# 93 Campbells Lane, Coolamon: Aboriginal Due Diligence Assessment

FINAL REPORT

Prepared for GHD Pty Ltd

25 May 2022

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# Glossary

| | |
|---|---|
| **ACHA** | Aboriginal Cultural Heritage Assessment |
| **ADDA** | Aboriginal Due Diligence Assessment |
| **AHIMS** | Aboriginal Heritage Information Management System |
| **Biosis** | Biosis Pty Ltd |
| **DCP** | Development Control Plan |
| **Due diligence code** | *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* |
| **EP&A Act** | *Environmental Planning and Assessment Act 1979* |
| **GSV** | Ground Surface Visibility |
| **Heritage NSW** | Environment and Heritage Group in the Department of Planning and Environment |
| **ICOMOS** | International Council on Monuments and Sites |
| **LEP** | Local Environment Plan |
| **LGA** | Local Government Area |
| **NPW Act** | *National Parks and Wildlife Act 1974* |
| **NSW** | New South Wales |
| **PAD** | Potential Archaeological Deposit |
| **Study area** | 93 Campbells Lane (Lot 21 DP1224134), Coolamon NSW 2701 |
| **The Code** | The *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* |

# Summary

Biosis Pty Ltd (Biosis) has been commissioned by GHD (client) to undertake an Aboriginal Due Diligence Assessment (ADDA) for a proposed residential subdivision at 93 Campbells Lane (Lot 21 DP1224134), Coolamon NSW 2701 (the project). The project will involve the demolition of the existing structures, bulk earthworks and residential development, following the subdivision of the land into 24 lots. The proposed development will be assessed against Part 4 of the *Environmental Planning and Assessment Act 1979* NSW (EP&A Act).

An assessment in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) (due diligence code) has been undertaken for the study area in order to inform responsibilities with regards to Aboriginal cultural heritage in the area. In addition to the basic tasks required for a due diligence assessment, an extended background review, as well as an archaeological survey in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b) (the Code) was conducted, in order to adequately map areas of high, moderate and low archaeological potential.

The study area is located within the South-West Slopes bioregion, characterised by extensive foothills and isolated ranges, which comprise the lower inland slopes of the Great Dividing Range (Department of Planning, Industry and Environment 2016). The study area is located within the Kindra and Becks Lane soil landscapes, on an almost level plain, which slopes very gently (<1–5%) towards the north-east. The closest water course are two first-order tributaries of a second-order creekline located approximately 297 and 347 metres to the east of the study area.

Background research included an extensive search of the Aboriginal Heritage Information Management System (AHIMS) database conducted on 30 April 2022 (Client service ID: 678940). The search identified 66 Aboriginal archaeological sites within a 10 kilometre radius, centred on the proposed study area. None of these sites were located within the study area. Historical aerial imagery shows high levels of previous disturbance throughout the entire study area as a result of vegetation clearance, repeated horticultural activities, and the construction of residential buildings in the southern portion.

An archaeological investigation of the study area was undertaken on 3 May 2022 by Biosis Archaeologist, Madeline Lucas. The field investigation was hampered by generally low ground surface visibility. High levels of disturbance were noted throughout the study area, with residential development in the southern portion and large scale cultivation evident throughout. The ground surface had been excavated to create garden rows with irrigation piping uprooted throughout, suggesting a moderate-to-high level of disturbance in subsurface soils. As a result, any intact, subsurface deposits are likely to have been destroyed. No Aboriginal objects were recorded during the survey; however, this is likely attributable to the limited exposure and areas of disturbance seen during the survey, rather than an absence of Aboriginal occupation of the area. No areas of archaeological potential were identified within the study area.

The following management recommendations have been developed relevant to the study area and influenced by:

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
  - Ethos of the Australia ICOMOS Burra Charter (2013).

- The Code.

Prior to any impacts occurring within the study area, the following is recommended:

### Recommendation 1: No further archaeological assessment is required

No further archaeological work is required in the study area due to the entire study area assessed as having low archaeological potential.

### Recommendation 2: Discovery of Unanticipated Aboriginal Objects

All Aboriginal objects and Places are protected under the *National Parks and Wildlife Act 1974* (NPW Act). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Environment and Heritage Group in the Department of Planning and Environment (Heritage NSW). Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.

### Recommendation 3: Discovery of Aboriginal Ancestral Remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and Heritage NSW's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

# 1 Introduction

## 1.1 Project background

Biosis has been commissioned by GHD to undertake an ADDA for a proposed residential subdivision at 93 Campbells Lane (Lot 21 DP1224134), Coolamon NSW 2701 (the project) (Figure 1 and Figure 2). The project will involve the demolition of the existing structures, bulk earthworks and residential development, following the subdivision of the land into 24 lots (Figure 3).

An assessment in accordance with the due diligence code has been undertaken for the study area in order to inform responsibilities with regards to Aboriginal cultural heritage in the area. In addition to the basic tasks required for a due diligence assessment, an extended background review, as well as an archaeological survey in accordance with the Code was conducted, in order to adequately map areas of high, moderate and low archaeological potential.

## 1.2 Location of the study area

The study area is located within the Coolamon Shire Local Government Area (LGA), Parish of Kindra, and County of Bourke (Figure 1). The study area incorporates Lot 21 and DP1224134 and is bounded by Bartletts Lane to the north, residential properties and farmland to the south, a private road to the east and a private road to the west (Figure 2).

## 1.3 Planning approvals

The proposed development will be assessed against Part 4 of the EP&A Act. Other relevant legislation and planning instruments that will inform the assessment include:

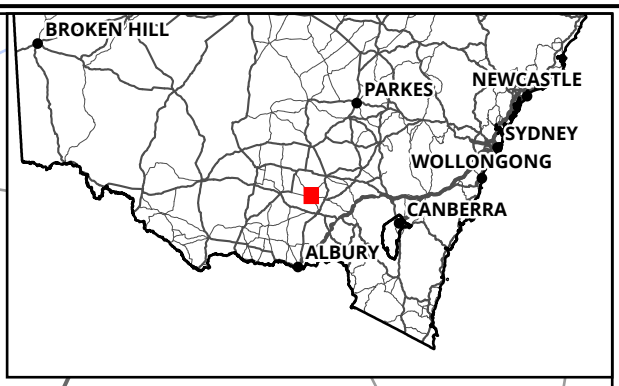
- NPW Act.
- *National Parks and Wildlife Amendment Act 2010* (NSW).
- *Coolamon Local Environmental Plan 2011* (LEP).
- *Coolamon Development Control Plan 2015* (DCP).

## 1.4 Scope of the assessment

The following is a summary of the major objectives of the assessment:

- Conduct background research in order to recognise any identifiable trends in site distribution and location, including a search of the AHIMS database.
- Undertake archaeological survey as per requirement 5 of the code, with particular focus on landforms with high potential for heritage places within the study area, as identified through background research.
- Record and assess sites identified during the survey in compliance with the guidelines endorsed by Heritage NSW.
- Determine levels of archaeological and cultural significance of the study area.

- Make recommendations to mitigate and manage any cultural heritage values identified within the study area.




Rogersons Lane
Road
Rannock
Ardlethan
Road
COOLAMON
Canola Way
Coolamon Street
Canola Way
Wade Street
Booth
Road
Coopers Lane
Coolamon Road
Millwood
Gaynors Lane

**Legend**

Study area

*Acknowledgement: Topo ©NSW Land and Property Information (2016); Overview ©State of NSW (c.2003)*

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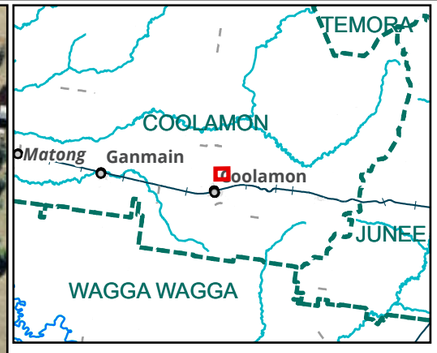
## Figure 1 Location of the study area

Matter: 37066,
Date: 05 May 2022,
Drawn by: JB, Checked by: ML, Last edited by: amackegard
Location:P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout: 37066_ADDA_F1_Locality

0 500 1,000 1,500 2,000
Metres
Scale 1:50,000@ A4, GDA 1994 MGA Zone 55

N


**Legend**

- Study area
- Lot

## Figure 2 Study area detail

0 50 100 150 200

Metres

Scale: 1:5,000@ A3

*Coordinate System:*
*GDA 1994 MGA Zone 55*

N

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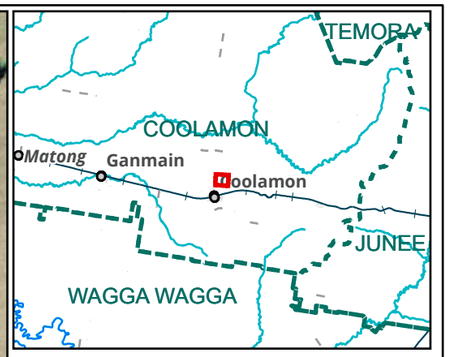
Matter: 37066, Date: 05 May 2022,
Drawn by: JB, Checked by: ML, Last edited by: amackegard
Location: P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout: 37066_ADDA_F2_StudyArea


**Legend**

- Study area
- Lot
- Proposed development

**Figure 3 Proposed development**

0 40 80 120 160 200

Metres

Scale: 1:5,000@ A3

*Coordinate System: GDA 1994 MGA Zone 56*

N

biosis

Matter: 37066, Date: 06 May 2022,
Drawn by: JB, Checked by: ML, Last edited by: amackegard
Location: P:\37000s\37066\Mapping\
37066_ADDA_Coolamon, Layout: 37066_ADDA_F3_ProposedDevelopment

# 2 Desktop assessment

A brief desktop assessment has been undertaken to review existing archaeological studies for the study area and surrounding region. This information has been synthesised to develop some Aboriginal site predictive statements for the study area and identify known Aboriginal sites and/or places recorded in the study area. This desktop assessment has been prepared in accordance with requirements 1 to 4 of the Code.

## 2.1 Landscape context

It is important to consider the local environment of the study area for any heritage assessment. The local environmental characteristics can influence human occupation and associated land use and consequently the distribution and character of cultural material. Environmental characteristics and geomorphological processes can affect the preservation of cultural heritage materials to varying degrees or even destroy them completely. Lastly landscape features can contribute to the cultural significance that places can have for people.

## 2.2 Geology, soils and landforms

The study area is located within the South West Slopes Bioregion (SWSB), comprising the foothills and isolated ranges of the lower inland slopes of the Great Dividing Range. Geographically, the SWSB is located within the eastern part of the Lachlan Fold Belt. Granite landscapes are common particularly in central basins surrounded by hilltops (Department of Planning, Industry and Environment 2016). The study area is underlain by the Colluvium geological unit. The colluvium comprises quaternary sediments that are derived from parent materials that include colluvium and eluvium (Andersson & McNamara 2009, pp. 503). The unit overlays Ordovician sediments which are linked to the Wagga Wagga group, which is composed of siltstone, sandstone, quartz mica schist, minor graphite schist and hornfels (Andersson & McNamara 2009, pp. 503).

The topography within the region surrounding the study area consist of gently undulating rises, gently inclined slopes with a gradient ranging between 1–10% and elevation ranges from 194–260 metres, with local relief <30 metres (Andersson & McNamara 2009, pp. 311). Water courses in this region are highly erosional, widely spaced and tributary (Andersson & McNamara 2009, pp. 311). The study area is located on an almost level plain, which slopes very gently (<1–5%) towards the north-east (Figure 5). Erosion is common in this landscape, and is expedited when surface vegetation is absent or removed. Land use within the study area was dominated by the horticultural and animal husbandry industries, indicating that erosion may have impacted potential deposits in the study area.

Stream order is recognised as a factor which assists the development of predictive modelling in Sydney Basin Aboriginal archaeology, and has seen extensive use in the Sydney region, most notably by Jo McDonald Cultural Heritage management (JMCHM) (JMCHM 2000, JMCHM 2005a, JMCHM 2005b, JMCHM 2008). Predictive models which have been developed for the region have a tendency to favour higher order streams as the locations of campsites as they would have been more likely to provide a stable source of water and by extension other resources which would have been used by Aboriginal groups.

