View south across the study area.

## ABORIGINAL ARCHAEOLOGICAL TECHNICAL REPORT

# LOTS 1 AND 2 DP 1070081 REZONING PROPOSAL

GILGANDRA, NSW

MARCH 2024

Report prepared by

OzArk Environment & Heritage

for Gilgandra Shire Council


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## DOCUMENT CONTROLS

| | |
|---|---|
| Proponent | Gilgandra Shire Council |
| Document Description | Aboriginal Due Diligence Assessment Report: Lots 1 and 2 DP 1070081 Rezoning Proposal, Gilgandra, NSW. |
| File Location | OzArk Job No. |
| Clients\Gilgandra Shire Council\Oxley Highway Sept 2023\Report | 4143 |

| | |
|---|---|
| Document Status: V3.0 FINAL | Date: 8 March 2024 |
| Draft V1: OzArk internal edits | V1.0 HR author 29/2/24<br>V1.1 SR review 1/3/24 |
| Draft V2: OzArk and client edits | V2.0 to Client 1/3/24 |
| Final V3: Final document | V3.0 OzArk finalises 8/3/24 |
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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

| | |
|---|---|
| AHD | Australian Height Datum. Height above sea level |
| AHIMS | Aboriginal Heritage Information Management System. Administered by the DCCEEW, AHIMS is the central register of all Aboriginal sites within NSW. |
| AHIP | Aboriginal Heritage Impact Permit. Issued by Heritage NSW to allow harm to Aboriginal objects. |
| Assemblage: | All artefacts recorded at a location. In this report, assemblage refers to stone artefacts as this was the only artefact class recorded. |
| BP | Years before present |
| Code of Practice | *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* under Part 6 NPW Act. |
| DCCEEW | NSW Department of Climate Change, Energy, the Environment and Water. DCCEEW contains the Environment and Heritage Group including Heritage NSW. |
| DPE | NSW Department of Planning and Environment. Former NSW department responsible for planning approvals. Now DPHI. |
| DPHI | NSW Department of Planning, Housing and Infrastructure. DPHI contains the Planning agency. |
| 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 | *National Parks and Wildlife Act 1974*. Primary legislation governing Aboriginal cultural heritage within NSW. |
| PAD | Potential archaeological deposit. Indicates that a particular location has potential to contain subsurface archaeological deposits, although no Aboriginal objects are visible. |

## EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by Gilgandra Shire Council (the proponent) to complete an *Aboriginal Archaeological Technical Report* (ATR) for the proposed rezoning of Lot 1 DP1070081 and part of Lot 2 DP1070081 (the proposal).

The proposal involves rezoning of Lot 1 DP1070081 and part of Lot 2 DP1070081 from RU1 Primary Production to E4 General Industrial. As the rezoning is to E4 General Industrial, this assessment is operating under the assumption that that the entirety of the proposed rezoning area will be eventually impacted by the construction of an industrial area.

The study area for the assessment comprises the two lots that will be affected by the proposal. The study area is situated on flat plains that have been mostly cleared of trees. The Castlereagh River is the nearest waterway to the study area, located 2.2 kilometres (km) to the east. Marthaguy Creek is 2.6 km to the south of the study area. The study area is currently used for cropping.

The survey of the study area was undertaken by OzArk Archaeologist, Jordan Henshaw with Eileen Louie and Jim Earsman representing Gilgandra Local Aboriginal Land Council on 14 November 2023.

No Aboriginal sites or areas of archaeological sensitivity were identified during the survey, nor was there any information indicating that sites or other specific cultural heritage values may be present.

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

1. The rezoning proposal may proceed at the study area without further archaeological investigation provided the activities are confined to within the assessed study area, as this will eliminate the risk of harm to Aboriginal objects potentially present within adjacent landforms. If the scope of proposal changes additional survey may be required to ensure Aboriginal cultural values are not impacted, if present.
2. If during works, however, Aboriginal objects are noted, all work should cease and the procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) must be followed.
3. The *Unanticipated Skeletal Remains Protocol* (**Appendix 3**) must be followed if suspected human skeletal remains are encountered.
4. Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal objects (**Appendix 4**) and are aware of the legislative protection of Aboriginal objects under the *National Parks and Wildlife Act 1974*.

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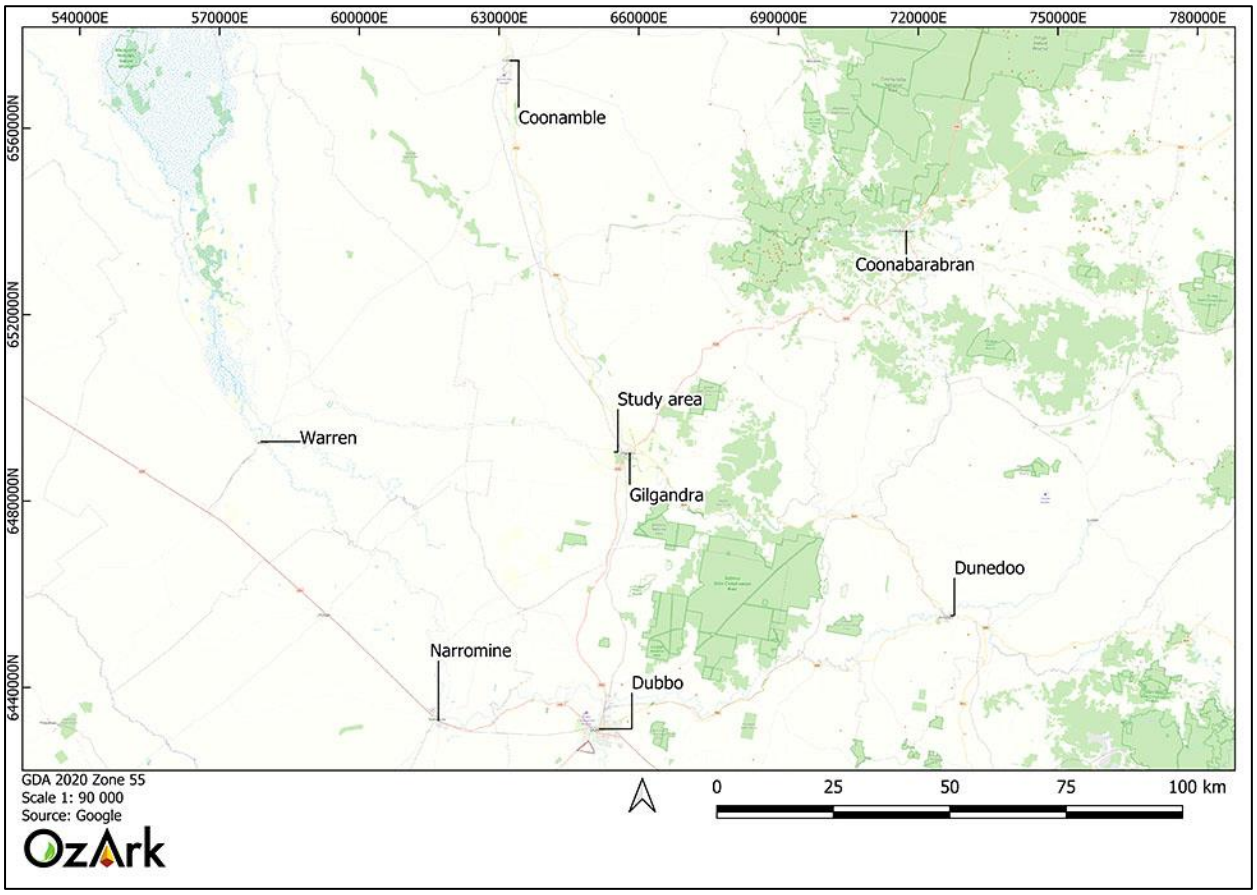
# 1 INTRODUCTION

## 1.1 PREAMBLE

OzArk Environment & Heritage (OzArk) has been engaged by Gilgandra Shire Council (the proponent) to complete an *Aboriginal Archaeological Technical Report* (ATR) for the proposed rezoning of Lot 1 DP1070081 and part of Lot 2 DP1070081 (the proposal). The proposal is in the Gilgandra Shire Local Government Area (LGA) (**Figure 1-1**).

**Figure 1-1: Map showing the location of the study area for the proposal.**




## 1.2 THE PROPOSAL

The proposal involves rezoning of Lot 1 DP1070081 and part of Lot 2 DP1070081 from RU1 Primary Production to E4 General Industrial. As the rezoning is to E4 General Industrial, this assessment is operating under the assumption that that the entirety of the proposed rezoning area will be eventually impacted by the construction of an industrial area. The current layout for the lots is shown on **Figure 1-2**.

