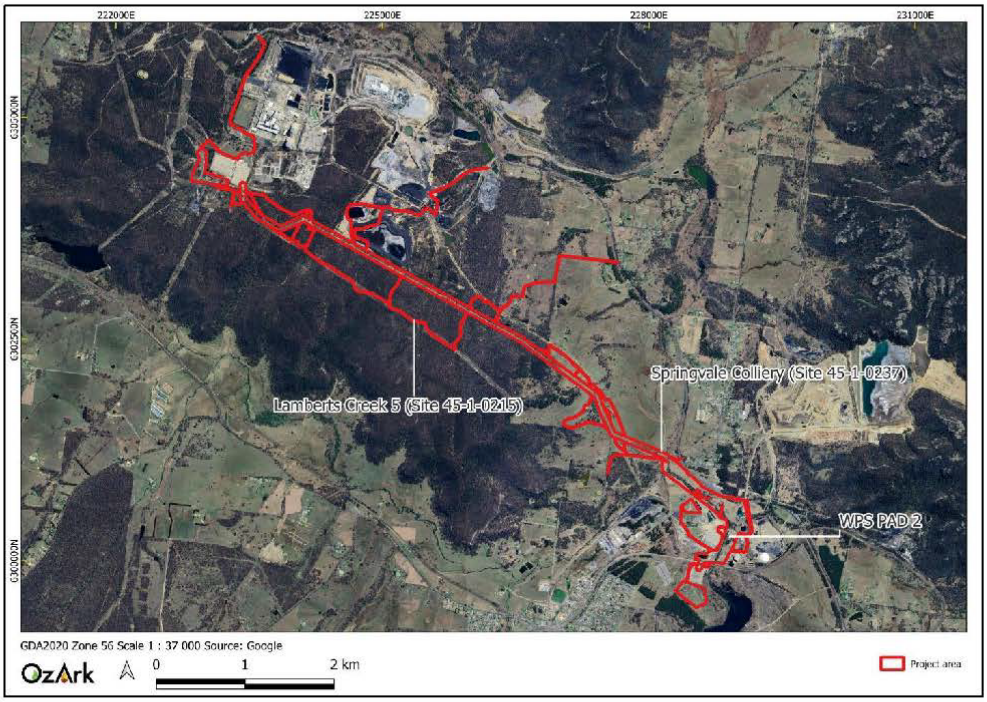

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Figure 3-2: Indicative transect locations at WPS PAD 2 (if confirmed to be required).

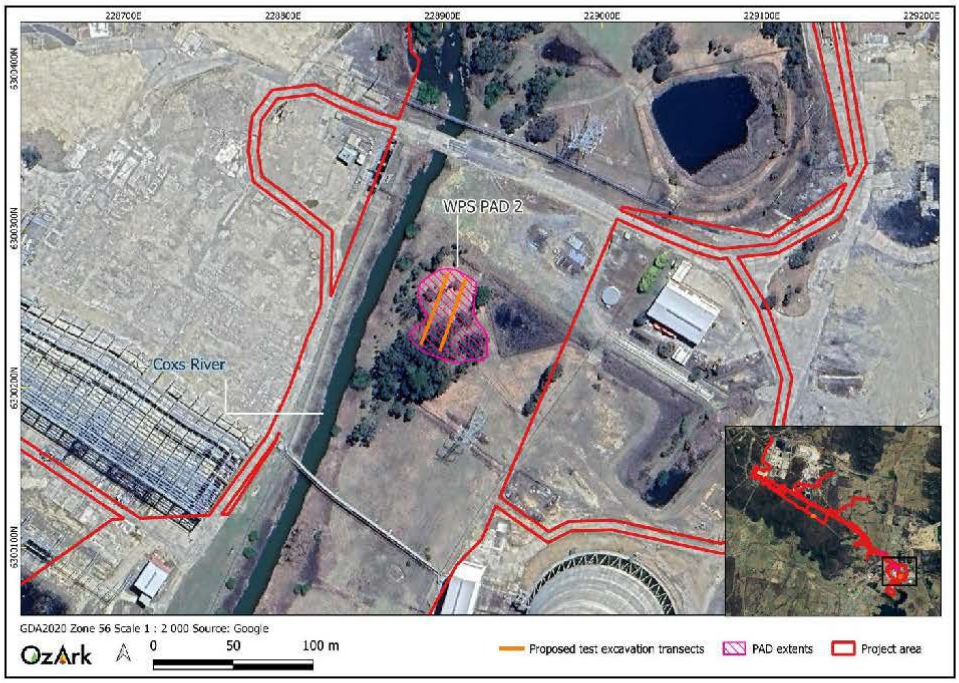

Figure 3-3: Indicative test unit grid at Springvale Colliery (Site 45-1-0237)

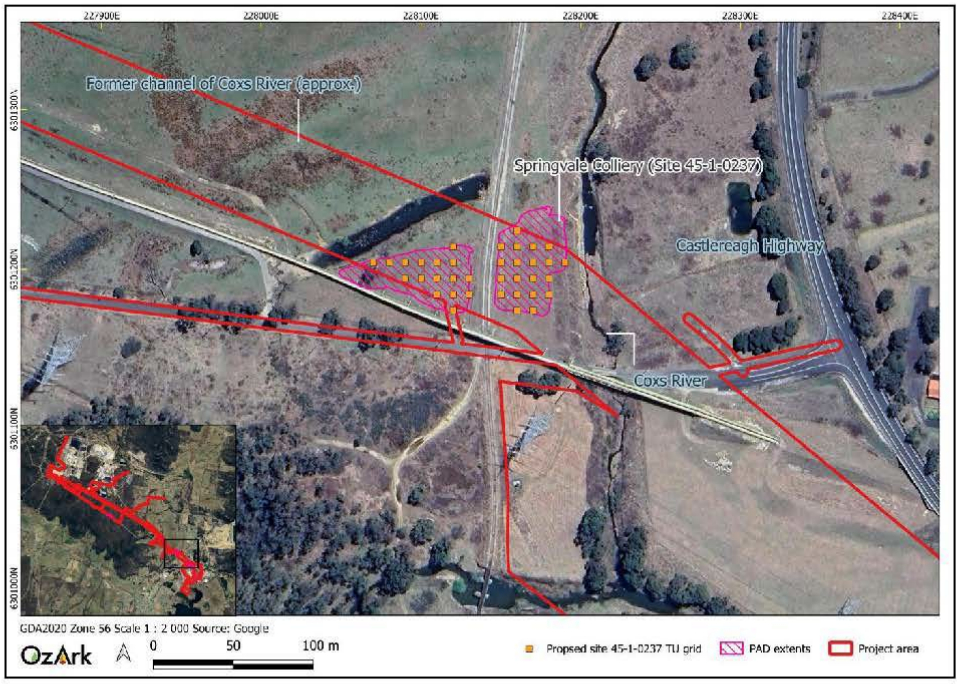

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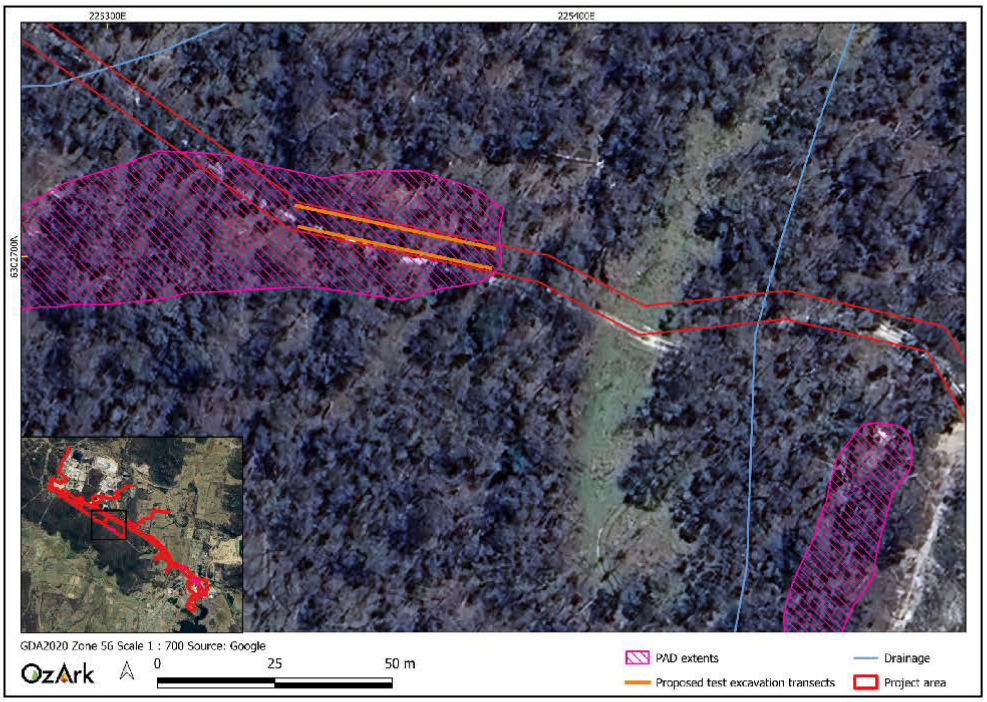
Figure 3-4: Indicative transect locations at Lamberts Creek 5.