The stream order system used for this assessment was originally developed by Strahler (1952). It functions by adding two streams of equal order at their confluence to form a higher order stream, as shown in Photo 1. As stream order increases, so does the likelihood that the stream would be a perennial source of water.

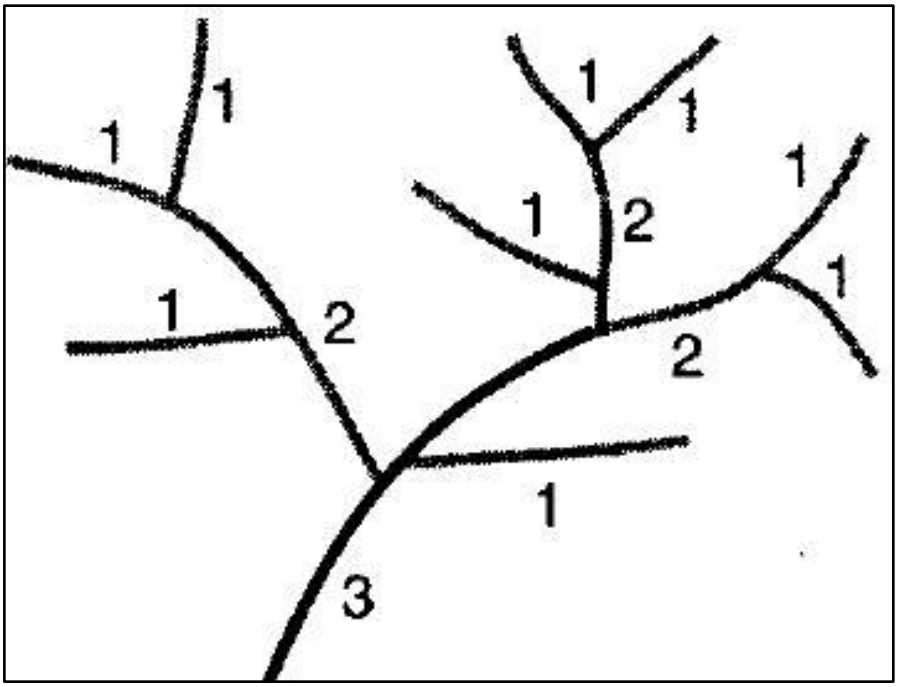



**Photo 1 Diagram showing Strahler stream order (Ritter, Kochel, & Miller 1995, pp. 151)**

Hydrology in the vicinity of the study area includes a third-order, non-perennial water course located approximately 533 metres north-east of the study area and a second-order, non-perennial tributary located approximately 308 metres to the south-east (Figure 5). Two first-order tributaries of the second-order creekline are located approximately 275 and 330 metres to the east of the study area.

Soil landscapes have distinct morphological and topological characteristics that result in specific archaeological potential. They are defined by a combination of soils, topography, vegetation and weathering conditions. Soil landscapes are essentially terrain units that provide a useful way to summarise archaeological potential and exposure.

The study area is located within the Becks Lane and Kindra soil landscapes (Figure 6). The Becks Lane soil landscape is characterised as a transferral landscape comprising eight soil profiles (Table 1). Soils are moderately deep (>50 centimetres) mottled calcic brown chromosols on upper slopes, mottled and haplic mesotrophic brown and red chromosols on upper to lower slopes, haplic red dermosols on mid to lower slopes, phaplic mesotrophic red kandosols on slopes, with moderately deep (80–150 centimetres) bleached-mottled and bleached brown sodosols near drainage lines (Andersson & McNamara 2009, pp. 310).

Becks Lanes soils experience high frequencies of sheet and gully erosion and seasonal waterlogging and has low wet bearing strength, high erodibility, low fertility, low permeability–subsoil and hard-setting surfaces (Andersson & McNamara 2009, pp. 310). The soil landscape is suitable for animal grazing and horticultural activities, however as these activities occur repeatedly over time and without adequate soil maintenance, they typically result in irreparable soil degradation (Andersson & McNamara 2009, pp. 314).

A description of the soil types within the Becks Lane soil landscape are provided in Table 1 and Photo 2.

**Table 1 Becks Lane soil landscape characteristics (Andersson & McNamara 2009, pp. 312–313)**

| Soil material | Description |
|---|---|
| **Becks Lane 1 (*bk1*) – acidic dark reddish-brown massive sandy loam** | Fine to fine light sandy clay loam that is hard-setting and moderately to weakly pedal. Colour ranges between dark reddish-brown (2.5YR 3/3) to reddish-brown (2.5YR 5/4). This material occurs as topsoil (A horizon) and has a pH range of 5.5. There are no coarse |

| Soil material | Description |
|---|---|
| **(topsoil—$A_1$ horizon)** | fragments and the soil is earthy, massive and dry. The boundary is gradual (50–100 mm) and the average depth is 0–0.05 m. |
| **Becks Lane 2 (*bk2*) – dark reddish-brown massive sandy loam (topsoil—$A_1$ horizon)** | Fine to fine heavy sandy loam that is moderately to weakly pedal with a dark reddish-brown (2.5YR 3/3) colour. This material occurs as topsoil (A horizon) and has a pH that ranges between 6.0–6.5. There are no coarse fragments and the soil is earthy, massive and can be dry or moist. Boundary can be clear (20–50 mm) or gradual (50–100 mm) and the average depth is 0.05–0.25 m. |
| **Becks Lane 3 (*bk3*) – alkaline reddish-brown weakly structured sandy clay loam (topsoil—$A_1$ to $A_3$ horizon)** | Light to fine heavy sandy loam that is hard-setting and moderately to strongly pedal, with rough-faced peds. Colour is reddish-brown (2.5YR 5/4). This material occurs to a depth of 0.05–0.25 m (in the $A_{12}$ horizon) and 0.25–0.55 m (in the $A_3$ horizon), and has a pH that ranges between 8.0–8.5. There are no coarse fragments and the soil is dry, with a clear (20–50 mm) boundary. |
| **Becks Lane 4 (*bk4*) – reddish-brown massive sandy clay loam (topsoil—$A_2$ horizon)** | Reddish-brown (2.5YR 5/4) fine heavy to fine sandy clay loam. The soils are dry, moderately to weakly pedal, with a pH of 6.5. There are no coarse fragments with a clear (20–50 mm) or gradual (50–100 mm) boundary and average depths to 0.05–0.25 m. |
| **Becks Lane 5 (*bk5*) – red massive sandy clay (subsoil—$B_1$ to $B_2$ horizon)** | Light to fine heavy sandy clay loam, that is strongly pedal and red (2.5YR 5/8) in colour. Very firm with a pH range of 7.0–7.5. Dry, with quartz and fine gravel (2–6 mm) inclusions with diffuse (>100 mm) boundary in $B_1$ horizon, where the average depth is 0.25–0.55 m. In the $B_2$ horizon, average depth is 0.55–0.65 m and the soil layer continues to sedimentary parent material. |
| **Becks Lane 6 (*bk6*) – dark reddish-brown weakly structured clay loam sandy (subsoil—$B_1$ horizon)** | Fine clay loam sandy that is hard-setting, weakly pedal with smooth-faced ped fabric. Colour is dark reddish-brown (2.5YR 3/3). There are no coarse fragments. The soils are dry, with a pH of 6.5 and a gradual (50–100 mm) boundary. |
| **Becks Lane 7 (*bk7*) – brown moderately structured clay (subsoil—$B_2$ horizon)** | Light medium clay, hard-setting, moderately pedal with smooth faced ped fabric. Colour is brown (10yr 4/4) and soil has 2–10% orange mottles, smooth-faced ped fabric. There are no coarse fragments and soil is underlain by colluvium with an average depth of 0.4–0.5 m. |
| **Becks Lane 8 (*bk8*) – alkaline reddish-brown moderately structured sandy clay (subsoil—$B_2$ horizon)** | Reddish-brown (2.5YR 5/4) sandy clay that is hard-setting, moderately pedal with smooth faced ped fabric. Soil is dry, with quartz and fine gravel (2–6 mm) inclusions, 2–10% hard and soft manganese segregations. The average depth is 0.55–1.1 m and layer continues to sedimentary parent material. |

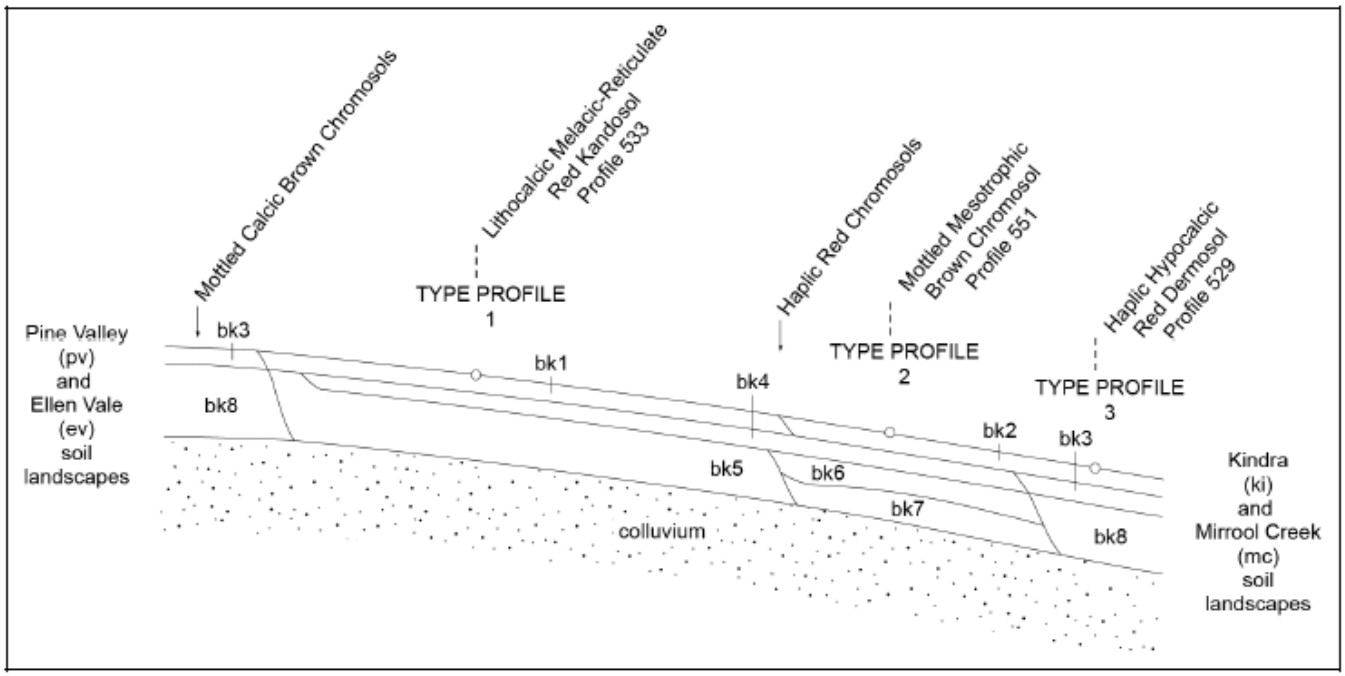



**Photo 2 Distribution diagram of Becks Lane soil landscape (Andersson & McNamara 2009, pp. 315)**

Transferral soil landscapes are described as comprising deep deposits which mainly consists of material from sediment eroded from parent rock that has been hydrologically transported from upper slopes (Andersson & McNamara 2009, pp. 22). Water courses create channels that are often discontinuous and slopes are generally presented as concave (Andersson & McNamara 2009, pp. 22). The Becks Lane soil landscape experiences moderate degrees of erosion, and this increases when the land is cleared of vegetation, heavily cultivated and near drainage lines (Andersson & McNamara 2009, pp. 314). Soils of this nature are generally subject to movement of shallow soils, which can result in poor preservation of the archaeological record.

The Kindra soil landscape is a characterised as a stagnant alluvial soil landscape comprising eight soil profiles (Table 2 Figure 6). Soils are deep (>100 centimetres) haplic and sodic hypercalcic red chromosols, haplic eutrophic and duric red dermosols, haplic dystrophic red kurosols, eutrophic subnatric red sodosols and endocalcareous crusty red vertosols across the plains (Andersson & McNamara 2009, pp. 503).

