



View of the Muswellbrook Substation.

ABORIGINAL CULTURAL HERITAGE & HISTORIC HERITAGE ASSESSMENT REPORT

MUSWELLBROOK BATTERY ENERGY STORAGE SYSTEM

MUSWELLBROOK LOCAL GOVERNMENT AREA, NSW

JULY 2022

Report prepared by
OzArk Environment & Heritage
for Firm Power Pty Ltd



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Heritage NSW



ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT COVER SHEET

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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.

ABBREVIATIONS AND GLOSSARY

ACHAR	Aboriginal Cultural Heritage Assessment Report. As set out in the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> , all developments where harm to Aboriginal objects is likely must be assessed in an ACHAR.
ACHCRs	<i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> . Guidelines for conducting Aboriginal community consultation for developments where harm to Aboriginal objects is likely.
AHIMS	Aboriginal Heritage Information Management System. Administered by Heritage NSW, 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.
ASIRF	Aboriginal Site Impact Recording Form
BP	Years before present
Code of Practice	<i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> under Part 6 NPW Act.
DPE	NSW Department of Planning and Environment
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 proposal.
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).
NPW Act	<i>National Parks and Wildlife Act 1974</i> . 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.

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 DPE.

EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by Firm Power Pty Ltd (the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) and a historic heritage assessment for the proposed Muswellbrook Battery Energy Storage System (BESS) (the proposal). The proposal is in the Muswellbrook Local Government Area.

The purpose of the assessment is to form part of an Environmental Impact Statement (EIS) to accompany an application for development consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* for the proposal.

This ACHAR has been undertaken in accordance with the *Secretary's Environmental Assessment Requirements* (SEARs), the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*, and the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (the Code of Practice). The Aboriginal cultural heritage assessment of the proposal has followed the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the ACHCRs). The historic heritage assessment has followed the *Historical Archaeology Code of Practice*.

Background research shows that one previously recorded Aboriginal site, 37-2-5953 (Muswellbrook Bypass AFT 2), extends into the study area. The site is a low-density artefact scatter which was recorded by Kelleher Nightingale Consulting (KNC) and was considered to have moderate potential for containing subsurface deposits. Subsequent test excavation at the site completed by KNC confirmed the site is not associated with deposits of conservation value (KNC 2021).

The field survey was undertaken on 4 April 2022 by OzArk Archaeologist Harrison Rochford and Mary Franks, representing Tocumwall Pty Ltd. The previously identified Aboriginal site, 37-2-5953 (Muswellbrook Bypass AFT 2), was located within the study area during the survey. No other Aboriginal sites or areas with subsurface potential were identified. Further, no historic heritage items were recorded within the study area.

As part of site 37-2-5953 (Muswellbrook Bypass AFT 2) extends into the development site of the proposal, it will be harmed. Based on the results of the subsurface investigations completed by KNC (2021) at 37-2-5953 (Muswellbrook Bypass AFT 2), it has been concluded that no further subsurface investigations at the site is warranted. As such, management of the site should include recording and collection of the surface artefacts prior to construction works proceeding.

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

1. Following development consent for the proposal, the proponent will develop an *Aboriginal Cultural Heritage Management Plan* (ACHMP) in consultation with the Registered Aboriginal Parties (RAPs) and the Department of Planning and

- Environment (DPE) (with input from Heritage NSW). The ACHMP would also include an unanticipated finds protocol, unanticipated skeletal remains protocol and heritage inductions and long-term management of the Aboriginal site being impacted.
2. The portion of Aboriginal site 37-2-5953 (Muswellbrook Bypass AFT 2) located within the development site of the proposal should be salvaged following approval of the ACHMP.
 - a. The recommended methodology for the surface collection will be finalised after the approvals process has been completed in the ACHMP but will include the measures outlined in **Section 9.2.1**.
 - b. The salvage works will include the mapping, analysis, and collection of the surface artefact at the affected site. Results will be included in a brief report to preserve the data in a useable form and an Aboriginal Site Impact Recording Form (ASIRF) will be submitted to the Aboriginal Heritage Information Management System.
 3. Fencing should be erected along the boundary of the development site as shown in **Figure 9-1** during construction of the proposal to ensure the remainder of site 37-2-5953 (Muswellbrook Bypass AFT 2) is not inadvertently harmed. The location of the site should be shown on all appropriate plans
 4. All land-disturbing activities must be confined to within the development site. Should the parameters of the proposed work extend beyond this, then further archaeological assessment will be required.

No existing or newly identified items of historic heritage values were identified within the study area. Recommendations concerning historic heritage values within the study area are as follows:

1. Following development consent of the proposal, the proposed work may proceed with caution. If items of historic heritage significance and/ or skeletal material are uncovered during the proposal, then the protocols in provided in **Appendix 4** and/or **Appendix 5** should be enacted.
2. All land and ground disturbance activities must be confined to within the development site. Should the parameters of the proposal extend beyond the assessed areas, then further assessment may be required.
3. All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all historic items.

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1 INTRODUCTION

1.1 DESCRIPTION OF THE PROPOSAL

OzArk Environment & Heritage (OzArk) has been engaged by Firm Power Pty Ltd (the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) and a historic heritage assessment for the proposed Muswellbrook Battery Energy Storage System (BESS) (the proposal).

The proposal is located at 20-24 Sandy Creek Road, Muswellbrook and is in the Muswellbrook Local Government Area (LGA) (**Figure 1-1**).

The purpose of the assessment is to form part of an Environmental Impact Statement (EIS) to accompany an application for state significant development (SSD) consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* for the proposal.

1.2 PROPOSED WORK

The proposal comprises a BESS and associated infrastructure which will be located within the development site (**Figure 1-2**). The BESS will have a delivery capacity of up to 150-Megawatt (MW) and a useable storage capacity of 300-Megawatt hours (MWh). The BESS would connect into the adjacent Ausgrid Muswellbrook Substation via a new underground or overhead transmission line and will store and dispatch energy from/to the grid.

The proposal would include the following key infrastructure:

- Enclosed lithium-ion batteries
- Power conversion systems including associated switchgear, protection and control equipment, transformers and enclosures for housing equipment
- Underground power and fibre optic cabling interconnecting the equipment
- Grid connection equipment including main power transformer, switchgear, protection and control equipment, metering, reactive power equipment, filtering equipment, auxiliary/earthing transformers and enclosures/buildings for housing equipment
- Underground or overhead 132kV sub-transmission lines to connect the BESS to the Muswellbrook substation
- Earthing and lightning protection systems
- Site office, storage area/enclosure, internal access tracks, on-site parking, security fencing, CCTV, lighting and temporary construction laydown area
- Noise bunds and vegetation screening
- Utilisation of existing site access arrangements.

The primary components associated with the installation of the BESS are as follows:

- Site investigations, vegetation clearing, levelling, bench and access way construction, drainage system installation and installation of foundations/supports to install equipment on
- Transport to site and installation of equipment
- Testing and commissioning of the equipment
- Operation and maintenance.

Access to the proposal will be via Sandy Creek Road and an existing access track. An upgrade to this intersection may be required to allow access for b-double vehicles.

1.3 STUDY AREA AND THE DEVELOPMENT SITE

The study area is within Lots 11 and 12 DP839233 and Lot 15 DP 905479 and comprises 6.8 hectares (ha) of land extending from Sandy Creek Road in the northwest and land surrounding the Muswellbrook substation in the southeast (**Figure 1-3**).

The study area encompasses the development site, with the exception of a small section of the development site located on the existing Ausgrid substation hardstand area. Visual inspection of this area of the development site confirmed that it has been totally disturbed, comprising crushed rock surfacing, concrete foundations and other substation equipment (such as switchgear, busbars, conductors, supports, etc), and as such there is no potential for heritage items to be present in this area. The development site is the area in which all impacts associated with the proposal will be located. The development site encompasses 4.94 ha of land (**Figure 1-3**).

The archaeological survey for this assessment has included the entire study area (**Figure 1-4**).

1.4 REPORT FORMAT

The ACHAR is presented in **Sections 3 to 9** of this report while the historic heritage assessment is presented in **Sections 10 to 13**. The proposal background and environmental context of the study area presented in **Sections 1 and 2** is applicable to both the Aboriginal and historic heritage assessments. Recommendations regarding Aboriginal cultural heritage and historic heritage are provided in **Section 14**.

Figure 1-1: Map showing the location of the proposal.

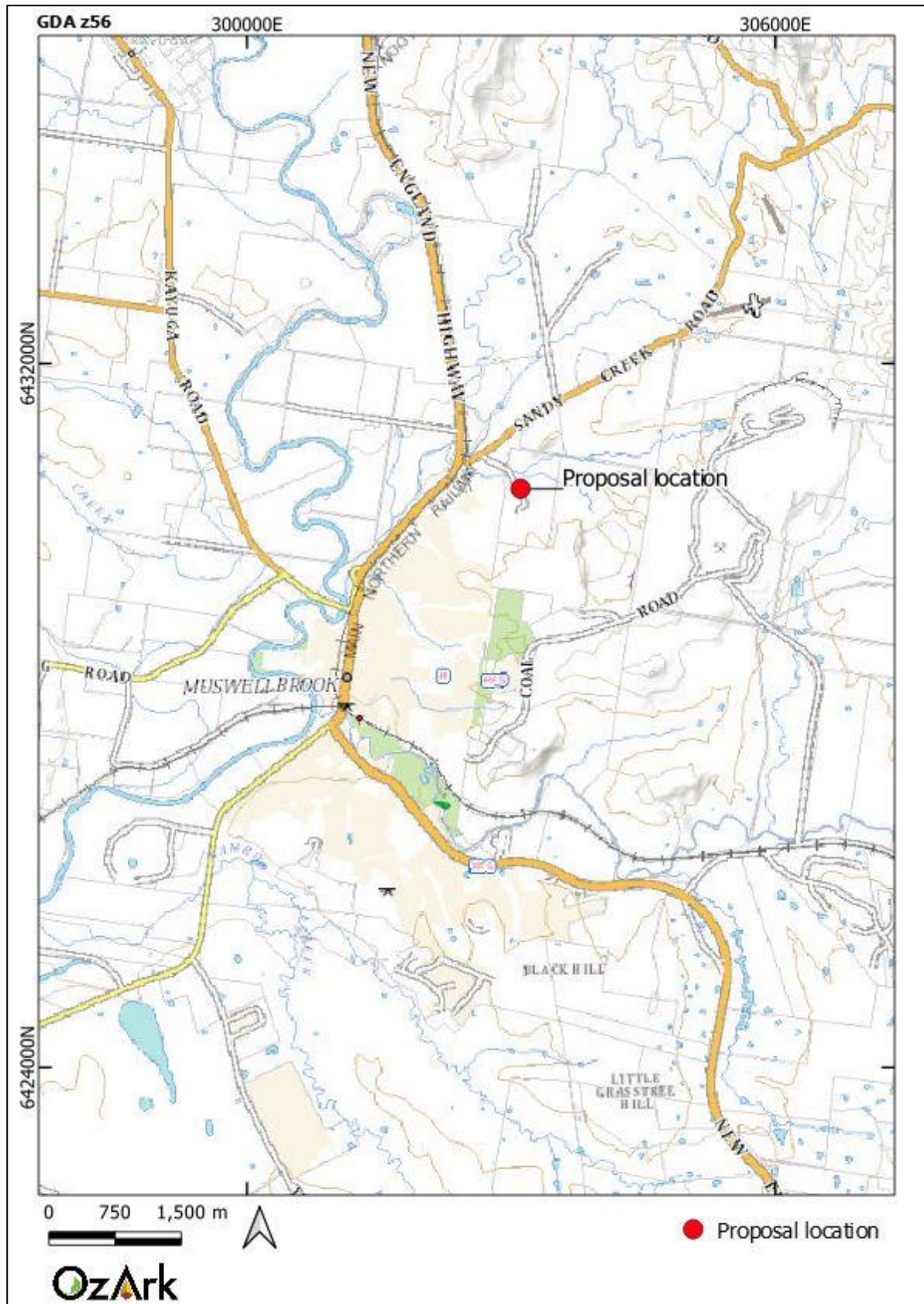


Figure 1-2: Proposed development site plan.

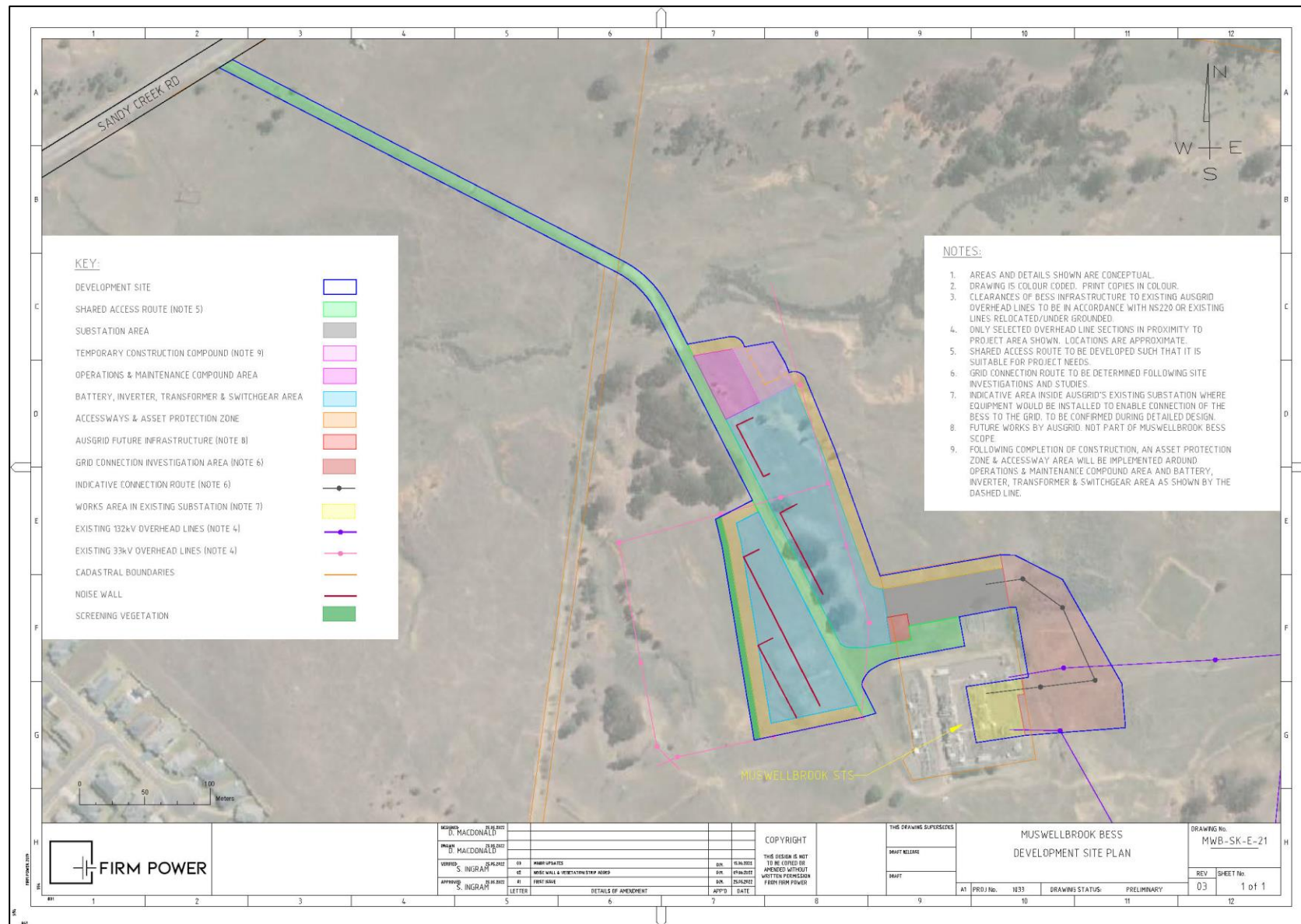


Figure 1-3: Aerial showing the study area.



2 THE ABORIGINAL CULTURAL HERITAGE ASSESSMENT

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

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

2.1.1 Commonwealth legislation

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

The EPBC Act, administered by the Commonwealth Department 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 proposals 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* is aimed at the protection from injury and desecration of areas and objects that are of significance to Aboriginal Australians. This legislation has usually been invoked in emergency and conflicted situations.

Applicability to the proposal

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

2.1.2 State legislation

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

This Act establishes 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 is contained within the following parts of the EP&A Act:

- Part 4: Local government development assessments, including heritage. May include schedules of heritage items
 - Division 4.1: Approvals process for state significant development

Applicability to the proposal

The project is an SSD and therefore, a development application for the proposal is required to be submitted under Part 4, Division 4.1 of the EP&A Act. As the proposal is an SSD, if approved, Section 4.41 of the EP&A Act would apply and an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the *National Parks and Wildlife Act 1974* (NPW Act) to harm Aboriginal objects would not be required. Instead, all management related to Aboriginal cultural heritage within the study area would be governed by the policies within an approved *Aboriginal Cultural Heritage Management Plan* (ACHMP).

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

The NPW Act provides for the protection of Aboriginal objects (sites, objects, and cultural material) and Aboriginal places. Under the Act (Part 6), an Aboriginal object is defined as: any deposit, object, or material evidence (not being a handicraft for sale) relating to indigenous and non-European habitation of the area that comprises NSW, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction and includes Aboriginal remains.

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

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 Department of Planning and Environment (DPE) 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 proposal

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

The location of all Aboriginal objects will be notified to the Secretary of the DPE under Section 89A of the Act. Any new site recordings will be registered on AHIMS.

2.1.2.3 *Secretary's Environmental Assessment Requirements (SEARs)*

SEARs were issued by the Department of Planning, Industry and Environment (now DPE) on 10 December 2021.

Table 2-1 addresses the general requirements relating to Aboriginal cultural heritage in the SEARs for the proposal.

To inform the SEARs, Heritage NSW provided input regarding Aboriginal cultural heritage. Heritage NSW input is set out in **Table 2-2** along with a concordance of where Heritage NSW requirements are addressed in this ACHAR.

Table 2-1: SEARs General Requirements.

General requirement	Where addressed in the ACHAR
An assessment of the impact to Aboriginal cultural heritage items (cultural and archaeological) in accordance with the <i>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW</i> (OEH, 2011) and the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW, 2010).	An extensive pedestrian survey has been undertaken across the study area as reported in this ACHAR. All assessment has followed the applicable codes and guidelines.
Evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options, and selecting options and mitigation measures (including the final proposed measures), having regard to the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (DECCW, 2010).	Section 3

Table 2-2: Concordance between Heritage NSW input to the SEARs and this ACHAR.

Heritage NSW requirement	Where addressed in the ACHAR
The EIS must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values must be conducted in accordance with the <i>Code of Practice for Archaeological Investigation in NSW</i> (DECCW 2010), and be guided by the <i>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales</i> (OEH 2011).	This ACHAR contains the results of the Aboriginal archaeological survey undertaken for the proposal. It also assesses the cultural, scientific, aesthetic and historic values present within the study area.
Consultation with Aboriginal people must be undertaken and documented in accordance with the <i>Aboriginal cultural heritage consultation requirements for proponents</i> (DECCW 2010). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.	This requirement has been followed and is documented in Section 3 of this ACHAR.
Impacts on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to Heritage NSW.	Impacts to Aboriginal cultural heritage within the study area are discussed in Section 8.2 . Management of Aboriginal cultural heritage within the study area are discussed in Section 9 .
The assessment of Aboriginal cultural heritage values must include a surface survey undertaken by a qualified archaeologist. The results of the surface survey are to inform the need for targeted test excavation to better assess the integrity, extent, distribution, nature and overall significance of the archaeological record. The results of the surface surveys and test excavations are to be documented in the ACHAR.	The results of the survey are documented in Section 6 .
The ACHAR must outline procedures to be followed if Aboriginal objects are found at any stage of the life of the project to formulate appropriate measures to manage unforeseen impacts.	Procedures related to any unanticipated Aboriginal objects found within the study area are outlined in Section 9.2.4 and Appendix 3 .
The ACHAR must outline procedures to be followed in the event Aboriginal burials or skeletal material is uncovered during construction to formulate appropriate measures to manage the impacts to this material.	A procedure for the discovery of skeletal material is outlined in Section 9.2.5 and Appendix 4 .