3.3 SAMPLING STRATEGY

The excavation program will be undertaken by archaeologists and representatives of RAPs and will include the following aspects:

1. Up to three areas will be investigated by the test excavation program (**Table 3-1**). It is anticipated that the test excavation will be completed in a staggered program, commencing at Sites 45-1-0237 and 45-1-0215. The need for investigations at WPS PAD 2 will be confirmed following further design development. If required, it would be investigated as part of a second phase of investigations according to proposed methodology.

2. The location for the proposed test excavation program and approximate transect or TU grid locations are shown on **Figure 3-2** to **Figure 3-4**. It is noted that there can be some flexibility in the field about the precise location of an area to test and the precise location of excavation transects. Any decisions about where to place excavation areas will be done in consultation with the RAPs who are in present at the time.

3 TUs will generally be spaced with a 10 m interval so that a broad representation of the landforms will be obtained. Some minor movement off this grid may be needed to avoid vegetation or areas of disturbance. No TU will be closer than 5 m to another, unless it is expanding a TU with a number of artefacts for further understanding as per the Code.

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4. Prior to any excavation, the area will be recorded via digital photography. This data will be presented in the ACHAR distributed to the RAPs and further information could be provided if requested.
5. Initial TUs 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, so long as the stratigraphic layers are less than 10 cm deep. Otherwise, excavation will remain at 5 cm or 10 cm spits.
6. The excavated material from all squares will be sieved on site using dry sieving through a 5 mm sieve. A 3 mm sieve will be available should the deposits and artefacts being recorded suggest that it would be warranted to use a smaller sieve size.
7. If the soils within the PAD are deep, the decision on when to stop excavation will rest with the supervising archaeologist although Requirement 16a, point 9 will be followed. This states: *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.*
8. Each TU will be excavated by a two-person team to allow for tasks to be rotated. One team member will excavators (by hand) while the other will be responsible for sieving the deposit from the TU, retrieving the artefacts and, in conjunction with the supervising archaeologist, correctly recording their provenance. Deposits will be sieved on to tarpaulins and the spoil used to backfill the TU once it has been photographed and recorded.
9. A standard excavation recording form will be used for each TU. Details will include: date, site recorder, spit number and excavation depth, description of the soil profile with Munsell colours being used as appropriate, measured section of the excavation, and soil pH recordings (when necessary or appropriate).
10. It is envisioned that the excavation crew will consist of an Excavation Director, two archaeologists and three RAP site officers. A member of the Transgrid Yura Ngara Indigenous Advisory team will also be present. The excavator of each TU, in conjunction with the Excavation Director, will be responsible for ensuring all forms are correctly completed. It will be the archaeologists' responsibility to perform all photographic tasks, undertake any planning and section drawing if required, and to ensure that a correct location of each TU is maintained.
11. Given that the work will be reasonably physical, all persons conducting activities must be fit for work. Excavation will require being able to lift equipment to site, dig using a shovel from a standing or kneeling position, lift and sieve small buckets of excavated soil.

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12. If intact archaeological deposits or archaeological features are encountered, then additional archaeological TUs may be excavated to ensure documentation of any features and/or retrieval of artefacts and other relevant archaeological material. A feature would include a high density of artefacts within a TU, or a 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 hatchet heads, hammerstones, etc.), or other signs of human occupation i.e. ground ovens/hearths or charcoal concentrations. Any expansion must adhere to Requirement 16 (5). Any expansion would only occur with the consent of the Excavation Director who will determine if an expansion is required to gain the appropriate scientific information.
13. Rather than expanding around an individual square as set out in Point 12, it is more likely that any expansion will involve setting out an additional transect at 90 degrees to a transect that has demonstrated significant and intact archaeological deposits. The perpendicular transect will be used to assist in determining the spatial spread of the subsurface deposits. At Site 45-1-0215, further excavation would entail reducing the grid spacing in the relevant direction or location.
14. Section drawings and photographs will be completed for all TUs to show the soil profile.
15. Analysis of all excavated artefacts will be made 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. If charcoal from a secure stratigraphic context is obtained, it may be sent to a laboratory for Carbon 14 dating (subject to the RAPs and proponent's agreement). Soil samples may be taken for Optical Stimulated Luminescence (OSL) dating if suitable conditions are encountered.
16. 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.
17. 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 whey will be kept at a locked location until point 19 below is enacted as the project progresses.

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18. The results of the test excavation program will inform the forthcoming ACHAR. Excavation results will be used to advise further courses of action in relation to the management and mitigation options for the project area.

19. Once all salvage activities for the project are complete (should the project be approved), artefacts will be amalgamated and managed as per the Aboriginal Cultural Heritage Management Plan (ACHMP). Artefacts will be either be subject to a future care agreement negotiated between the RAPs and Heritage NSW; or reburied in accordance with Requirement 26 of the Code of Practice. It is noted here that an option for the long-term management of the objects could be housing at the Wiradjuri keeping place located at Transgrid's Discovery Hub (27 Kincaid Street, Wagga Wagga). The long-term management of any recovered artefacts will be determined in consultation with the RAPs.

3.4 RESEARCH QUESTIONS

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 within the project area will attempt to shed light on:

- Does the known archaeological deposit at Site 45-1-0215 continue into the project area?
- How do the recorded artefacts and other site characteristics compare to other archaeological excavations undertaken in the local area and the region, such as at Lisdale 2?
- Are there intact stratigraphic deposits present that are of conservation value? Can intact deposits (if present) provide datable material or soil luminescence samples?
- Is there evidence providing insight into the tasks were Aboriginal people undertaking?

3.5 COMPLIANCE WITH CODE OF PRACTICE: REQUIREMENT 16

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, 20 m intervals, or other justifiable and regular spacing.*

- The sampling strategy outlined above (**Section 3.3**) complies with this requirement. All TUs will be confined to the project area at the three excavation areas. TUs at WPS PAD 2 and Lamberts Creek 5 will be placed along two parallel transects in the area proposed for the ground disturbing work. The transects will be at least 5 m apart. TUs at Site 45-1-0215 will be placed in a grid due to the irregular shape of the PAD area within the project area.

2 *Any test excavation point must be separated by at least 5 m.*

- The sampling strategy outlined above (**Section 3.3**) complies with this requirement as most TUs will be separated by 10 m. At Lamberts Creek 5,

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the two transects will be 5 m apart due to the narrow width of the project area. Some minor variation of the spacing may be required to avoid vegetation or disturbed areas. No TU will be closer than 5 m to another except if adjacent TUs are required to achieve suitable workspace if the deposits are deep.

3 *Test excavations units must be excavated using hand tools only.*

- The sampling strategy outlined in **Section 3.3** complies with this requirement.

4 *Test excavations must be excavated in 0.5 m x 0.5 m units.*

- The sampling strategy outlined in **Section 3.3** complies with this requirement. However, depending on the depth to the B-Horizon identified in a TU, an additional TU may be placed adjacent (making the TU 0.5 x 1 m) should the TU become too deep to excavate at 0.5 x 0.5 m.