Kindra soils typically experience poor drainage and minor sheet erosion—especially in areas that have been heavily cultivated; and have low wet-bearing strength and have hard-setting surface and subsurface soils (Andersson & McNamara 2009, pp. 503). The soil landscape overall typically experiences low to moderate degrees of erosion, however, sodic and dispersive subsoils, such as those found in the B horizon, have high erodibility (Andersson & McNamara 2009, pp. 506).

A description of the soil types within the Kindra soil landscape are provided in Table 2 and Photo 3.

**Table 2 Kindra Lane soil landscape characteristics (Andersson & McNamara 2009, pp. 504–506)**

| Soil material | Description |
|---|---|
| **Kindra 1 (*ki1*) – dark reddish-brown massive sandy clay loam (topsoil—$A_1$ horizon)** | Sandy clay loam and heavy sandy loam that is hard-setting and moderately to weakly pedal. Colour is dark reddish-brown (2.5YR 3/3) and the pH ranges between 6.0–6.5. The material occurs as topsoil (A horizon) and there are no coarse fragments and the soil is earthy, massive and dry, though can be moist in some environments. Clear (20–50 mm) boundary in $A_{11}$ and $A_{12}$ horizon, where the average depths are 0–0.05 m and |

| Soil material | Description |
|---|---|
| | 0.05–0.3 m respectively. In the $A_1$ horizon, average depth is 0–0.05 m and the layer boundary can be abrupt (5–20 mm) or gradual (50–100 mm). |
| **Kindra 2 (*ki2*) – reddish-brown massive sandy clay loam (topsoil—$A_2$ horizon)** | Fine, sandy clay loam that is hard-setting and moderately pedal. Colour is reddish-brown (2.5YR 5/4) and pH is 6.5. There are no coarse fragments and the soil is earthy, massive and dry. The boundary is clear (20–50 mm) and the average depth is 0.05–0.2 m. |
| **Kindra 3 (*ki3*) – alkaline reddish-brown moderately structured clay (subsoil—$B_2$ horizon)** | Light medium clay that is hard-setting, has moderate pedality and 50–100 mm subangular blocky smooth-faced peds. Colour is reddish-brown (2.5YR 5/4), pH is 8.5 and there are no coarse fragments and the soil is dry. The boundary is clear (50–100 mm) and the average depth is 0.3–0.5 m. |
| **Kindra 4 (*ki4*) – alkaline calcic brown moderately structured clay (subsoil—$B_2$ horizon)** | Medium clay that is hard-setting and has strong pedality. Colour is brown (10yr 4/4) and pH is 9.5. The average depth is 0.5–0.8 m and soils are underlain by alluvium. |
| **Kindra 5 (*ki5*) – dark reddish-brown moderately structured clay loam (subsoil—$B_1$ horizon)** | Clay loam that is hard-setting, has moderate pedality and smooth-faced peds. Colour is dark reddish-brown (2.5YR 3/3) and the pH is 6.0. Dry, with quartz and fine gravel (2–6 mm) inclusions with a gradual (50–100 mm) boundary and average depth is 0.05–0.2 m. |
| **Kindra 6 (*ki6*) – red moderately structured clay (subsoil—$B_2$ horizon)** | Light clay to light medium clay is hard-setting, has moderate pedality and smooth-faced peds. Colour is red (2.5YR 5/8) and the pH is 6.0. Dry, with quartz and fine gravel (2–6 mm) inclusions in the $B_{21}$ horizon and no coarse fragments in the $B_{22}$ horizon. Soils in the $B_{21}$ horizon have gradual (50–100 mm) boundary with average depth of 0.2–0.35 m. Soils in the $B_{22}$ horizon are underlain by alluvium with average depth of 0.35–0.45 m. |
| **Kindra 7 (*ki7*) – alkaline sodic yellowish-red moderately structured clay (subsoil—$B_2$ horizon)** | Medium clay that is hard-setting, has moderate pedality and smooth-faced peds. Colour is yellowish-red (5YR 5/8) and pH is 9.0. Moist with no coarse fragments and is underlain by alluvium. Average depth is 0.2–0.5 m. |
| **Kindra 8 (*ki8*) – acidic dark red moderately structured clay (subsoil—$B_2$ horizon of Kurosols)** | Associated soil material in the subsurface layers of the $B_2$ horizon. Colour is red (2.5YR 5/8 and material is acidic, hard-setting, moderately pedal and is underlain by alluvium. |

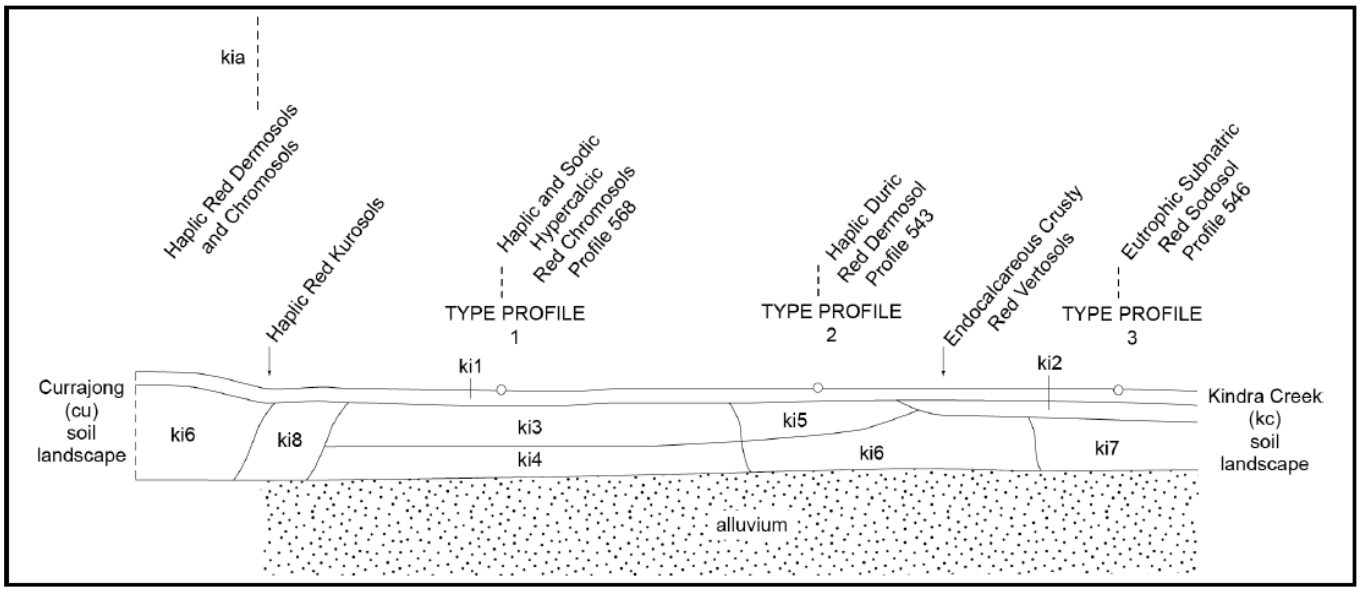
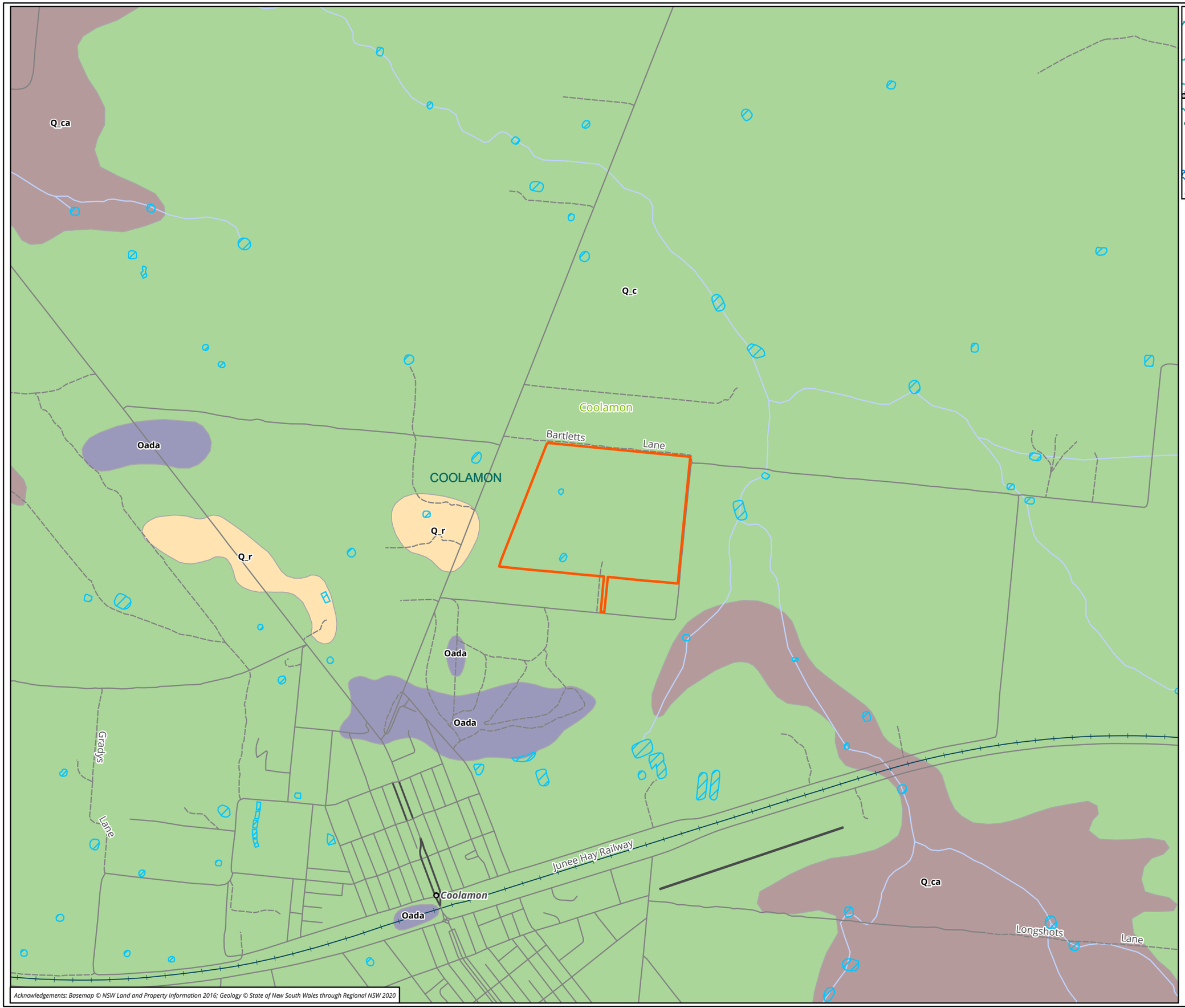
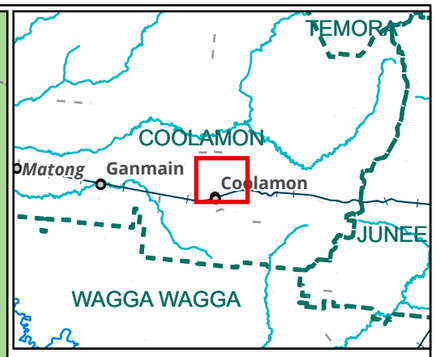



**Photo 3 Distribution diagram of Kindra soil landscape (Andersson & McNamara 2009, pp. 507)**

Stagnant alluvial soil landscapes occur as alluvial plains, formed by eroded material deposited by fluvial systems (Andersson & McNamara 2009, pp. 22). While the deposition of soils due to flooding events may preserve archaeological deposits beneath it, soil and water movement can also result in higher levels of subsurface disturbance. Deep soil deposits such as these also provide potential for archaeological deposits to remain intact within areas of superficial disturbances. This includes artefact scatters and PAD particularly within areas of level and well-draining soils nearby water courses.