2.2 ASSESSMENT APPROACH

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 proposal.

The study will apply 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 to formulate a predictive model for site location within the study area

Objective Two: Identify and record Aboriginal cultural heritage values within the study area. 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 Registered Aboriginal Parties (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. **Table 2-3** tabulates the compliance of this report with the requirements established by the Code of Practice.

Table 2-3: 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
Requirement 1b	Review AHIMS searches	Section 5.3.1
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
Requirement 4a	Develop predictive model	Section 5.5
Requirement 4b	Present predictive model results	Section 6.7
Requirement 5a	Archaeological survey sampling strategy	Section 6.1
Requirement 5b	Archaeological survey requirements	This Requirement was fulfilled during the undertaking of the survey
Requirement 5c	Archaeological survey units	Section 6
Requirement 6	Site definition	Section 5.5.3
Requirement 7a	Site recording information to be recorded	Not applicable to this report as no new sites were recorded.

Requirement 7b	Site recording: scales for photography	All artefact photographs employed a centimetre scale bar.
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 Zone 56.
Requirement 9	Record survey coverage data	Section 6.1
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	Not applicable
Requirement 15b	Developing a test excavation sampling strategy	Not applicable
Requirement 15c	Providing Heritage NSW with notification of the test excavation	Not applicable
Requirement 16a	Test excavation that can be carried out in accordance with the Code of Practice	Not applicable
Requirement 16b	Objects recovered during test excavations	Not applicable
Requirement 17	When to stop test excavations	Not applicable

2.5 DATE OF ARCHAEOLOGICAL ASSESSMENT

The field survey was undertaken by OzArk on 4 April 2022.

2.6 OZARK INVOLVEMENT

2.6.1 Field survey

The field survey was undertaken by:

- Archaeologist: Harrison Rochford (B. Liberal Studies [Hons], M. Phil. [Arts and Social Science]).

2.6.2 Reporting

The reporting component of the heritage assessment was undertaken by:

- Report author: Harrison Rochford
- Contributor (Sections 1-6): Dr Yekun Zhang (OzArk Archaeologist, MSc and PhD Australian National University)
- Reviewer: Stephanie Rusden (OzArk Senior Archaeologist, BS University of Wollongong, BA University of New England).

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.

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 without resorting to tribal lore. However, in certain crucial areas, particularly associated with family, leadership roles and caring for Country, Aboriginal lore continues, even in the most urbanised communities.

3.2 ABORIGINAL COMMUNITY CONSULTATION

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

The Aboriginal cultural heritage assessment of the proposal has followed the ACHCRs (DECCW 2010b). A log and copies of correspondence with the relevant agencies and the RAPs is presented in **Appendix 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 proposal.

An advertisement was placed in the *Hunter Valley News* on 26 January 2022 to solicit expressions of interest (**Appendix 1 Figure 1**).

A letter seeking information from various agencies was sent on 24 January 2022 (**Appendix 1 Figure 2**). These included: Office of the Registrar, *Aboriginal Land Rights Act 1983*; Heritage NSW; National Native Title Tribunal; National Native Title Services Corporation Ltd (NTSCORP); Wanaruah Local Aboriginal Land Council (LALC), Muswellbrook Shire Council, and the Hunter Local Land Services. Replies from the agencies are provided in **Appendix 1 Figure 3**.

Letters were sent to individuals and groups whose contact details had been provided by the agencies (**Appendix 1 Figure 4**).

By the closing date for registration concerning this proposal, fourteen groups or individuals registered to be consulted as RAPs:

- Tocomwall Pty Ltd
- Didge Ngunawal Clan
- Woka Aboriginal Corporation
- Widescope Indigenous Group
- Kamilaroi Yankuntjatjara Working Group
- Gomeroi People (c/- NTSCORP Ltd)
- Culturally Aware
- Upper Hunter Wonnarua Council Inc
- Wallagan Cultural Services
- Wattaka Wonnarua CC Service
- A1 Indigenous Services
- Wanaruah Local Aboriginal Land Council
- AGA Services
- Cacatua Culture Consultants

3.2.2 ACHCRs Stages 2 and 3

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

On 1 March 2022, all RAPs were sent information about the proposal and a draft of the assessment methodology (**Appendix 1 Figure 5**). RAPs were provided the stipulated 28 days to review and comment on these documents. The closing date for comment was 31 March 2022.

A response was received from Kamilaroi Yankuntjatjara Working Group on 11 March 2022 supporting the proposed assessment methodology (**Appendix 1 Figure 6**).

No other responses were received from the RAPs.

3.2.3 ACHCRs Stage 4

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

The draft ACHAR was sent to RAPs for review on 21 June 2022 with a 28-day review period closing 19 July 2022 (**Appendix 1 Figure 7**).

Feedback was received from Didge Ngunawal Clan on 22 June 2022 and Kamilaroi Yankuntjatjara Working Group on 4 July 2022 both supporting the recommendations of the ACHAR (**Appendix 1 Figure 8**).

No feedback was received from any of the other RAPs.

3.3 ABORIGINAL COMMUNITY INVOLVEMENT IN THE ASSESSMENT

Mary Franks, representing Tocomwall Pty Ltd, assisted with the field assessment.

3.4 CULTURAL VALUES IDENTIFIED THROUGHOUT THE ACHCR PROCESS

Feedback from the Kamilaroi Yankuntjatjara Working Group highlighted the following cultural values associated with the study area (**Appendix 1 Figure 6** and **Appendix 1 Figure 8**):

- The study area is highly significant to Aboriginal people as they would have cared for the land for many years and continue to do so
- The study area would have been utilised for hunting and potentially camping as it is close to several water ways including Sandy Creek

- Aboriginal people have been following waterways for tens of thousands of years and have a deep connection to this landscape feature.

4 LANDSCAPE CONTEXT

An understanding of the environmental context of a study area 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 AND GEOLOGY

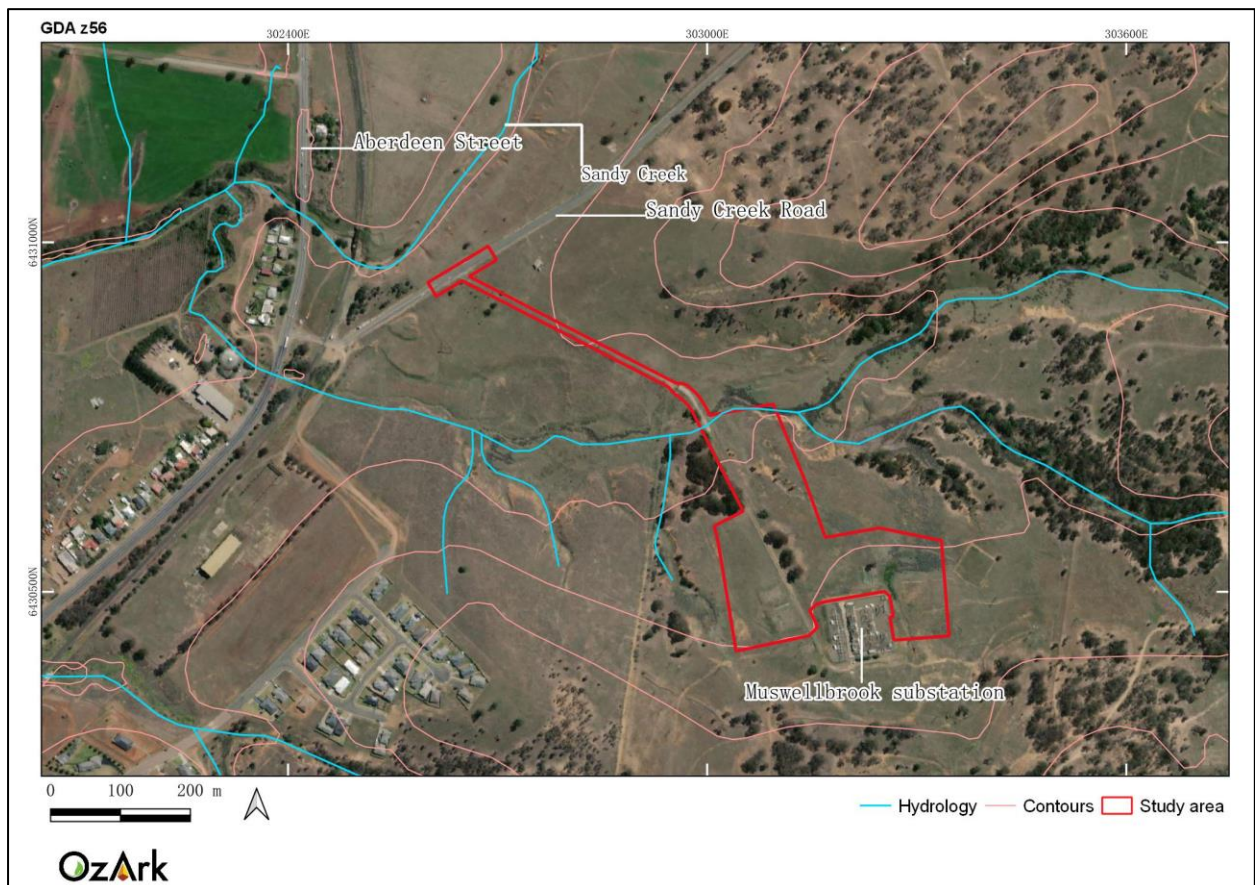
The study area is in the NSW Sydney Basin bioregion and is within the Central Hunter Foothills subregion. This landscape type is characterized by undulating lowlands, rounded to steep hills with rock outcrop on ridges on Permian lithic sandstone, conglomerate, shale and coal. The general elevation in the area is 40 metres (m) to 300 m with a local relief of 30 m to 120 m (Mitchell 2002: 112).

The study area consists of undulating low hills or slopes which rises from the northwest to the southeast (**Figure 4-2**). The elevation in the north-western portion of the study area is 150 m and 180 m in the south-eastern portion. As the entire study area is located within this landform, it was not divided into different survey units.

Figure 4-1 provides representative images of the topography of the study area.

Figure 4-1: Topography of the study area.



Figure 4-2: Topography and drainage features of the study area.

4.2 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 study area is located across two soils landscapes defined by (Kovac and Lawrie1991):

- The northern portion of the study area is located within the Donalds Gully soil landscape which consists of poorly drained brown, yellow and grey Sodosols and Natric Kurosols. Some slopes have more fertile soils that have been influenced by calcareous or carbonaceous sediments and basalt
- The southern section of the study area is situated within the Dochra soil landscape which consists of well-drained brown, red Solodic soils and Soloths. Brown Solodic soils dominate crests to mid-slopes, while red Solodic soils and Soloths can occur on lower slopes.

The soil landscape characteristics suggest that landforms at the north of the study area, close to the drainage line, may drain poorly and have been less desirable for past habitation than the more freely draining undulating slopes to the south.

4.3 HYDROLOGY

An ephemeral drainage line intersects the central portion of the study area in a general east to west direction and flows into Sandy Creek. Sandy Creek is the closest permanent watercourse located 45 m north of the northernmost extent of the study area (**Figure 4-2**). Sandy Creek joins the Hunter River approximately 2 km southwest of the study area.

4.4 VEGETATION

Vegetation within the study area has been extensively cleared (**Figure 1-3**) and generally comprises non-native grassland, though some small stands of native woodland trees area located adjacent to the driveway access.

Dominant species prior to colonial settlement would have included narrow-leaved ironbark, forest red gum, river oak, grey box, white box and rough-barked apple. Drainage lines, such as the one that intersects the study area, would have been lined with swamp oak (Mitchell 2002: 112).

4.5 LAND USE HISTORY AND EXISTING LEVELS OF DISTURBANCE

Disturbances within the study area consist of a sealed road (Sandy Creek Road) and a graded access road; the transmission lines; historic vegetation clearance; previous low-intensity grazing; and erosion. Surrounding disturbances include the existing Muswellbrook substation.

4.6 CONCLUSION

The review of the environmental factors associated with the study area allows the following conclusions to be drawn in terms past Aboriginal occupation:

- Topography and hydrology: the gently undulating landforms which dominate the study area would have been hospitable to Aboriginal people. Proximity to Sandy Creek (a semi-permanent watercourse), may also have encouraged short-term Aboriginal occupation of the landscape by smaller groups, particularly across the landforms in the north of the study area.
- Geology and soils: outcropping rock has not been identified as likely to occur within the study area from the background data, and therefore sources of stone procurement for tool manufacture are not expected to be present. Soils present across the study area are likely to have been heavily affected by water erosion and are poor draining. The erosional qualities of the soils of the study area expected to have reduced the likelihood for *in situ* archaeological deposits to be present.
- Vegetation: the study area would have once supported an open woodland which would have provided some resources for Aboriginal subsistence in the past. However, resources likely to have supported a large population of people would have been present closer to the banks of more permanent water sources including the Hunter River. The vegetation clearance which has taken place across the study area reduces the likelihood that any culturally modified trees remain present.

- Land use: ground surface disturbances such as vegetation clearance, past grazing and infrastructure constructions exist throughout the study area. These activities may have displaced Aboriginal objects and are likely to have reduced the potential for subsurface archaeological material. However, disturbance at a given location does not necessarily mean that there will be no cultural material present, as often a disturbed context will reveal objects which may have previously been subsurface. As noted above, initial vegetation clearing would also have significantly reduced the likelihood of culturally modified trees remaining.

5 ARCHAEOLOGICAL CONTEXT

5.1 ETHNO-HISTORIC SOURCES OF REGIONAL ABORIGINAL CULTURE

The study area is in the Wonnarua tribal area of the upper Hunter Valley. The Wonnarua people lived in an environment rich in food resources. Freshwater fish, shellfish, reptiles, mammals, birds, and plant food provided a diverse diet (see Brayshaw 1981). Brayshaw (1986: 82) suggests that inland groups visited the coast during the summer when marine resources were plentiful, and coastal groups travelled inland to participate in the winter kangaroo hunts. Trade and/or exchange also occurred between the coastal and inland groups. Reed spears and shells were traded inland for possum skin rugs and fur cord (Brayshaw 1986: 41). Social gatherings were a feature of Aboriginal life in this area.

From 1825, there is documented conflict between the Aboriginal population and settlers within the Hunter Valley, including the Ravensworth/Foy Brook area (for example, *The Australian*, 9 September 1826 [<http://trove.nla.gov.au/ndp/del/page/4248909>]). Although the exact location of these conflicts is unknown, the history of raids and counter-raids demonstrate that the Wonnarua people were fierce defenders of their tribal lands.

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).

A review of GHD (2005), HLA-Envirosciences (2005), Kuskie and Kamminga (2000) and Umwelt (2007) provides the following regional synthesis for the Hunter Valley:

- Archaeological sites, even where surface evidence is not present, occur on most landforms. This was confirmed by the Kuskie and Kamminga (2000) study and HLA-Envirosciences (2005) excavation program, in which Aboriginal sites were encountered on alluvial terraces, flats, slopes, bench areas, spurs, and ridgelines. HLA-Envirosciences acknowledges that the sample areas were biased somewhat as they were all near creek lines
- Site frequency and density are dependent on their location in the landscape. This theme is consistent throughout NSW and is influenced by a range of factors, the most relevant of which is the existing level of disturbance. More specifically, the potential for undisturbed *in situ* deposits remaining in the upper Hunter Valley is generally low
- The highest concentration of Aboriginal sites on the valley floor surrounds creeks and waterways

- Few scarred trees are recorded, reflecting the high degree of tree clearing in the region
- The most frequently recorded raw material is indurated mudstone (a fine-grained siliceous material) associated with Hunter River gravels. Other frequently recorded materials include locally sourced silcrete, quartz and volcanic stone
- Assemblages recorded in the region consist largely of unmodified flakes with few formed tools. Backed blades comprise the characteristic diagnostic artefact in the region. The mid- to late-Holocene appears to have witnessed this move to smaller tools, perhaps as an impetus to conserve raw material during tool manufacture or due to new functionality requirements.

Based on this occupation model outlined by GHD (2005), HLA-Envirosciences (2005), Kuskie and Kamminga (2000) and Umwelt (2007), the study area could display evidence of occupation by small parties given the proximity to a perennial water source, Sandy Creek, but is more to have been used for transitory movement.

5.3 LOCAL ARCHAEOLOGICAL CONTEXT

5.3.1 Desktop database searches conducted

A desktop search was conducted on the following databases to identify any previously recorded heritage within the study area. The results of this search are summarised in **Table 5-1** and presented in detail in **Appendix 2**.

Table 5-1: Aboriginal cultural heritage: desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
Commonwealth Heritage Listings	22/3/2022	Muswellbrook LGA	No places listed on either the National or Commonwealth heritage lists are located within the study area
National Native Title Claims Search	22/3/2022	NSW	No Native Title Claims cover the study area.
AHIMS	11/2/2022	8 x 8 km centred on the study area	113 AHIMS sites were returned within the search area. Of these, one site ,37-2-5953, is located in the study area.
Local Environmental Plan (LEP)	22/4/2022	Muswellbrook LEP of 2009	None of the Aboriginal places noted occur near the study area.

A search of the Heritage NSW administered AHIMS database on 11 February 2022 returned 113 results for Aboriginal sites within an 8 km radius of the study area (GDA zone 56 Eastings: 299169–307169; Northings: 64226522– 6434522).

Table 5-2 lists the site types and frequencies from the search result and **Figure 5-1** shows the location of the sites that have been recorded closest to the study area. **Figure 5-2** shows that the western portion of site 37-2-5953 (Muswellbrook Bypass AFT 2) extends into the study area. Site 37-2-5953 (Muswellbrook Bypass AFT 2) is recorded as an artefact scatter along an erosion gully that drains into an unnamed drainage line. Site 37-2-5953 (Muswellbrook Bypass AFT 2) was

recorded as part of the archaeological assessment for the proposed Muswellbrook Bypass (KNC 2021; **Section 5.3.2.3**). Several other artefact scatters and isolated finds have also been identified to the north and west of the study area along Sandy Creek and a tributary of Sandy Creek.

The most frequently recorded site types are artefact scatters which contribute 85% of the site types in the vicinity of the study area (**Table 5-2**). Other site types recorded in the region but to a lesser extent include isolated finds (10%) modified trees (4%) and art sites (1%).

Stone artefact sites in the local area are predominately recorded on elevated landforms adjacent to the Hunter River and its tributaries. Modified trees also tend to be located near watercourses, with three recorded along Muscle Creek, located 3.5 km to the south of the study area, however they are a rare site type in the Hunter region.

Table 5-2: Site types and frequencies of AHIMS sites near the study area.

Site Type	Number	% Frequency
Artefact scatter	96	85
Isolated find	11	10
Modified tree	5	4
Art	1	1
Total	113	100

Figure 5-1: Location of previously recorded AHIMS sites in relation to the study area.