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^2

- The sampling strategy outlined in **Section 3.3** complies with this requirement.

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.

- The number and size of test excavations undertaken as part of this program will be managed to ensure that this requirement is satisfied. The maximum areas to be excavated have been calculated in **Table 3-1**.

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. Less than 0.5 per cent of the known potential archaeological deposit's dimensions will be investigated (see **Table 3-1**).

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 3.3** Point 5.

8 *All material excavated from the test excavation units must be sieved using a 5 mm aperture wire-mesh sieve.*

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- Complies. See **Section 3.3** Point 6.

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.*

- This requirement will be fulfilled in the field and all TUs will be excavated to the basal clays or where it is considered that culturally sterile units are present. The decision on when this point is reached will rest with the Excavation Director.

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. See **Section 3.3** Points 9, 10, 14, 15 and 16.

12 *Test excavations units must be backfilled as soon as practicable.*

- Complies. See **Section 3.3** Point 8.

13 *Following test excavation, an Aboriginal Site Impact Recording form must be completed and submitted to the AHIMS Registrar as soon as practicable, for each AHIMS site that has been the subject of test excavation in accordance with the requirements of the Code.*

- It will be the responsibility of OzArk to ensure that this requirement is met.

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APPENDIX 4: AHIMS SEARCHES

2023 search

AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Mt Piper #3908
Client Service ID : 821152

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-2844	Wallerawang BESS APT + PAD 01	GDA	56	228926	6299886	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
Contact		Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick					Permits		
45-1-0108	W1;	AGD	56	229620	6297320	Open site	Valid	Artefact : -	Open Camp Site	1515
Contact		Recorders	Rex Silcox					Permits		
45-1-0239	Irondale Creek;	AGD	56	222330	6302230	Open site	Partially Destroyed	Artefact : -	Open Camp Site	2907
Contact		Recorders	Helen Brayshaw,Mary Dallas Consulting Archaeologists (MDCA)					Permits		
45-1-0074	Mt Piper;	AGD	56	224260	6301500	Open site	Valid	Artefact : -	Open Camp Site	
Contact		Recorders	ASRSYS					Permits		
45-1-0218	57 - Blackmans Flat;	AGD	56	224400	6303650	Open site	Valid	Artefact : -	Open Camp Site	
Contact		Recorders	Mr.Neville Baker,Elizabeth Rich					Permits		
45-1-2847	MOD4_IF2_KM	GDA	56	224508	6305493	Open site	Valid	Artefact : -		
Contact		Recorders	RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris					Permits		
45-1-0072	Lamberts Creek2	AGD	56	225245	6302229	Open site	Valid	Artefact : -	Open Camp Site	2294
Contact		Recorders	Helen Brayshaw,Ms.Laila Haglund					Permits		
45-1-2755	Neubecks Creek Open Site PAD 7	GDA	56	225338	6306253	Open site	Partially Destroyed	Artefact : 1, Potential Archaeological Deposit (PAD) : 1		
Contact		Recorders	OzArk Environmental and Heritage Management - Dubbo,Mr.Nicholas James Harro					Permits		
45-1-0023	Pipers Flat Creek;Bald Rock;	AGD	56	226500	6300500	Closed site	Valid	Artefact : -	Shelter with Deposit	
Contact		Recorders	R Miller					Permits		
45-2-2539	SU1a - A7	GDA	56	227122	6300093	Open site	Valid	Artefact : 4		
Contact		Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2552	IV-OS-4	AGD	56	222810	6303400	Open site	Valid	Artefact : -	Open Camp Site	
Contact		Recorders	Mrs.Robynne Mills					Permits		
19-5-0217	PP2	GDA	56	222990	6302461	Open site	Valid	Modified Tree (Carved or Scarred) : -, Artefact : -		
Contact		Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Nicola Hayes,Onsite Cultural Herita					Permits		
45-1-0216	Neubecks Creek 2;	AGD	56	225594	6305876	Open site	Partially Destroyed	Artefact : -	Open Camp Site	
Contact		Recorders	Helen Brayshaw,Ms.Laila Haglund,Mr.Nicholas James Harrop					Permits		
45-1-0241	Western main 1, same as 45-1-0236	AGD	56	226060	6304580	Open site	Valid	Artefact : -	Open Camp Site	2501
Contact		Recorders	Helen Brayshaw					Permits		
45-1-2823	RPS Artefact Scatter QFlake1	GDA	56	224843	6304251	Open site	Valid	Artefact : -		
Contact		Recorders	RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris					Permits		

Report generated by AHIMS Web Service on 19/09/2023 for Sophia Grubnic for the following area at Datum :GDA, Zone : 56, Eastings : 221496.0 - 230973.0, Northings : 6297352.0 - 6306553.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 116
This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 8

AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Mt Piper #3908
Client Service ID : 821152

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-2795	BF JN 1 IF - Blackmans Flat IF	GDA	56	225191	6304132	Open site	Valid	Artefact : -		
Contact		Recorders	RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson					Permits		
45-1-0203	S6;Blackmans Flat;	AGD	56	225180	6303220	Open site	Destroyed	Artefact : -	Open Camp Site	2300
Contact		Recorders	S Fields,Elizabeth Rich					Permits		
45-1-2890	Marrangaroo Tunnel	GDA	56	230523	6298175	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
Contact		Recorders	GML Heritage Pty Ltd - Surry Hills,Ms.Caitlin Harvey					Permits	4947	
45-1-2716	SU1a - A5	GDA	56	227585	6300837	Open site	Valid	Artefact : 19		
Contact		Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-0110	W4;	AGD	56	228620	6297310	Open site	Valid	Artefact : -	Open Camp Site	1515
Contact		Recorders	Rex Silcox					Permits		
45-1-0109	W2;	AGD	56	229600	6297350	Open site	Valid	Artefact : -	Open Camp Site	1515
Contact		Recorders	Rex Silcox					Permits		
45-1-0012	Pipers Flat Creek;	AGD	56	225250	6301150	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	
Contact		Recorders	D Miller					Permits		
45-1-0071	Mt Piper;Lamberts Creek 1;	AGD	56	225325	6302130	Closed site	Valid	Artefact : -	Shelter with Deposit	2294
Contact		Recorders	Helen Brayshaw,Ms.Laila Haglund					Permits		
45-1-0010	Pipers Flat Creek;	AGD	56	225600	6300700	Closed site	Valid	Artefact : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Deposit	1515
Contact		Recorders	D Miller					Permits		
45-6-2354	Lamberts Creek 7	AGD	56	225530	6303350	Open site	Destroyed	Artefact : -	Open Camp Site	
Contact		Recorders	Doctor Jillian Comber,Ms.Laila Haglund					Permits	405	
45-1-0022	Pipers Flat Creek;Bald Rock;	AGD	56	226630	6300510	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
Contact		Recorders	R Miller					Permits		
45-1-2718	SU1a - A9	GDA	56	226981	6300239	Open site	Valid	Artefact : 1		
Contact		Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2799	Brays Lane AS1	GDA	56	227039	6300622	Open site	Valid	Artefact : -		
Contact		Recorders	Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats					Permits		
45-1-0242	Western main 3, same as 45-1-0235	AGD	56	225630	6304830	Open site	Valid	Artefact : -	Open Camp Site	2501
Contact		Recorders	Helen Brayshaw					Permits		
45-1-2846	MOD4_IF3_KM	GDA	56	225879	6304312	Open site	Valid	Artefact : -		
Contact		Recorders	RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris					Permits		

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Page 2 of 8

AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Mt Piper #3908
Client Service ID : 821152