**Legend**

Study area

**Geological units**

- Oada,Abercrombie Formation
- Q_c,Colluvium
- Q_ca,Mixed colluvial, alluvial and aeolian deposits
- Q_r,Residual deposits

**Figure 4 Geological units in the vicinity of the study area**

0 200 400 600 800

Metres

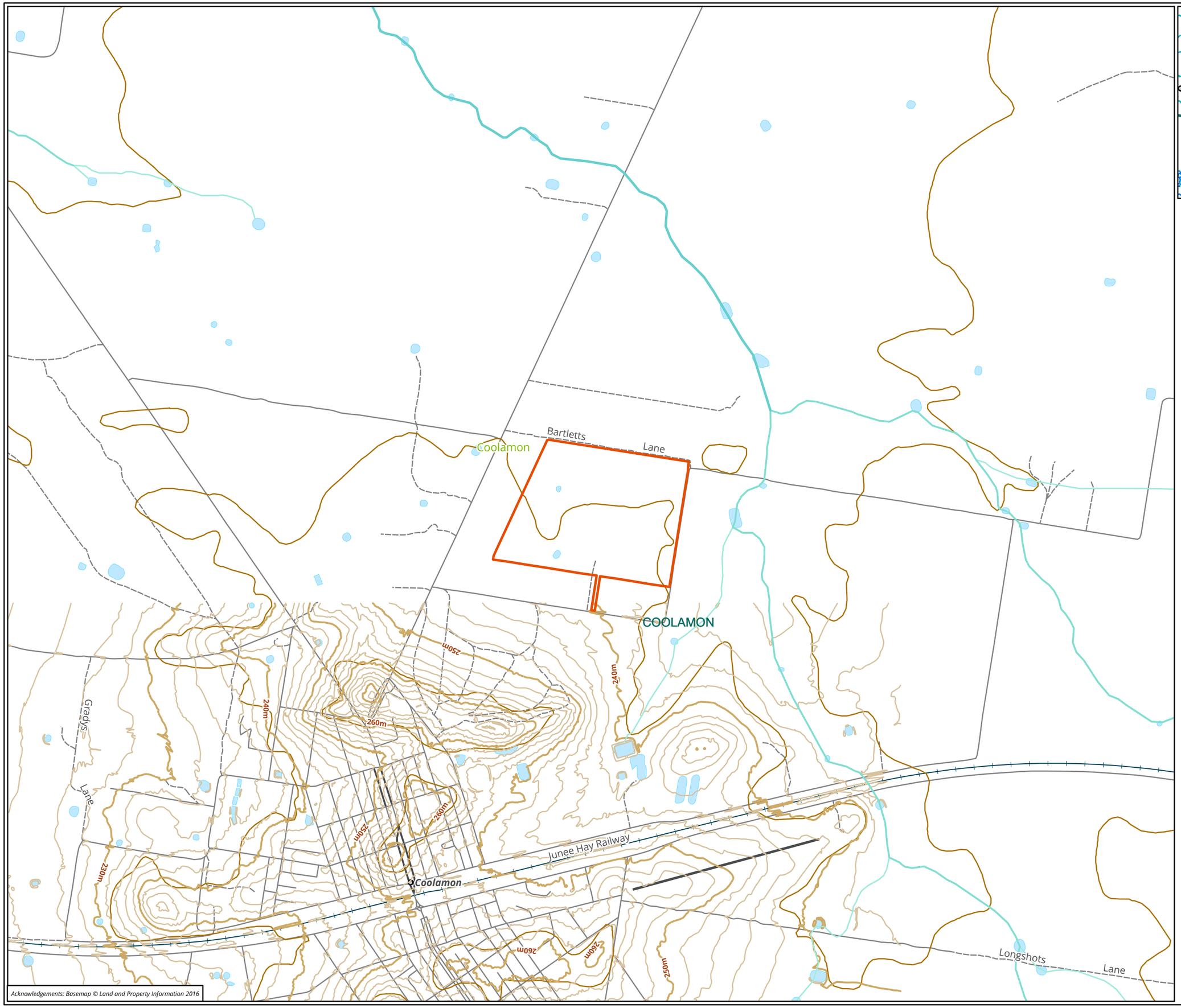
Scale: 1:20,000@ A3

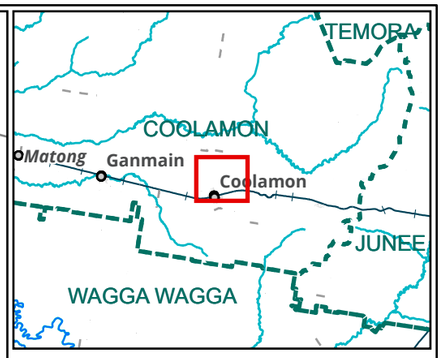
*Coordinate System:*
*GDA 1994 MGA Zone 56*

N

biosis

Matter: 37066, Date: 29 April 2022,
Drawn by: JB, Checked by: ML, Last edited by: jbeckius
Location: P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout: 37066_ADDA_F4_Geology




**Legend**

- Study area
- Contour (2m)
- Contour (10m)

**Strahler Order**

- 1
- 2
- 3

**Figure 4 Hydrology and topography in the vicinity of the study area**

0 200 400 600 800

Metres

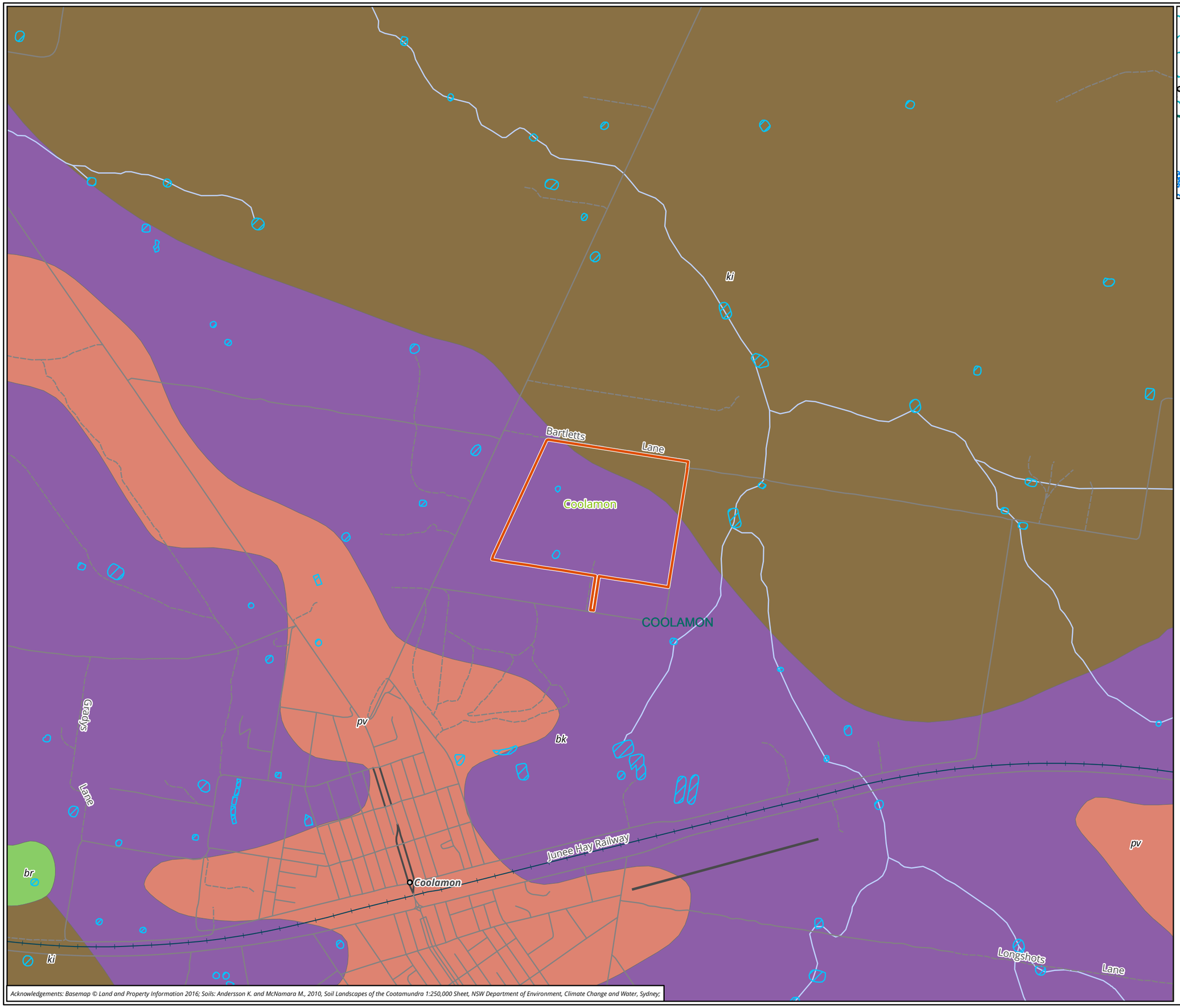
N

Scale: 1:20,000@ A3

*Coordinate System:*
*GDA 1994 MGA Zone 55*

biosis

Matter: 37066, Date: 09 May 2022,
Drawn by: JB, Checked by: ML, Last edited by: amackegard
Location: P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout:37066_ADDA_F4_Hydrology




**Legend**

Study area

**Soil Landscape units**

- bk - BECKS LANE
- br - BRUSHWOOD
- ki - KINDRA
- pv - PINE VALLEY

**Figure 5 Soil landscapes in the vicinity of the study area**

0 200 400 600 800

Metres

Scale: 1:20,000@ A3

*Coordinate System:*
*GDA 1994 MGA Zone 55*

N

biosis

Matter: 37066, Date: 09 May 2022,
Drawn by: JB, Checked by: ML, Last edited by: amackegard
Location: P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout: 37066_ADDA_F5_Soils

*Acknowledgements: Basemap © Land and Property Information 2016; Soils: Andersson K. and McNamara M., 2010, Soil Landscapes of the Cootamundra 1:250,000 Sheet, NSW Department of Environment, Climate Change and Water, Sydney;*

## 2.3 Flora and fauna

The wider region includes distinct ecological zones, including open forest and open woodland, with riparian vegetation extending along many of the watercourses. Each ecological zone hosts a different array of floral and faunal species, many of which would have been utilised according to seasonal availability. Aboriginal inhabitants of the region would have had access to a wide range of avian, terrestrial and aquatic fauna and repeated firing of the vegetation would have opened up the foliage allowing ease of access through and between different resource zones.

Plant fibres were twisted into string, which was used for many purposes, including the weaving of nets, baskets and fishing lines. String was also used for personal adornment. Bark was used in the provision of shelter; a large sheet of bark being propped against a stick to form a gunyah (Attenbrow 2002, pp. 113–114).

Within the Coolamon region and surrounding landscapes there is a variety of floral species. The distribution of these plants is determined by soil combinations as well as the movement of seeds and plants between ecotones by Aboriginal people. In some areas of Australia, the repeated seasonal burning of vegetation allowed expedient plant growth. The Becks Lane soil landscape typically supports Pine and Eucalypt woodlands, however these have been extensively cleared for agricultural development since European settlement, with some clusters remaining sparsely along road corridors (Andersson & McNamara 2009, pp. 311). On lower, mid and upper slopes, Grey Box *Eucalyptus microcarpa* and White Cypress pine *Callitris columellaris* occur, along with White Box *E. albens* on upper slopes and Yellow Box *E. melliodora* and Belah *Casuarina cristata* occurring on lower slopes and plains corridors (Andersson & McNamara 2009, pp. 311). The understorey consists of sparse shrub growth, and includes species such as Wattle *Acacia* spp., Sticky Hopbush *Dodonaea viscosa*, Panic *Panicum* spp., and Wiregrass *Aristida* spp. corridors (Andersson & McNamara 2009, pp. 311). The Kindra soil landscape typically supports Eucalypt woodlands, however these have been extensively cleared for agricultural development (Andersson & McNamara 2009, pp. 504). On the surrounding plains, Grey Box *E .microcarpa* and White Cypress pine *Callitris columellaris* populations often grow in proximity to Yellow Box *E. melliodora*, with River Red Gum *E. camaldulensis* occuring along some creeklines (Andersson & McNamara 2009, pp. 504). The understorey consists of sparse shrub growth, and includes species such as Wattle *Acacia* spp., African Boxthorn *Lycium ferocissimum*, Blueberry Lily *Dianella revolute*, Wallaby Grass *Austrodanthonia* spp. and Plains Grass *Austrostipa aristiglumis* (Andersson & McNamara 2009, pp. 504).