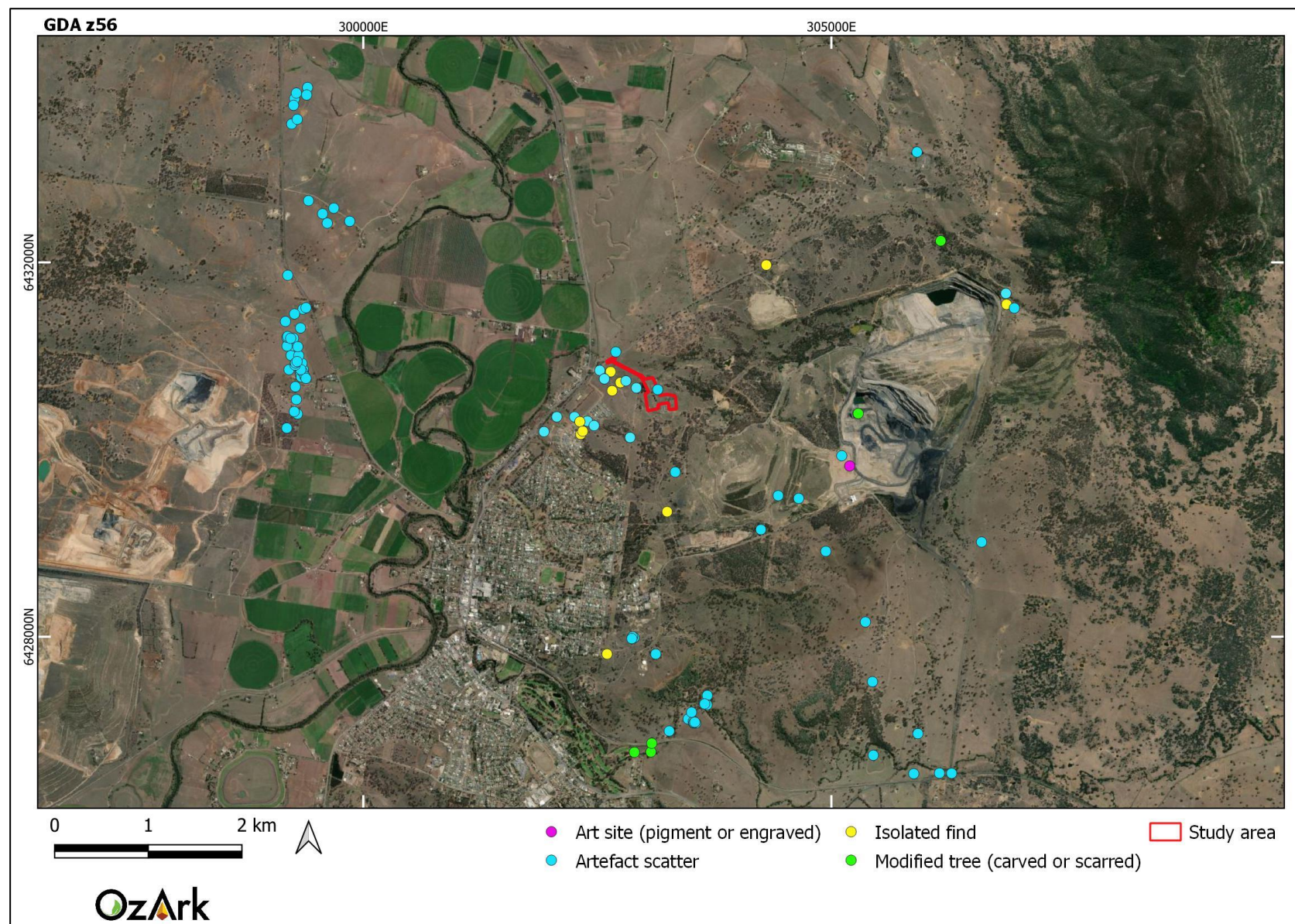
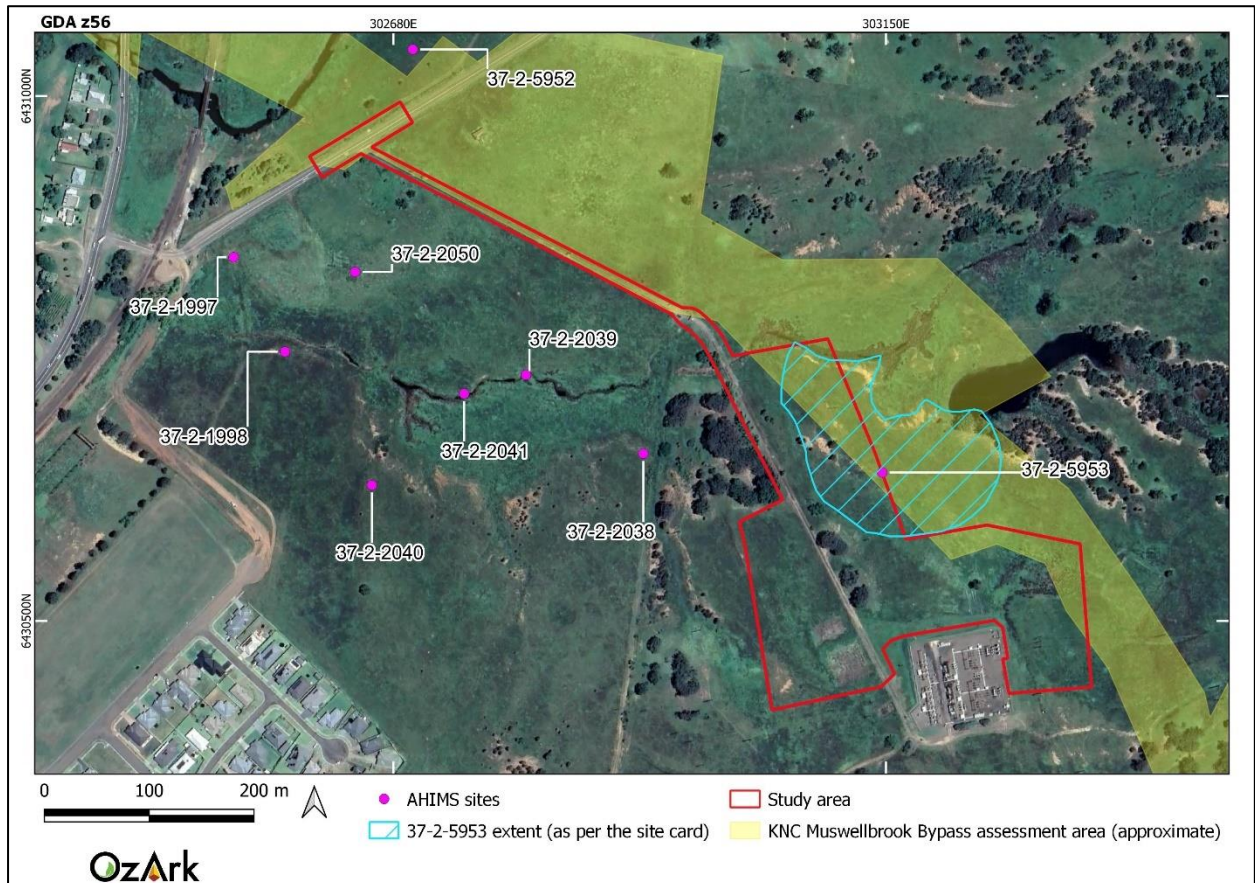


Figure 5-2: Location of site 37-2-5953 and other sites in relation to the study area.



5.3.2 Previous studies in or near the study area

5.3.2.1 *Muswellbrook Coal Company No. 1 Open Cut Extension (HLA-Envirosciences 2002)*

In 2002, HLA-Envirosciences completed an archaeological assessment of 93 ha of land for the No. 1 Open Cut Mine, located 1 km to the east of the study area. Survey units across the assessment area included: ridge crests, hillslopes, steep hill slopes, lower order streams and upper order streams. Six sites were recorded during the survey, including one isolated find, two scarred trees and three artefact scatters. All artefact scatters were low-density scatters. Across the stone artefact sites, only eight artefacts were recorded. Artefacts were manufactured from either mudstone (n=5) or silcrete (n=3). Broken flakes were the most commonly recorded artefact types.

5.3.2.2 *Muswellbrook Coal Catchment Management Authority Project Area, Muscle Creek (Perry 2008)*

At Muscle Creek, Perry (2008) identified three Aboriginal sites located on the banks of the dams in disturbed soils. Silcrete and mudstone were the most recorded artefact material type. Quartz, basalt, and chert were also observed in fewer quantities.

5.3.2.3 *New England Highway — Muswellbrook Bypass (KNC 2021)*

Kelleher Nightingale Consulting (KNC 2021) completed an Aboriginal cultural heritage assessment for the proposed New England Highway bypass of Muswellbrook. Part of the area assessed by KNC overlaps with the current study area (**Figure 5-2**).

The field survey identified 12 artefact sites and subsequent test excavations were completed at 11 of the recorded sites, including at site 37-2-5953 (Muswellbrook Bypass AFT 2) which extends into the study area (**Figure 5-2**).

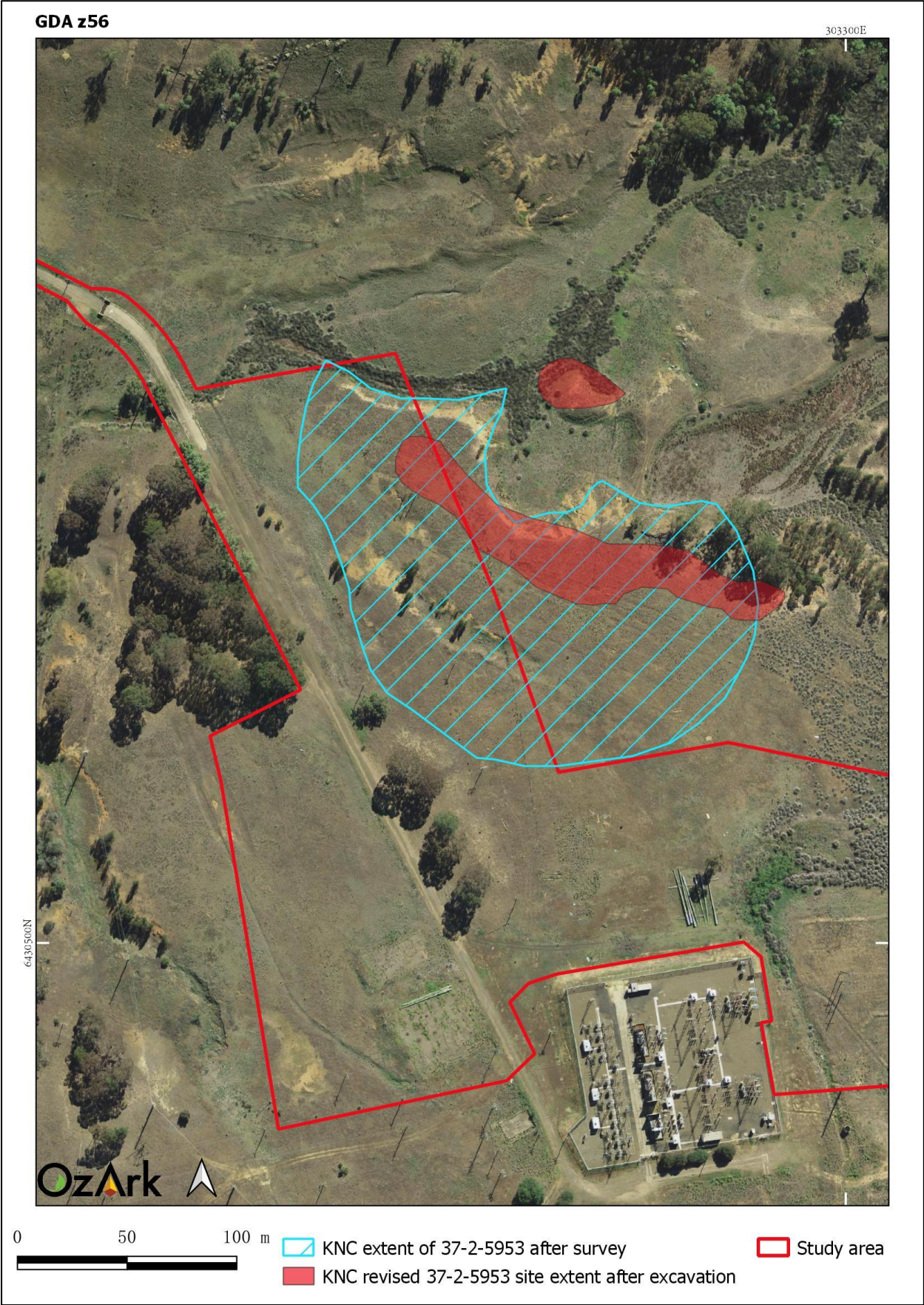
Site 37-2-5953 (Muswellbrook Bypass AFT 2) was recorded as a low-density artefact consisting of nine artefacts including flakes, flake fragments and a core manufactured from silcrete. KNC delineated an extent for the site which encompassed the surface artefacts and associated area of potential archaeological deposit (PAD) which was assessed as having moderate subsurface potential (**Figure 5-3**). The initial site extent (**Figure 5-3**) measured 230 m by 150 m and included the southern bank/terrace of the drainage line and continued upslope to the south.

A total of 26 test units, measuring 0.5 m by 50 m, were excavated across the site extent. Artefacts were recovered from seven of the excavated units, resulting in a total of eight artefacts. Despite being a small assemblage size, a diverse range of materials (chert, volcanics, quartzite, tuff and silcrete) were recovered, however they were predominantly angular shatter (n=5) as opposed to flakes as seen in the surface manifestation.

KNC concluded that the artefacts at the site (both surface and subsurface) have been substantially disturbed by erosion and colluvial movement, respectively. The vertical integrity of the soil profile was noted as being poor and all objects were assessed to be in secondary depositional contexts. As a result, the site was assessed to have a low scientific significance and no further subsurface investigation at the site was recommended.

Following the test excavation, the extent of the site and its associated PAD was reduced (**Figure 5-3**).

Figure 5-3: Site 37-2-5953 initial and revised site extent (KNC 2021).



5.4 ARCHAEOLOGICAL CONTEXT: CONCLUSION

The archaeological investigations surrounding the study area as summarised above indicate that:

- Stone artefact sites (isolated finds and artefact scatters) are the most frequent sites recorded in the area, commonly recorded on elevated landforms within 100 m of watercourses
- Stone artefact sites are typically located in a secondary context due to the high levels of erosion experienced in the Hunter Valley
- Scarred trees can appear wherever appropriate mature aged trees are located but are rare at a regional level due to high levels of vegetation clearance
- Common materials utilised for stone tool manufacture in the region are silcrete and mudstone. Quartz, chert and basalt are recorded in low quantities
- The most likely indicator of potential sites is the presence of workable stone material within proximity of fresh water.

5.5 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.

5.5.1 Site types in the region of the study area

The site types listed in **Table 5-3** are present in the region of the study area. The likelihood of these sites being present in the study area is discussed in **Section 5.5.3**.

Table 5-3: Site types recorded in the region of the study 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	<p>Artefact scatters are defined as two or more artefacts, not located within a rock shelter, and located no more than 50 m 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'.</p> <p>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.</p> <p>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.</p>
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.
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.

5.5.2 Landform modelling of archaeological potential

Archaeological studies undertaken within the vicinity of the study area provides information to obtain a sound understanding of the nature and distribution of archaeological sites within the area. Although there is some conjecture about the relationship between stream order, site numbers and densities, the general pattern is that most sites are present close to watercourses. An ephemeral watercourse intersects the study area flowing generally east to west emptying into Sandy Creek. Sandy Creek is a semi-permanent watercourse located approximately 45 m north of the study area. This suggests the landforms of the study area would have been suitable to Aboriginal occupation, but more likely utilised by smaller groups for short periods of time.

Crucial for the preservation of archaeological deposits is the history of past land use in an area. Most of the study area has been cleared of native vegetation, likely for grazing purposes. Grazing in the study area has likely resulted in the compaction of the ground surface which disturbs the

ground surface and accelerates soil loss. Erosional processes within the study area would be exacerbated by the clearing of vegetation which has taken place. The consequence of this is that sites such as artefact scatters and isolated finds are generally dispersed and located in secondary contexts.

5.5.3 Conclusion

Based on knowledge of the environmental contexts of the study 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 study area to contain Aboriginal objects (**Table 5-4**), and what types of sites may be present within the study area (**Table 5-5**).

Table 5-4: Likelihood of landforms within the study area to contain Aboriginal objects.

Survey Unit	Landform type	Likelihood to contain Aboriginal objects
1	Gently undulating	Archaeological studies in the region indicate that gently undulating to flat landforms were favoured occupation locations particularly where adjacent to permanent or semi-permanent water sources. Due to the proximity of a semi-permanent water source (Sandy Creek), sites associated with these landforms i.e. artefact scatters may be present but are likely to be low-density scatters in disturbed contexts.

Table 5-5: Likelihood of certain site types being present in the study area.

Site type	Likelihood of being present in the study 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 study area.
Open artefact scatters	As most of the study area is within flat or gently sloping landforms, this site type is possible although the moderate degree of disturbance in the study area will probably mean sites are displaced. It is likely that any sites associated with such landforms are low-density scatters with a low complexity of tool types, representing sites are either one-off events or only infrequently used.
Culturally modified trees	Due to the near-total clearance of trees from within the study area, this site type is predicted to be very rare. It is also noted that this site type is uncommon at a regional level.
Burials	Although it is possible that this site type could be found within the study area, it is considered a rare site type and the landform present does not have heightened potential for burials.
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.

5.6 RESEARCH QUESTIONS

Several research questions can meaningfully be applied to the investigation of the study area. These research questions include:

- What resources were available to the Aboriginal people using the land within the study area (food, stone, and water) and what resources were transported to the area?
- Do the findings within the study area (if any) accord with the regional archaeological context examined in **Section 5.2**?
- Do the survey results support the predictive model set out in **Section 5.5.3**?

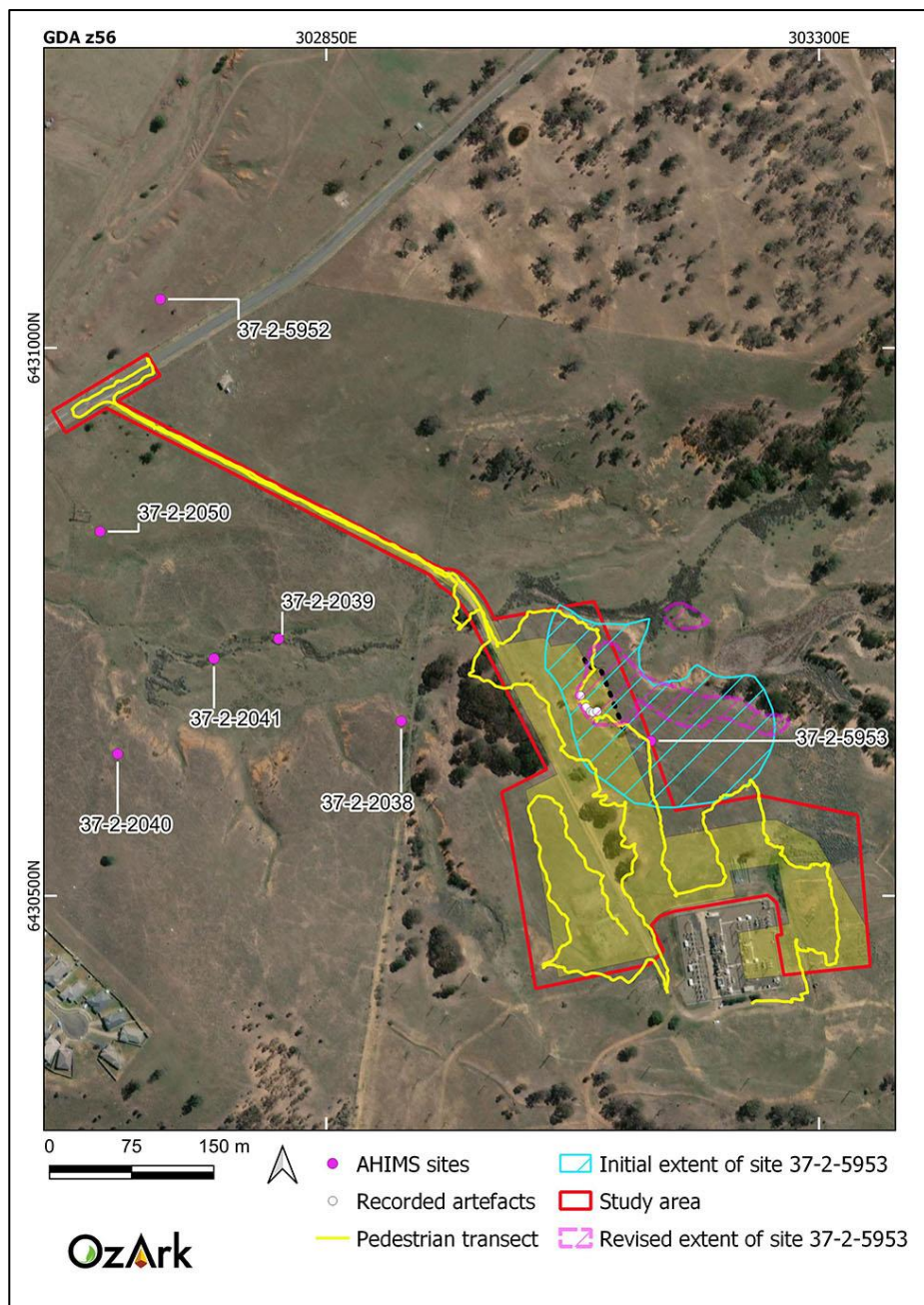
6 RESULTS OF ABORIGINAL ARCHAEOLOGICAL ASSESSMENT

6.1 SAMPLING STRATEGY AND FIELD METHODS

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

The survey encompassed the entire study area (excluding areas of high disturbance) and consisted of full pedestrian survey (**Figure 6-1**). The survey team consisted of one archaeologist (holding the GPS that captured the tracks shown in **Figure 6-1**) and an Aboriginal site officer. The surveyors were spaced approximately 10-20 m apart along transects, although this spacing was reduced where there was increased ground surface visibility (GSV).