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-2591	NC-IF1	AGD	56	225851	6306185	Open site	Valid	Artefact : 10, Potential Archaeological Deposit (PAD) : 1		
	Contact T Russell	Recorders	OzArk Environmental and Heritage Management - Dubbo					Permits	2225	
45-1-2891	GWB-IA1-22	GDA	56	227778	6300834	Open site	Valid	Artefact : -		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney,Doctor.Andrew Peter Mclaren					Permits		
45-1-0211	S2;Wallerawang;	GDA	56	227811	6300741	Open site	Valid	Artefact : -	Open Camp Site	2300
	Contact	Recorders	Mr.Neville Baker,Elizabeth Rich,Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats					Permits	467	
45-1-2715	SU1a - A4	GDA	56	228046	6301960	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2754	Neubecks Creek Open Site PAD 6	GDA	56	225164	6305870	Open site	Partially Destroyed	Artefact : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo,Mr.Nicholas James Harro					Permits		
45-1-0212	GS1;Springvale Colliery;	AGD	56	230700	6300020	Open site	Valid	Artefact : -	Open Camp Site	2300,2608
	Contact	Recorders	Elizabeth Rich,Alice Gorman					Permits		
45-1-0044	Beecroft;	AGD	56	230620	6303780	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Helen Brayshaw					Permits		
45-1-2583	Duncan/Main Street PAD	AGD	56	228450	6300750	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Jodie Benton					Permits	1793	
45-1-2843	Wallerawang BESS IF + PAD 02	GDA	56	229419	6299775	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick					Permits		
45-1-0238	Mount Piper;	AGD	56	222590	6302870	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art,Shelter with Deposit	2907
	Contact	Recorders	Helen Brayshaw,Mary Dallas Consulting Archaeologists (MDCA)					Permits		
19-5-0218	PF3	GDA	56	223371	6302484	Open site	Valid	Modified Tree (Carved or Scarred) : -, Artefact : -		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Nicola Hayes,Onsite Cultural Herita					Permits		
45-1-2582	BP-IF-1	AGD	56	225130	6305840	Open site	Valid	Artefact : -		
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		

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Page 4 of 8

AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Mt Piper #3908
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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-2574	PAD 2, Castlereagh Highway Realignment, Lidsdale	AGD	56	228250	6301120	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : -		98700,102443
	Contact	Recorders	Ms.Louise Gay					Permits	1436,1707	
45-1-0014	Pipers Flat Creek;	AGD	56	224800	6301100	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	R Miller					Permits		
45-1-0217	Neubeck Creek 1;	GDA	56	224774	6306112	Open site	Destroyed	Artefact : -	Open Camp Site	
	Contact	Recorders	Helen Brayshaw,Ms.Laila Haglund					Permits	2225	
45-1-2550	IV-OS-2	AGD	56	222130	6303520	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-0075	Mt Piper;	AGD	56	223450	6302290	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	Recorders	ASRSYS					Permits		
45-1-2553	IV-OS-6	AGD	56	223670	6302970	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-0018	Pipers Flat Creek;Wang Trig;	AGD	56	223810	6301900	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	Recorders	R Miller					Permits		
45-1-0021	Pipers Flat Creek;	AGD	56	225700	6300250	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	Recorders	R Miller					Permits		
45-1-0210	S3;Wallerawang;	AGD	56	226600	6302350	Open site	Valid	Artefact : -	Open Camp Site	2300
	Contact	Recorders	Elizabeth Rich					Permits	472	
45-1-0066	Pipers Flat;Ivanhoe Colliery;	AGD	56	222760	6303710	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Ms.Laila Haglund					Permits		
45-1-2549	IV-OS-3	AGD	56	222790	6303230	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-2551	IV-OS-5	AGD	56	222790	6303490	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-0020	Pipers Flat Creek;	AGD	56	225750	6300300	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art,Shelter with Deposit	
	Contact	Recorders	R Miller					Permits		
45-1-2749	Neubecks Creek Isolated Find 2	GDA	56	225787	6305480	Open site	Valid	Artefact : 1		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo					Permits		
45-1-2721	CS SU4-A4	GDA	56	225953	6303887	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		

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Page 3 of 8

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Extensive search - Site list report

Your Ref/PO Number : Mt Piper #3908
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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-0019	Irondale;	AGD	56	225500	6302750	Closed site	Valid	Artefact : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Deposit	
	Contact	Recorders	R Miller					Permits		
45-1-0209	S4;Wallerawang;	AGD	56	226300	6302550	Open site	Valid	Artefact : -	Open Camp Site	2300
	Contact	Recorders	Elizabeth Rich					Permits		
45-1-0045	Ben Bullen Stone Arrangement;Ben Bullen State Forest;	AGD	56	226800	6305600	Open site	Valid	Stone Arrangement : -	Stone Arrangement	
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
19-5-0216	PF1	GDA	56	223104	6302282	Open site	Valid	Artefact : -		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Nicola Hayes,Onsite Cultural Herita					Permits		
45-1-0235	Western main 3; same as 45-1-0242	AGD	56	225630	6304830	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Helen Brayshaw					Permits	428	
45-1-2724	CS SU4-A1	GDA	56	225946	6303882	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2751	Neubecks Creek Isolated Find 4	GDA	56	226044	6306350	Open site	Valid	Artefact : 1		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo					Permits		
45-1-2853	GWB-STQ1-21	GDA	56	227238	6300771	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -, Stone Quarry : -		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney,Doctor.Andrew Peter Mclaren					Permits		
45-1-0094	Long Swamp 2;Wallerawang;	AGD	56	228290	6305550	Open site	Valid	Artefact : -	Open Camp Site	950
	Contact	Recorders	Elizabeth Rich,Shelly Greer,Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-1-2800	WPS-IF1	GDA	56	228556	6300579	Open site	Valid	Artefact : -		104157,104158
	Contact	Recorders	Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats					Permits		
45-1-2848	MOD4_IF1_KM	GDA	56	224720	6304103	Open site	Valid	Artefact : -		
	Contact	Recorders	RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris					Permits		
45-1-2545	Wallerowong Station Massacre	AGD	56	228600	6298500	Open site	Valid	Burial : -	Burial/s	
	Contact	Recorders	Ms.Adrienne Howe-Piening					Permits		
45-1-0111	W3;	AGD	56	228730	6297320	Open site	Valid	Artefact : -	Open Camp Site	1515
	Contact	Recorders	Rex Silcox					Permits	78	
45-1-0076	Mt Piper;	AGD	56	223440	6302040	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	ASRSYS					Permits		
45-1-2752	Neubecks Creek IF-8 with PAD	GDA	56	225257	6306096	Open site	Partially Destroyed	Artefact : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo,Mr.Nicholas James Harro					Permits		

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Page 5 of 8

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Extensive search - Site list report

Your Ref/PO Number : Mt Piper #3908
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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-2719	SU1a - A6	GDA	56	227105	6300095	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2548	IV-IF-2	AGD	56	222850	6303590	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-2753	Neubecks Creek Open Site 5	GDA	56	225938	6305155	Open site	Valid	Artefact : 1		
	Contact	Recorders	OzArk Environmental and Heritage Management - Dubbo					Permits		
45-1-0234	Western main 2;	AGD	56	226020	6304680	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Helen Brayshaw					Permits	427	
45-1-0236	Western main 1; same as 45-1-0241	AGD	56	226060	6304580	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Helen Brayshaw					Permits	428	
45-1-0206	S9;Lidsdale;	AGD	56	227750	6301500	Open site	Valid	Artefact : -	Open Camp Site	2300
	Contact	Recorders	Elizabeth Rich,Alice Gorman					Permits		
45-1-0100	Angus Place 1;Ben Bullen State Forest;	AGD	56	227640	6305600	Closed site	Valid	Artefact : -	Shelter with Deposit	950
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-1-2573	PAD 1, Castlereagh Highway Realignment, Lidsdale	AGD	56	228250	6301070	Open site	Destroyed	Potential Archaeological Deposit (PAD) : -		98700,102443
	Contact	Recorders	Ms.Louise Gay					Permits	1436,1666	
41-1-0238	Duncan Street PAD(refer to site 45-1-2583)	AGD	56	228450	6300750	Open site	Deleted	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Jodie Benton					Permits		
45-1-0015	Pipers Flat Creek;	AGD	56	224300	6301800	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	Recorders	ASRSYS					Permits		
45-1-0208	S5;Blackmans Flat;	AGD	56	225550	6303050	Open site	Valid	Artefact : -	Open Camp Site	2300
	Contact	Recorders	Elizabeth Rich					Permits	361	
45-1-2601	SVW-OS1 with PAD	AGD	56	225796	6303196	Open site	Valid	Artefact : 6		
	Contact	Recorders	Bathurst LALC,Doctor.Jodie Benton,Mr.Phillip Cameron					Permits		
45-1-2587	WC1A	AGD	56	225991	6305123	Open site	Valid	Artefact : 1		98981
	Contact Bathurst LALC	Recorders	Mr.John Appleton					Permits		
45-1-0237	Springvale Colliery;	AGD	56	228000	6301000	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits	496	
45-1-0247	Wallerawang Schoolhouse;	AGD	56	228240	6300510	Open site	Valid	Artefact : -	Open Camp Site	3818
	Contact	Recorders	Ms.Elizabeth White					Permits		
45-1-0096	Elizabeth Vale 1;Wallerawang;	AGD	56	224800	6297450	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	950