As well as being important food sources, animal products were also used for tool making and fashioning a myriad of utilitarian and ceremonial items. For example, tail sinews are known to have been used to make fastening cord, while 'bone points', which would have functioned as awls or piercers, are sometimes part of the archaeological record. Animals such as Brush-tailed Possums were highly prized for their fur, with possum skin cloaks worn fastened over one shoulder and under the other. Kangaroo teeth were incorporated into decorative items, such as head bands (Attenbrow 2002, pp. 117).

Native fauna that may have inhabited the area or its surrounds include mammals such as Eastern Grey Kangaroo *Macropus giganteus*, Short-beaked Echidna *Tachyglossus aculeatus*, Common Brushtail Possum *Trichosurus vulpecula*, Fat-tailed Dunnart *Sminthopsis crassicaudata* and Swamp Wallaby *Wallabia bicolor*. Avian species may have included Galah *Eolophus roseicapilla*, Australian Magpie *Gymnorhina tibicen*, Crested Pigeon *Ocyphaps lophotes*, Red-rumped Rarrot *Psephotus (Psephotus) haematonotus* and Magpie-lark *Grallina cyanoleuca*. Eastern Spiny-tailed Gecko *Strophurus intermedius*, Inland Snake-eyed Skink *Cryptoblepharus australis* and South-eastern Morethia Skink *Morethia boulengeriare* among the reptile species that may have inhabited the area (Atlas of Living Australia 2021).

## 2.4 Land use history

The Coolamon Shire is situated within the Riverina region of southern NSW. The name 'Coolamon' is an Indigenous word meaning 'dish or vessel for holding food or water' and stands on the land that was traditionally owned by the Wiradjuri people (Coolamon Shire Council n.d.). As with many of the towns in this region, Coolamon began to grow in popularity after the railway connected the area to other regions of NSW on 28 February 1881 (Coolamon Shire Council n.d.). Throughout its history, the land within the region was mostly used for wheat, barley, rye, canola, and winter and fodder crop production as well as sheep and cattle grazing on grassy pastures (Andersson & McNamara 2009).

Historical aerial imagery allows for modern developments and land use to be identified within the study area. An aerial image dated to 1961 shows that a residential building has been constructed in the southern portion of the study area (Photo 4). There has been extensive land clearance, with few trees remaining throughout the study area, but mostly concentrated in the south near the residential building and along the roads bounding it. The land has been heavily cultivated as is evident with the plough lines throughout the study area.

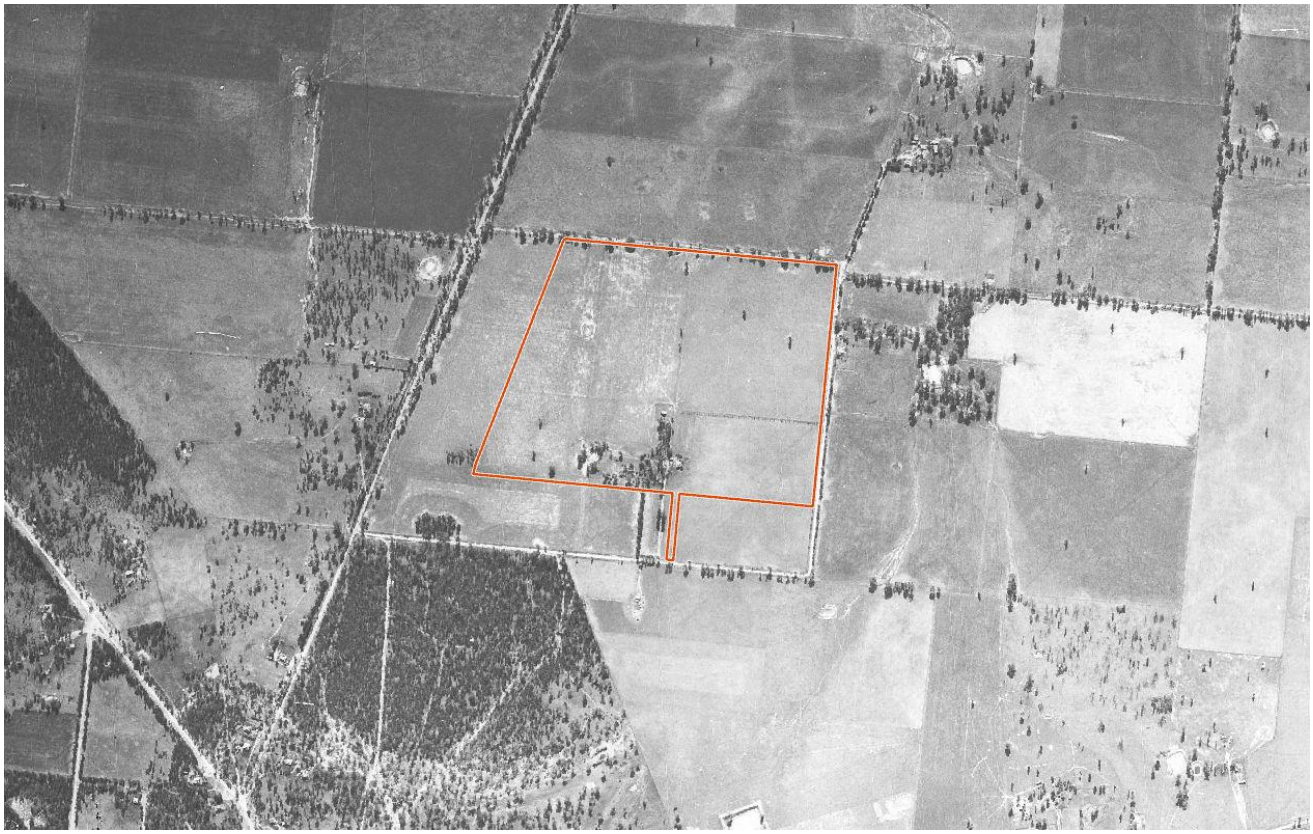


**Photo 4 Aerial photograph dated to 1961, with the study area indicated by the red boundary (Source: NSW Spatial Services)**

An aerial photograph dated to 1978 (Photo 5) shows little changes have occurred within the study area. The photo shows further cultivation of the land, with the plough lines having changed directions. There has been some changes the density and distribution of the vegetation in the southern portion of the study area.

**Photo 5 Aerial photograph dated to 1978, with the study area indicated by the red boundary (Source: NSW Spatial Services)**

An aerial photograph dated to 1998 (Photo 6) shows little changes have occurred within the study area. Cultivation of the land has continued and the vegetation appears unchanged.

**Photo 6** **Aerial photograph dated to 1998, with the study area indicated by the red boundary (Source: NSW Spatial Services)**

# 3 Aboriginal context

## 3.1 Ethnohistory and contact history

It is generally accepted that Aboriginal people have inhabited Australia for the last 65,000 years (Allen & O'Connell 2003, Hamm et al. 2016). The Birrigai rock shelter is the earliest Aboriginal site identified in the Snowy Mountains region dating to 21,000 BP (Flood 1996).

Despite a proliferation of known Aboriginal sites, there is considerable ongoing debate about the nature, territory and range of pre-contact Aboriginal language groups in the region. These debates have arisen largely due to the lack of ethnographic and linguistic information recorded at the time of European contact. By the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late-19th century; pre-European Aboriginal groups had been broken up and reconfigured by European settlement activity.

Tindale (1974) compiled information regarding Aboriginal groups and their boundaries. The study area is located within the Wiradjuri area. Tindale talks of an aged Wiradjuri person who described how the Wiradjuri spoke of their country as:

> *"...a 'line' rather than as an enclosed area... the line passes through Brungle, Gobarlong, Jugiong, Harden, Cowra, Orange, Dubbo, Condobolin, Hillston, Hay, Darling Point (south of Griffith), Wagga Wagga, Tarcutta, Adelong, and returning to Brungle. Tumut was on the 'line' of an adjoining tribe for which he gave the name Gurmal. 'Gurmal' is the Wiradjury name for Ngarigo." (Tindale 1974, pp. 129)*

Our knowledge of Aboriginal people and their land-use patterns and lifestyles prior to non-Aboriginal contact is mainly reliant on documents written by non-Aboriginal people. The inherent bias of the class and cultures of these authors necessarily affect such documents. They were also often describing a culture that they did not fully understand—a culture that was in a heightened state of disruption given the arrival of colonisers and disease. Early written records can, however, be used in conjunction with archaeological information and surviving oral histories from members of the Aboriginal community in order to gain a picture of Aboriginal life in the region.

At the time of European settlement it is estimated that approximately 3000 Wiradjuri people were living in the region. Oxley, Hume and Hovell, Sturt and Mitchell were the first Europeans to travel through Wiradjuri country. Sturt noted that there were larger populations of people along the Tumut River than on adjacent areas of the Murrumbidgee. It is also likely that the impacts of small pocks, influenza and pneumonia epidemics had already impacted these numbers at this stage.

Pastoral runs continued to develop throughout the region, with some employing Aboriginal people. Although little records are available of the impact this settlement had on the Aboriginal community at the time, it is know that a massacre occurred in the hills to the east of Brungle known as Murder Creek, where many people were killed (Navin Officer 1999, Sams 1982). During European settlement, many Aboriginal campsites were located near water, well-draining, elevated, level, and nearby local resources, which were often also good locations to construct homes. Many early conflicts were associated with these areas, particularly at permanent water sources and ceremonial areas.

With the establishment of the Aboriginal Protection Board in 1883, many reserves and missions were developed (Go Green Services 2002). Large reserves were set up throughout Wiradjuri country, with two large stations had been established at Warangesda and Brungle by 1900. In 1887, Brungle had the second largest Aboriginal Reserve community in NSW, with 40 adults (Go Green Services 2002). Fringe camps were said to have existed on the edges of townships in the 1920s (Navin Officer 1999).

## 3.2 Regional context

There have been several cultural heritage assessments undertaken through heritage impact assessment investigations within in the wider South West Slopes Bioregion over the past 50 years.

Archaeo Analysis (2007) completed an Aboriginal survey of the Livingstone National Park and State Conservation area in Wagga Wagga, located approximately 57 kilometres south-east of the study area. Previous surveys by Dearling and Grinbergs in 2002 identified 21 sites, artefact scatters and isolated artefacts, within the Livingstone National Park boundaries. An AHIMS search of the area identified 15 sites within a 30 kilometre area. Of the 15 sites, 14 were recorded as part of 2002 survey. The remaining seven sites were not included on AHIMS. The field investigation was centred on relocating the previously recorded sites by Dearling and Grinbergs, with 18 of the 21 sites located and recorded. Of the 18 sites, more artefacts were identified at nine sites, five contained the recorded amount, and three sites contained less artefacts than recorded. This may be due to erosion and a long drought in the region, and the sites being located adjacent to or on trails, resulting in extensive disturbance. Artefact material identified quartz as the most common material type, with sites also containing silcrete and chert. The analysis on the artefact assemblage and locations of artefacts in the scatters identified that the sites had potential be larger and wider spread than previously recorded.

Kelton (2007) carried out archaeological survey as part of a proposed 40 hectare extension of the existing Wagga Quarry. No Aboriginal sites or areas of PAD were identified during the survey, though this was thought to be in part due to the flood-prone nature of the location, which would create unideal conditions for past Aboriginal occupation. Extensive surface and subsurface disturbance was noted across the entire survey area as a consequence of past and ongoing European land management such as tree clearance, extensive farming and grazing, considerable earthworks.

OzArk (2012) undertook an Aboriginal survey and assessment for a proposed upgrade to the Olympic Highway, approximately 52 kilometres south-west of the study area. One Aboriginal site was recorded during the survey; a scarred tree of potential Aboriginal origin, OH The Rock ST-1 (AHIMS 56-1-0123). The tree is located within 15 metres of the Olympic Highway, approximately 2.6 kilometres south of the study area with a south-facing scar. The tree has an internal scar length of 87 centimetres and trunk diameter at the centre of the scar of 1.66 metres. An area containing some burnt clay nodules was recorded, but due to a lack of associated artefacts the nodules were not registered as an Aboriginal site. Two trees with historic surveyors marks were recorded, also in close proximity to the Olympic Highway–the trees are approximately 1.6 kilometres apart, with the closest tree approximately 300 metres south of the study area. OzArk noted heavy disturbance of the area from road and railway construction.