Figure 6-1: Survey coverage across the study area.



6.2 PROJECT CONSTRAINTS

The entire study area was accessible to the survey team, with the exception of the portion of the development site located on the existing Ausgrid substation hardstand area. The only constraint was the dense vegetation comprising grasses and weeds that limited GSV.

6.3 EFFECTIVE SURVEY COVERAGE

Two of the key factors influencing the effectiveness of archaeological survey are 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 study area. 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. For example, at any one location within the gently undulating landforms of the study area approximately 5% of the ground surface could be seen. Exposures in these landforms were generally confined to the edges of tracks, erosion scalds and along the drainage line. GSV within these landforms was hampered by dense ground cover.

Table 6-1: Effective survey coverage within the study area.

Survey Unit	Landform	Survey Unit Area (sq m)	Visibility %	Exposure %	Effective Coverage Area (sq m) (= Survey Unit Area x Visibility % x Exposure %)	Effective Coverage % (= Effective Coverage Area / Survey Unit Area x 100)
1	Gently undulating	68 000	80	5	2720	4

Table 6-2 cannot demonstrate any comparisons between landform unit and effective survey coverage in relation to recorded sites, as only the one landform unit is present. Although survey efficacy is low at 4%, five artefacts were recorded during the survey, which are considered to be associated with previously recorded site 37-2-5953.

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

Landform	Landform area (sq m)	Area Effectively Surveyed (sq m) (= Effective Coverage Area)	% of Landform Effectively Surveyed (= Area Effectively Surveyed / Landform x 100)	Number of Sites	Number of Artefacts or Features
Gently undulating	68 000	2720	4	1	5

6.4 ABORIGINAL SITES RECORDED

No previously unrecorded Aboriginal sites were identified during the survey of the study area.

6.5 PREVIOUSLY RECORDED ABORIGINAL SITES LOCATED

Table 6-3 summarises the previously recorded Aboriginal site located during the survey. Further details on the site follows.

Table 6-3: Previously recorded 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
37-2-5953	Muswellbrook Bypass AFT 2	Artefact scatter	303157	6430682	1

Muswellbrook Bypass AFT 2

Site type: Artefact scatter

GPS coordinates: GDA 2020 zone 56 303157E, 6430682N

Location of site: The site is in Lot 12 DP 839233, 500 m southeast of Sandy Creek Road on the northern outskirts of Muswellbrook.

2022 survey results: The site is situated across an uneven terrace landform which has been heavily affected by erosion. The terrace extends along the southern bank of an unnamed tributary of Sandy Creek.

Five artefacts were identified at the site, predominantly silcrete flakes, although one mudstone blade was also recorded (**Table 6-4**).

The artefacts were recorded in a small exposure along an eroded gully. GSV across the remainder of the site was very low. The artefacts are not located within the revised extent provided by KNC following the test excavation however they are in the west of the original site extent (**Section 5.3.2.3** and **Figure 5-3**). Therefore, they are considered to be part of Muswellbrook

Bypass AFT 2 and OzArk has revised the extent of Muswellbrook Bypass AFT 2 to include the identified artefacts (**Figure 6-3**).

The potential for intact subsurface deposits at the site is considered to be negligible based on the results of the test excavation completed by KNC (2021) (**Section 5.3.2.3**) and the levels of erosion evident at the site during the survey.

Table 6-4: Muswellbrook Bypass AFT 2 artefact attributes.

Artefact type	Raw material	Artefact integrity	Stage of reduction	Size (LxWxD) mm
Flake	Silcrete	Complete	Tertiary	23 x 25 x 9
Flake	Silcrete	Complete	Tertiary	22 x 30 x 6
Flake	Silcrete	Complete	Tertiary	18 x 23 x 5
Flake	Silcrete	Complete	Tertiary	33 x 20 x 5
Blade	Mudstone	Complete	Tertiary	27 x 12 x 9

Figure 6-2: Views of Muswellbrook Bypass AFT 2 and the recorded artefacts.

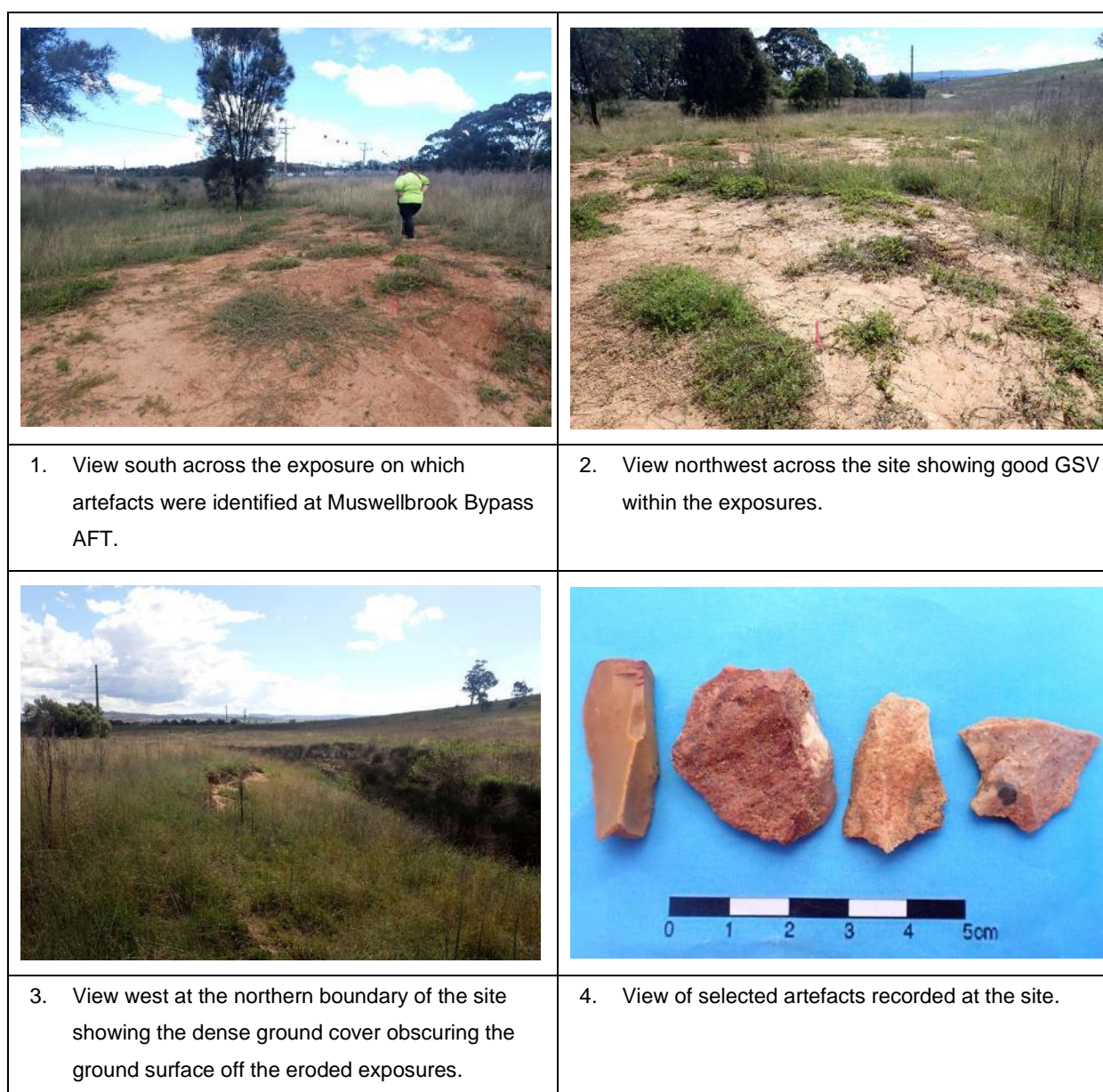
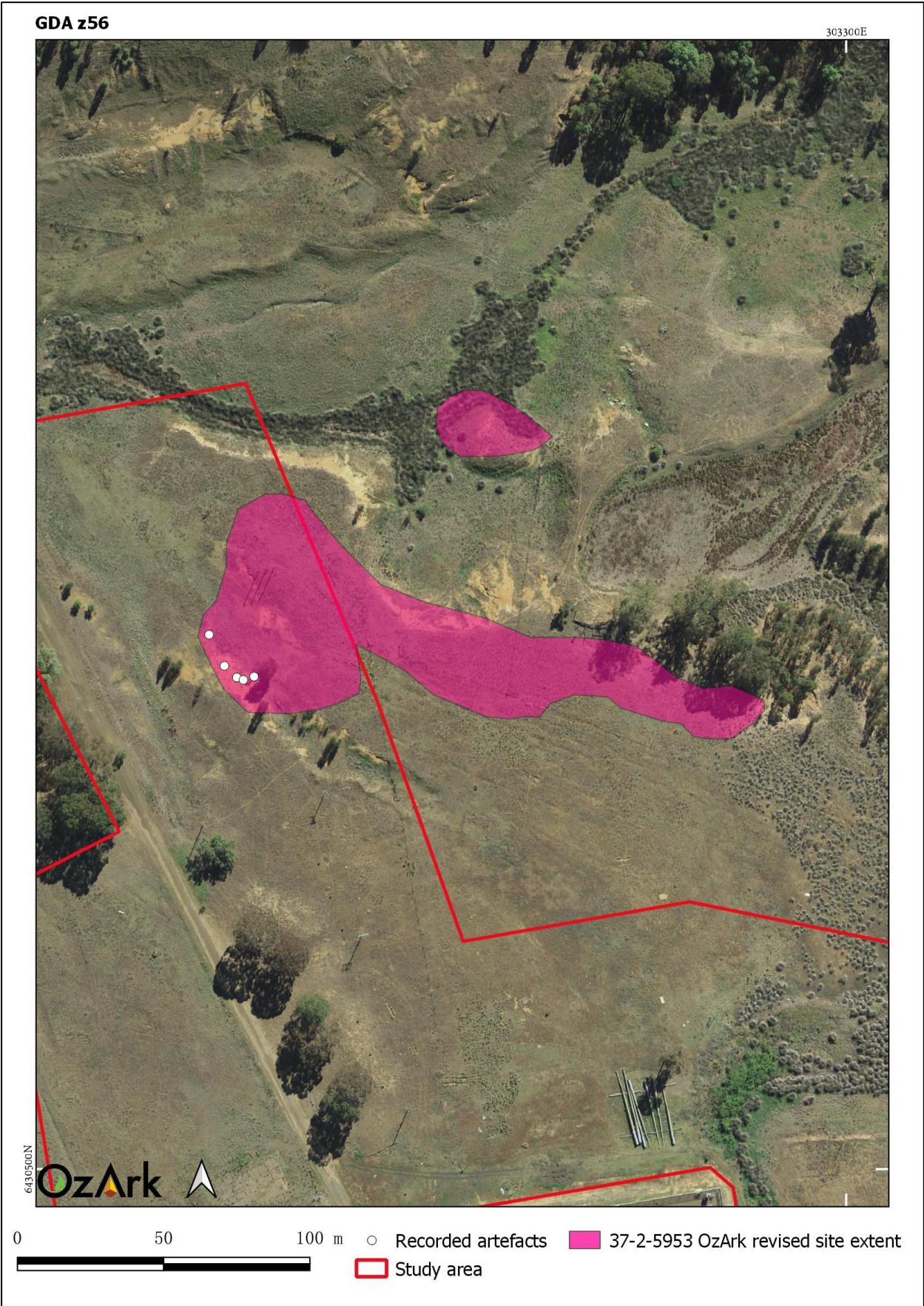


Figure 6-3: Site 37-2-5953 (Muswellbrook Bypass AFT 2) revised site extent



6.6 ABORIGINAL COMMUNITY COMMENTS REGARDING THE SURVEY

No specific comments relating to the survey methodology, or the landforms being surveyed, were raised by the Aboriginal site officer during the survey. Further, no cultural values relating to the study area were identified to OzArk during the survey.

6.7 SUMMARY OF SURVEY RESULTS

The survey for the proposal confirmed the extent of one previously recorded artefact scatter (site 37-2-5953 [Muswellbrook Bypass AFT 2]) extends into the study area. No other Aboriginal sites were identified or areas with subsurface potential.

6.7.1 Discussion

The regional studies and predictive model suggested that artefact scatters and isolated finds would be the most common site type recorded within the study area, particularly within the gently undulating landforms within 100 m of Sandy Creek and its associated tributaries. This is supported by the survey results through the recording of artefacts associated with site 37-2-5953 (Muswellbrook Bypass AFT 2) within the study area, which is located within 100 m of the drainage line associated with Sandy Creek. While the landforms within 100 m of water were also considered to have increased archaeological potential, the absence of sites identified closer to Sandy Creek in these landforms is unsurprising. Although closer to a more reliable stream, there is only a small portion of the study area within this buffer and the previous levels of disturbance associated with Sandy Creek Road and the graded access road to the substation have significantly altered the landscape. The absence of other site types, such as modified trees, within the study area is also consistent with the background and environmental data.

Low GSV may have precluded detection of further stone artefact sites across the study area however an assessment of the landforms present; the previous levels of disturbance which have resulted in substantial soil loss; and results of the test excavation confirm that there is very low subsurface potential in the landforms within the study area. As such, no further subsurface investigation is warranted at site 37-2-5953 (Muswellbrook Bypass AFT 2) (KNC 2021) or at any other location within the study area.

6.7.2 Responses to the research questions

In **Section 5.6** several research questions were advanced to guide the survey of the study area. Following the survey, responses to these research questions are set out below.

- What resources were available to the Aboriginal people using the land within the study area (food, stone, and water) and what resources were transported to the area?
 - No specific food resource locations were noted, and water resources were limited to an unnamed drainage line. At the time of the survey, there was no water in the

drainage line, and it is considered unlikely based on the nature of the water course that it only holds water for extended periods of time following rainfall. No outcropping rock materials were identified within the study area. Therefore, the implication is that all the raw materials used in the manufacturing of the artefacts at site 37-2-5953 (Muswellbrook Bypass AFT 2) have been transported into the area.

- Do the findings within the study area (if any) accord with the regional archaeological context examined in **Section 5.2**?
 - The findings of the study area accord with the regional archaeological context. Previous assessments indicated that the highest concentration of Aboriginal sites would be on the valley floor near creeks and waterways and the potential for undisturbed in situ deposits remaining in the area is generally low.
 - The artefact types and raw material do not present a unique or distinguishing paradigm to the archaeological context that has been established in the region.
- Do the survey results support the predictive model set out in **Section 5.5.3**?
 - The survey results support the predictive model. Previous assessments indicated that the landforms of the study area have low to moderate archaeological potential and most likely site types to be recorded would be low-density artefact scatters. The levels of disturbance are likely to have influenced the density and integrity of the artefact scatter and could potentially be the contributing factor to the absence of scarred trees.

7 SIGNIFICANCE ASSESSMENT

7.1 INTRODUCTION TO SIGNIFICANCE ASSESSMENT

7.1.1 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 (Burra Charter 2013).

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 (OEH 2011: 8–9) notes that cultural significance is comprised of an assessment of social values, scientific values, aesthetic values, and historic values. These values are described below.

7.1.1.1 *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.

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.

7.1.1.2 *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 (Burra Charter 2013).

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. Archaeological investigations must be carried out according to Heritage NSW's Code of Practice (DECCW 2010).

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

7.1.1.3 *Aesthetic value*

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

7.1.1.4 *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.

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.

7.2 ASSESSED SIGNIFICANCE OF THE RECORDED SITES

The significance of Muswellbrook AFT 2 has been previously assessed as low (KNC 2021). OzArk does not disagree with this conclusion, but further reasoning is provided according to the criteria outlined above. **Table 7-1** presents a summary of the significance assessment of the Aboriginal cultural heritage site located in the study area.

Social or Cultural Value

The social and cultural value of Aboriginal sites is generally determined through consultation with Aboriginal people. Generally, the Aboriginal community regard all sites as having high cultural significance. This is due to all sites, even displaced artefact sites, being able to provide a connection to their ancestors, as well as being a tangible reminder of the past Aboriginal occupation of the area.

The draft ACHAR was sent to RAPs for review on 21 June 2022 with a 28-day review period closing 19 July 2022 (**Appendix 1 Figure 6** and **Appendix 1 Figure 7**). No feedback was received specifically relating to the significance of Muswellbrook AFT 2, however, in their feedback the Kamilaroi Yankuntjatjara Working Group noted that the study area is highly significant to Aboriginal people. As such, the cultural values of Muswellbrook AFT 2 is assessed as being high.

Archaeological/Scientific Value

The scientific significance of the Muswellbrook AFT 2 has been assessed as low. The site is assessed as having low scientific/archaeological significance based on the following values:

- The artefacts are in secondary contexts
- There is a low density of artefacts
- Artefact types and materials are common in the region
- The associated archaeological deposit has been investigated and found to be sparse and in secondary context.

Overall, Muswellbrook AFT 2 has little research potential and a very limited ability to inform researchers about the nature and extent of Aboriginal occupation in the area.

Aesthetic Value

The site does not have significant aesthetic value as the integrity of the sensory landscape has been altered in historic and modern times. Additionally, the artefacts themselves are not remarkable and are located within secondary locations.

Historic Value

The recorded Aboriginal site does not have any association with important persons, places, or events. Therefore, the site has no historic values.

Table 7-1: Aboriginal cultural heritage: significance assessment.

Site Name	Social or Cultural Value	Archaeological / Scientific Value	Aesthetic Value	Historic Value
Muswellbrook AFT 2	High	Low	Low	Low

7.2.1 Statement of significance

The intangible Aboriginal cultural values across the wider district relate to several important places and themes associated with non-archaeological cultural values. These places mainly relate to spiritual and ceremonial connections across the broader landscape that may encompass areas of culturally significant geographical features.

Some RAPs have identified the study area as being highly significant to Aboriginal people as it would have been utilised for hunting and likely occupation and its proximity to several waterways such as Sandy Creek, a landscape feature which Aboriginal people have a deep connection to.

The scientific value of the site within the study area is considered to have low potential to provide further information on the traditional Aboriginal use of the region. There are no identifiable aesthetic or historic values of significance within the study area.

8 ASSESSING HARM

8.1 AVOIDING AND MINIMISING HARM

8.1.1 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)).

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

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

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

8.1.2 Opportunities to conserve Aboriginal cultural heritage values

The proponent has undertaken robust assessment of the study area to gain an understanding of the Aboriginal sites and heritage values present that may be harmed by the proposal. As there is only one site identified within the study area, there are limited opportunities to conserve Aboriginal heritage values. Avoidance of the site is the only option that conserves the values that site 37-2-5953 (Muswellbrook Bypass AFT 2) presents. Subsurface investigations at the site have confirmed that the artefacts (both surface and subsurface) are in secondary contexts and therefore have low conservation value.