**Figure 1-2: Current cadastral layout of the study area.**

## 1.3 STUDY AREA

The study area (**Figure 1-3**) comprises the two lots that will be affected by the proposal. The study area is situated on flat plains that have been mostly cleared of trees. The study area is approximately 52 hectares (ha).

The Castlereagh River is the nearest waterway to the study area, located 2.2 kilometres (km) to the east. Marthaguy Creek is 2.6 km to the south of the study area. The study area is currently used for cropping.

**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 of Climate Change, Energy, the Environment and Water, provides a framework to protect nationally significant flora, fauna, ecological communities, and heritage places. The EPBC Act establishes both a National Heritage List and Commonwealth Heritage List of protected places. These lists may include Aboriginal cultural sites or sites in which Aboriginal people have interests. The assessment and permitting processes of the EPBC Act are triggered when a proposed activity or development could potentially have an impact on one of the matters of national environment significance listed by the Act. Ministerial approval is required under the EPBC Act for 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 part of the EP&A Act that relate to planning proposals is Part 3 (Planning Instruments). Division 3.4 (LEPs) states:

*3.33 Planning proposal authority to prepare explanation of and justification for proposed instrument—the planning proposal*

*(1) Before an environmental planning instrument is made under this Division, the planning proposal authority is required to prepare a document that explains the intended effect of the proposed instrument and sets out the justification for making the proposed instrument (the planning proposal).*

*(2) The planning proposal is to include the following—*

*(a) a statement of the objectives or intended outcomes of the proposed instrument,*

*(b) an explanation of the provisions that are to be included in the proposed instrument,*

*(c) the justification for those objectives, outcomes and provisions and the process for their implementation (including whether the proposed instrument will give effect to the local strategic planning statement of the council of the area and will comply with relevant directions under section 9.1),*

*(d) if maps are to be adopted by the proposed instrument, such as maps for proposed land use zones; heritage areas; flood prone land—a version of the maps containing sufficient detail to indicate the substantive effect of the proposed instrument,*

*(e) details of the community consultation that is to be undertaken before consideration is given to the making of the proposed instrument.*

*(3) The Planning Secretary may issue requirements with respect to the preparation of a planning proposal.*

Applicability to the proposal

This ATR forms part of the supporting information for this planning proposal. It includes consultation with the Gilgandra Local Aboriginal Land Council (LALC) and details of a site inspection.

#### *2.1.2.2 Planning Proposals - Rezoning*

Heritage assessment for planning proposals for rezoning are required to follow the broad approach described in the *Local Planning Directions* (NSW Department of Planning & Environment; now Department of Planning Housing, and Infrastructure [DPHI]), *Ministerial*

*Direction 2.3, Heritage Conservation*, which requires planning proposals to address the conservation of Aboriginal objects as follows:

> **Direction 3.2**
>
> (1) A planning proposal must contain provisions that facilitate the conservation of:
>
> (a) items, places, buildings, works, relics, moveable objects or precincts of environmental heritage significance to an area, in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item, area, object or place, identified in a study of the environmental heritage of the area,
>
> (b) Aboriginal objects or Aboriginal places that are protected under the *National Parks and Wildlife Act* 1974, and
>
> (c) Aboriginal areas, Aboriginal objects, Aboriginal places or landscapes identified by an Aboriginal heritage survey prepared by or on behalf of an Aboriginal Land Council, Aboriginal body or public authority and provided to the relevant planning authority, which identifies the area, object, place or landscape as being of heritage significance to Aboriginal culture and people.

Applicability to the proposal

The *Local Planning Directions* (NSW DPHI), Ministerial Direction 2.3, Heritage Conservation has been followed according to Direction 3.2 (1c) as the assessment considers '*Aboriginal objects, Aboriginal places or landscapes identified by an Aboriginal heritage survey*' undertaken in conjunction with the Gilgandra LALC

#### *2.1.2.3 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 Aboriginal habitation of the area that comprises NSW, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction and includes Aboriginal remains.

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

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

- The harm was authorised by and conducted in accordance with the requirements of an *Aboriginal Heritage Impact Permit* (AHIP) under Section 90 of the Act

- The defendant exercised 'due diligence' to determine whether the action would harm an Aboriginal object
- The harm to the Aboriginal object occurred during the undertaking of a 'low impact activity' (as defined in the regulations).

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

Applicability to the proposal

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

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

## 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 has also followed the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (the Guide; OEH 2011).

Aboriginal community consultation has been with the Gilgandra LALC, representatives from which was involved in the field assessment.

This is considered an adequate approach to meet the *Local Planning Directions* (NSW DPHI), Ministerial Direction 2.3, Heritage Conservation.

## 2.3 PURPOSE AND OBJECTIVES

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

The study will apply the Code of Practice and the Guide in the completion of the Aboriginal Archaeological Technical Report to meet the following objectives:

**Objective One**: Undertake background research on the study area to formulate a predicative model for site location within the study area

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

**Objective Three**: To assess the significance of any recorded Aboriginal cultural values, Aboriginal objects in consultation with the Aboriginal community

**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 2-1** tabulates the compliance of this report with the requirements established by the Code of Practice.

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

| Code of Practice Requirement | Context of the Requirement | Concordance in this report |
|---|---|---|
| Requirement 1a | Review previous archaeological work | **Section 4.2** |
| Requirement 1b | Review AHIMS searches | **Section 4.3** |
| Requirement 2 | Review the landscape context | **Section 3** |
| Requirement 3 | Summarise and discuss the local and regional character of Aboriginal land use and its material traces | **Section 4.3** |
| Requirement 4a | Develop predictive model | **Section 4.4** |
| Requirement 4b | Present predictive model results | **Section 4.4.2** |
| Requirement 5a | Archaeological survey sampling strategy | **Section 5.3** |
| Requirement 5b | Archaeological survey requirements | This Requirement was fulfilled during the undertaking of the survey |
| Requirement 5c | Archaeological survey units | **Section 3.1** |
| Requirement 6 | Site definition | **Section 4.4.1** |
| 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 | Not applicable to this report as no new sites were recorded. |
| Requirement 8a | Geospatial information | Not applicable to this report as no new sites were recorded. |
| Requirement 8b | Datum and grid coordinates | All coordinates are provided in GDA 2020 Zone 55. |
| Requirement 9 | Record survey coverage data | **Section 5.1** |
| Requirement 10 | Analyse survey coverage | **Section 5.3** |
| 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 | Test excavation did not take place for this assessment. |
| Requirement 15a | Consultation regarding test excavation | Test excavation did not take place for this assessment. |
| Requirement 15b | Developing a test excavation sampling strategy | Test excavation did not take place for this assessment. |
| Requirement 15c | Providing Heritage NSW with notification of the test excavation | Test excavation did not take place for this assessment. |
| Requirement 16a | Test excavation that can be carried out in accordance with the Code of Practice | Test excavation did not take place for this assessment. |

| Code of Practice Requirement | Context of the Requirement | Concordance in this report |
|---|---|---|
| Requirement 16b | Objects recovered during test excavations | Test excavation did not take place for this assessment. |
| Requirement 17 | When to stop test excavations | Test excavation did not take place for this assessment. |
| Requirement 18–20 | Artefact recording | Not applicable to this report as no new sites were recorded. |

## 2.5 DATE OF ARCHAEOLOGICAL ASSESSMENT

The survey of the study area was undertaken by OzArk Archaeologist, Jordan Henshaw with Eileen Louie and Jim Earsman representing Gilgandra LALC on 14 November 2023.

## 2.6 OZARK INVOLVEMENT

### 2.6.1 Field survey

The fieldwork survey was undertaken by:

- Archaeologist: Jordan Henshaw (B. Ancient History, Macquarie University).

### 2.6.2 Reporting

The reporting component of the assessment was undertaken by:

- Report author: Harrison Rochford (B. Liberal Studies [Psychology and Ancient History] Hons., M. Phil. [Arts and Social Science], University of Sydney)
- Contributor: Jordan Henshaw
- Reviewer: Stephanie Rusden (OzArk Senior Archaeologist, BS University of Wollongong, BA University of New England).