Ozark (2018) undertook an ACHA for the proposed upgrade to Forest Hill Pump Station, approximately 43 kilometres south-east of the study area. The OzArk predictive model, suggesting that artefact scatters and isolated finds would be the most common site type for this location, was supported by the survey in 2018 (OzArk Environmental and Heritage Management 2018, pp. 26). No new Aboriginal sites or landforms of potential were recorded, though two previously listed sites were identified (OzArk Environmental and Heritage Management 2018, pp. v). These previous sites are AHIMS 56-1-0444 and 56-1-0447, both isolated quartz artefacts located in a paddock to the south-west of the intersection of the Sturt Highway and Elizabeth Avenue (OzArk Environmental and Heritage Management 2018, pp. 19). Three additional sites were listed in the same area but could not be located, potentially due to previous land use – the area has been grazed and cultivated repeatedly, ploughed in the time between the original recording and the OzArk survey (OzArk Environmental and Heritage Management 2018, pp. 24). These sites are listed as isolated quartz artefacts, which may have been difficult to rediscover due to their size (AHIMS 56-1-0444, 56-1-0445, 56-1-0446, 56-1-0447 and 56-1-0451). While stone quarries and grinding grooves have been noted in the wider area, none were present in the OzArk study area due to an absence of suitable rock outcropping (OzArk Environmental and Heritage Management 2018, pp. 26). This low artefact density was presumed to be due to the distance of

the area from water, as the Murrumbidgee River is located approximately 3.6 kilometres north-east and Gregadoo Creek is 1.2 kilometres south. The current Biosis study area is located 28.5 kilometres from the Murrumbidgee River, with the closest water course being a second order stream located 275 metres away.

OzArk (2021) conducted an ACHA and historic heritage assessment for the Wagga Wagga Special Activation Precinct (WWSAP), located approximately 40 kilometres south-east of the study area. Background research identified that high cultural and archaeological values were present within the study area, containing 61 AHIMS sites. The majority of these sites were artefact scatters and isolated finds. Its location in close proximity to the Bomen Axe Quarry also provides potential for further sites and areas of potential to be present. Based on this and previous assessments in the area, the following predictive statements were made:

- Isolated finds have potential to occur throughout the study area.
- Artefact scatters are 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 can occur along permanent water courses.
- Scarred trees may be present where remnant mature vegetation exists.
- Quarry sites are likely to occur where raw stone outcropping is present.
- Burials are generally found in soft sediments such as Aeolian sand, alluvial silts and rock shelter deposits. In valley floors and plains, burials may occur in locally elevated topographies.

A survey of the site identified an isolated find, artefact scatter and scarred tree. The isolated find comprised of a quartz flake eroding from a track within a lower slope landform. The artefact scatter was located within a raised and rock outcrop landform and comprised of a quartz flake and debitage. The scarred tree was present within a cleared paddock. All sites were located within proximity to Dukes Creek, however no associated PAD was identified due to disturbances within the area. Previously recorded sites were not located. Based on this it was determined that archaeological potential was present in close proximity to drainage lines within the study area.

NGH (2021) conducted an ACHA for the Bomen Stage 3 project located approximately 47 kilometres south-west of the study area, as part of the WWSAP. This assessment followed on from previous works conducted by OzArk (2021). Based on previous assessments, the following archaeological sensitivity by landform was determined for the Bomen area:

**Table 3 Archaeological sensitivity based on landform at Bomen (NGH Environmental Pty Ltd 2021, pp. 43)**

| Landform type | Archaeological sensitivity | Description |
|---|---|---|
| **Ridgeline crest** | Moderate | Less exposed to prevailing winds, increased sensitivity with proximity to drainage lines/terraces. |
| **Granite outcrop along upper slope/crest** | High | Less exposed to prevailing winds, increased sensitivity with proximity to drainage lines/terraces. |
| **Upper/Mid hillslope** | Low | Less possibility of intact archaeological deposits increased sensitivity with gentler slopes and proximity to open drainage lines/terraces. |
| **Lower hillslope** | Low to moderate | Increased sensitivity in association with alluvial/colluvial deposits associated with drainage lines. |

| Landform type | Archaeological sensitivity | Description |
|---|---|---|
| **Undulating/Flat colluvial deposits** | Moderate to high | Increased sensitivity in association with proximity to drainage lines/terraces. |
| **Drainage line and associated alluvial/colluvial deposits** | Moderate to high | Increased sensitivity where gentle slopes or raised ground above regular floods. |

A survey of the site did not identify any Aboriginal objects. One area of PAD located in an elevated flat area that extends approximately 450 metres by 50 metres adjacent to the creek. Further archaeological investigation in the form of testing was recommended.

## 3.3 Local context

There is a gap in the archaeological literature in studies that are concerned with Coolamon and the surrounding region. This scarcity of studies close to the study area has resulted in the parameters which define local context in this report, having been extended to include studies which have been conducted within 40 kilometres of the study area.

Wood (1992) carried out preliminary surveys for a proposal by the Department of Defence to modernise and relocate naval communications from the ACT to the Wagga Wagga region of NSW, located approximately 38.8 kilometres and 39.4 kilometres south-west of the study area. Due to time constraints, the surveys were primarily carried out by vehicle, in consultation with local Aboriginal community groups. Wood references The Rock, located approximately 36 kilometres south-west of the study area, reported to have rock art on its surfaces and associated campsites (Wood 1992, pp. 12). Sites anticipated during the survey included mounds, hearths, scarred trees, campsites/open sites and possibly burial sites. In total, 38 sites were recorded. These consisted of eight oven mounds (from approximately 4–20 metres), 22 scarred trees and eight surface scatters of stone artefacts. Six of the eight mounds were associated with watercourses, with the remainders located in close proximity to the Bullenbong Plains—often experiencing heavy rains. The mounds were of generally low integrity due to agricultural activities such as ploughing and grazing. Similarly, the artefact scatter sites were primarily located adjacent to watercourses, and all the open campsites in the Gum Creek area were located on eroded sandsheets. A total of 107 artefacts were recorded including flakes, flaked pieces, cores and a thumbnail scraper. These were produced primarily from quartz (81.3%) and red/grey/pink silcrete (12.1%), but other raw materials included quartzite, fine-grained volcanic material, chert, granite, and 12 sandstone grindstone fragments. Ten (45.5%) of the identified scarred trees were located in remnant native vegetation stands, seven (31.8%) lining banks of watercourses, and the remaining five (22.7%) on trees forming windbreaks along boundary fences (Wood 1992, pp. 27). The bark was thought to have been used for shields, dishes or shelters given the relatively small size of the scars.

Smith (1992) carried out a desktop study of locations that would potentially be impacted by the laying of a proposed Fibre Optic Cable network between Albury and Cootamundra, NSW. A stretch of the proposed line runs parallel to the Olympic Highway, crossing through North Wagga, located approximately 28 kilometres south-east of the study area. Two windscreen surveys were undertaken in July 1992, and contact with relevant LALCs made. Based on previous assessments, the following predictions were made:

- Rock shelters and overhangs will have been used for occupation.
- Sandstone and granite outcrops have potential for grinding groove sites.
- All sources of water are likely to contain sites or scarred trees. With large artefact scatters occurring on or near water sources, with creek terraces holding high potential for occupation sites due to alluvial deposition.

- Scarred trees can occur anywhere with remnant vegetation.
- Granite outcrops have potential to be quarries.
- Saddles have potential to contain artefact scatters, particularly when near water.

Following the windscreen survey, a number of areas of potential were determined. Most relevant to the study area, it was determined that flats, banks and anabranches of the Murrumbidgee River have high potential for scarred tress, burials and artefact scatters.

Williams (1993) undertook further archaeological investigation of the proposed route of the Optus communications fibre optic cable between Albury and Wagga Wagga, located approximately 37.7 kilometres south-east of the study area. Background research identified that scarred trees were the most commonly recorded site type within the vicinity of the study area, in addition to artefact scatters, rock engravings and grinding grooves. Based on previous assessments within the area, including Smith (1992) whose study area was included in the assessment, it was identified that:

- All sources of water, permanent or temporary, including swamps and springs are likely to be the location of open sites. These sites are likely to be located within large, well-drained, sandy deposits up to the creek bank or in raised and sheltered areas surrounding swamps.
- Creek terraces have high potential to contain Aboriginal sites, particularly stratified sites due to alluvial deposition.
- All areas in the vicinity of granite outcrops are likely to contain artefact scatters where raw materials are processed.
- Quartz outcrops have the potential to be used as quarries and striking formations may have been natural mythological sites.
- Saddles and ridge lines, particularly near water have potential to contain artefact scatters. If they are located away from water, artefact scatters are likely to be smaller. Erosion is also common within this landform, therefore sites are unlikely to be stratified.
- Mature trees have potential to contain scars or carvings.

A survey of the area revisited PAD sites identified by Smith (1992) and additional landforms of potential. High archaeological potential was associated with banks, flats and associated water courses around the Murrumbidgee River. Low potential was identified within low lying and poorly draining areas, and areas of high disturbance. The original proposed route through North Wagga was altered to be in an area of low archaeological potential.

Navin Officer (1995) carried out a historical, anthropological and Aboriginal archaeological investigation along a 146 kilometre area from Wodonga in Victoria to Wagga Wagga in NSW, located approximately 30 kilometres south-east of the study area, for a proposed natural gas pipeline. In the Wagga Wagga region, Navin Officer anticipated artefact scatters to be the most common site type to be encountered, and to a lesser extent scarred trees, mound sites and burials. Field surveys were carried out targeting areas deemed to hold high and moderate potential archaeological significance. Five sites were identified comprising of four artefact scatters, one scarred tree, and four isolated finds. However, four of these sites were located approximately 50 kilometres to the south in the area south of Henty, NSW. Furthermore the sites were not located in areas considered to be of high potential, but this may be due to low surface visibility. The survey confirmed that artefact scatters are likely to be located in well drained contexts within riparian zones and adjacent to water sources.

Navin Officer (1996) carried out additional investigations following the preliminary assessment above. Further field surveys carried out over three days targeted specific areas, including those in proximity to water sources,

foothills, ridgelines, saddles. No sites were selected for investigation in Wagga Wagga, and ground visibility was consistently poor. Fifteen sites, including 12 artefact scatters, 10 isolated finds and three scarred trees, were located, with the same conclusions made regarding likely locations of artefact scatter sites.

OzArk (2012) carried out a survey for the Wagga Wagga Levee Upgrade Project to determine possible impacts on Aboriginal and heritage sites. The area of impact that was assessed covered an area that is located approximately 39 kilometres south-east of the study area at its furthest point, and approximately 35 kilometres south-east at its closest. No Aboriginal objects or sites were identified during survey, with no areas assessed as having potential Aboriginal sites (OzArk 2012, p.1). The area's low potential was interpreted as being due to high levels of disturbance. One tree was identified with scarring, but this scarring was not consistent with deliberate cultural modification (OzArk 2012, p.27).