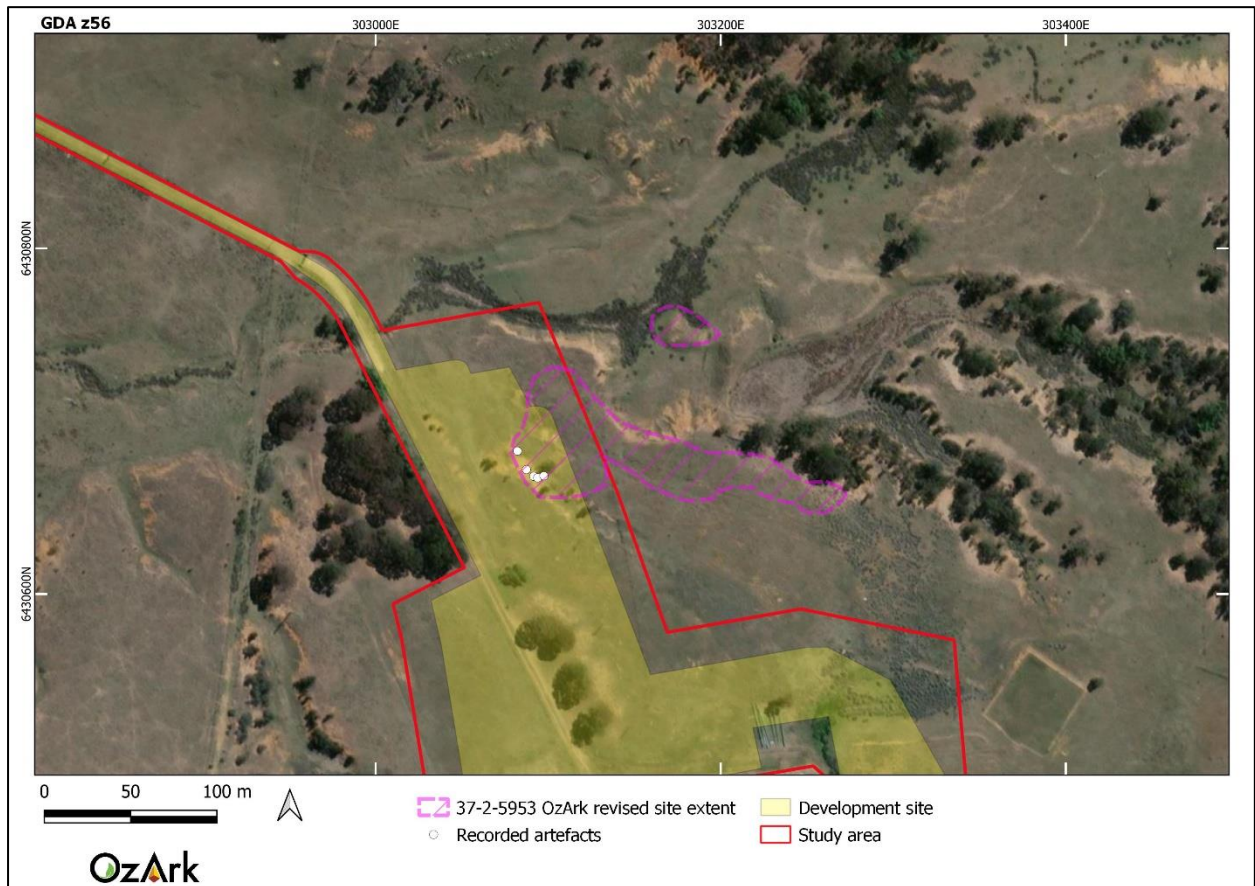
8.2 LIKELY IMPACTS TO ABORIGINAL HERITAGE FROM THE PROPOSAL

Table 8-1 presents a summary of potential impacts to Aboriginal cultural heritage associated with the proposal.

Site 37-2-5953 (Muswellbrook Bypass AFT 2) extends into the development site of the proposal (**Figure 8-1**). As such, the portion of the site within the development site will be harmed by the proposal.

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

AHIMS ID	Site Name	Type of Harm (Direct/Indirect / None)	Degree of Harm (Total/Partial / None)	Consequence of Harm (Total/Partial/No Loss of Value)
37-2-5953	Muswellbrook Bypass AFT 2	Direct	Partial	Partial loss of value

Figure 8-1: Site 37-2-5953 (Muswellbrook Bypass AFT 2) in relation to the development site.

8.3 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.

8.3.1 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 proposal.

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

8.3.2 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 guided by:

- The proposal 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.

8.3.3 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.

8.3.4 Applicability to the proposal

There will be a low level of impact to Aboriginal cultural heritage values as one Aboriginal site (a low-density artefact scatter) will be partially harmed. One RAP has stated that the study area has high cultural values to the local Aboriginal people however none of the intangible heritage values identified (i.e. Sandy Creek) are within the study area itself.

The results of the surface survey and previous test excavation completed at the site indicate that significant Aboriginal cultural heritage values will not be harmed within the study area.

Table 8-2 examines the application of ESD principles to the proposal.

Table 8-2: Application of ESD principles to the proposal.

ESD principle	Response
Avoiding and minimising harm	Harm to the identified Aboriginal site within the study area can be minimised by adhering to the management measures in Section 9 . Thorough investigation of the study area has allowed for the harm presented by the proposal to be assessed.
The integration principle	The environmental consequences of the proposal have been carefully assessed and the proposal has sought to minimise environmental and heritage harm wherever possible.
The precautionary principle	The Aboriginal cultural heritage investigation has followed the precautionary principle by undertaking a robust Aboriginal cultural heritage assessment to ensure that harm to Aboriginal objects and values is minimised. The survey adopted a precautionary principle when it came to describing and assessing landforms within the study area.
The intergenerational equity principle	The assessment of significance has determined that the cumulative impacts to comparable Aboriginal sites across the region will not be a significant impediment to future generations appreciating Aboriginal cultural values.

9 MANAGEMENT OF ABORIGINAL CULTURAL HERITAGE SITES

9.1 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 proposal. **Section 7.2** and **Section 8.2** describe, respectively, the significance / potential of the recorded sites and the likely impacts of the proposal. 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 proposal 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 then approval to disturb sites under the authority of an ACHMP must be sought from DPE. Normally the management recommendations contained in the ACHAR become policies of the ACHMP. As the Aboriginal community have been provided the opportunity to view the draft ACHAR, the ACHAR must make it clear that a future ACHMP will manage Aboriginal cultural heritage within the study area so that the Aboriginal community can assess the management recommendations with this knowledge. The ACHMP policies will often stipulate that the Aboriginal community should be involved in any salvage activities and will dictate what the fate of any salvaged Aboriginal objects will be.

9.2 MANAGEMENT AND MITIGATION OF RECORDED ABORIGINAL SITES

9.2.1 Surface collection

The proponent has advised that the one Aboriginal site, 37-2-5953 (Muswellbrook Bypass AFT 2) cannot be avoided due to limited land availability, primarily being the residential land located west of the development site and the Muswellbrook Bypass immediately east of the development site. As such, 37-2-5953 (Muswellbrook Bypass AFT 2) will be partially harmed by the proposal it is recommended that the site be salvaged through the recording and collection of the surface artefacts, prior to construction works proceeding. This recommendation is made with due to:

- The cultural value of this site and its importance to the Aboriginal community
- The nature of the impacted site (a low-density artefact scatter)
- Being in landforms with high previous disturbance from a range of factors including erosion and land use practices

- The low archaeological value assigned to the site preclude further subsurface 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 and mitigates harm to the site.

The recommended methodology for the salvage will be finalised after the approvals process as part of the ACHMP, but will include the following measures:

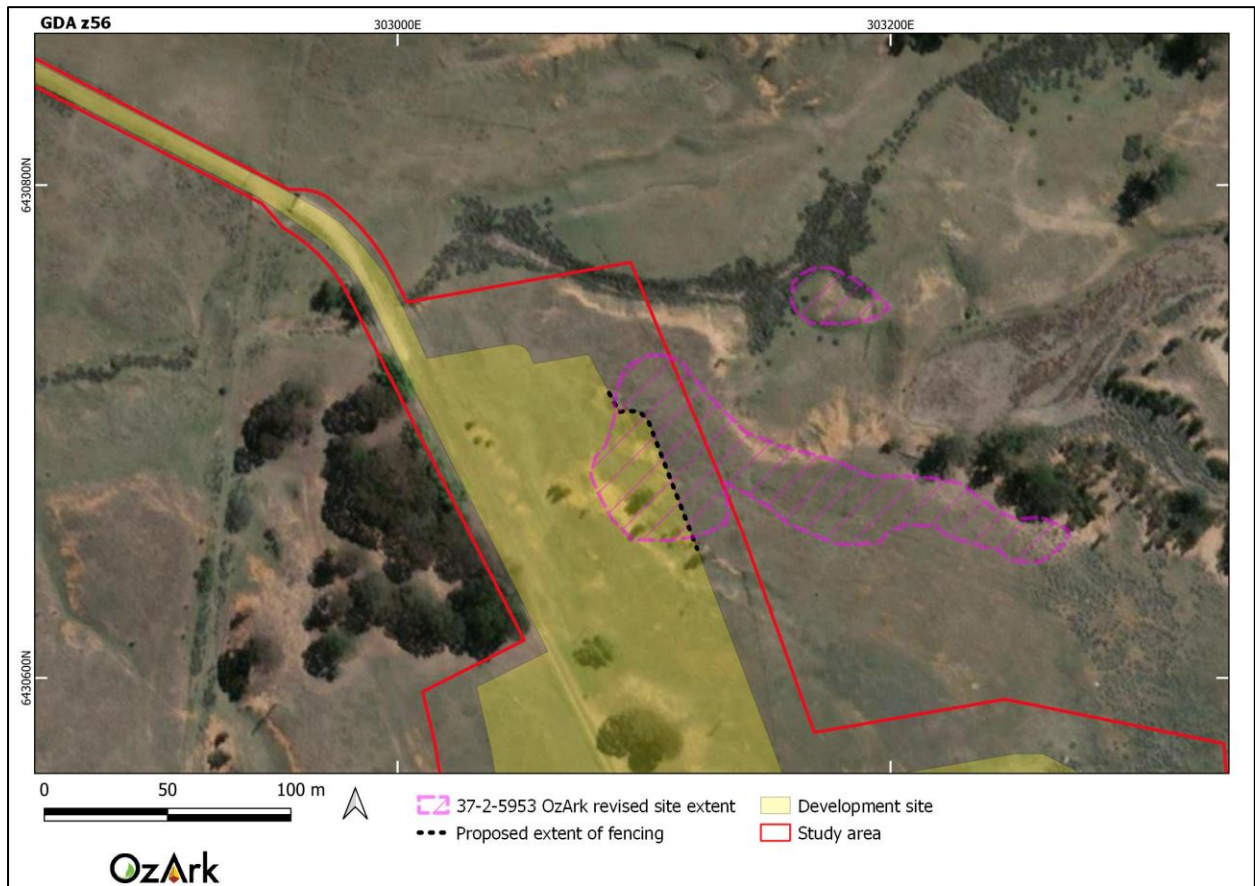
- The visible artefacts will be flagged in the field
- The site will be photographed after flagging and before recording
- All artefacts will have the following artefact information will be recorded:
 - Location
 - Artefact class
 - Artefact type
 - Size
 - Reduction level
 - Raw material
- A selection of indicative and / or unusual artefacts will be photographed
- An Aboriginal Site Impact Recording Form (ASIRF) will be submitted by the archaeologist detailing the salvage process at the site.

9.2.2 Fencing

As the remainder of site 37-2-5953 (Muswellbrook Bypass AFT 2) will not be harmed by the proposal, the boundary of the development site is this area should be protected during the construction of the proposal through the use high-visibility temporary fencing (**Figure 9-1**).

The location of the site should be shown on all appropriate plans to ensure that it is not inadvertently harmed.

Figure 9-1: Area to be fenced along the boundary of the development site.



9.2.3 Long-term management of Aboriginal objects

The ACHMP would include protocols for the long-term management of the artefacts salvaged for the proposal, as well as any additional artefacts discovered during construction and operation of the proposal.

Regarding stone artefacts, suitable procedures for 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, or the removal of artefacts to an agreed keeping place.

Any long-term management of Aboriginal objects will be done in consultation with the RAPs.

9.2.4 Unanticipated finds protocol

Should consent for the proposal be gained, an ACHMP would be developed in consultation with RAPs and DPE. The ACHMP will contain procedures should a new discovery of Aboriginal artefacts be made during construction and/or operation of the proposal. The procedure in **Appendix 3** is an example of an unanticipated finds protocol that could be incorporated into the ACHMP.

9.2.5 Unanticipated skeletal remains protocol

The ACHMP would also contain procedures should human skeletal remains be encountered during the construction or operation of the proposal. The procedure in **Appendix 4** is an example of an unanticipated skeletal remains protocol that could be incorporated into the ACHMP.

HISTORIC HERITAGE ASSESSMENT

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10 HISTORIC HERITAGE ASSESSMENT: INTRODUCTION

10.1 BRIEF DESCRIPTION OF THE PROPOSAL

Please refer to **Sections 1** and **4** for a description of the proposal and the environmental context of the study area.

10.2 RELEVANT LEGISLATION

10.2.1 Commonwealth legislation

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

Please refer to **Section 2.1.1.1** for a description of the EPBC Act.

Applicability to the proposal

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

10.2.2 State legislation

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

Please refer to **Section 2.1.2.1** for a description of the EP&A Act.

Applicability to the proposal

As the proposal is an SSD, Section 4.41 of the EP&A Act (formerly Section 89J) applies and provides a defence for any investigative or other activities that are required to be carried out for the purpose of complying with any environmental assessment requirements (i.e. SEARs: see below).

Section 4.41 of the EP&A Act also notes that an approval under Part 4, or an excavation permit under Section 139, of the *Heritage Act 1977* (Heritage Act) are not required. It is normally a condition of approval for SSD projects that historic heritage be managed under an *Historic Heritage Management Plan* (HHMP).

10.2.2.2 *Heritage Act 1977 (Heritage Act)*

The *Heritage Act 1977* (Heritage Act) is applicable to the current assessment. This Act established the Heritage Council of NSW. The Heritage Council's role is to advise the government on the protection of heritage assets, make listing recommendations to the Minister in relation to the State Heritage Register (SHR), and assess/approve/decline proposals involving modification to heritage items or places listed on the SHR. Most proposals involving modification are assessed under Section 60 of the Heritage Act.

Automatic protection is afforded to ‘relics’, defined as ‘any deposit or material evidence relating to the settlement of the area that comprised New South Wales, not being Aboriginal settlement, and which holds state or local significance’ (note: formerly the Act protected any ‘relic’ that was more than 50 years old. Now the age determination has been dropped from the Act and relics are protected according to their heritage significance assessment rather than purely on their age). Excavation of land on which it is known or where there is reasonable cause to suspect that ‘relics’ will be exposed, moved, destroyed, discovered or damaged is prohibited unless ordered under an excavation permit.

Applicability to the proposal

There are no SHR listed items within or near the study area. Items of local heritage significance that are normally listed in Local Environmental Plans (LEPs) are also protected under the Heritage Act.

10.2.2.3 SEARs

In relation to historic heritage, the SEARs state:

- *Assess the impact to historic heritage having regard to the NSW Heritage Manual.*

Compliance with the SEARs has governed the survey and reporting of potential impacts to historic heritage associated with the proposal.

10.2.3 Local legislation

Local Environmental Plans (LEPs)

The study area is within areas administered by the Muswellbrook LEP.

The LEP includes a schedule of heritage conservation areas and items that require either development consent or exemptions for proposals that may impact conservation outcomes (Section 5.10). The objectives set out in Section 5.10 of the LEP states:

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

Section 5.10(3)(a) (i) and (ii) set out the circumstances when a Development Application is not required when there is an impact to heritage items. Exemptions to consent are related to works that are of a minor nature or works that will not adversely impact the heritage values of a place.

Applicability to the proposal

There are no heritage items listed on the Muswellbrook LEP within or near the study area.

10.3 ASSESSMENT APPROACH

The inspection and assessment of historic heritage follows the:

- The International Council on Monuments and Sites' *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Burra Charter 2013)
- Heritage Council's *Historical Archaeology Code of Practice* (Heritage Council 2006)
- Heritage Council's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Council 2009)
- NSW Heritage Office's *Assessing heritage significance* (NSW Heritage Office 2001).

10.4 HISTORIC HERITAGE ASSESSMENT OBJECTIVES

The current assessment will apply the Heritage Council's *Historical Archaeology Code of Practice* (Heritage Council 2006) in the completion of a historical heritage assessment, including field investigations, to meet the following objectives:

- Objective One:** To identify whether historical heritage items or areas are, or are likely to be, present within the study area
- Objective Two:** To assess the significance of any recorded historical heritage items or areas
- Objective Three:** Determine whether the proposal is likely to cause harm to recorded historical heritage items or areas
- Objective Four:** Provide management recommendations and options for mitigating impacts.

10.5 DATE OF HISTORIC HERITAGE ASSESSMENT

The historic heritage assessment took place at the same time as the Aboriginal heritage assessment. Please refer to **Section 2.5** for the dates of the fieldwork.

10.6 OZARK INVOLVEMENT

The fieldwork and reporting of the historic heritage assessment are the same personnel involved with the Aboriginal heritage assessment. Please see **Section 2.6** for details.

11 HISTORIC HERITAGE ASSESSMENT: BACKGROUND

11.1 BRIEF HISTORY OF MUSWELLBROOK

The Hunter region was first explored by Europeans in 1797, when Lieutenant John Shortland discovered coal at the mouth of the Hunter River. Subsequent explorations, such as the overland journeys of Chief Constable John Howe and Benjamin Singleton, pushed further into the Lower Hunter Valley, and the area around present-day Muswellbrook was reached in 1820.

By 1822, the penal colony at Newcastle was closed and the Hunter Valley opened to free settlement. Early colonial occupation had two distinct patterns: the lower Hunter was divided into many small landholders on agricultural plots; the upper Hunter tended to feature large pastoral runs (Weir Phillips 2009: 4–5). Townships in the upper Hunter began to develop around these stations by the 1830s, with Singleton growing unofficially around Singleton's station and Muswellbrook being gazetted officially in 1833. By 1825, the major estates of Merton, Pickering, St. Heliers and Overton had been granted (Turner 1995 cited in AECOM 2021).

Most estates and stations were focused on grazing, wool production and breeding cattle and horses. While there was some cultivation during the 19th Century along the Hunter River floodplains, it was not until the 20th Century that agricultural industry became more diverse and widespread, including dairy farming and wine production (AECOM 2021). After the First World War, many of the larger rural estates were subdivided into smaller farms and dairying replaced with wheat and wool as the main rural industry.

Although coal was discovered in the Muswellbrook district in the 1860s, it was not until the 1950s that it became a major industry in the Upper Hunter (Heritage Office 1996:4). These Upper Hunter coal mines (including those between Muswellbrook, Singleton and Denman) used highly mechanised open-cut mining to extract resources (Rappoport 2006: 24). After its construction in the mid-1960s, coal mined from Muswellbrook was supplied to the Liddell Power Station. Since the middle of the 20th Century, the coal and power generation industry has influenced the economy and character of Muswellbrook and represents one the region's key historical themes.