# 3 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.

## 3.1 TOPOGRAPHY AND LANDFORMS

The eastern section of the study area is 288 metres (m) Australian Height Datum (AHD) and declines very gently to 286 m in the west. As this gradual decline equates to less than a 3% tangent across the study area, the slope class of the landscape is defined as level (**Figure 3-1**). The level study area is a uniform landform and considered one survey unit. The elevation and surrounding landscape of the study area is shown on **Figure 3-2**.

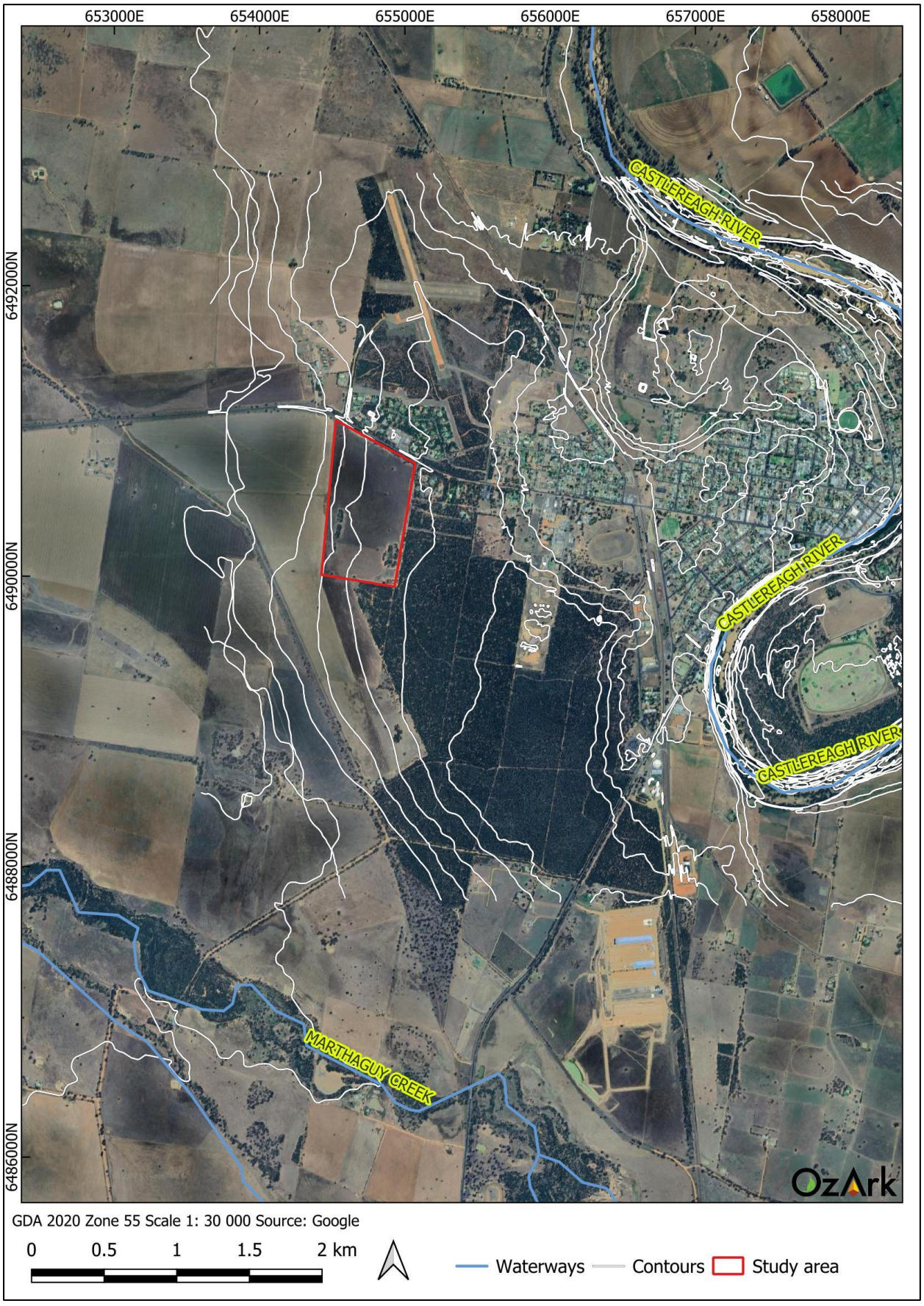
The study area is situated in the Castlereagh-Barwon subregion of the Darling Riverine Plains Bioregion. The subregion is characterised by low-gradient alluvial fans dominated by flat plain landforms, specifically meander plains closer to the current streams major waterways and back plains distant from streams (DCCEEW 2024). The study area is located on a level meander plain ridge, which is the transitional area between the meander plain to the east and the back plains to the west. The landform has not been divided into survey units for this assessment as it lacks any topographic variation.

**Figure 3-1: Topography of the study area.**

1. View south along the eastern boundary of the study area.

2. View south at the northwestern corner of the study area.

**Figure 3-2: Aerial of the study area showing elevation and surrounding waterways.**



## 3.2 GEOLOGY AND SOILS

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

The alluvial formation of the Castlereagh-Barwon subregion, and specifically the Pine Clump Hydrogeological Landscape (HGL), is an aggrading landscape that has been formed over past 15,000 to 150,000 years from the former facies of the Macquarie River (DCCEEW 2024). The soils of the elevated meander plains such as the study area include red and brown kandosols and chromosols. The soil profile is generally deep due to its alluvial formation and prone to forming hard-set surfaces due to high sand content. Scalding has been observed across the Pine Clump HGL, especially at transitional areas between meander and back plains, such as at the study area.

In general, the aggrading soils of the study area are likely to conceal archaeological evidence. However, kandosol soils have poor structure and can be prone to localised erosion and land-use impacts on chromosol soils can also be affected by significant topsoil loss. While the study area is in an aggrading landscape, archaeological evidence could be present on the surface due to localised soil loss and scalding.

## 3.3 HYDROLOGY

The Castlereagh River would be the main water source for the study area and is located 2.2 km to the east (**Figure 3-2**). Marthaguy Creek, 2.6 km south of the study area, is also a major waterway that joins the Macquarie Marsh system near Carinda, 180 km northwest of the study area.

Despite being located near these two major waterways, the study area itself would not have provided access to water in the recent past. As the topography of the study area and its surrounds is level, there are no identifiable minor watercourses in the study area that would drain to the surrounding streams.

## 3.4 VEGETATION

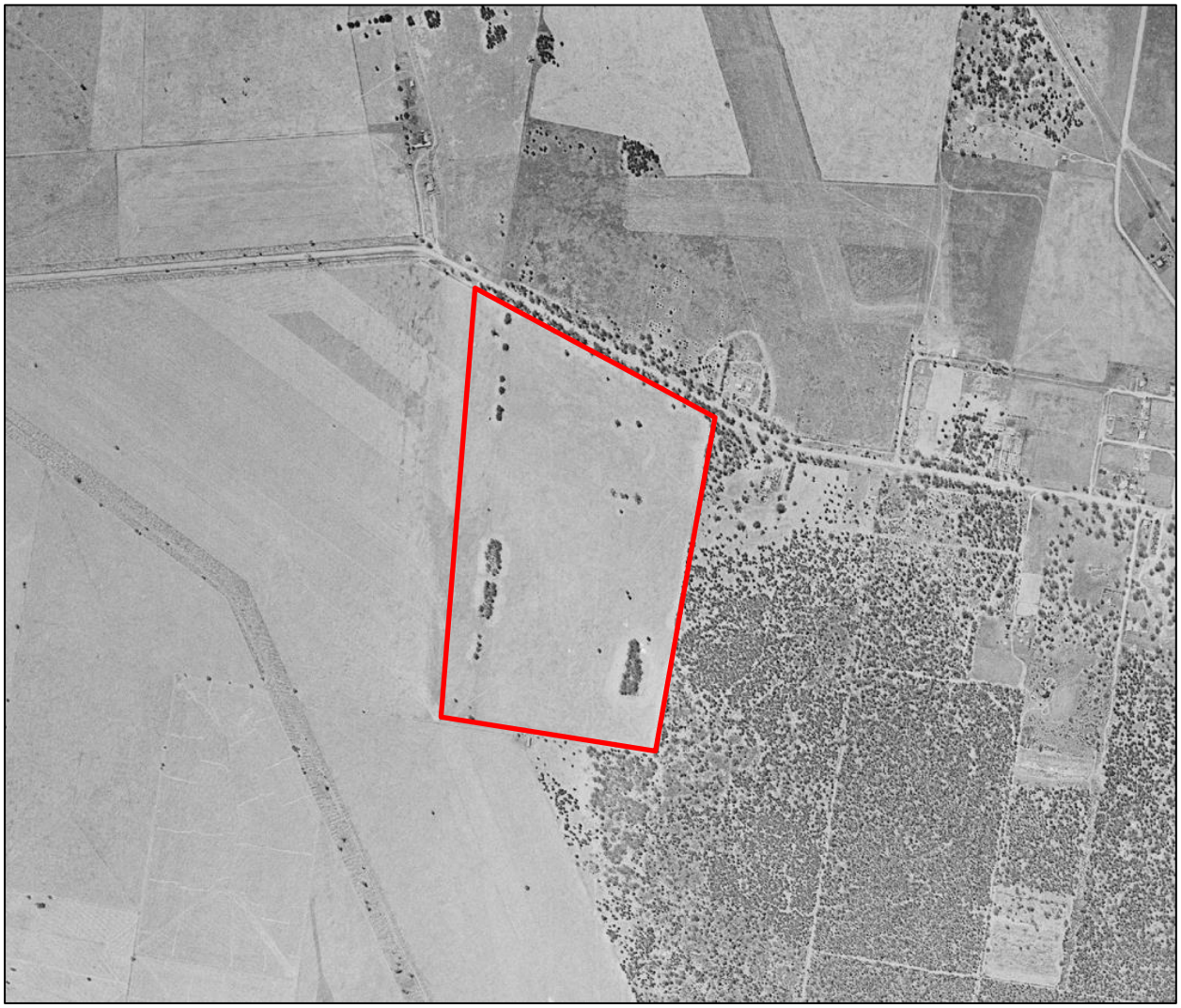
Vegetation in the study area before widespread clearing over the past 200 years would have been an open grassland with scattered coolabah, black box, myall and bimble box trees. The understory grasses would have comprised of saltbushes and Mitchell grass.