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Page 6 of 8

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Extensive search - Site list report

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Client Service ID : 821152

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Elizabeth Rich,Shelly Greer,Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-1-2845	MOD4_AS1_KM	GDA	56	224843	6304243	Open site	Valid	Artefact : -		
	Contact	Recorders	RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris					Permits		
45-1-0016	Pipers Flat Creek;	AGD	56	224900	6301600	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	R Miller					Permits		
45-1-0213	Lamberts Ck 4;Mt Piper;	AGD	56	225149	6302270	Closed site	Valid	Artefact : -	Shelter with Deposit	2294
	Contact	Recorders	Helen Brayshaw,Ms.Laila Haglund					Permits		
45-1-0214	Lamberts Ck 3;Mt Piper;	AGD	56	225163	6302178	Closed site	Valid	Artefact : -	Shelter with Deposit	2294
	Contact	Recorders	Helen Brayshaw,Ms.Laila Haglund					Permits		
45-1-0013	Pipers Flat Creek;	AGD	56	225230	6300900	Closed site	Valid	Artefact : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Deposit	
	Contact	Recorders	ASRSYS					Permits		
45-1-0062	Falnash;	AGD	56	221510	6299580	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	Recorders	R Burgess					Permits		
45-1-2554	IV-IF-1	AGD	56	222135	6304060	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-0068	Avondale;	AGD	56	222150	6305000	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Ms.Laila Haglund					Permits		
45-1-2602	WCU1	GDA	56	223989	6303882	Open site	Valid	Artefact : 1		
	Contact Searle	Recorders	Navin Officer Heritage Consultants Pty Ltd					Permits		
45-1-2588	NC-OS1 with PAD	AGD	56	225556	6305650	Open site	Valid	Artefact : 10, Potential Archaeological Deposit (PAD) : 1		
	Contact T Russell	Recorders	OzArk Environmental and Heritage Management - Dubbo					Permits		
45-1-0207	S8;Blackmans Flat;	AGD	56	226520	6303050	Open site	Valid	Artefact : -	Open Camp Site	2300
	Contact	Recorders	Elizabeth Rich,Alice Gorman					Permits		
45-1-0048	Wallerawang; Lithgow;	AGD	56	226900	6299100	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : -	Burial/s,Carved Tree	
	Contact	Recorders	David Bell,NPWS - Blackheath Office,Betty Meehan					Permits	473	
45-1-2717	SU1a - A8	GDA	56	227130	6300072	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-0067	Pipers Flat Ivanhoe Colliery	AGD	56	222700	6303780	Open site	Valid	Artefact : -	Open Camp Site	387
	Contact	Recorders	ASRSYS					Permits		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-1-2722	CS SU4-A3	GDA	56	225879	6303777	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2720	CS SU4-A5	GDA	56	225945	6303776	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2572	Site 1, Catlereagh Highway Realignment, Lidsdale	AGD	56	228430	6301025	Open site	Valid	Artefact : -		4549
	Contact	Recorders	Ms.Louise Gay					Permits		
45-1-0081	Rydal;Pipers Flat Range;	AGD	56	225180	6301000	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art,Shelter with Deposit	
	Contact	Recorders	Ann Jelinek					Permits		
45-1-2547	IV-OS-1	AGD	56	222014	6304060	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mrs.Robynne Mills					Permits		
45-1-0093	Long Swamp 1;Wallerawang;	AGD	56	228770	6305540	Open site	Valid	Artefact : -	Open Camp Site	950
	Contact	Recorders	Elizabeth Rich,Shelly Greer,Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-1-0161	Site 3;	AGD	56	221400	6298650	Open site	Valid	Artefact : -	Open Camp Site	1706
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-1-0215	Lamberts Ck 5;Mt Piper;	AGD	56	225300	6302480	Open site	Valid	Artefact : -	Open Camp Site	2294
	Contact	Recorders	Helen Brayshaw,Ms.Laila Haglund					Permits		
45-6-2355	Lamberts Creek 6;	AGD	56	225480	6303070	Open site	Destroyed	Artefact : -	Open Camp Site	
	Contact	Recorders	Ms.Laila Haglund,Ms.Jillian Comber					Permits	405	
45-1-2723	CS SU4-A2	GDA	56	225959	6303943	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-2725	CS SU3-A1	GDA	56	226166	6303832	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca Victoria					Permits		
45-1-0017	Pipers Flat Creek;Wang Trig;	AGD	56	224750	6301750	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	Recorders	R Miller					Permits		
45-1-0244	S13;Springvale Colliery;	AGD	56	224750	6304040	Open site	Destroyed	Artefact : -	Open Camp Site	
	Contact	Recorders	Elizabeth Rich,E Boney					Permits	467	
45-1-0243	S12;Springvale Colliery;	AGD	56	224970	6303900	Open site	Destroyed	Artefact : -	Open Camp Site	
	Contact	Recorders	ASRSYS					Permits	467	

** Site Status
Valid - The site has been recorded and accepted onto the system as valid
Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.
Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground
Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 19/09/2023 for Sophia Grubnic for the following area at Datum :GDA, Zone : 56, Eastings : 221496.0 - 230973.0, Northings : 6297352.0 - 6306553.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 116

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

2025 search update

AHIMS Web Services (AWS)

Note: This Excel report shows the sites found in AHIMS on the 10/06/2025. If this date is not the same as the original date of the Search Results letter obtained during the Basic Search, then the search results might be different. The PDF version of this report will always coincide with the Basic Search Resu