### 3.3.1 Identified Aboriginal archaeological sites

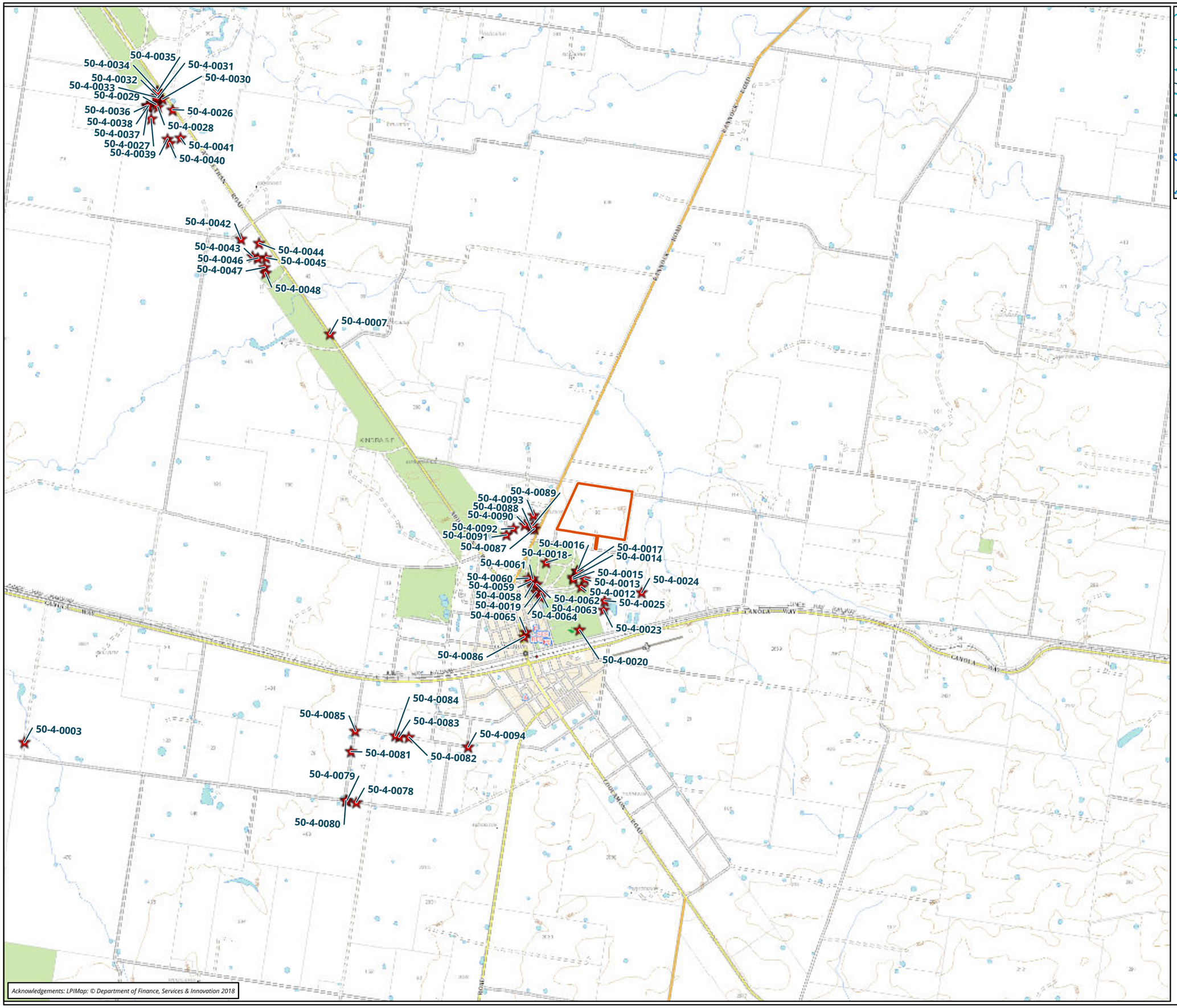
An extensive search of the AHIMS database was conducted on 30 April 2022 (Client service ID: 678940). The search identified 66 Aboriginal archaeological sites within a 10 kilometre search area, centred on the proposed study area (Table 4). None of these registered sites are located *within* the study area (Figure 7). The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps from Aboriginal heritage reports where available. These descriptions and maps were relied upon where notable discrepancies occurred.

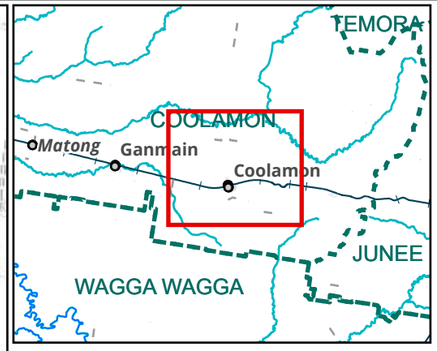
It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the list. Large areas of NSW have not been subject to systematic, archaeological survey; hence AHIMS listings may reflect previous survey patterns and should not be considered a complete list of Aboriginal sites within a given area.

**Table 4 AHIMS sites in the vicinity of the study area**

| Site type | Occurrences | Frequency (%) |
|---|---|---|
| **Modified Tree** | 55 | 83.33 |
| **Artefact** | 11 | 16.67 |
| **Grand Total** | **66** | **100** |

A simple analysis of the Aboriginal cultural heritage sites registered within 10 kilometres of the study area indicates that the dominant site type is modified tree, representing 83.33 (n=55%). This was followed by the only other site type present, artefact, which represented 16.67% (n=11). All the sites were located within close proximity to the reliable sources of water, were either exposed by the land clearing works (artefacts) or in areas with remnant native vegetation (modified trees).




**Legend**

- Study area
- AHIMS

**NOT TO BE MADE PUBLIC**

**Figure 6 AHIMS within the vicinity of the study area**

0 0.5 1 1.5 2

Kilometers

Scale: 1:52,000@ A3

*Coordinate System:*
*GDA 1994 MGA Zone 55*

biosis

Matter: 37066, Date: 09 May 2022,
Drawn by: JB, Checked by: ML, Last edited by: amackegard
Location: P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout: 37066_ADDA_F6_AHIMS

### 3.3.2 Predictive statements

A series of statements have been formulated to broadly predict the type and character of Aboriginal cultural heritage sites likely to exist throughout the study area and where they are more likely to be located.

This model is based on:

- Local and regional site distribution in relation to landform features identified within the study area.
- Consideration of site type, raw material types and site densities likely to be present within the study area.
- Findings of the ethnohistorical research on the potential for material traces to present within the study area.
- Potential Aboriginal use of natural resources present or once present within the study area.
- Consideration of the temporal and spatial relationships of sites within the study area and surrounding region.

Based on this information, a predictive model has been developed, indicating the site types most likely to be encountered during the survey and subsequent sub-surface investigations across the present study area (Table 5). The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the study area.

**Table 5 Aboriginal site predictive statements**

| Site type | Site description | Potential |
|---|---|---|
| **Flaked stone artefact scatters and isolated artefacts** | Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds. | Moderate: Stone artefact sites have been previously recorded in the region on level, well-drained topographies in close proximity to reliable sources of fresh water. Due to the distance from permanent fresh water resources, the potential for artefacts to be present within the study area is assessed as moderate. |
| **Potential Archaeological Deposits (PADs)** | Potential sub surface deposits of cultural material. | Moderate: PADs have been previously recorded in NSW across a wide range of landforms. PADs are likely to be present within areas adjacent to water courses or on high points in undisturbed landforms. |
| **Modified trees** | Trees with cultural modifications | Moderate to low: Scarred trees are the most common site type within the vicinity of the study area. Due to extensive vegetation clearance only a small number of mature native trees have survived within the study area. |

| Site type | Site description | Potential |
|---|---|---|
| **Shell middens** | Deposits of shells accumulated over either singular large resource gathering events or over longer periods of time. | Low: Shell midden sites have not been recorded within the vicinity of the study area. There is a very low potential for shell middens to be located in the study area as there are no higher order or permanent water courses in close vicinity to the study area. |
| **Quarries** | Raw stone material procurement sites. | Low: There is no record of any quarries being within or surrounding the study area. |
| **Burials** | Aboriginal burial sites. | Low: Aboriginal burial sites are generally situated within deep, soft sediments, caves or hollow trees. Areas of deep sandy deposits will have the potential for Aboriginal burials. The soil profiles associated with the study area are not commonly associated with burials. |
| **Aboriginal Ceremony and Dreaming sites** | Such sites are often intangible places and features and are identified through oral histories, ethnohistoric data, or Aboriginal informants. | Low: There are currently no recorded mythological stories for the study area. |
| **Post-contact sites** | These are sites relating to the shared history of Aboriginal and non-Aboriginal people of an area and may include places such as missions, massacre sites, post-contact camp sites and buildings associated with post-contact Aboriginal use. | Low: There are no post-contact sites previously recorded in the study area and historical sources do not identify one. |
| **Aboriginal places** | Aboriginal places may not contain any 'archaeological' indicators of a site, but are nonetheless important to Aboriginal people. They may be places of cultural, spiritual or historic significance. Often they are places tied to community history and may include natural features (such as swimming and fishing holes), places where Aboriginal political events commenced or particular buildings. | Low: There are currently no recorded Aboriginal historical associations for the study area. |
| **Grinding grooves** | Grooves created in stone platforms through ground stone tool manufacture. | Nil: There are no suitable horizontal sandstone rock outcrops within the study area. |

| Site type | Site description | Potential |
|---|---|---|
| **Rock shelters with art and / or deposit** | Rock shelter sites include rock overhangs, shelters or caves, and generally occur on, or next to, moderate to steeply sloping ground characterised by cliff lines and escarpments. These naturally formed features may contain rock art, stone artefacts or midden deposits and may also be associated with grinding grooves. | Nil: The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist, which are not present within the study area. |

# 4 Archaeological investigation

An archaeological investigation of the study area was undertaken on 3 May 2022 by Biosis Archaeologist, Madeleine Lucas. The survey sampling strategy, methodology and a discussion of results are provided below.

## 4.1 Archaeological survey aims

The principle aims of the survey were to:

- Undertake a systematic survey of the study area targeting areas with the potential for Aboriginal heritage.
- Identify and record Aboriginal archaeological sites visible on the ground surface.
- Identify and record areas of Aboriginal archaeological and cultural sensitivity.

## 4.2 Survey methods

The survey was conducted on foot. Recording during the survey followed the archaeological survey requirements of the code and industry best practice methodology. Information recorded during the survey included:

- Aboriginal objects or sites present in the study area during the survey.
- Survey coverage.
- Any resources that may have potentially been exploited by Aboriginal people.
- Landform elements, distinguishable areas of land approximately 40m across or with a 20m radius (CSIRO 2009).
- Photographs of the site indicating landform.
- Ground surface visibility (GSV) and areas of exposure.
- Observable past or present disturbances to the landscape from human or animal activities.
- Aboriginal artefacts, culturally modified trees or any other Aboriginal sites.

Where possible, the identification of natural soil deposits within the study area was undertaken. Photographs and recording techniques were incorporated into the survey including representative photographs of survey units, landform, vegetation coverage, GSV and the recording of soil information for each survey unit were possible. Any potential Aboriginal objects observed during the survey were documented and photographed. The location of Aboriginal cultural heritage and points marking the boundary of the landform elements were recorded using a hand-held Global Positioning System and the Map Grid of Australia (94) coordinate system.

## 4.3 Constraints to the survey

With any archaeological survey there are several factors that influence the effectiveness (the likelihood of finding sites) of the survey. The factors that contributed most to the effectiveness of the survey within the study area were the extensive cultivated vegetation in the northern portion of the study area and extensive

ground disturbance, including the man-made dams, residential property and buildings associated with agricultural activities.

## 4.4 Visibility

In most archaeological reports and guidelines visibility refers to GSV, and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (DECCW 2010b). GSV during the survey varied throughout the study area (0–40%) however was generally low, with the average being 20%.

Visibility in the southern portion of the study area was generally low (0–30%) and was obscured by the residential property, associated garden sheds, bitumen driveway, stockpiling and cultivated vegetation (Photo 7 to Photo 9). GSV increased in areas adjacent to fence lines, under trees and in areas that had been repeatedly used by vehicles (Photo 10 and Photo 11). Visibility in the northern portion of the study area was minimal to low (0–20%) and was hindered by extensive cultivated vegetation (Photo 12). It increased in the areas adjacent to the man-made dams, near fence lines and in areas that had been repeatedly used by vehicles (Photo 13).

**Photo 7** **Low GSV in southern portion of the study area, facing north-east**

**Photo 8** **Low GSV in southern portion of the study area, facing north-west**

**Photo 9** **Low GSV in southern portion of the study area, facing north-west**

**Photo 10** **Increased GSV in southern portion of the study area, facing north-east**

**Photo 11** **Increased GSV in southern portion of the study area, facing north-west**

**Photo 12** **Low GSV in northern portion of the study area, facing north-east**

**Photo 13** **Low GSV in northern portion of the study area, facing south-east**

## 4.5 Exposure

Exposure refers to the geomorphic conditions of the local landform being surveyed, and attempts to describe the relationship between those conditions and the likelihood the prevailing conditions provide for the exposure of (buried) archaeological materials. Whilst also usually expressed as a percentage estimate, exposure is different to visibility in that it is in part a summation of geomorphic processes, rather than a simple observation of the ground surface (Burke & Smith 2004, pp. 79, DECCW 2010b).