## 3.5 LAND USE HISTORY AND EXISTING LEVELS OF DISTURBANCE

The study area has been almost completely cleared of vegetation and used for moderate intensity cropping since at least 1961 (**Figure 3-3**). Disturbances to the study area include repeated

ploughing and harvesting, which is likely to have distributed the upper 20-40 centimetres (cm) of the soil profile and exacerbated topsoil loss due to a lack of large trees and groundcover.

**Figure 3-3: 1961 aerial with the approximate study area shown in red.**



## 3.6 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 level meander plain landform would not have been a hinderance to Aboriginal occupation of the study area. However, as there are no waterways within the study area, there a no landscape features that would have encouraged substantial Aboriginal occupation of the landscape. The level grassland landscape of the study area is more likely to have provided habitat for game and opportunities for hunting. The absence of waterways or distinct topographic features indicates that it is unlikely that the study area formed part of a repeated transit route.
- Geology and soils: the alluvial formation of the study area indicates outcropping rock that could be used for stone procurement for tool manufacture will not be present. The study area is within an aggrading landscape, suggesting that archaeological evidence

(if present) could be concealed in the soil profile rather than exposed on the surface. However, the soil profile is also prone to erosion and scalding, indicating that exposed surfaces may also be present. Furthermore, the widespread and comprehensive use of most of the study area for cultivation would have further promoted soil erosion and loss.

- Vegetation: the study area would have once supported an open grassland which would have provided some resources for Aboriginal subsistence in the past. However, there are no indications that this grassland would have specifically encouraged occupation of the study area.

- Land use: The ground surface within the study area has been substantially impacted by clearing and cultivation. These activities may have displaced Aboriginal objects and are likely to have reduced the potential for intact 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 has also significantly reduced the likelihood of culturally modified trees remaining.

# 4 ARCHAEOLOGICAL CONTEXT

## 4.1 ETHNO-HISTORIC SOURCES OF REGIONAL ABORIGINAL CULTURE

Aboriginal people have occupied the area that is now NSW for at least 45,000 years and traditionally there are more than 38 Aboriginal language groups. Gilgandra is located at the meeting place of four of these language groups: the Wiradjuri to the south; Ngiyampaa Wangaaypuwan (Wongaibon) to the west; the Ngiyampaa Wailwan people to the north toward the Macquarie Marshes; and the Gomeroi people to the east. The study area is adjacent to the southern boundary of the Ngemba, Ngiyampaa, Wangaaypuwan and Wayilwan native title determination application (NC2012/001).

According to Horton (1994: 1139), the Ngiyampaa Wailwan are one of several peoples inhabiting of the Riverine region. Their country includes the lower Macquarie and Castlereagh Rivers (see also Zagar 1990).

Horton (1994: 1193–1194) describes the Ngiyampaa Wangaaypuwan as another people of the region near Cobar. In the harsher Cobar Peneplain, people were likely to have greater range of movement across the landscape in search for and management of resources.

Horton (1994: 1189) describes the Wiradjuri as another people of the Riverine region on the central-west slopes and plains from Nyngan to Albury and Bathurst to Hay. The Wiradjuri language group encompasses people from a very large geographic area in the Central West of NSW and the characteristics of smaller sub-groups were distinct from each other.

The Gomeroi (also Gamilaraay, Kamilaroi) traditional lands extend from the northern end of Hunter Valley up through the Brigalow Belt to Mungindi and the northern reaches of the Barwon River. Kamilaroi use of the land appears to have been balanced between cultivation and hunting of game, with a preference for the latter. Archaeological evidence suggests that seed-cakes made of harvested *panicum* species were consumed widely through Gomeroi lands, with greater frequency of grinding stones on the plains west of the ranges (McBride 1977). It is also likely that native plant food associated with the area such as melons (*Cucumis trigona*), potatoes (*milaan*), yams (*gubiyaay* or *Dioscorea sp.*) and oranges (*bambul*) were cultivated by the inhabitants of the region (O'Rourke 1997: 151–3). Written sources from the early colonial period suggest that Gomeroi peoples preferred animal food sources, especially possum, yabbies and fish (O'Rourke 1997: 151).

## 4.2 REGIONAL ARCHAEOLOGICAL CONTEXT

Multiple research-orientated archaeological studies have covered the Dubbo-Gilgandra area (OzArk 2006, 2014, and 2016), providing good baseline data for the archaeological characteristics of the study area. Large-scale development driven assessments have also been

conducted near the study area. A sample of these studies have been summarised below to contribute to a regional model relevant to the study area.

OzArk 2006

An assessment of Aboriginal heritage resources within the then Dubbo LGA (which borders the Gilgandra Shire LGA) to assist then Dubbo City Council with planning was undertaken by OzArk. The study aimed to consolidate previous surveys and assessments of Aboriginal heritage; set a baseline for further study; and survey areas zoned for future expansion. Approximately 1,120 ha of land was surveyed within five study areas surrounding the city of Dubbo. During the survey, 26 new Aboriginal sites were recorded, and eight out of 12 previously recorded sites were relocated. Several of the newly recorded site types were similar to those found in previous studies.

Fewer scarred trees were recorded than expected, likely due to intensive agricultural practices associated with vegetation clearance around the town of Dubbo compared to the broader Dubbo LGA. No new grinding groove sites were recorded, which was expected, given that this site type comprised only 3.6% of previously located sites within the Dubbo LGA. Scarred tree distribution adhered to the predictive model, exclusively following waterways and fence-lines, although this almost definitely reflected land clearing practices more than Aboriginal site patterning.

Isolated finds and open sites followed a similar pattern, largely limited to watercourses and elevated terraces within 500 m of the Macquarie River and other permanent to semi-permanent waterways. No significant patterning emerged in terms of site size or quality of artefact sites.

OzArk 2014

The report is the result of the Dubbo LGA Aboriginal cultural heritage study which utilised GIS mapping, community consultation and archaeological resources to gain a more comprehensive understanding of the Aboriginal heritage of the Dubbo area. A total area of 207 square kilometres was surveyed as part of the project.

A total of 679 Aboriginal sites were recorded during the survey. Sites including artefact scatters, hearths, areas of potential archaeological deposit (PAD) and open camp sites, which comprised 57% of all sites located. Culturally modified trees comprised 39% of recorded sites throughout the LGA. It was concluded that all sites were located within 500 m of waterways, however land within 200 m is likely to contain most sites in the area.

OzArk 2016

OzArk was engaged by the Central West Local Land Services (CWLLS) to formulate and test a predictive model for Aboriginal site location within Travelling Stock Reserves (TSRs) across the

CWLLS area (OzArk 2016). The Project area is located in the southern portion of the CWLLS area.