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Primary contact	Site features	Site types	Recorders	Reports	Permits	Longitude GDA94	Latitude GDA94
45-1-2755	Neubecks Creek Open	GDA	56	225338	6306253	Open site	Partially Destroyed		Artefact : 1, Potential Archaeological Deposit (P	Open Camp Site	OzArk Environmental and Heritage Management - Dubbo,Mr.Nicholas J			150.05	-33.35
45-1-2552	IV-OS-4	AGD	56	222810	6303400	Open site	Valid		Artefact : -	Open Camp Site	Mrs.Robynne Mills			150.02	-33.37
45-1-0216	Neubecks Creek 2;	AGD	56	225594	6305876	Open site	Partially Destroyed		Artefact : -	Open Camp Site	Helen Brayshaw,Ms.Laila Haglund,Mr.Nicholas James Harrop			150.05	-33.35
45-1-0218	57 - Blackmans Flat;	AGD	56	224400	6303650	Open site	Valid		Artefact : -	Open Camp Site	Mr.Neville Baker,Elizabeth Rich			150.04	-33.37
45-1-0239	Irondale Creek;	AGD	56	222330	6302200	Open site	Partially Destroyed		Artefact : -	Open Camp Site	Helen Brayshaw,Mary C 2907			150.02	-33.38
45-1-0108	W1;	AGD	56	229620	6297320	Open site	Valid		Artefact : -	Open Camp Site	Rex Silcox	1515		150.09	-33.43
45-1-0203	S6;Blackmans Flat;	AGD	56	225180	6303220	Open site	Destroyed		Artefact : -	Open Camp Site	S Fields,Elizabeth Rich 2300			150.05	-33.37
45-1-0023	Pipers Flat Creek;Bald	AGD	56	226500	6300500	Closed site	Valid		Artefact : -	Shelter with Deposit	R Miller			150.06	-33.40
45-1-0241	Western main 1, same	AGD	56	226060	6304580	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw	2501		150.06	-33.36
45-1-2890	Mamangaroo Tunnel	GDA	56	230523	6298175	Open site	Valid		Potential Archaeological Deposit (PAD) : -		GML Heritage Pty Ltd - Surry Hills,Ms.Caitlin Hz 4947			150.10	-33.42
45-1-2844	Wallerawang BESS AF	GDA	56	228926	6299686	Open site	Valid		Artefact : -, Potential Archaeological Deposit (P	Mr.Matthew Barber,Mr.Matthew Barber,NGH Heritage - Fyshwick,NGH H				150.09	-33.41
45-1-2847	MOD4_IF2_KM	GDA	56	224508	6305493	Open site	Valid		Artefact : -		RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris			150.04	-33.35
45-1-0072	Lamberts Creek 2	AGD	56	225245	6302220	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw,Ms.Lai 2294			150.05	-33.38
45-1-0074	Mt Piper;	AGD	56	224260	6301500	Open site	Valid		Artefact : -	Open Camp Site	ASRSYS			150.04	-33.39
45-2-2539	SU1a - A7	GDA	56	227122	6300093	Open site	Valid		Artefact : 4		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.07	-33.40
45-1-2795	BF JN 1 IF - Blackman	GDA	56	225191	6304132	Open site	Valid		Artefact : -		RPS AAP Consulting Pty Ltd - Hamilton,Ms.Jo Nelson			150.05	-33.37
19-5-0217	PF2	GDA	56	222980	6302461	Open site	Valid		Artefact : -		Navin Officer Heritage Consultants Pty Ltd,Mrs.5250			150.02	-33.38
45-1-2823	RPS Artefact Scatter Q	GDA	56	224843	6304251	Open site	Valid		Artefact : -		RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris			150.04	-33.37
45-1-2922	Wallerawang Rezoning	GDA	56	229861	6298354	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.09	-33.42
45-1-2919	Wallerawang Rezoning	GDA	56	229841	6298359	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.09	-33.42
45-1-0217	Neubeck Creek 1;	GDA	56	224774	6306112	Open site	Destroyed		Artefact : -	Open Camp Site	Helen Brayshaw,Ms.Laila Haglund		2225	150.04	-33.35
45-1-0242	Western main 3, same	AGD	56	225830	6304830	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw	2501		150.05	-33.36
45-1-0109	W2;	AGD	56	229600	6297350	Open site	Valid		Artefact : -	Open Camp Site	Rex Silcox	1515		150.09	-33.43
45-1-0110	W4;	AGD	56	229620	6297310	Open site	Valid		Artefact : -	Open Camp Site	Rex Silcox	1515		150.09	-33.43
45-1-0010	Pipers Flat Creek;	AGD	56	225600	6300700	Closed site	Valid		Artefact : -, Grinding Gr	Axe Grinding Groove,SI	D Miller			150.05	-33.40
45-1-0012	Pipers Flat Creek;	AGD	56	225250	6301150	Closed site	Valid		Artefact : -, Art (Pigmer	Shelter with Art,Shelter D	Miller			150.05	-33.39
45-1-0014	Pipers Flat Creek;	AGD	56	224800	6301100	Open site	Valid		Artefact : -	Open Camp Site	R Miller			150.04	-33.39
45-1-0022	Pipers Flat Creek;Bald	AGD	56	226630	6300510	Open site	Valid		Grinding Groove : -	Axe Grinding Groove	R Miller			150.06	-33.40
45-1-2574	PAD 2, Castlereagh Hi	GDA	56	228250	6301120	Open site	Partially Destroyed		Artefact : -, Potential Archaeological Deposit (P	Ms.Louise Gay		98700,102443	1436,1707	150.08	-33.39
45-1-2799	Brays Lane AS1	GDA	56	227039	6300622	Open site	Valid		Artefact : -		Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats			150.07	-33.40
45-1-2846	MOD4_IF3_KM	GDA	56	225879	6304312	Open site	Valid		Artefact : -		RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris			150.05	-33.37
45-6-2354	Lamberts Creek 7	AGD	56	225530	6303350	Open site	Destroyed		Artefact : -	Open Camp Site	Doctor.Jillian Comber,Ms.Laila Haglund		405	150.05	-33.37
45-1-0071	Mt Piper;Lamberts Cre	AGD	56	225325	6302130	Closed site	Valid		Artefact : -	Shelter with Deposit	Helen Brayshaw,Ms.Lai 2294			150.05	-33.38
45-1-2550	IV-OS-2	AGD	56	222130	6303520	Open site	Valid		Artefact : -	Open Camp Site	Mrs.Robynne Mills			150.01	-33.37
45-1-2716	SU1a - A5	GDA	56	227585	6300837	Open site	Valid		Artefact : 19		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.07	-33.40
45-1-2718	SU1a - A9	GDA	56	226981	6300239	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.06	-33.40
45-1-2923	Wallerawang Rezoning	GDA	56	229300	6298358	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.09	-33.42
45-1-2754	Neubecks Creek Open	GDA	56	225164	6305870	Open site	Partially Destroyed		Artefact : 1, Potential Archaeological Deposit (P	OzArk Environmental and Heritage Management - Dubbo,Mr.Nicholas J				150.05	-33.35
45-1-2721	CS SU4-A4	GDA	56	225953	6303887	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.05	-33.37
45-1-2549	IV-OS-3	AGD	56	222790	6303230	Open site	Valid		Artefact : -	Open Camp Site	Mrs.Robynne Mills			150.02	-33.37
45-1-2551	IV-OS-5	AGD	56	222790	6303490	Open site	Valid		Artefact : -	Open Camp Site	Mrs.Robynne Mills			150.02	-33.37
45-1-2553	IV-OS-6	AGD	56	223670	6302970	Open site	Valid		Artefact : -	Open Camp Site	Mrs.Robynne Mills			150.03	-33.38
45-1-0210	S3;Wallerawang;	GDA	56	226600	6302350	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich,EMM Co 2300		472	150.06	-33.38
45-1-0211	S2;Wallerawang;	GDA	56	227811	6300741	Open site	Valid		Artefact : -	Open Camp Site	Mr.Neville Baker,Elizabe 2300		467	150.07	-33.40
45-1-0212	GS1;Springvale Collier	AGD	56	230700	6300020	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich,Alice Go 2300,2608			150.11	-33.40
45-1-0018	Pipers Flat Creek;Wan	AGD	56	223810	6301900	Closed site	Valid		Artefact : -	Shelter with Deposit	R Miller			150.03	-33.39
45-1-0020	Pipers Flat Creek;	AGD	56	225750	6300300	Closed site	Valid		Artefact : -, Art (Pigmer	Axe Grinding Groove,SIR	Miller			150.05	-33.40
45-1-0021	Pipers Flat Creek;	AGD	56	225700	6300250	Open site	Valid		Grinding Groove : -	Axe Grinding Groove	R Miller			150.05	-33.40
45-1-0044	Beecroft;	GDA	56	230620	6303780	Open site	Valid		Modified Tree (Carved / Scarred Tree		Helen Brayshaw			150.11	-33.37
45-1-2891	GWB-IA1-22	GDA	56	227778	6300834	Open site	Valid		Artefact : -		AECOM Australia Pty Ltd - Sydney,Doctor.Andrew Peter Mclaren			150.07	-33.40
45-1-0066	Pipers Flat;Ivanhoe Co	AGD	56	222760	6303710	Open site	Valid		Artefact : -	Open Camp Site	Ms.Laila Haglund			150.02	-33.37
45-1-0075	Mt Piper;	AGD	56	223450	6302290	Closed site	Valid		Artefact : -	Shelter with Deposit	ASRSYS			150.03	-33.38
45-1-2591	NC-IF1	GDA	56	226851	6306185	Open site	Valid	T Russell	Artefact : 10, Potential Archaeological Deposit (	OzArk Environmental and Heritage Management			2225	150.06	-33.35
45-1-2715	SU1a - A4	GDA	56	228046	6301960	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.08	-33.39
45-1-2749	Neubecks Creek Isolat	GDA	56	225787	6305480	Open site	Valid		Artefact : 1		OzArk Environmental and Heritage Management - Dubbo			150.05	-33.35
45-1-2926	Wallerawang Rezoning	GDA	56	229368	6299204	Open site	Valid		Artefact : -, Potential Archaeological Deposit (P	Mr.Matthew Barber,Mr.Matthew Barber,NGH Heritage - Fyshwick,NGH H				150.09	-33.41
45-1-2724	CS SU4-A1	GDA	56	225946	6303882	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.05	-33.37
45-1-2800	WP S-IF1	GDA	56	228556	6300579	Open site	Valid		Artefact : -		Biosis Pty Ltd - Wollong 104157,104158			150.08	-33.40
45-1-0209	S4;Wallerawang;	AGD	56	226300	6302550	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich	2300		150.06	-33.38
45-1-0238	Mount Piper;	AGD	56	222590	6302670	Closed site	Valid		Artefact : -, Art (Pigmer	Axe Grinding Groove,SI	Helen Brayshaw,Mary C 2907			150.02	-33.38
45-1-0094	Long Swamp 2;Wallera	AGD	56	228290	6300550	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich,Shelly G 950			150.08	-33.35
45-1-0019	Irondale;	AGD	56	225500	6302750	Closed site	Valid		Artefact : -, Grinding Gr	Axe Grinding Groove,SIR	Miller			150.05	-33.38
45-1-0045	Ben Bullen Stone Arra	AGD	56	226800	6305600	Open site	Valid		Stone Arrangement : -	Stone Arrangement	Doctor.Susan (left ahms) McIntyre-Tamwoy			150.07	-33.35
45-1-0235	Western main 3, same	AGD	56	225630	6304830	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw		428	150.05	-33.36
45-1-2853	GWB-STO1-21	GDA	56	227238	6300771	Open site	Valid		Artefact : -, Potential Archaeological Deposit (P	AECOM Australia Pty Ltd - Sydney,Doctor.Andrew Peter Mclaren				150.07	-33.40
45-1-2843	Wallerawang BESS IF	GDA	56	229419	6299775	Open site	Valid		Artefact : -, Potential Archaeological Deposit (P	Mr.Matthew Barber,NGH Heritage - Fyshwick				150.09	-33.41
45-1-2848	MOD4_IF1_KM	GDA	56	224720	6304103	Open site	Valid		Artefact : -		RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris			150.04	-33.37
45-1-2582	BP-IF-1	AGD	56	225130	6305840	Open site	Valid		Artefact : -		Central West Archaeological and Heritage Services Pty Ltd			150.05	-33.35
45-1-2583	Duncan/Main Street P A	GDA	56	229450	6300750	Open site	Valid		Artefact : -		Doctor.Jodie Benton		1733	150.08	-33.40
45-1-2751	Neubecks Creek Isolat	GDA	56	226044	6306350	Open site	Valid		Artefact : 1		OzArk Environmental and Heritage Management - Dubbo			150.06	-33.35
19-5-0216	PF1	GDA	56	223104	6302282	Open site	Valid		Artefact : -		Navin Officer Heritage Consultants Pty Ltd,Mrs.Nicola Hayes,Onsite Cul			150.02	-33.38