11.2 LOCAL CONTEXT

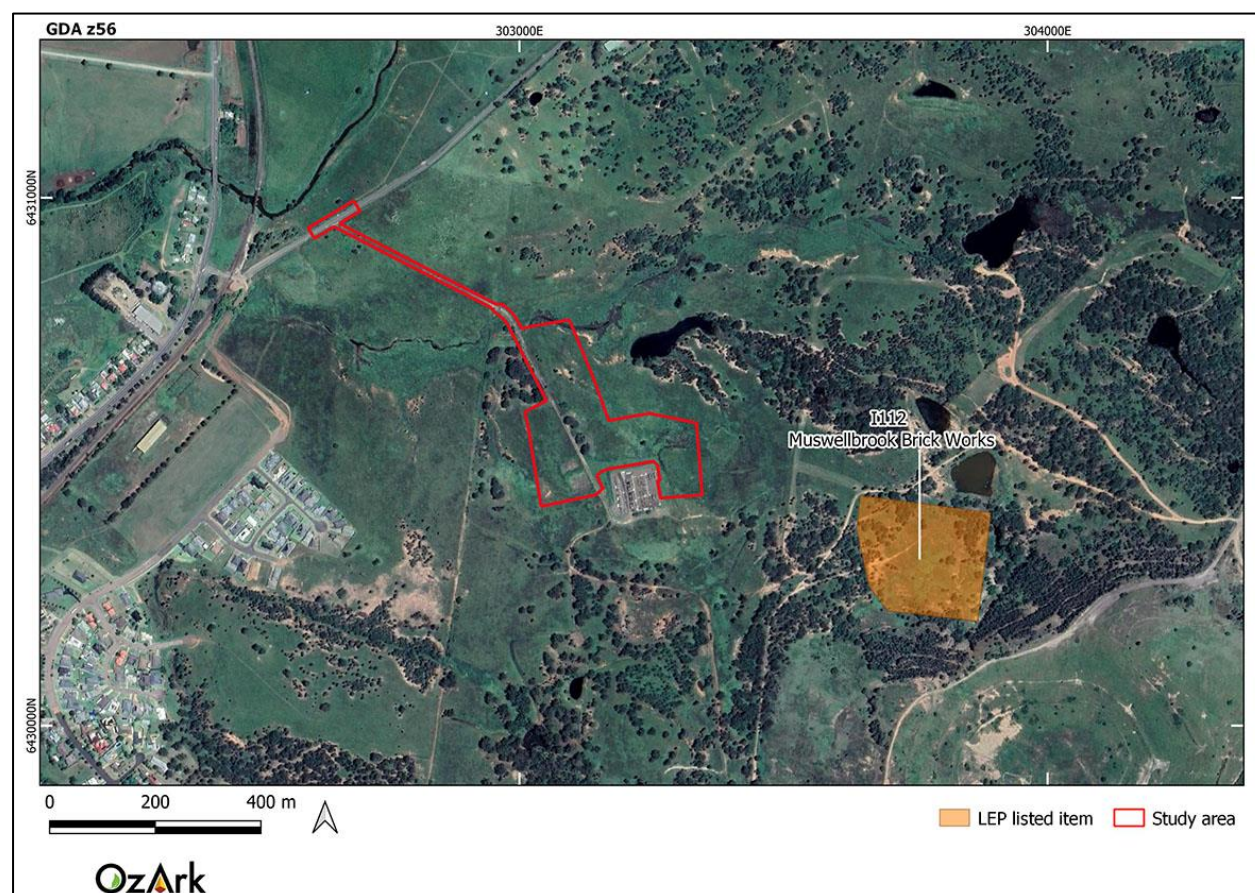
11.2.1 Desktop database searches conducted

A desktop search was conducted on the following databases to identify any potential previously recorded heritage within the study area. The results of this search are summarised in **Table 11-1**.

Table 11-1: Historic heritage: desktop-database search results.

Name of database searched	Date of search	Type of search	Comment
National and Commonwealth Heritage Listings	22/3/2022	Muswellbrook LGA	No places listed on either the National or Commonwealth heritage lists are in the study area or within 10 km of the study area.
State Heritage Listings	22/3/2022	Muswellbrook LGA	No places listed on the State heritage register are located within or in the proximity of the study area. The closest item 'Eatons Hotel & St Vincent De Paul Group', is located 2.4 km to the southwest of the study area.
LEP	22/3/2022	Muswellbrook LEP of 2009	No places or items on the LEP are located within or in the proximity of the study area. The closest item 'Muswellbrook Brick Works', is located 290 m southeast of the study area.

A search of the Heritage Council of NSW administered heritage databases and the Muswellbrook LEP returned no records for historical heritage within the study area. As noted in **Table 11-1**, the closest item to the study area is item #112 listed in the Muswellbrook LEP, 'Muswellbrook Brick Works'. The item assessed as having local heritage significance is located within 290 m southeast of the study area (**Figure 11-1**).

Figure 11-1: Location of the 'Muswellbrook Brick Works' in relation to the study area.

12 RESULTS OF HISTORIC HERITAGE ASSESSMENT

12.1 SURVEY METHODOLOGY

Standard archaeological field survey and recording methods were employed in this study (Burke & Smith 2004). The historic heritage assessment occurred concurrently with the Aboriginal heritage assessment as part of this ACHAR (**Section 6.1**).

12.2 PROJECT CONSTRAINTS

GSV was the greatest constraint during the field survey however this did not unduly affect survey efficiency or the potential to identify historic heritage sites.

12.3 HISTORIC HERITAGE SITES

No historic heritage sites or historic archaeological deposits were recorded in the study area. As such, there will be no impact to historic heritage from the proposal.

13 MANAGEMENT AND MITIGATION: HISTORIC HERITAGE

13.1 GENERAL PRINCIPLES FOR THE MANAGEMENT OF HISTORIC SITES

Appropriate management of heritage items is primarily determined based on their assessed significance as well as the likely impacts of the proposed development.

In terms of best practice and desired outcomes, avoiding impact to any historical item is a preferred outcome, however, where a historical site has been assessed as having no heritage value, impacts to these items does not require any legislated mitigation.

13.2 MANAGEMENT AND MITIGATION OF RECORDED HISTORIC SITES

As no items or sites of historic heritage were recorded, no management or mitigation is required.

In the unlikely event that items of historic heritage significance are noted during construction or operation of the proposal, the unanticipated finds procedure in **Appendix 5** will be an appropriate management protocol. The procedure in **Appendix 4** would be relevant if human skeletal remains protocol are encountered.

14 RECOMMENDATIONS

14.1 ABORIGINAL CULTURAL HERITAGE

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 recorded Aboriginal site was identified during the assessment.

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

- Legal requirements under the terms of the NPW Act whereby it is illegal to damage, deface or destroy an Aboriginal place or object without an approved ACHMP
- The findings of the current investigations undertaken within the study area
- The interests of the Aboriginal community.

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

1. Following development consent for the proposal, the proponent will develop an ACHMP in consultation with the RAPs and DPE (with input from Heritage NSW). The ACHMP would also include an unanticipated finds protocol, unanticipated skeletal remains protocol and heritage inductions and long-term management of the Aboriginal site being impacted.
2. The portion of Aboriginal site 37-2-5953 (Muswellbrook Bypass AFT 2) located within the development site of the proposal should be salvaged following approval of the ACHMP.
 - a. The recommended methodology for the surface collection will be finalised after the approvals process has been completed in the ACHMP but will include the measures outlined in **Section 9.2.1**.
 - b. The salvage works will include the mapping, analysis, and collection of the surface artefact at the affected site. Results will be included in a brief report to preserve the data in a useable form and an ASIRF will be submitted to AHIMS.
3. Fencing should be erected along the boundary of the development site as shown in **Figure 9-1** during construction of the proposal to ensure the remainder of site 37-2-5953 (Muswellbrook Bypass AFT 2) is not inadvertently harmed. The location of the site should be shown on all appropriate plans

4. All land-disturbing activities must be confined to within the development site. Should the parameters of the proposed work extend beyond this, then further archaeological assessment will be required.

14.2 HISTORIC HERITAGE

The following recommendations are made based on the impacts associated with the proposal and with regard to:

- Legal requirements under the terms of the Heritage Act
- Guidelines presented in the *Burra Charter*
- The findings of the current assessment
- The interests of the local community.

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

1. Following development consent of the proposal, the proposed work may proceed with caution. If items of historic heritage significance and/ or skeletal material are uncovered during the proposal, then the protocols in provided in **Appendix 4** and/or **Appendix 5** should be enacted.
2. All land and ground disturbance activities must be confined to within the development site. Should the parameters of the proposal extend beyond the assessed areas, then further assessment may be required.
3. All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all historic items.

REFERENCES

- AECOM 2021 AECOM Australia Pty Ltd. 2021. *New England Highway bypass of Muswellbrook: Review of Environmental Factors*. Report to Transport for NSW.
- Brayshaw 1981 Brayshaw, H. 1981. Archaeological survey of Authorisation 89, proposed site of Bloomfield Collieries' Coal Mine at Rix's Creek, Singleton. Report to NSW NPWS.
- Brayshaw 1986 Brayshaw, H. 1986. *Aborigines of the Hunter Valley: a study of colonial records*. Scone and Hunter Historical Society: Scone.
- Burke & Smith 2004 Burke, H. and Smith, C. 2004. *The Archaeologist's Field Handbook*, Blackwell, Oxford.
- Burra Charter 2013 International Council on Monuments and Sites 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*.
- DECCW 2010 Department of Environment, Climate Change and Water, Sydney (now OEH). *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.
- DECCW 2010b Department of Environment, Climate Change and Water, Sydney (now OEH). *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
- GHD 2005 GHD (International) Pty Limited. 2005. *Proposed Coal Stockpile at Newpac No. 1 Colliery, Ravensworth. Environmental Impact Statement, Volume 1*. Report for Resource Pacific Ltd.
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- Heritage Council 2009 *Assessing Significance for Historical Archaeological Sites and 'Relics'*. Heritage Council of New South Wales and the NSW Government Department of Planning.
- Heritage Office 1996 Heritage Office and Department of Urban Affairs and Planning. *Regional Histories: Regional Histories of NSW*.
- HLA-Envirosciences 2005 HLA Envirosciences (J. Czastka). 2005. *Preliminary Research Permit #1982: Excavations and Findings at Newdell Junction, Ravensworth*. Report for Macquarie Generation.

KNC 2021	Kelleher Nightingale Consulting 2021. <i>Aboriginal Cultural Heritage Assessment Stage 3 PACHCI: New England Highway Muswellbrook Bypass</i> . Report to AECOM on behalf of Transport for NSW.
Kovac and Lawrie1991	Kovac, M and Lawrie J.W. 1991. <i>Soil Landscapes of the Singleton 1:250,000 Sheet</i> . Soil Conservation Service of NSW, Sydney.
Kuskie and Kamminga 2000	Kuskie, P.J. and J. Kamminga 2000. <i>Salvage of Aboriginal archaeological sites in relation to the F3 Freeway near Lenaghans Drive, Black Hill, New South Wales</i> . Report to Roads and traffic Authority New South Wales.
NSW Heritage Office 2001	<i>Assessing heritage significance</i> . NSW Heritage Manual 2.
OEH 2011	Office of Environment and Heritage 2011. <i>Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW</i> .
Rappoport 2006	Rappoport (2006). <i>Conservation Management Plan: Edderton, 1477 Edderton Road Muswellbrook</i> .
Umwelt 2007	Umwelt (Australia) Pty Limited. 2007. <i>Environmental Assessment for Modification of Glendell Mine Operations (3 Volumes)</i> . Report for Xstrata Mt Owen Pty Limited.
Weir Phillips 2009	Weir Phillips Architects and Heritage Consultants. 2009. <i>Heritage Assessment: Former Church of St Thomas Aquinas, Wybong Road, Wybong</i> . Report to Umwelt Australia Pty Ltd.

APPENDIX 1: ABORIGINAL COMMUNITY CONSULTATION

CONSULTATION LOG

Date	Organisation	Comment	Method
21.1.22	Hunter Valley News	Catherine Burrowes (CB) rang - newspaper is printed on a Tuesday and Thursday. The cut off is by midday 2 days prior to each	Phone
21.1.22	Hunter Valley News	CB sent ad off to the newspaper closes 9.2.22	Phone
24.1.22	Heritage NSW	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
24.1.22	Wanaruah LALC	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
24.1.22	Office of The Registrar, ALRA	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
24.1.22	National Native Title Tribunal	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
24.1.22	NTSCORP	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
24.1.22	Muswellbrook Shire council	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
24.1.22	Hunter Local Land Services	CB sent stage 1 agency letter requesting potential stakeholders. Closing date 9.2.22	Email
27.1.22	National Native Title Tribunal	CB received notification ' <i>Records held by the National Native Title Tribunal as at 27 Feb 2022 indicate that there are no Native Title Determination Applications, Determinations of Native Title, or Indigenous Land Use Agreements over the identified area of Lake Macquarie</i>	Email
8.2.22	Tocomwall	CB received email registering for the project - CB emailed Mary Franks back with thanks	Email
9.2.22	A1 Indigenous Services	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Corroboree Aboriginal Corporation	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Kawul Pty Ltd trading as Wonn1 Sites	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Lower Hunter Aboriginal Incorporated	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Michael Green Cultural Heritage Consultant	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Wattaka Wonnarua CC Service	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Widescope Indigenous Group	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Yinarr Cultural Services	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Kevin Duncan	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Murra Bidgee Mullangari Aboriginal Corporation	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Myland Cultural & Heritage Group	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Didge Ngunawal Clan	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Lower Hunter Wonnarua Cultural Services	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Wonnarua Elders Council	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Post

9.2.22	Deslee Talbott Consultants	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Gidawaa Walang & Barkuma Neighbourhood Centre Inc.	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Tocomwall Pty Ltd	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Awabakal Traditional Owners Aboriginal Corporation	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Awabakal & Guringai Pty Ltd	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Awabakal Descendants Traditional Owners	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Crimson-Rosie	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Post
9.2.22	Aliera French Trading	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Indigenous Learning	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Kauma Pondee Inc.	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Arwarbukarl Cultural Resource Association, Miromaa Aboriginal Language and Technology Centre	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Jumbunna Traffic Management Group Pty Ltd	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Sharon Hodgetts	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Awabakal Local Aboriginal Land Council	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Biraban Local Aboriginal Land Council	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	B-H Heritage Consultants	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Kyle Howie	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Trudy Smith	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Yvette and Jackson Walker	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Darkinjung Local Aboriginal Land Council	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Guringai Tribal Link Aboriginal Corporation	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Tim Selwyn	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Tamara Towers	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Bahtabah Local Aboriginal Land Council	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Daniella Chedzey, Jessica Wegener	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
9.2.22	Kamilaroi Yankuntjatjara Working Group	CB Sent stage 1 community letter requesting potential stakeholders. Closing date 25.2.22	Email
8.2.22	Tocomwall	CB received email registering for the project CB replied with thanks	Email

9.2.22	Didge Ngunawal Clan	CB received email registering for the project CB replied with thanks	Email
10.2.22	Woka Aboriginal Corporation	CB received email registering for the project CB replied with thanks	Email
10.2.22	Widescope Indigenous Group	CB received email registering for the project CB replied with thanks	Email
11.2.22	Kamilaroi Yankuntjatjara Working Group	CB received email registering for the project CB replied with thanks	Email
11.2.22	Gomeri People (c/- NTSCORP Ltd)	CB received email registering for the project CB replied with thanks	Email
11.2.22	Culturally Aware	CB received email registering for the project CB replied with thanks	Email
15.2.22	Upper Hunter Wonnarua Council Inc	CB received call from Rhonda registering for the project CB accepted verbal registrations with thanks	Phone
17.2.22	Wallagan Cultural Services	CB received email registering for the project CB replied with thanks	Email
21.2.22	Wattaka Wonnarua CC Service	CB received email registering for the project CB replied with thanks	Email
21.2.22	A1 Indigenous Services	CB received email registering for the project CB replied with thanks	Email
1.3.22	Woka Aboriginal Corporation	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Widescope Indigenous Group	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Kamilaroi Yankuntjatjara Working Group	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	A1 Indigenous Services	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Gidawaa Walang & Barkuma Neighbourhood Centre Inc.	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Murra Bidgee Mullangari Aboriginal Corporation	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	AGA Services	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Cacatua Culture Consultants	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Tocomwall	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Didge Ngunawal Clan	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Gomeri People (c/- NTSCORP Ltd)	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Culturally Aware	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Upper Hunter Wonnarua Council Inc	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Post
1.3.22	Wallagan Cultural Services	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Wattaka Wonnarua CC Service	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
1.3.22	Wanaruah LALC	CB sent Stage 2/3 Methodology and letter closing date 31.3.22	Email
21.6.22	Didge Ngunawal Clan	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Woka Aboriginal Corporation	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Widescope Indigenous Group	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Kamilaroi Yankuntjatjara Working Group	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Gomeri People (c/- NTSCORP Ltd)	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Culturally Aware	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email

21.6.22	Upper Hunter Wonnarua Council Inc	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Wallagan Cultural Services	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Wattaka Wonnarua CC Service	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	A1 Indigenous Services	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Wanaruah Local Aboriginal Land Council	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	AGA Services	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
21.6.22	Cacatua Culture Consultants	CB sent Stage 4 letter and draft ACHAR closing date 19.7.22	Email
22.6.22	Didge Ngunawal Clan	CB received email <i>"We are happy with everything from our end towards this battery project up at Muswellbrook"</i> CB replied with thanks	Email
4.7.22	Kamilaroi Yankuntjatjara Working Group	CB received email "We would like to agree to your Methodology and support your report, we look forward to working alongside you on this project". CB replied with thanks	Email


APPENDIX 1 FIGURE 1: STAGE 1 ADVERTISEMENT.**Expression of Interest
Cultural Heritage Management**

OzArk Environment & Heritage has been engaged on behalf of the proponent (Firm Power Pty Ltd), and seeks registration of Aboriginal groups or individuals who are interested in being consulted over an Aboriginal Cultural Heritage Assessment for the proposed Battery Energy Storage System (BESS) at Muswellbrook NSW, located in the Muswellbrook Local Government Area.

This consultation will assist the proponent in the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR) and potential Aboriginal Heritage Impact Permit (AHIP), and to assist Heritage NSW in their consideration.

If you hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects or places in the proposed study area, please register your interest. We will continue to consult with this group. Registrations can be made by post: OzArk PO Box 2069 Dubbo NSW 2830; email: catherineozarkehm.com.au or by phoning OzArk on 02 6882 0118. All submissions should be received no later than 9th February 2022.

APPENDIX 1 FIGURE 2: STAGE 1 LETTERS TO AGENCIES (SAMPLE).

	<p style="text-align: center;">OzArk Environment & Heritage</p> <p> Dubbo T: 02 6882 0118 Queanbeyan enquiry@ozarkehm.com.au Newcastle www.ozarkehm.com.au </p>	<p>ABN 59 104 582 354</p> <p>145 Wingewarra St PO Box 2069 DUBBO NSW 2830</p>
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24 January 2022

Aboriginal Cultural Heritage Assessment application for the proposed Battery Energy Storage Systems (BESS) at Muswellbrook, NSW

Dear [REDACTED],

OzArk Environment & Heritage (OzArk) has been engaged by Firm Power Pty Ltd (Firm Power) to undertake Aboriginal community consultation as per the 'Aboriginal cultural heritage consultation requirements for proponents 2010' (DECCW 2010).


Firm Power is proposing to develop a large-scale standalone BESS near Muswellbrook, located on land adjacent to the existing Muswellbrook substation, in the Muswellbrook Local Government Area.

We are therefore seeking Expressions of Interest from relevant Aboriginal stakeholder groups and individuals in the area, to form a consultation group. This consultation is to assist OzArk and FPPL in preparing the Aboriginal Cultural Heritage Assessment Report (ACHAR) and to assist Heritage NSW in their consideration.

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. 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 Monday 31st January 2022, or sooner if possible.