In formulating a predictive model for site location, Mitchell (2002) landscapes were used by OzArk to understand the underlying landform type. Landscapes were divided into the following types, Channels and Floodplains, Alluvial Plains, Slopes, Plateaus, Uplands, and Downs. The current study area falls within the Alluvial Plains category.

Previously recorded AHIMS sites were plotted against these landscape types and the following observations made.

- The highest density of sites is within Channels and Floodplains landscapes (n=927)
- A high number of sites (n=876) were located within Slopes landscapes; however, this result could be due to the fact that Dubbo is located within a Slopes landscape and the highest number of sites in the CWLLS area is recorded in and around Dubbo
- Alluvial Plains landscapes have the third highest density of sites (n=770)
- A moderate number of sites are recorded in Downs landscapes (n=255). Three or four clusters of previously recorded sites exist in Downs landscapes, which may have skewed the number of recordings for this landscape. If the veracity of all site recordings in this category could be verified, it is suspected that the actual number of sites in Downs landscapes would be lower
- Relatively small numbers of sites are recorded in Uplands (n=5) and Plateau (n=34) landscapes.

OzArk (2016) also divided the CWLLS area into two stream orders — major watercourses (normally named rivers) and minor watercourses (normally named creeks and their larger tributaries) — and buffers were established for each watercourse type as follows.

- Drainage 1 buffer: 200 m either side of a major watercourse
- Drainage 2 buffer: 100 m either side of a minor watercourse.

In terms of drainage buffers, OzArk (2016) found that 27 sites (or 46% of all sites) were recorded with the Drainage 1 buffer and 10 sites (or 17% of all sites) were recorded within the Drainage 2 buffer. Therefore, more than 63% of all sites were recorded within the two drainage buffers, with a clear bias toward Drainage 1 buffers.

The results of the OzArk (2016) study indicate that the archaeological sensitivity of the study area is low as it is further from water than both the Drainage 1 and 2 buffers (over 200 m from a watercourse). Similarly, the Alluvial Plains classification that includes the study area is not a landscape classification associated with higher frequency or density of Aboriginal sites.

## 4.3 LOCAL ARCHAEOLOGICAL CONTEXT

### 4.3.1 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 4-1**.

**Table 4-1: Aboriginal cultural heritage: desktop-database search results.**

| Name of Database Searched | Date of Search | Type of Search | Comment |
|---|---|---|---|
| Commonwealth Heritage Listings | 9/11/2023 | Gilgandra Shire LGA | No places listed on either the National or Commonwealth heritage lists are located within the study area. |
| National Native Title Claims Search | 9/11/2023 | NSW | The study area is adjacent to the southern boundary of the Ngemba, Ngiyampaa, Wangaaypuwan and Wayilwan native title application (NC2012/001).<br>The Gomeroi People native title application (NC2011/006) area boundary is 3 km to the east on the eastern side of the Castlereagh River. |
| AHIMS | 9/11/2023 | 10 x 10 km centred on the study area | No AHIMS sites within the study area. |
| Local Environmental Plan (LEP) | 9/11/2023 | Gilgandra LEP of 2011 | None of the Aboriginal places noted occur within or near the study area. |

A 10 x 10 km search of the Heritage NSW administered AHIMS database was completed on 9 November 2023, centred on the study area. The search returned a total of 15 results for Aboriginal sites within the search area (GDA 2020 Zone 55 Eastings: 644823-664761, Northings: 6480463-6500448; **Appendix 1**).

None of the previously recorded AHIMS sites are within the study area. **Figure 4-1** shows all previously recorded sites in relation to the study area and **Table 4-2** lists the types of sites within the search area.

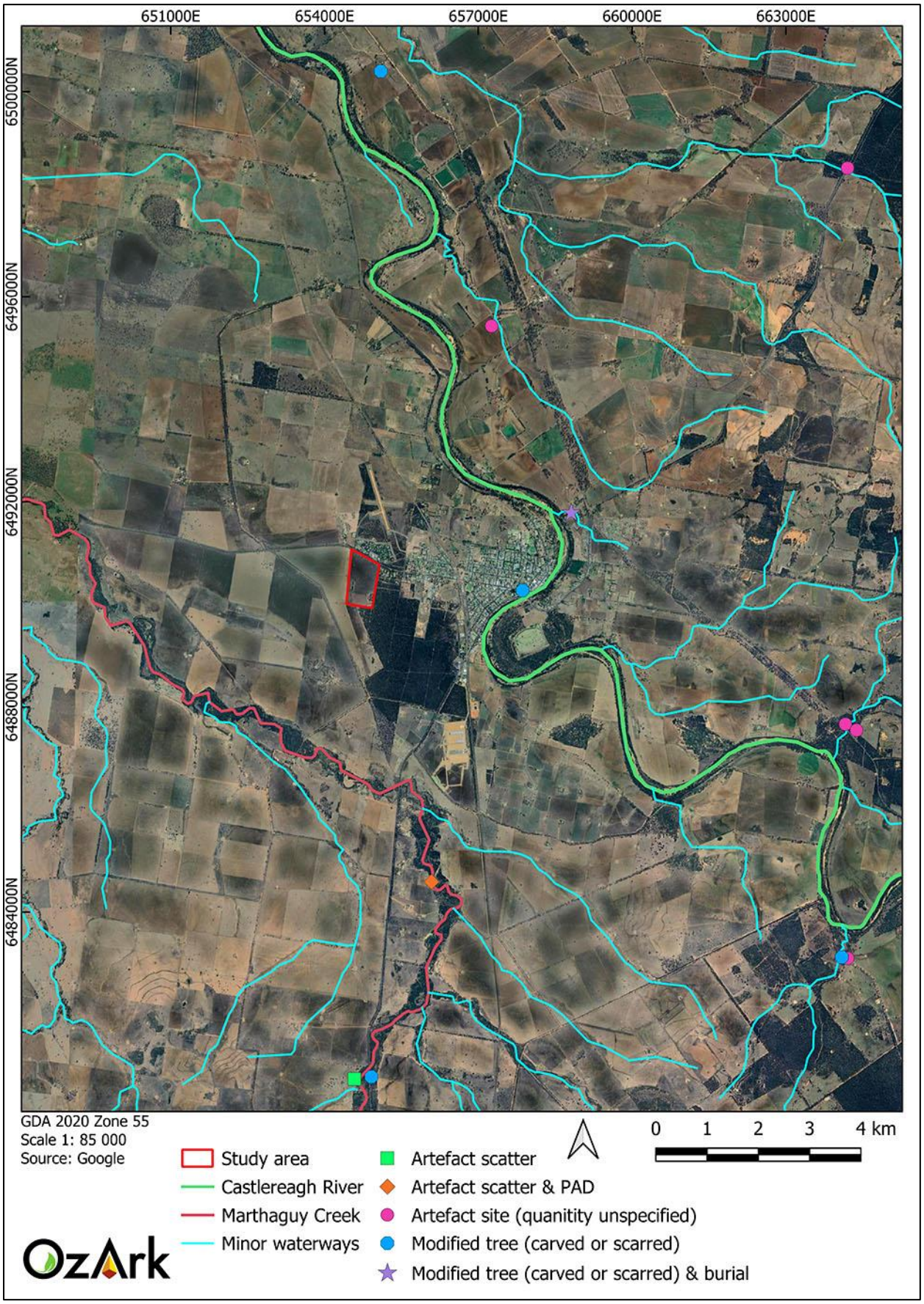
The AHIMS database search shows culturally modified trees to be the most frequently recorded site type in the region (n=6, 40%), followed by artefact sites with an unspecified quantity (n=5, 33.33%). A single artefact scatter with an area of PAD as well as a burial site in association with a modified tree are also present within the search area (n=1 6.66%). One site (AHIMS ID #28-4-0236) is listed on AHIMS as a restricted site therefore the site type is unknown. It was confirmed that this site is not located within the study area on 10 November 2023 (**Appendix 1**).

Of the previously recorded sites, 11 (73%) are located within 200 m of named creek lines including the Castlereagh River and Marthaguy Creek or minor waterways (**Figure 4-1**).