19-5-0218	PF3	GDA	56	223371	6302484	Open site	Valid		Artefact : -		Navin Officer Heritage Consultants Pty Ltd,Mrs.Nicola Hayes			150.03	-33.38
45-1-2921	Wallerawang Rezoning	GDA	56	229867	6298371	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.09	-33.42
45-1-2753	Neubecks Creek Open	GDA	56	225938	6305155	Open site	Valid		Artefact : 1		OzArk Environmental and Heritage Management - Dubbo			150.05	-33.36
45-1-2048	IV-IF-2	AGD	56	222850	6303580	Open site	Valid		Artefact : -	Isolated Find	Mrs.Robynne Mills			150.02	-33.37
45-1-0206	S9;Liddsdale;	AGD	56	227750	6301500	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich,Alice Go 2300			150.07	-33.39
45-1-0234	Western main 2;	AGD	56	226020	6304680	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw		427	150.06	-33.36
45-1-0236	Western main 1, same	AGD	56	226060	6304580	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw		426	150.06	-33.36
45-1-0100	Angus Place 1;Ben Bul	AGD	56	227640	6305600	Closed site	Valid		Artefact : -	Shelter with Deposit	Doctor.Susan (left ahms) 950			150.07	-33.35
45-1-0111	W3;	AGD	56	228730	6297320	Open site	Valid		Artefact : -	Open Camp Site	Rex Silcox	1515	78	150.08	-33.43
45-1-2573	PAD 1, Castlereagh Hi	AGD	56	228250	6301070	Open site	Destroyed		Potential Archaeological Deposit (PAD) : -		Ms.Louise Gay	98700,102443	1436,1686	150.08	-33.39
45-1-0076	Mt Piper;	AGD	56	223440	6302040	Open site	Valid		Artefact : -	Open Camp Site	ASRSYS			150.03	-33.38
45-1-2545	Wallerawong Station M	AGD	56	228600	6298500	Open site	Valid		Burial : -	Burial/s	Ms.Adrienne Howe-Fleming			150.08	-33.42
45-1-2719	SU1a - A6	GDA	56	227105	6300095	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.07	-33.40
45-1-2752	Neubecks Creek IF-8 v	GDA	56	225257	6306098	Open site	Partially Destroyed		Artefact : 1, Potential Archaeological Deposit (P	OzArk Environmental and Heritage Management - Dubbo,Mr.Nicholas J				150.05	-33.35
45-1-2918	Wallerawang Rezoning	GDA	56	229847	6298796	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.09	-33.42
45-1-2925	Wallerawang Rezoning	GDA	56	228162	6297874	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.42
45-1-2587	WC1 A	AGD	56	225991	6305123	Open site	Valid	Bathurst LALC	Artefact : 1		Mr.John Appleton	98981		150.06	-33.36
45-1-2601	SWW-OS1 with P AD	AGD	56	225796	6303196	Open site	Valid		Artefact : 6		Bathurst LALC,Doctor.Jodie Benton,Mr.Phillip Cameron			150.05	-33.37
45-1-0208	S5;Blackmans Flat;	AGD	56	225550	6303050	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich	2300	361	150.05	-33.38
45-1-0213	Lamberts Ck 4;Mt Pipe	AGD	56	225149	6302270	Closed site	Valid		Artefact : -	Shelter with Deposit	Helen Brayshaw,Ms.Lai 2294			150.05	-33.38
45-1-0214	Lamberts Ck 3;Mt Pipe	AGD	56	225163	6302178	Closed site	Valid		Artefact : -	Shelter with Deposit	Helen Brayshaw,Ms.Lai 2294			150.05	-33.38
45-1-0237	Springvale Colliery;	AGD	56	228000	6301000	Open site	Valid		Artefact : -	Open Camp Site	Doctor.Susan (left ahms) McIntyre-Tamwoy		496	150.08	-33.39
45-1-0247	Wallerawong Schoolho	AGD	56	228240	6300510	Open site	Valid		Artefact : -	Open Camp Site	Ms.Elizabeth White	3818		150.08	-33.40
45-1-0096	Elizabeth Vale 1;Walle	AGD	56	224800	6297450	Open site	Valid		Modified Tree (Carved / Scarred Tree		Elizabeth Rich,Shelly G 950			150.04	-33.43
45-1-0013	Pipers Flat Creek;	AGD	56	225230	6300900	Closed site	Valid		Artefact : -, Grinding Gr	Axe Grinding Groove,SI	ASRSYS			150.05	-33.39
45-1-0015	Pipers Flat Creek;	AGD	56	224300	6301800	Closed site	Valid		Artefact : -	Shelter with Deposit	ASRSYS			150.04	-33.39
45-1-0016	Pipers Flat Creek;	AGD	56	224900	6301600	Open site	Valid		Artefact : -	Open Camp Site	R Miller			150.04	-33.39
41-1-0238	Duncan Street PAD(rel	AGD	56	229450	6300750	Open site	Deleted		Potential Archaeological Deposit (PAD) : -		Doctor.Jodie Benton			150.08	-33.40
45-1-2845	MOD4_AS1_KM	GDA	56	224843	6304243	Open site	Valid		Artefact : -		RPS AAP Consulting Pty Ltd - Newcastle,Miss.Kate Morris			150.04	-33.37
45-1-2967	Mount Piper Substatior	GDA	56	223300	6304001	Open site	Valid		Artefact : -		OzArk Environmental and Heritage Management - Dubbo,Mr.Harrison R			150.03	-33.37
45-1-2917	Wallerawang Rezoning	GDA	56	229671	6299668	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.41
45-1-2602	WC1/1	AGD	56	225969	6303892	Open site	Valid	Searle	Artefact : 1		Navin Officer Heritage Consultants Pty Ltd			150.03	-33.37
45-1-2720	CS SU4-A5	GDA	56	225945	6303776	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.05	-33.37
45-1-2722	CS SU4-A3	GDA	56	225879	6303777	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.05	-33.37
45-1-2547	IV-OS-1	AGD	56	222014	6304060	Open site	Valid		Artefact : -	Open Camp Site	Mrs.Robynne Mills			150.01	-33.37
45-1-2554	IV-IF-1	AGD	56	222135	6303450	Open site	Valid		Artefact : -	Isolated Find	Mrs.Robynne Mills			150.01	-33.37
45-1-0207	S8;Blackmans Flat;	AGD	56	226520	6303050	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich,Alice Go 2300			150.06	-33.38
45-1-0081	Rydal;Pipers Flat Rang	AGD	56	226180	6301000	Closed site	Valid		Artefact : -, Art (Pigmer	Axe Grinding Groove,SI	Ann Jelinek			150.05	-33.39
45-1-0048	Wallerawang; Lithgow	AGD	56	226900	6299100	Open site	Valid		Burial : -, Modified Tree	Burial/s,Carved Tree	David Bell,NPWS - Blackheath Office,Betty Mec 473			150.06	-33.41
45-1-2572	Site 1, Castlereagh High	AGD	56	229430	6301025	Open site	Valid		Artefact : 1		Ms.Louise Gay	4549		150.08	-33.39
45-1-0062	Falnash;	AGD	56	221510	6299580	Open site	Valid		Grinding Groove : -	Axe Grinding Groove	R Burgess			150.01	-33.41
45-1-0067	Pipers Flat Ivanhoe Co	AGD	56	222700	6303780	Open site	Valid		Artefact : -	Open Camp Site	ASRSYS	387		150.02	-33.37
45-1-0068	Avondale;	AGD	56	222150	6305000	Open site	Valid		Artefact : -	Open Camp Site	Ms.Laila Haglund			150.02	-33.36
45-1-2588	NC-OS1 with P AD	AGD	56	225556	6305560	Open site	Valid	T Russell	Artefact : 10, Potential Archaeological Deposit (	OzArk Environmental and Heritage Management - Dubbo				150.05	-33.35
45-1-2717	SU1a - A8	GDA	56	227130	6300072	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.07	-33.40
45-1-2914	Wallerawang Rezoning	GDA	56	228628	6299495	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.41
45-1-2915	Wallerawang Rezoning	GDA	56	228653	6299509	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.41
45-1-2916	Wallerawang Rezoning	GDA	56	228672	6299666	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.41
45-1-2723	CS SU4-A2	GDA	56	225959	6303943	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.05	-33.37
45-1-2725	CS SU3-A1	GDA	56	226166	6303632	Open site	Valid		Artefact : 1		Ms.Cheng-Yen Loo,RPS AAP Consulting Pty Ltd - Echuca,Victoria			150.06	-33.37
45-1-0215	Lamberts Ck 5;Mt Pipe	AGD	56	225300	6302480	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw,Ms.Lai 2294			150.05	-33.38
45-1-0243	S12;Springvale Collier	AGD	56	224970	6303860	Open site	Destroyed		Artefact : -	Open Camp Site	ASRSYS		467	150.05	-33.37
45-1-0244	S13;Springvale Collier	AGD	56	224750	6304040	Open site	Destroyed		Artefact : -	Open Camp Site	Elizabeth Rich,E Boney		467	150.04	-33.37
45-1-0093	Long Swamp 1;Wallera	AGD	56	228770	6305540	Open site	Valid		Artefact : -	Open Camp Site	Elizabeth Rich,Shelly G 950			150.09	-33.35
45-1-0017	Pipers Flat Creek;Wan	AGD	56	224750	6301750	Closed site	Valid		Artefact : -	Shelter with Deposit	R Miller			150.04	-33.39
45-6-2355	Lamberts Creek 6;	AGD	56	225460	6303070	Open site	Destroyed		Artefact : -	Open Camp Site	Ms.Laila Haglund,Ms.Jillian Comber		405	150.05	-33.37
45-1-0161	Site 3;	AGD	56	221400	6298650	Open site	Valid		Artefact : -	Open Camp Site	Doctor.Susan (left ahms 1706			150.01	-33.41
45-1-2913	Wallerawang Rezoning	GDA	56	228065	6299491	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.41
45-1-2920	Wallerawang Rezoning	GDA	56	229836	6298366	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.09	-33.42
45-1-2924	Wallerawang Rezoning	GDA	56	228135	6297891	Open site	Valid		Artefact : -		Mr.Matthew Barber,NGH Heritage - Fyshwick			150.08	-33.42