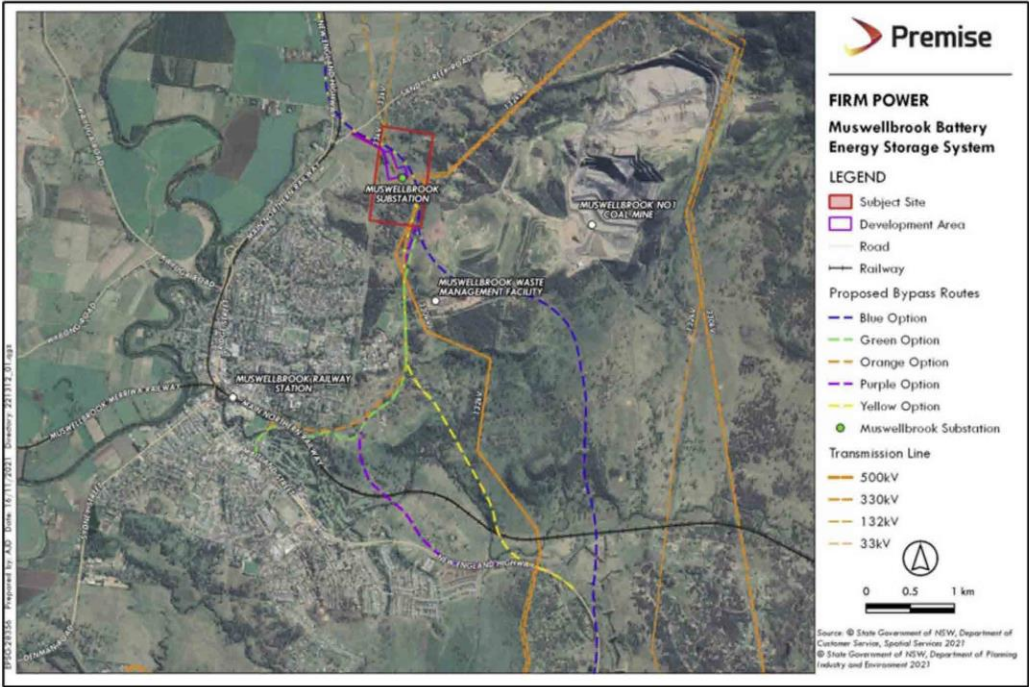
Once relevant groups and individuals have been identified, they will form part of the formal consultation process for the project.

Kind regards,



Catherine Burrows
Office Manager/ Community Liaison

Figure 1: Proposed location of the Muswellbrook BESS.



APPENDIX 1 FIGURE 3: STAGE 1 AGENCY REPLY (SAMPLE).



Reference: DOC22/51077-1

Catherine Burrowes
OzArk
PO Box 2069
DUBBO NSW 2830
catherine@ozarkehm.com.au

RE: Request for information on Aboriginal stakeholders for a proposed Battery Energy Storage System (BESS) at Muswellbrook NSW

Dear Catherine,

Thank you for your letter of 24 January 2022 about Aboriginal cultural heritage consultation for a proposed Battery Energy Storage System (BESS) at Muswellbrook, NSW, within the Muswellbrook local government area. I appreciate the opportunity to provide input.

Please find enclosed a list of known Aboriginal parties for the Muswellbrook local government area (Attachment 1) that we consider likely to have an interest in the proposal. Note this is not an exhaustive list of all interested Aboriginal parties. Receipt of this list does not remove the requirement for a proponent/consultant to advertise the proposal in the local print media and contact other bodies and community groups seeking interested Aboriginal parties, in accordance with the 'Aboriginal cultural heritage consultation requirements for proponents 2010' (the CRs).

We would also like to take this opportunity to remind the proponent and consultant to:

- Ensure that consultation is fair, equitable and transparent. If the Aboriginal parties express concern or are opposed to parts of or the entire project, we expect that evidence will be provided to demonstrate the efforts made to find common ground between the opponents and the proponent.

52 Martin Place Sydney ■ GPO Box 5341 Sydney NSW 2001 ■ P: (02) 9228 5555 ■ F: (02) 9228 3935 ■ dpc.nsw.gov.au

If you have any questions about this advice, please do not hesitate to contact me via paul.houston@environment.nsw.gov.au or 02 68835361.

Yours sincerely

Paul Houston
Aboriginal Snr Assessments Officer
Aboriginal Cultural Heritage Regulation - Northern
Heritage NSW
Department of Premier and Cabinet
25 January 2022

ATTACHMENT A


Table 1: List of Aboriginal stakeholder groups within the Muswellbrook Local Government Area - that may have an interest in the project; provided as per the "OEH Aboriginal cultural heritage requirement for proponents 2010".

Muswellbrook Local Government Area

Organisation/ Individual	Contact Name	Email Address/ Fax / Phone	Postal Address	Additional information
A1 Indigenous Services	Carolyn Hickey			
Corroboree Aboriginal Corporation	Carroll-Johnson Marilyn			
Kawul Pty Ltd trading as Worn1 Sites	Arthur Fletcher			
Lower Hunter Aboriginal Incorporated	David Ahoy			

Konanggo Aboriginal Cultural Heritage Services	Robert Young
Kamilaroi Yankuntjatjara Working Group	Phil Khan

APPENDIX 1 FIGURE 4: STAGE 1 EXPRESSIONS OF INTEREST TO ABORIGINAL COMMUNITY STAKEHOLDERS (SAMPLE).

	<p style="text-align: center;">OzArk Environment & Heritage</p> <p> Dubbo T: 02 6882 0118 Queanbeyan enquiry@ozarkehm.com.au Newcastle www.ozarkehm.com.au </p>	<p style="text-align: center;">ABN 59 104 582 354</p> <p> 145 Wingewarra St PO Box 2069 DUBBO NSW 2830 </p>
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9 February 2022

Aboriginal Cultural Heritage Assessment application for the proposed Battery Energy Storage Systems (BESS) at Muswellbrook, NSW

Dear [REDACTED],

OzArk Environment & Heritage (OzArk) has been engaged by Firm Power Pty Ltd (Firm Power) to undertake Aboriginal community consultation as per the 'Aboriginal cultural heritage consultation requirements for proponents 2010' (DECCW 2010).

Firm Power is proposing to develop a large-scale standalone BESS near Muswellbrook, located on land adjacent to the existing Muswellbrook substation, in the Muswellbrook Local Government Area.


We are therefore seeking Expressions of Interest from relevant Aboriginal stakeholder groups and individuals in the area, to form a consultation group. This consultation is to assist OzArk and FPPL in preparing the Aboriginal Cultural Heritage Assessment Report (ACHAR) and to assist Heritage NSW in their consideration.

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. The closing date for expressions of interest is COB Friday 25th 2022.

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.

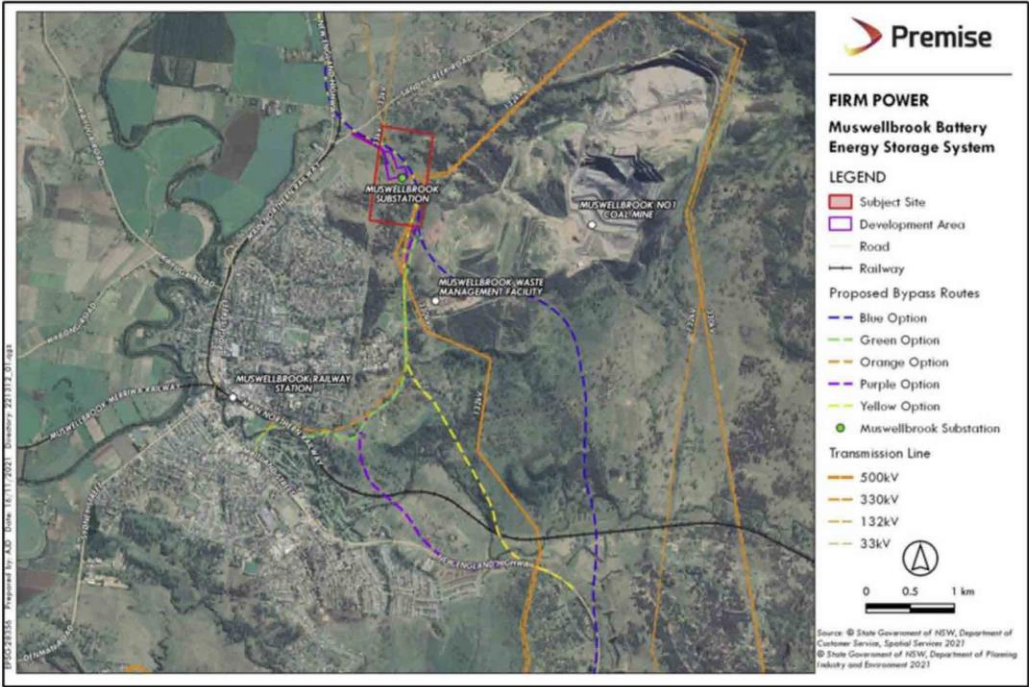
Once relevant groups and individuals have been identified, they will form part of the formal consultation process for the project.

Kind regards,



Catherine Burrowes
Community Liaison

Figure 1: Proposed location of the Muswellbrook BESS.



APPENDIX 1 FIGURE 5: STAGE 2/3 LETTERS TO RAPs (SAMPLE).

	<p style="text-align: center;">OzArk Environment & Heritage</p> <p> Dubbo T: 02 6882 0118 Queanbeyan enquiry@ozarkehm.com.au Newcastle www.ozarkehm.com.au </p>	<p>ABN 59 104 582 354</p> <p>145 Wingewarra St PO Box 2069 DUBBO NSW 2830</p>
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1 March 2022

***ABORIGINAL HERITAGE ASSESSMENT FOR THE PROPOSED
MUSWELLBROOK BATTERY ENERGY STORAGE SYSTEM***

Dear [REDACTED],

Thank-you for your registration of interest to become a Registered Aboriginal Party (RAP) to be consulted for the proposed Muswellbrook Battery Energy Storage System.

The purpose of this letter is to invite you to comment on the enclosed draft methodology for the Muswellbrook Battery Energy Storage System, located within the Muswellbrook Local Government Area.

In addition to comments on the draft methodology, if you can share any Aboriginal cultural heritage knowledge relevant to the proposed study area, 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 Thursday 31 March 2022.**

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
Community Liaison

APPENDIX 1 FIGURE 6: STAGE 2/3 RAP RESPONSES

Kamilaroi Yankuntjatjara Working Group feedback

Re: Aboriginal Cultural Heritage Assessment Methodology: Awaba, Beresfield, and Muswellbrook Battery ...

PK To Catherine Burrowes

Reply Reply All Forward ...

Fri 11/03/2022 1:12 PM

This sender

Dear Catherine,

Thank you for your ACHA for Awaba, Beresfield, and Muswellbrook Battery Energy Storage System. Kamilaroi Yankuntjatjara Working Group hold cultural knowledge of the whole of Sydney basin area for over fifty years, we hold a deep spiritual connection to Mother Earth. We aim the look after Mother Earth and conserve our land and cultural sites, these sacred sites are highly significant to us Aboriginal people. Aboriginal places, sacred sites, burials, rock art, griding grooves, stone tools/ artefacts and objects are being destroyed all over Sydney, it is in our best interest the save these places and treat them with respect before it is too late.

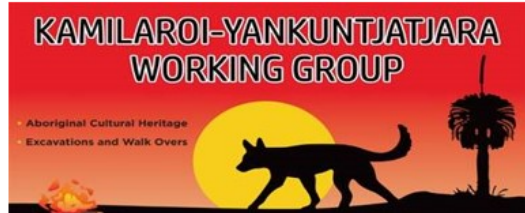
We believe that the study area is highly significant too our people as they have occupied the area for tens of thousands of years and continue to do so. There are tangible and intangible aspects to the study area and theses must be considered. Along with there being water ways right by the study area Stone Creek a fresh water supply for our people and an abundance of resources would be provide to them.

For this reason, we would like to recommend further investigation in the form of survey and test excavation and for there to be a proposed cultural interpretation plan for the study area. To better educate the wider community and to acknowledge Aboriginal people for the area.

We would like to agree to your methodology, and we look forward to working alongside you on this project.

Kind Regards

Kadibulla Khan



APPENDIX 1 FIGURE 7: STAGE 4 LETTERS TO RAPs (SAMPLE).

	<p style="text-align: center;">OzArk Environment & Heritage</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Dubbo</td> <td style="width: 33%;">T: 02 6882 0118</td> <td style="width: 33%;">ABN 59 104 582 354</td> </tr> <tr> <td>Queanbeyan</td> <td>enquiry@ozarkehm.com.au</td> <td>145 Wingewarra St</td> </tr> <tr> <td>Newcastle</td> <td>www.ozarkehm.com.au</td> <td>PO Box 2069</td> </tr> <tr> <td></td> <td></td> <td>DUBBO NSW 2830</td> </tr> </table>	Dubbo	T: 02 6882 0118	ABN 59 104 582 354	Queanbeyan	enquiry@ozarkehm.com.au	145 Wingewarra St	Newcastle	www.ozarkehm.com.au	PO Box 2069			DUBBO NSW 2830	
Dubbo	T: 02 6882 0118	ABN 59 104 582 354												
Queanbeyan	enquiry@ozarkehm.com.au	145 Wingewarra St												
Newcastle	www.ozarkehm.com.au	PO Box 2069												
		DUBBO NSW 2830												

21 June 2022

Members
 Wanaruah Local Aboriginal Land Council
 PO Box 127
 17-19 Maitland Street
 MUSWELLBROOK NSW 2333
 ceo@wanaruahlandcouncil.com.au

***ABORIGINAL CULTURAL HERITAGE ASSESSMENT FOR THE PROPOSED MUSWELLBROOK
 BATTERY ENERGY STORAGE SYSTEM***

Dear Members,

Thank-you for your continued participation as a Registered Aboriginal Party (RAP) and involvement in the above-mentioned project.

Firm Power Pty Ltd (the Proponent) would like to offer you the opportunity to provide feedback on the draft *Aboriginal Cultural Heritage Assessment* (ACHA) in accordance with stage four (4) of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRs).

As per the ACHCRs we are required to give you twenty-eight (28) days to supply feedback on the attached ACHA. This period closes on the **Tuesday 19th July 2022**. Should our office not be contacted within this time frame, we will presume that you are satisfied with the contents of the ACHA as it stands.

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

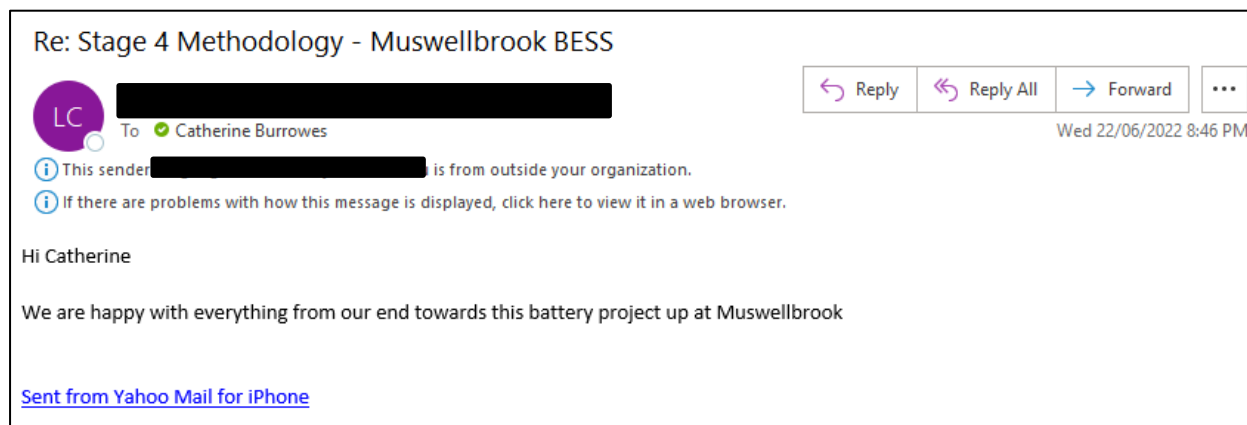
Kind regards,



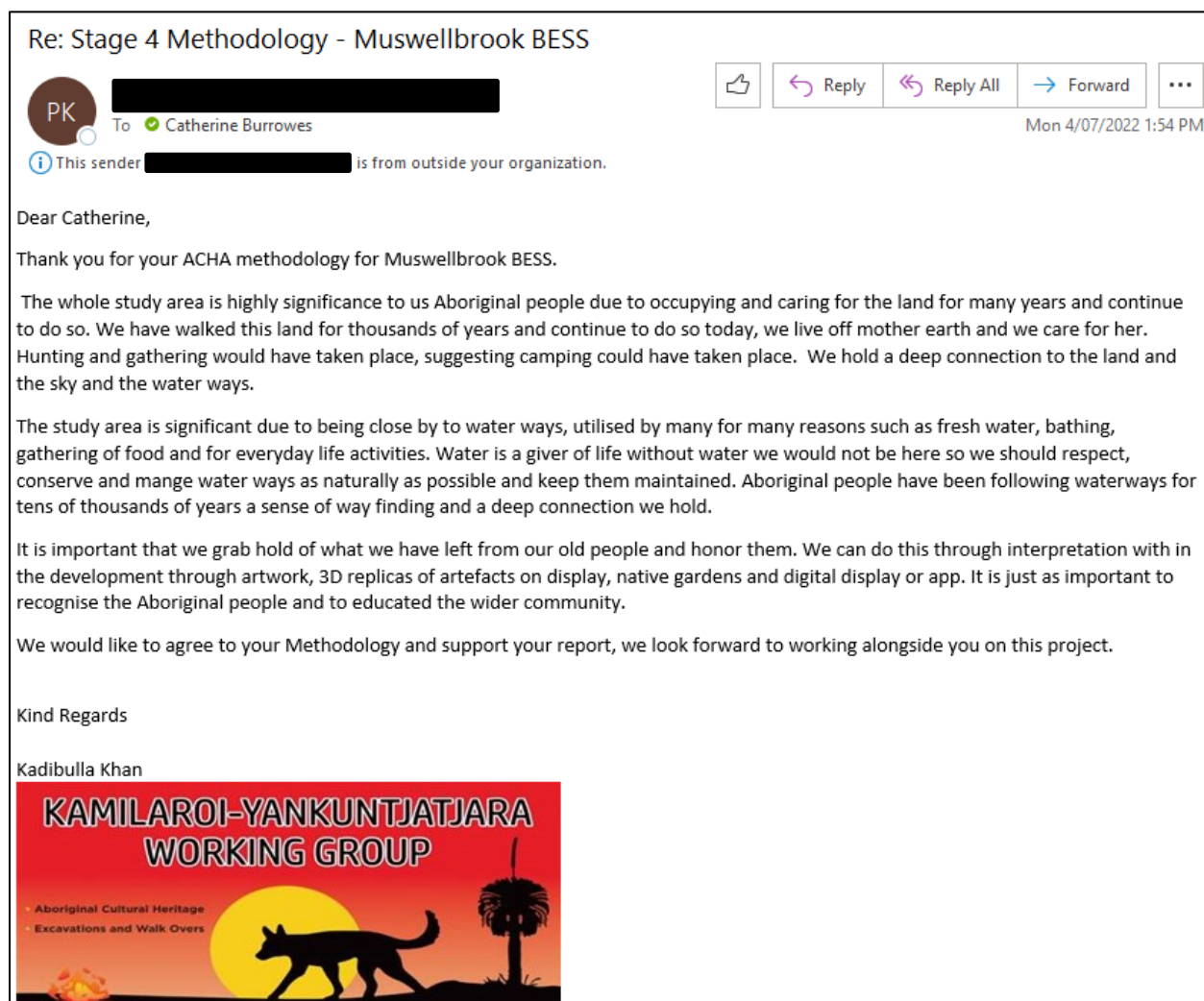
Catherine Burrowes
 Office Manager/ Community Liaison