**Table 4-2: Site types and frequencies of AHIMS sites near the study area.**

| Site Type | Number | % Frequency |
|---|---|---|
| Culturally modified tree (carved or scarred) | 6 | 40.00 |
| Artefact site (quantity unspecified) | 5 | 33.33 |
| Artefact scatter | 1 | 6.66 |
| Artefact scatter & PAD | 1 | 6.66 |
| Modified tree (carved or scarred) & burial | 1 | 6.66 |
| Restricted | 1 | 6.66 |
| Total | 15 | 100.00 |

**Figure 4-1: Previously recorded sites in relation to the study area.**



### 4.3.2 Previous studies near the study area

OzArk 2011

The Aboriginal heritage assessment was completed for a proposed 66 kilovolt (kV) electrical transmission line (ETL) extending from the Dubbo Yarrandale substation to the Gilgandra substation. The survey focussed on archaeologically and culturally sensitive areas along the ETL route including creek lines and recently ploughed paddocks given they had increased visibility. A total of seven previously recorded Aboriginal sites were located during the survey which included four open camp sites with areas of PAD (Y-GOS1 with PAD, YG-OS2 with PAD, YG-OS3 with PAD and YG-OS4 with PAD) and three scarred trees (Y-G ST1, Y-G ST2 and Y-G ST3). Two previously recorded sites (#36-1-0309 and #36-1-0310) were also relocated during the survey.

YG-OS4 with PAD was located on the western bank of Marthaguy Creek and is 6.5 km south of the current study area. The artefact scatter contains two quartzite flakes identified in an erosion scald. The area of PAD associated with the artefact scatter covers an area of 20 x 1 m.

OzArk 2017

An Aboriginal due diligence assessment was completed for the Gilgandra Solar Farm located approximately 24 km south of the current study area. The assessment covered an area of 188 ha which has been cleared and cultivated near Eumungerie.

The visual inspection identified one previously unrecorded site (Oakvale IF1). Oakvale IF1 consists of a single stone artefact manufactured from quartzite approximately 250 m from Baroona Road within an area of 60% ground exposure near the crest of a spur.

During the visual inspection the extent of a previously recorded artefact scatter (Site 28-4-0056) was greater than first recorded. The site was originally recorded in 1998, consisting of eight stone artefacts, however 16 artefacts were identified at the site location in 2017. The site is located on a flat landform.

ARTC 2021

An Aboriginal Cultural Heritage Assessment Report was completed for the development of the Narromine to Narrabri section of Inland Rail. The project extends across the Gilgandra Shire LGA, approximately 13 km west of the study area.

Initial desktop modelling required several ground truthing surveys to confirm locations of moderate and high archaeological potential which may be impacted by the project. These surveys recorded a total of 152 previous unrecorded sites with an additional 13 areas of PAD. The dominant site type recorded was culturally modified trees. Identified lithic assemblages were found to be primarily manufactured from quartz. At least three Aboriginal sites are situated in proximity to Boothaguy Creek, located approximately 16 km west of the study area.

Test excavations located an additional 39 sites and two areas of PAD in proximity to the Inland Rail study area. The excavations recorded an assemblage predominantly manufactured from quartz. Most of the test excavation program was conducted along the Macquarie River at Narromine, approximately 68 km south of the current study area.

The results of the Inland Rail assessment clearly indicates that the distribution of sites reflects the use of waterways as primary transit and camping areas within the lowland alluvial plains and river terraces. Surveyed locations such as the Macquarie River, Castlereagh River and Marthaguy Creek contain scores of culturally modified trees along with artefact scatters, camping sites and ochre quarries indicating the use of these areas was intensive (Jacobs & GHD 2020).

#### *4.3.2.1 Implications for the study area*

Conforming to the regional archaeological model (**Section 4.2**), the results of archaeological assessments in the local area show a high correlation between site location and proximity to major waterways including the Castlereagh Rivers and named creek lines such as Boothaguy Creek and Marthaguy Creek. These results indicate that the likelihood of sites within the study area is lower than across the surrounding landscape that is closer to waterways. The clearing that has occurred within the study area has greatly reduced the potential for modified trees, the most frequently recorded site type within the Inland Rail corridor (Jacobs & GHD 2020).

## 4.4 PREDICTIVE MODEL FOR SITE LOCATION

Across Australia, numerous archaeological studies in widely varying environmental zones and contexts have demonstrated a high correlation between the permanence of a water source and the permanence and/or complexity of Aboriginal occupation. Site location is also affected by the availability of and/or accessibility to a range of other natural resources including plant and animal foods, stone and ochre resources and rock shelters, as well as by their general proximity to other sites/places of cultural/mythological significance. Consequently, sites tend to be found along permanent and ephemeral water sources, along access or trade routes, or in areas that have good flora/fauna resources and appropriate shelter.

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

infrastructure. Scarred trees, due to their nature, may survive for up to several hundred years but rarely beyond.

### 4.4.1 Site types in the region of the study area

The site types listed in **Table 4-3** are present in the region of the study area. The likelihood of these sites being present in the study area is discussed in **Section 4.4.2**.

**Table 4-3: 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 | 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'.<br>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.<br>Topographies which afford effective through-access across, and relative to, the surrounding landscape, such as the open basal valley slopes and the valleys of creeks, will tend to contain more and larger sites, mostly camp sites evidenced by open artefact scatters. |
| Culturally modified trees | Aboriginal scarred trees contain evidence of the removal of bark (and sometimes wood) in the past by Aboriginal people, in the form of a scar. Bark was removed from trees for a wide range of reasons. It was a raw material used in the manufacture of various tools, vessels, and commodities such as string, water containers, roofing for shelters, shields and canoes. Bark was also removed because of gathering food, such as collecting wood boring grubs or creating footholds to climb a tree for possum hunting. Due to the multiplicity of uses and the continuous process of occlusion (or healing) following removal, it is difficult to accurately determine the intended purpose for any example of bark removal. Scarred trees may occur anywhere old growth trees survive. The identification of scars as Aboriginal cultural heritage items can be problematical because some forms of natural trauma and European bark extraction create similar scars. Many remaining scarred trees probably date to the historic period when bark was removed by Aboriginal people for both their own purposes and for roofing on early European houses. Consequently, the distinction between European and Aboriginal scarred trees may not be clear. |
| Burials | Generally found in soft sediments such as aeolian sand, alluvial silts, and rock shelter deposits. In valley floor and plains contexts, burials may occur in locally elevated topographies rather than poorly drained sedimentary contexts. Burials are also known to have occurred on rocky hilltops in some limited areas. Burials are generally only visible where there has been some disturbance of sub-surface sediments or where some erosional process has exposed them. |
| Bora/Ceremonial sites | Places which have ceremonial or spiritual connections. Ceremonial sites may comprise of natural landscapes or have archaeological material. Bora sites are ceremonial sites which consist of a cleared area and earthen rings. |

### 4.4.2 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 4-4**), and what types of sites may be present within the study area (**Table 4-5**).

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

| Survey Unit | Landform type | Likelihood to contain Aboriginal objects |
|---|---|---|
| 1 | Meander plain | Meander plains are an aggrading environment that are impacted by flooding and channel migration. While these plains would have provided resources to encourage resource gathering and use in the past, their distance from the main steam channel of the Castlereagh River indicates that large or complex habitation sites are unlikely. |

**Table 4-5: 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 landforms distant to permanent water, this site type is not predicted to be common. If present the moderate degree of disturbance in the study area will probably mean that the scatter has become displaced.<br>It is likely that any sites associated with such landforms are likely to have a low artefact density and a low complexity of tool types as the 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 unlikely to be present however it is noted that this site type is commonly recorded in the local area. |
| Burials | Although it is possible that this site type could be found within the study area to the potential presence of alluvial silt deposits, it is considered unlikely due to the disturbance that has occurred within the study area. |
| 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 Aboriginal community. |

The distribution of previously recorded sites near the study area suggests that Aboriginal archaeological sites of all types are unlikely to be present. The study area does not possess any specific natural resources that would have been a focal point for Aboriginal occupation strategies. If archaeological evidence is present, it is expected to be in the form of low-density artefact sites (isolated finds or artefact scatters) reflective of occasional or transitory use. Any sites present are anticipated to have been disturbed by the agricultural disturbances to the study area.

## 4.5 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 would have been transported to the area?
- How do the raw materials (if any) recorded within the study area compare to those in recorded in the surrounding region?
- Establish how the findings within the study area (if any) accord with the regional archaeological context examined in **Section 4.2**.

# 5 RESULTS OF ABORIGINAL ARCHAEOLOGICAL ASSESSMENT

## 5.1 SAMPLING STRATEGY AND FIELD METHODS

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

The survey of the study area was undertaken by OzArk Archaeologist, Jordan Henshaw, as well as Eileen Louie and Jim Earsman representing Gilgandra LALC on 14 November 2023. There were no significant constraints to the assessment. The entire study area was subject to systematic transects and the pedestrian tracks of one of the surveyors is shown on **Figure 5-1**.