Report generated by AHIMS Web Service on 10/06/2025 for Sophia Grubnic for the following area at Datum : GDA, Zone : 56, Eastings : 221496.0 - 230973.0, Northings : 6297352.0 - 6306553.0 with a Buffer of 0 meters. Number of Aboriginal sites and Aboriginal objects found is 131
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.

APPENDIX 5: HERITAGE NSW MEETING MINUTES (1 APRIL 2025)

Heritage NSW meeting minutes 010425.docx

Mount Piper to Wallerawang Transmission Line Upgrade Project

Meeting title:	Heritage NSW briefing	**Date:**	1 April 2025
Location:	Teams	**Time:**	11am
Chairperson:	Emily Eldridge (TG)		
Attendees:			**Apologies:**
	Christine Lussier (TG) Ben James (GHD) Harison Rochford (OzArk)	James Cole (HNSW) Alison Lamond (HNSW)	

Agenda items

Agenda item	Notes	Decisions / actions
Introduction	TG presented project overview	
Aboriginal heritage	OzArk presented methodology, field survey data and test excavation dates. HNSW queried coverage and OzArk confirmed access was available throughout. OzArk noted Aboriginal items in the project footprint below 45-1-0237 (Springvale Colliery) – test excavation conducted, will avoid ground disturbance 45-1-28000 (WPS-IF1) – in a construction compound, will be avoided 45-1-2574 (Lidsdale 2) – PAD extension of sites associated with highway construction that are listed as destroyed, located at a brake and winch site required only during construction, will avoid ground disturbance WPS PAD 2- on a transmission line easement, will need to be keep free of trees, root balls will kept in place HNSW asked about feedback during engagement TG confirmed engagement began in early 2023 TG presented overview of Cultural Values Assessment approach, engagement and identified sites. HNSW assured that CVA is optional and RAPs can choose not to participate. TG queried if the CVA be appended to the ACHAR and if HNSW would like to see pre Public Exhibition HNSW confirmed no need to provide CVA or ACHAR in advance, seek feedback from CVA contributors re: whether they are comfortable with it being shared publicly, discuss with DPHI how to coordinate CVA submission if not appending to ACHAR	
Historical heritage	OzArk presented items within project footprint or adjacent, with potential impacts outlined	

Agenda item	Notes	Decisions / actions
	HNSW encouraged demarcating the edge of the project footprint where it overlaps with the old school house curtilage during construction with items such as fences	
AOB	HNSW flagged that it would be good to start looking at appropriate mitigation measures to facilitate timely preparation/approval of management plans	
Close	Thank you and close	TG to circulates minutes and presentation slides

Action items

Agenda item	Description	Person responsible	Date
Minutes	TG to circulates minutes and presentation slides	Transgrid	4 April 2025