APPENDIX 1 FIGURE 8: STAGE 4 RAPs RESPONSES


Didge Ngunawal Clan feedback



Kamilaroi Yankuntjatjara Working Group feedback




APPENDIX 2: AHIMS SEARCH

<div>  <div> AHIMS Web Services (AWS) Extensive search - Site list report </div> <div> Your Ref/PO Number : 3315 Client Service ID : 658748 </div> </div>										
SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-1985	M-1	AGD	56	305091	6429633	Open site	Valid	Art (Pigment or Engraved) :-		
	Contact	Recorders	Ms.Meaghan Russell,Ms.Vaessa Hardy					Permits	2132	
37-2-0105	Bells Mountain	AGD	56	306063	6432039	Open site	Valid	Modified Tree (Carved or Scarred) :-	Scarred Tree	635
	Contact	Recorders	Ms.Betty Russ					Permits		
37-2-5952	Muswellbrook Bypass APT 1	GDA	56	302698	6431043	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-5953	Muswellbrook Bypass APT 2	GDA	56	303146	6430640	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-2031	CB 1	AGD	56	306787	6431360	Open site	Valid	Artefact : 1		100152
	Contact	Recorders	Insite Heritage Pty Ltd					Permits	2277	
37-2-3009	MTP-428	GDA	56	299229	6431005	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-6378	ERM-F10	GDA	56	299855	6432439	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-5960	Muswellbrook Bypass APT 3	GDA	56	305449	6426732	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-0158	Muswellbrook Flower Gardens Flat	AGD	56	303570	6427109	Open site	Valid	Artefact :-	Open Camp Site	142
	Contact	Recorders	Helen Brayshaw					Permits		
37-2-2043	NM3	AGD	56	302217	6429972	Open site	Valid	Artefact : 1		100052,100053
	Contact	Recorders	Ms.Penny Mcardle					Permits	2444,2478	
37-2-2585	Muswellbrook Common 21	GDA	56	303125	6427814	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-4573	Muswellbrook Common 9	GDA	56	303519	6427093	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-6362	ERM-E33	GDA	56	299355	6431499	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Elizabeth Rich,Niche Environment and Heritage,Mr.Wade Goldwyer					Permits		
37-2-3004	MTP-423	GDA	56	299388	6431515	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2050	NM15	AGD	56	302537	6430640	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Penny Mcardle					Permits		
37-2-2040	NM16	AGD	56	302533	6430437	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Penny Mcardle					Permits		
37-2-1984	M-3	AGD	56	305006	6429742	Open site	Valid	Artefact :-		
	Contact	Recorders	Ms.Meaghan Russell,Ms.Vaessa Hardy					Permits	2132	

Report generated by AHIMS Web Service on 11/02/2022 for Yekua Zhang for the following area at Datum:GDA, Zone: 56, Eastings: 299169.0 - 307169.0, Northings: 6426522.0 - 6434522.0 with a Buffer of 0 meters. Number of Aboriginal sites and Aboriginal objects found is 113

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Page 1 of 7

<div>  <div> AHIMS Web Services (AWS) Extensive search - Site list report </div> <div> Your Ref/PO Number : 3315 Client Service ID : 658748 </div> </div>										
SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-6358	ERM-E29	GDA	56	299255	6431109	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Elizabeth Rich,Niche Environment and Heritage,Mr.Wade Goldwyer					Permits		
37-2-2586	Muswellbrook Common 22	GDA	56	302894	6427990	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-5954	Muswellbrook Bypass APT 3	GDA	56	303333	6429759	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-6392	ERM-G5	GDA	56	299405	6433869	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-1456	NH 3,	AGD	56	306180	6426348	Open site	Valid	Artefact :-	Open Camp Site	2817
	Contact	Recorders	Tom Griffiths					Permits	1794	
37-2-2030	CB 2	AGD	56	306760	6431477	Open site	Valid	Artefact : 3		100152
	Contact	Recorders	Insite Heritage Pty Ltd					Permits	2277	
37-2-2576	Muswellbrook Common 12	GDA	56	303520	6427077	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-6389	ERM-G2	GDA	56	299285	6433749	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-3007	MTP-426	GDA	56	299198	6431165	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-6357	ERM-E28	GDA	56	299255	6431189	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Elizabeth Rich,Niche Environment and Heritage,Mr.Wade Goldwyer					Permits		
37-2-5958	Muswellbrook Bypass APT 2	GDA	56	305440	6427518	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-2571	Muswellbrook common 7	GDA	56	303505	6427105	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-6371	ERM-F1	GDA	56	299615	6432419	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-2037	NM5	AGD	56	301962	6430158	Open site	Valid	Artefact : 2		100052,100053
	Contact	Recorders	Ms.Penny Mcardle					Permits	2444,2478	
37-2-2567	Muswellbrook common 3	GDA	56	303073	6426768	Open site	Valid	Modified Tree (Carved or Scarred) :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-2579	Muswellbrook Common 15	GDA	56	303532	6427094	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-2582	Muswellbrook Common 18	GDA	56	303552	6427076	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		

Report generated by AHIMS Web Service on 11/02/2022 for Yekua Zhang for the following area at Datum:GDA, Zone: 56, Eastings: 299169.0 - 307169.0, Northings: 6426522.0 - 6434522.0 with a Buffer of 0 meters. Number of Aboriginal sites and Aboriginal objects found is 113

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 3315
Client Service ID : 658748

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-3022	MTP-441	GDA	56	299298	6430912	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3032	MTP-451	GDA	56	299361	6430850	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3008	MTP-427	GDA	56	299186	6431106	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits		
37-2-2996	MTP-415	GDA	56	299193	6431862	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3555	MTP-977	GDA	56	299275	6430671	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2587	Muswellbrook common 23	GDA	56	302077	6427999	Open site	Valid	Artefact :-		
	Contact T Russell	Recorders	Glen Morris					Permits		
37-2-2038	NMS	AGD	56	302812	6430467	Open site	Valid	Artefact : 5		
	Contact T Russell	Recorders	Ms.Penny McCardle					Permits		
37-2-1841	MWD53	AGD	56	306850	6431320	Open site	Valid	Artefact :-	Open Camp Site	
	Contact	Recorders	Unknown Author					Permits		
37-2-0104	Muswellbrook,Bmbadecm;	AGD	56	305182	6430193	Open site	Valid	Modified Tree (Carved or Scarred) :-	Scarred Tree	
	Contact	Recorders	Helen Brayshaw					Permits		
37-2-2592	SANDY CREEK ROAD 1501	AGD	56	304200	6431700	Open site	Valid	Artefact : 1		100738
	Contact Searle	Recorders	Mr John Appleton					Permits		
37-2-2046	NM11	AGD	56	302151	6430158	Open site	Valid	Artefact : 2		100052,100053
	Contact T Russell	Recorders	Ms.Penny McCardle					Permits	2444,2478	
37-2-2047	NM12	AGD	56	302288	6430112	Open site	Valid	Artefact : 3		100052,100053
	Contact T Russell	Recorders	Ms.Penny McCardle					Permits	2444,2478	
37-2-2863	MTP-59	GDA	56	299169	6431368	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2572	Muswellbrook Common 8	GDA	56	303523	6427098	Open site	Valid	Artefact :-		
	Contact T Russell	Recorders	Glen Morris					Permits		
37-2-2577	Muswellbrook Common 13	GDA	56	303532	6427001	Open site	Valid	Artefact :-		
	Contact Searle	Recorders	Glen Morris					Permits		
37-2-6398	ERM-G6	GDA	56	299235	6433479	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-3027	MTP-446	GDA	56	299326	6430824	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	

Report generated by AHIMS Web Service on 11/02/2022 for Yekua Zhang for the following area at Datum :GDA, Zone :56, Eastings : 299169.0 - 307169.0, Northings : 6426522.0 - 6434522.0 with a Buffer of 0 meters. Number of Aboriginal sites and Aboriginal objects found is 113

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 3315
Client Service ID : 658748

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-3022	MTP-441	GDA	56	299298	6430912	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3032	MTP-451	GDA	56	299361	6430850	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3008	MTP-427	GDA	56	299186	6431106	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits		
37-2-2996	MTP-415	GDA	56	299193	6431862	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3555	MTP-977	GDA	56	299275	6430671	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2587	Muswellbrook common 23	GDA	56	302077	6427999	Open site	Valid	Artefact :-		
	Contact T Russell	Recorders	Glen Morris					Permits		
37-2-2038	NMS	AGD	56	302812	6430467	Open site	Valid	Artefact : 5		
	Contact T Russell	Recorders	Ms.Penny McCardle					Permits		
37-2-1841	MWD53	AGD	56	306850	6431320	Open site	Valid	Artefact :-	Open Camp Site	
	Contact	Recorders	Unknown Author					Permits		
37-2-0104	Muswellbrook,Bmbadecm;	AGD	56	305182	6430193	Open site	Valid	Modified Tree (Carved or Scarred) :-	Scarred Tree	
	Contact	Recorders	Helen Brayshaw					Permits		
37-2-2592	SANDY CREEK ROAD 1501	AGD	56	304200	6431700	Open site	Valid	Artefact : 1		100738
	Contact Searle	Recorders	Mr John Appleton					Permits		
37-2-2046	NM11	AGD	56	302151	6430158	Open site	Valid	Artefact : 2		100052,100053
	Contact T Russell	Recorders	Ms.Penny McCardle					Permits	2444,2478	
37-2-2047	NM12	AGD	56	302288	6430112	Open site	Valid	Artefact : 3		100052,100053
	Contact T Russell	Recorders	Ms.Penny McCardle					Permits	2444,2478	
37-2-2863	MTP-59	GDA	56	299169	6431368	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2572	Muswellbrook Common 8	GDA	56	303523	6427098	Open site	Valid	Artefact :-		
	Contact T Russell	Recorders	Glen Morris					Permits		
37-2-2577	Muswellbrook Common 13	GDA	56	303532	6427001	Open site	Valid	Artefact :-		
	Contact Searle	Recorders	Glen Morris					Permits		
37-2-6398	ERM-G6	GDA	56	299235	6433479	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-3027	MTP-446	GDA	56	299326	6430824	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 3315
Client Service ID : 658748

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-3010	MTP-429	GDA	56	299311	6431003	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-6388	ERM-G1	GDA	56	299285	6433809	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-6394	ERM-G7	GDA	56	299295	6433329	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-3030	MTP-449	GDA	56	299354	6430825	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3031	MTP-450	GDA	56	299377	6430760	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3554	MTP-976	GDA	56	299388	6430760	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-5957	Muswellbrook Bypass AFT 5	GDA	56	304942	6428912	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-2569	Muswellbrook Common 5	GDA	56	302897	6426764	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Glen Morris					Permits		
37-2-2588	Muswellbrook Common 24	AGD	56	302869	6427979	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-5956	Muswellbrook Bypass AFT 6	GDA	56	305365	6428157	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-2570	Muswellbrook Common 6	GDA	56	303471	6427120	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-2566	Muswellbrook Common 1	GDA	56	303269	6426991	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-2583	Muswellbrook Common 19	AGD	56	303566	6427080	Open site	Valid	Artefact :-		
	Contact	Recorders	Glen Morris					Permits		
37-2-5955	Muswellbrook Bypass AFT 4	GDA	56	304248	6429144	Open site	Valid	Artefact :-		
	Contact	Recorders	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					Permits		
37-2-2045	NN10	AGD	56	302208	6430106	Open site	Valid	Artefact : 1		100052,100053
	Contact	Recorders	Ms.Penny McCardle					Permits	2444,2478	
37-2-2568	Muswellbrook Common 4	GDA	56	303082	6426860	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Glen Morris					Permits		
37-2-2580	Muswellbrook Common 16	AGD	56	303541	6427090	Open site	Valid	Artefact :-		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 3315
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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-3011	MTP-430	GDA	56	299301	6431098	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-6390	ERM-G3	GDA	56	299255	6433679	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-3029	MTP-448	GDA	56	299333	6430854	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3012	MTP-431	GDA	56	299329	6431299	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-1998	NM2	AGD	56	302470	6430564	Open site	Valid	Artefact : 7		
	Contact	Recorders	MCH - McCardle Cultural Heritage Pty Ltd					Permits		
37-2-1454	NH 1	AGD	56	306050	6426350	Open site	Valid	Artefact :-	Isolated Find	2817
	Contact	Recorders	Tom Griffiths					Permits	1794	
37-2-3558	MTP-980	GDA	56	299262	6430405	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3025	MTP-444	GDA	56	299272	6430901	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-3024	MTP-443	GDA	56	299276	6430925	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2049	NN14	AGD	56	302745	6429937	Open site	Valid	Artefact : 2		100052,100053
	Contact	Recorders	Ms.Penny McCardle					Permits		
37-2-1982	M-1	AGD	56	304327	6429316	Open site	Valid	Artefact :-		
	Contact	Recorders	Ms.Meaghan Russell,Ms.Valessa Hardy					Permits	2132	
37-2-2042	NM7	AGD	56	301825	6429999	Open site	Valid	Artefact : 2		100052,100053
	Contact	Recorders	Ms.Penny McCardle					Permits		
37-2-2044	NM9	AGD	56	302239	6430004	Open site	Valid	Artefact : 1		100052,100053
	Contact	Recorders	Ms.Penny McCardle					Permits	2444,2478	
37-2-2039	NM4	AGD	56	302700	6430542	Open site	Valid	Artefact : 2		
	Contact	Recorders	Ms.Penny McCardle					Permits		
37-2-2007	MPL003	GDA	56	303246	6429135	Open site	Valid	Artefact : 1		102371
	Contact	Recorders	Mrs.Georgia Roberts					Permits		
37-2-3227	MTP-648	GDA	56	299183	6430229	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr.Lennard Roberts					Permits	4005	
37-2-2574	Muswellbrook Common 10	GDA	56	303525	6427093	Open site	Valid	Artefact :-		
	Contact	Recorders	A.J. Morris					Permits		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 3315
Client Service ID : 658748

SiteID	SiteName	Datum	Zone	Easting	Northing	Contact	Site Status **	SiteFeatures	SiteTypes	Reports
37-2-2578	Muswellbrook Common 14	GDA	56	303533	6427081	Open site	Valid	Artefact :-		
	Contact Scarle	Recorders	Glen Morris					Permits		
37-2-2581	Muswellbrook Common 17	GDA	56	303542	6427086	Open site	Valid	Artefact :-		
	Contact S Scanlon	Recorders	Glen Morris					Permits		
37-2-3023	MTP-442	GDA	56	299293	6430940	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr Leonard Roberts					Permits	4005	
37-2-6373	ERM-F3	GDA	56	299415	6432659	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-6391	ERM-G4	GDA	56	299395	6433789	Open site	Valid	Artefact :-		
	Contact	Recorders	Elizabeth Rich					Permits		
37-2-1983	M-2	AGD	56	304546	6429286	Open site	Valid	Artefact :-		
	Contact	Recorders	Ms Meaghan Russell, Ms Vanessa Hardy					Permits	2132	
37-2-3005	MTP-424	GDA	56	299193	6431208	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr Leonard Roberts					Permits	4005	
37-2-3006	MTP-425	GDA	56	299224	6431188	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Mr Leonard Roberts					Permits	4005	
37-2-6361	ERM-E32	GDA	56	299265	6431449	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Elizabeth Rich, Niche Environment and Heritage, Mr Wade Goldwyer					Permits		
37-2-2584	Muswellbrook Common 20	GDA	56	303507	6427192	Open site	Valid	Artefact :-		
	Contact T Russell	Recorders	Glen Morris					Permits		

** 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 - This 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.

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APPENDIX 3: ABORIGINAL HERITAGE: UNANTICIPATED FINDS PROTOCOL

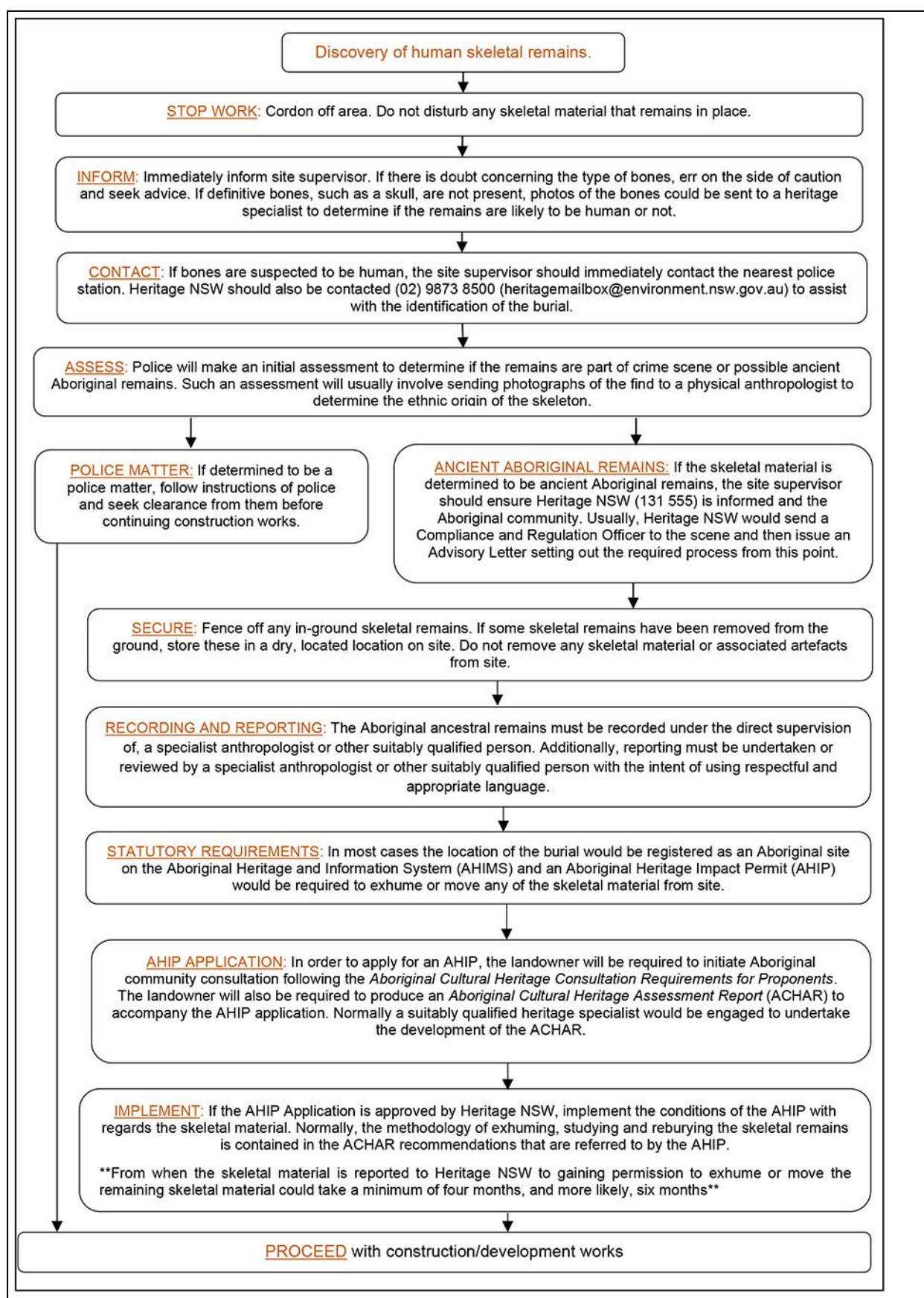
An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification; i.e. smoothing, use). Human bone (skeletal) remains may also be uncovered while onsite.

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 as soon as practical on (02) 9873 8500 (heritagemailbox@environment.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).
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 (through the procedures of an approved ACHMP).

APPENDIX 4: UNANTICIPATED SKELETAL REMAINS PROTOCOL



APPENDIX 5: HISTORIC HERITAGE: UNANTICIPATED FINDS PROTOCOL

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

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

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

1. All ground surface disturbance in the area of the finds should cease immediately, then:
 - a) The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted
 - b) The site supervisor will be informed of the find(s).
2. If finds are suspected to be human skeletal remains, then NSW Police must be contacted as a matter of priority.
3. If there is substantial doubt regarding the historic significance for the finds, then gain a qualified opinion from an archaeologist as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be significant. If a quick opinion cannot be gained, or the identification is that the item is likely to be significant, then proceed to the next step.
4. Notify Heritage NSW as soon as practical on (02) 9873 8500 (heritagemailbox@environment.nsw.gov.au) providing any details of the historic find and its location.
5. If in the view of the heritage specialist or Heritage NSW that the finds appear not to be significant, work may recommence without further investigation. Keep a copy of all correspondence for future reference.
6. If in the view of the heritage specialist or Heritage NSW that the finds appear to be significant, facilitate the recording and assessment of the finds by a suitably qualified heritage specialist. Such a study should include the development of appropriate management strategies.
7. If the find(s) are determined to be significant historic items (i.e. of local or state significance), any re-commencement of ground surface disturbance may only resume following compliance with any legal requirements and gaining written approval from Heritage NSW.