The aims of the survey were to:

- Conduct pedestrian survey across the study area so that the:
    - archaeological potential of the study area could be determined
    - archaeological material could be recorded, if present
- Evaluate whether the predictive model set out in **Section 4.4** is valid
- Determine of any portions of the study area contain subsurface potential to understand the archaeological potential of a particular location in more detail
- Advise on any project impact avoidance of Aboriginal heritage, if required.

**Figure 5-1: Pedestrian coverage of the study area.**

## 5.2 SUMMARY OF THE SURVEY

The desktop landform modelling of the study area was confirmed to be accurate during the field assessment. Disturbances within the study area including subsurface telecommunication lines, overhead electricity infrastructure as well as fence lines and associated agricultural infrastructure.

Almost all vegetation has been cleared from the study area, however clumps of revegetation are present, as well as a small number of mature native trees. All mature vegetation was inspected; however, no signs of cultural modification were observed.

No Aboriginal objects or PADs were identified during the assessment and the entirety of the study area was considered to have low potential for intact subsurface archaeological potential. This is due to the level of disturbance and the distance of the study area from permanent and semi-permanent watercourses and the undifferentiated landform present.

No tangible or intangible Aboriginal cultural values were identified by the site officers representing Gilgandra LALC. The site officers noted that the study area is unlikely to have been used by Aboriginal people.

Representative views of the study area during the survey are shown on **Figure 5-2**

**Figure 5-2: Views of the study area.**

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>1. View east showing the low GSE across much of the study area.</td><td>2. View north at the southeastern corner of the study area showing an accumulation of aeolian sands and high GSV.</td></tr>
</table>

## 5.3 EFFECTIVE SURVEY COVERAGE

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

GSV is defined as:

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

GSE is defined as:

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

**Table 5-1** calculates the effective survey coverage within the study area. In general, **Table 5-1** presents an approximation of the amount of ground surface able to be seen at any location within specific landform units. GSE within the study area was assessed as low (20%) due to thick ground cover and grasses. However, within areas of exposure, especially the red sands at the southeastern corner of the study area, GSV was as high as 90-100%. Average GSV across the study area was 60%. Despite the low areas of exposure, the inspection was able to sufficiently assess the archaeological potential of the landforms.

**Table 5-1: 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 | Meander plain | 524 407 | 60 | 20 | 30 | 157 322.1 |

## 5.4 DISCUSSION

The results of the assessment conform to the predictive model developed for the study area. The absence of sites identified within the study area can be attributed to the distance of the landforms from reliable water and other natural resources that would have been a focus for Aboriginal occupation in the past. The absence of recorded sites suggests that use of the study area in the past was of a nature that leaves little archaeological evidence, such as hunting or gathering.

## 5.5 RESPONSES TO THE RESEARCH QUESTIONS

In **Section 4.5** 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 or water resource locations were noted. No outcropping rock materials were identified within the study area.
- How do the raw materials recorded within the study area compare to those in recorded in the surrounding region?
    - As no objects were identified within the study area, no comparison can be drawn with the sites across the region.
- Establish how the findings within the study area (if any) accord with the regional archaeological context examined in **Section 4.2**.
    - The findings of the survey accord with the regional and local archaeological context. Previous assessments indicated that site location is closely correlated with proximity to waterways. Due to the lack of waterways within or near the study area, the likelihood of Aboriginal objects being identified in the study area was low.

# 6 ASSESSING HARM

## 6.1 AVOIDING AND MINIMISING HARM

### 6.1.1 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.

#### *6.1.1.1 Opportunities to conserve Aboriginal cultural values*

No Aboriginal sites, areas of archaeological sensitivity or cultural values were identified in the study area, and it is therefore concluded that Aboriginal archaeological sites will not be diminished through the proposed rezoning. As such, the proposal does not add to the cumulative impact on the region's Aboriginal cultural heritage as no identified Aboriginal objects or cultural values will be harmed. To this end it is noted that assessment was confined to the study area identified in this report. Care must be taken to ensure impacts remain within the assessed study area.

# 7 RECOMMENDATIONS

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

To this end it is noted that no Aboriginal sites were recorded 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 AHIP.
- The findings of the current investigations undertaken within the study area

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

1. The rezoning proposal may proceed at the study area without further archaeological investigation provided the activities are confined to within the assessed study area, as this will eliminate the risk of harm to Aboriginal objects potentially present within adjacent landforms. If the scope of proposal changes additional survey may be required to ensure Aboriginal cultural values are not impacted, if present.
2. If during works, however, Aboriginal objects are noted, all work should cease and the procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) must be followed.
3. The *Unanticipated Skeletal Remains Protocol* (**Appendix 3**) must be followed if suspected human skeletal remains are encountered.
4. Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal objects (**Appendix 4**) and are aware of the legislative protection of Aboriginal objects under the NPW Act 1974.

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# APPENDIX 1: AHIMS SEARCH RESULTS

## AHIMS Web Services (AWS)

**Extensive search - Site list report**

Your Ref/PO Number : 4143
Client Service ID : 838048

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 28-4-0048 | DG/ST1 - "Marthaguy Creek 3" | AGD | 55 | 654800 | 6480600 | Open site | Valid | Modified Tree (Carved or Scarred) : - | Scarred Tree | |
| | Contact | Recorders | Stephanie Garling | | | | | Permits | | |
| 28-4-0007 | Castlereagh River | AGD | 55 | 658700 | 6491600 | Open site | Valid | Burial : -, Modified Tree (Carved or Scarred) : - | Burial/s,Carved Tree | 65 |
| | Contact | Recorders | David Bell,R Etheridge,Fred McCarthy | | | | | Permits | | |
| 28-4-0093 | BBS; Gilgandra LALC; Road Reserve 2 | AGD | 55 | 664048 | 6487480 | Open site | Valid | Artefact : 30 | | 98850 |
| | Contact | Recorders | Phil Purcell,Gilgandra LALC - BBS Survey team | | | | | Permits | | |
| 28-4-0100 | BBS; Gilgandra LALC; Yalcogrin State Forest 1 | AGD | 55 | 664089 | 6498324 | Open site | Valid | Artefact : 100 | | 98850 |
| | Contact | Recorders | Phil Purcell,Gilgandra LALC - BBS Survey team | | | | | Permits | | |
| 28-4-0078 | BBS; Gilgandra LALC; Quandong Creek | GDA | 55 | 664130 | 6483105 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | 98850 |
| | Contact | Recorders | Phil Purcell,Gilgandra LALC - BBS Survey team,AREA Environmental & Heritage - D | | | | | Permits | | |
| 28-4-0079 | BBS; Gilgandra LALC; TSR Quandong Ck | GDA | 55 | 664205 | 6483097 | Open site | Valid | Artefact : 200 | | 98850 |
| | Contact | Recorders | Phil Purcell,Gilgandra LALC - BBS Survey team,AREA Environmental & Heritage - D | | | | | Permits | | |
| 28-4-0187 | CDEP JP 18 | AGD | 55 | 664264 | 6487362 | Open site | Valid | Artefact : 10 | | |
| | Contact | Recorders | Mr.Jamie Priddis | | | | | Permits | | |
| 28-4-0195 | CDEP CC 3 Scarred Tree | AGD | 55 | 654984 | 6500213 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact | Recorders | Mr.Curtis Carr | | | | | Permits | | |
| 28-4-0185 | CDEP 14 | AGD | 55 | 657146 | 6495245 | Open site | Valid | Artefact : 25 | | |
| | Contact | Recorders | Mr.Brian Bamblett | | | | | Permits | | |
| 28-4-0206 | CDEP BB12 | AGD | 55 | 657750 | 6490087 | Open site | Valid | Modified Tree (Carved or Scarred) : 1 | | |
| | Contact Searle | Recorders | Mr.Brian Bamblett | | | | | Permits | | |
| 28-4-0236 | Restriction applied. Please contact ahims@environment.nsw.gov.au. | | | | | Open site | Valid | | | |
| | Contact Mr.Wayne Bamblett | Recorders | Peter Peckham,Ms.Allira Chatfield | | | | | Permits | | |
| 28-4-0250 | YG-OS4 with PAD | GDA | 55 | 656087 | 6484588 | Open site | Valid | Artefact : 1 | | |
| | Contact | Recorders | OzArk Environmental and Heritage Management - Dubbo | | | | | Permits | | |
| 28-4-0285 | Hilliers Road Culvert CMT 02 | GDA | 55 | 664090 | 6483120 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby | | | | | Permits | | |

**Report generated by AHIMS Web Service on 09/11/2023 for Jordan Henshaw for the following area at Datum :GDA, Zone : 55, Eastings : 644823.0 - 664761.0, Northings : 6480463.0 - 6500448.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 15**

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

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## AHIMS Web Services (AWS)

**Extensive search - Site list report**

Your Ref/PO Number : 4143
Client Service ID : 838048

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 28-4-0286 | Hilliers Road Culvert CMT 01 | GDA | 55 | 664090 | 6483120 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | Contact | Recorders | AREA Environmental & Heritage - Dubbo,Mrs.Anna Darby | | | | | Permits | | |
| 28-4-0290 | D-GB AS 09 | GDA | 55 | 654584 | 6480743 | Open site | Valid | Artefact : - | | |
| | Contact | Recorders | AREA Environmental & Heritage - Dubbo,Ms.Kim Newman | | | | | 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** - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

**Report generated by AHIMS Web Service on 09/11/2023 for Jordan Henshaw for the following area at Datum :GDA, Zone : 55, Eastings : 644823.0 - 664761.0, Northings : 6480463.0 - 6500448.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 15**

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RE: Restricted AHIMS Site 28-4-0236

DG David Gordon <David.Gordon@environment.nsw.gov.au>
To Jordan Henshaw

Hi Jordan,

I can confirm that restricted Aboriginal Site:

- 28-4-0236

WILL NOT BE IMPACTED BY ANY WORKS CONDUCTED IN YOUR STUDY AREA.

Thanks
**David Gordon**
**Senior Systems Information Officer (Aboriginal)**
Information Systems,**Heritage NSW**,
**Environment and Heritage Group**
**Department of Planning and Environment**

**Let us know your thoughts and fill out this quick Customer Feedback Survey**

Level 14, 4 Parramatta Square, Parramatta | Locked Bag 5020, Parramatta, 2124

T: 02 9585 6467 | david.gordon@environment.nsw.gov.au



## APPENDIX 2: ABORIGINAL HERITAGE: UNANTICIPATED FINDS PROTOCOL

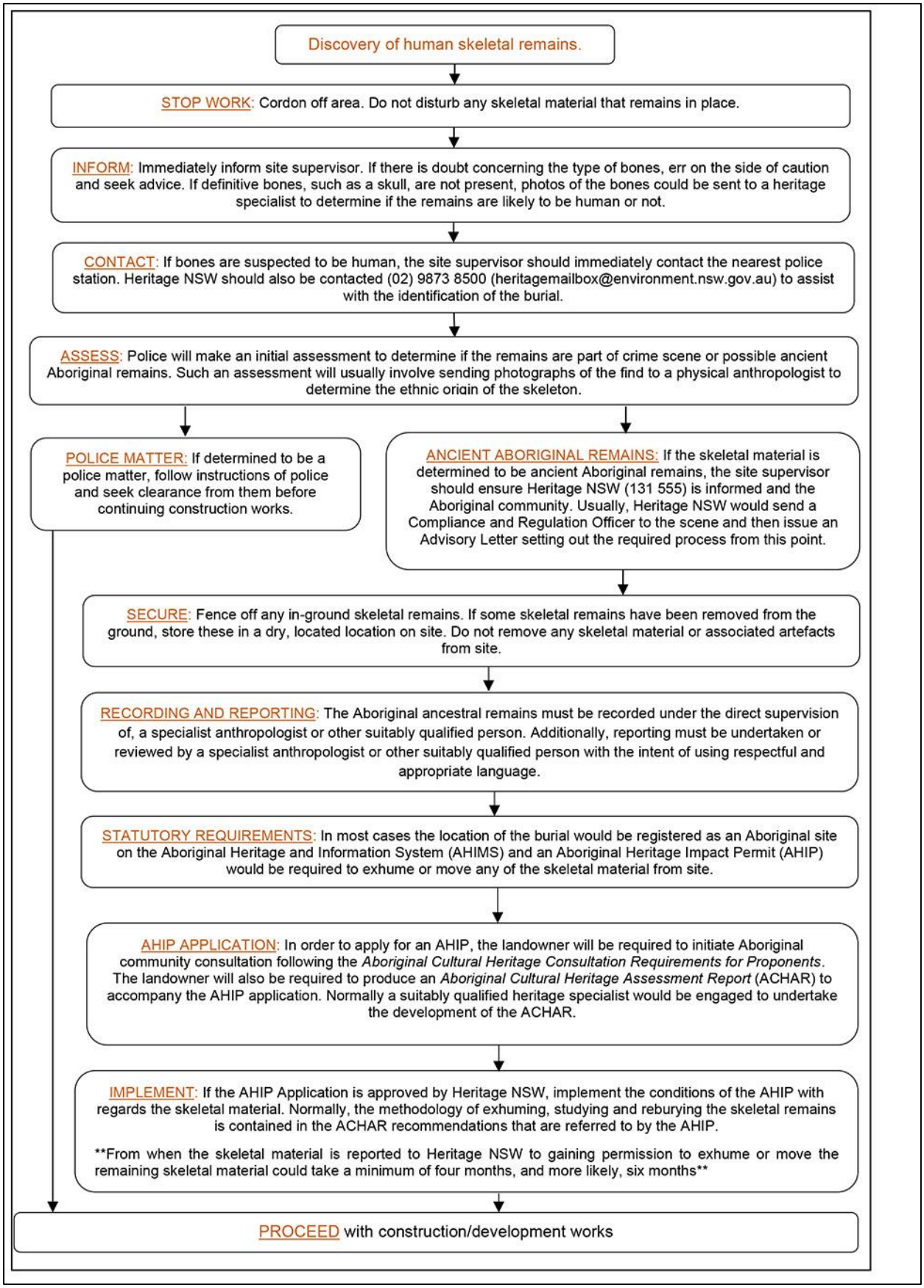
An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification; i.e. smoothing, use). Human bone (skeletal) remains may also be uncovered while onsite.

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 (normally an Aboriginal Heritage Impact Permit).

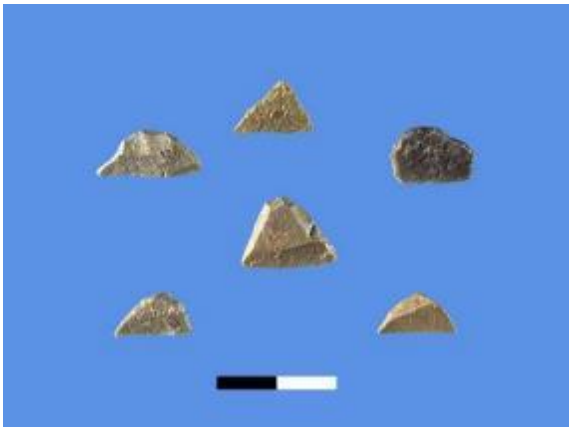
# APPENDIX 3: UNANTICIPATED SKELETAL REMAINS PROTOCOL



# APPENDIX 4: ABORIGINAL HERITAGE: ARTEFACT IDENTIFICATION

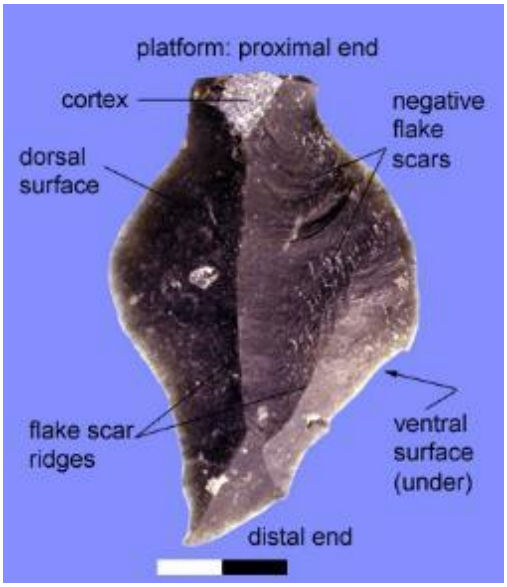
A retouched silcrete flake

A quartz flake



Microliths (scale = 1 cm)

Volcanic flakes




Flake characteristics (scale = 1 cm)

A mudstone/tuff core from which flakes have been removed