Overall, the study area displayed areas of varying levels of exposure, ranging between 0–80%. The southern section of the study area had the highest levels of exposure, averaging 30%, and could be seen predominantly near fence lines and access gates, underneath trees, in areas that had been subjected to repeated vehicle movement and near the man-made dam (Photo 14 to Photo 16). Exposure was low (0–10%) throughout the northern section of the study area, and was limited by the coverage from the excessive cultivated vegetation (Photo 12). Exposures in the northern portion of the study area increased areas adjacent to the man-made dam and in areas that has been subjected to repeated vehicle movement (Photo 17 and Photo 18).

**Photo 14** **Increased exposures near man-made dam from vehicle tracks and under trees in southern portion of the study area, facing north-east**

**Photo 15** **Increased exposures from vehicle tracks in southern portion of study area, facing south-west**

**Photo 16** **Increased exposures from vehicle tracks in southern portion of study area, facing south-west**

**Photo 17** **Increased exposures from vehicle tracks in northern portion of study area, facing south-west**

**Photo 18** **Increased exposures between man-made dams in northern portion of study area, facing south-west**

## 4.6 Disturbances

Disturbance in the study area is associated with natural and human agents. Natural agents generally affect small areas and include the burrowing and scratching in soil by animals, such as wombats, foxes, rabbits and wallabies, and sometimes exposure from slumping or scouring. Disturbances associated with recent human action are prevalent in the study area and cover large sections of the land surface. The agents include residential development such as landscaping and construction of residential buildings; farming practices, such as initial vegetation clearance for creation of paddocks, fencing and stock grazing; agricultural practices such as cropping; light industrial practices such as nursery and creation of artificial dams throughout the entire study area.

The entire study area has been subjected to extensive levels of disturbance consistent with intensive cropping (Photo 9 and Photo 12). The southern portion has also been disturbed from the development of residential infrastructure and sub-surface services (Photo 7 and Photo 8); stockpiling (Photo 9), construction of man-made dams (Photo 14), fence lines and farm buildings (Photo 19) and animal enclosures (Photo 20). There were also two man-made dams in the northern portion of the study area (Photo 21).

The entire study area has also been subjected to extensive vegetation clearance, with only some large trees remaining in the northern portion of the study area, and near the residence. Mature trees were examined for any indication of Aboriginal scarring or modifications, however, this was not present on any of the trees within the study area, some of which can be seen in (Photo 22 and Photo 23).

The extensive levels of disturbance throughout large portions of the study area would have impacted both surface and subsurface deposits. Soils disturbed from agricultural practices and vehicle movements experience higher levels of displacement and re-deposition, however, any deposits in deeper soils would be undisturbed. Residential infrastructure involves the removal or modification of soils for installation of fence lines, driveways, landscaped areas and utilities, including sewer, water and electricity. The construction of the man-made dams would have involved bulk excavation and removal of soils, destroying any intact sub-surface deposits. Disturbances of this nature would likely result in the limited preservation of intact archaeological deposits in subsurface layers.

**Photo 19** **Farm buildings and fence lines in southern portion of the study area, facing north-east**

**Photo 20** **Animal enclosure in southern portion of the study area, facing north-west**

**Photo 21** **Man-made dam in northern portion of the study area, facing south-east**

**Photo 22** **Mature tree in northern portion of the study area, facing north-west**

**Photo 23** **Mature tree in northern portion of the study area, facing south-east**

## 4.7 Investigation results and discussion

The field investigation consisting of one meandering transect was walked across the entire study area. The results of the field investigation have been summarised below and transect locations are provided in Figure 8. During the field investigation, no Aboriginal sites or objects were identified. However, the lack of surface material does not indicate that there is an absence of archaeological deposits. This is instead likely attributable to the limited exposure and areas of disturbance seen during the field investigation, rather than an absence of Aboriginal occupation of the area.

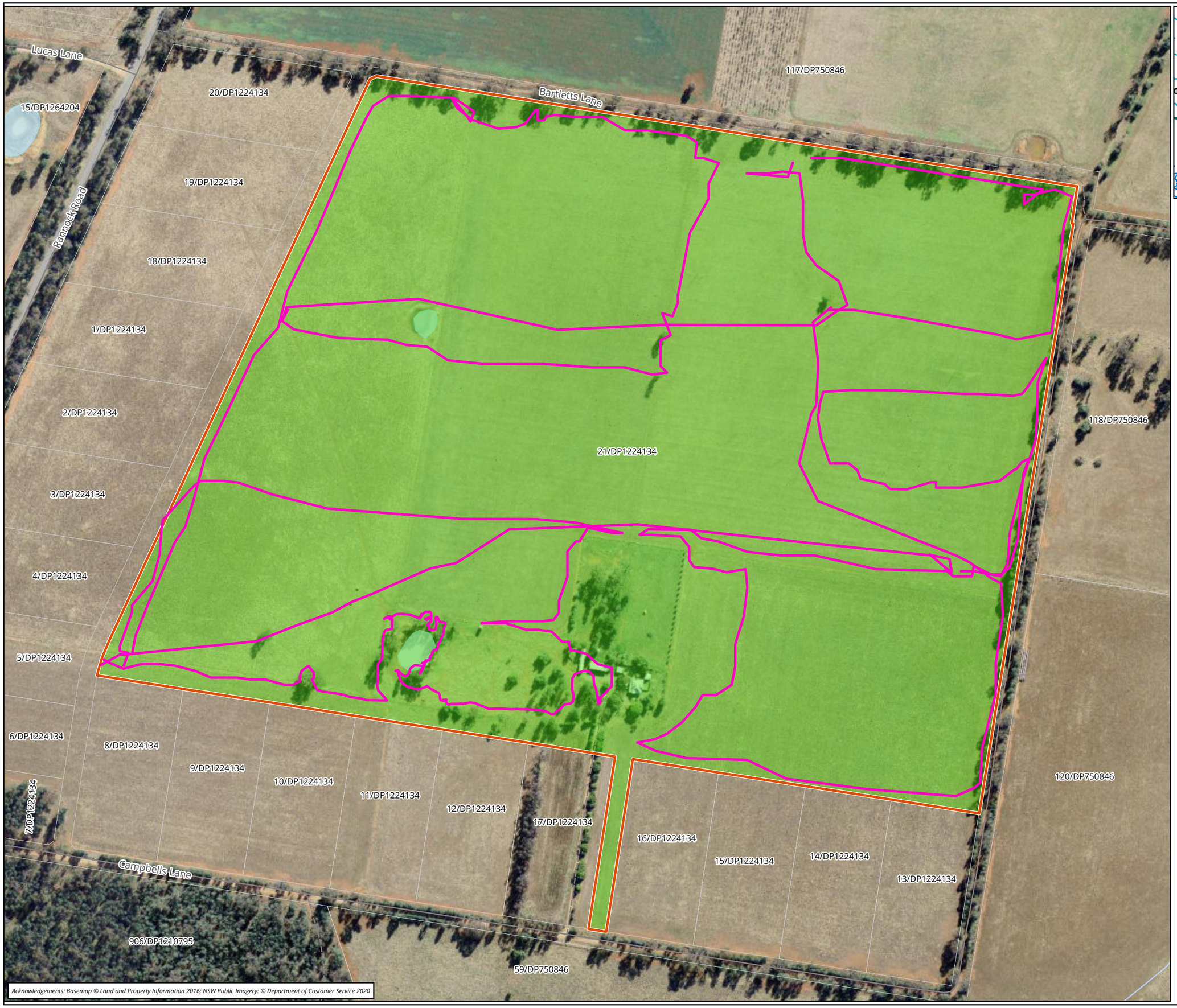
The study area is located within the South West Slopes Bioregion, within the foothills and isolated ranges of the lower slopes of the Great Dividing Range. The study area is situated within an almost level plain, which slopes very gently towards the north-east, with a slightly raised, crest-like landform in the southern portion. There are no water courses located within the study area, and there are also none within close proximity. Hydrology within the wider region includes a third-order, non-perennial water course located approximately 533 metres north-east of the study area and a second-order, non-perennial tributary located approximately 308 metres to the south-east. Two first-order tributaries of the second-order creekline are located approximately 275 and 330 metres to the east of the study area. The closest perennial water course is the Murrumbidgee River, which at its closest, is located approximately 27.5 kilometres south-west of the study area. The absence of ample, permanent water sources in proximity to the study area suggests that the location may not have been an ideal setting for extended Aboriginal occupation.

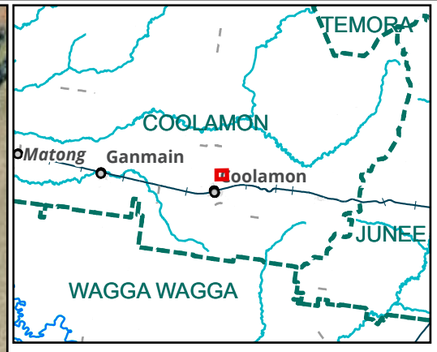
The study area is contained within the Becks Lanes and Kindra soil landscapes. Becks Lane soils are a transferral soil landscape formed by sediment that has been eroded from lithic parent material, and deposited by hydrological movements. They are also generally subjected to moderate to high levels of sheet and gully erosion and seasonal waterlogging, as such the soils can be shallow and highly permeable, as well as producing low soil fertility. In the event that the soils are continuously exploited, they can reach a state of degradation in which they are irreparable and void of structural integrity. This would indicate that the presence of Aboriginal sites and objects may be unlikely where erosion has occurred (Chapman et al. 1989, pp. 64–67, McInnes 1997, p.45, cited by Umwelt (Australia) Pty Limited 2016, pp. 13). The majority of the study

area lies within this soil landscape and due to the extensive, multiple phases of cultivation over time, suggests that it is unlikely to contain intact subsurface deposits. Kindra soils are a stagnant alluvial soil landscape, which typically experiences minor sheet erosion in the A-horizon; and levels of erosion increase in areas that have been heavily cultivated. The Kindra landscape has deep soil profiles (>100 centimetres) and deep soil deposits such as these also provide potential for archaeological deposits to remain intact within areas of superficial disturbances. However, the sodic composition and dispersive nature of subsoils such as the deeper layers found in the B-horizon soils, experience high erodibility (Andersson & McNamara 2009, pp. 506). Thus material deposited within the B-horizon of this landscape has a higher probability of being eroded from its *in situ* position.

Previous archaeological investigations conducted by Smith (1992) identified low potential in areas within low lying and poorly draining areas, and in regions that had experienced high levels of disturbance. A similar conclusion was made by OzArk (2012) and OzArk (2021), who identified their study areas as low potential due to high levels of disturbance. In the archaeological survey conducted by Kelton (2007) of the existing Wagga Quarry, no Aboriginal sites or areas of PAD were identified, in part due to the site being in a flood-prone location in combination with extensive surface and subsurface disturbances as a result of past and ongoing European cultivation.

A review of historical aerial photographs paired with the field investigation identified that the study area has been extensively disturbed by agricultural practices as well as residential development. The cultivated areas appear to be heavily exploited over time, with the plough lines often changing direction. These activities would have involved land clearing, and excavations and large-scale soil displacement and would have likely resulted in the poor preservation of deposited material. The nature of the underlying soils, distance to water and absence of favourable landforms that are undisturbed suggest that the study area has a low potential for intact, subsurface deposits. This is supported by the previous studies and predictive modelling that suggest that in areas that have been subjected to high levels of ground disturbances there is a low potential for the preservation of archaeological material. Therefore, the background research coupled with the field investigation have led to the conclusion that the study area is of low archaeological potential (Figure 8).




**Legend**

- Study area
- Lot
- Survey track

**Archaeological potential**

- Low

**Figure 8 Survey effort and results**

0 40 80 120 160

Metres

Scale: 1:4,000@ A3

*Coordinate System:*
*GDA 1994 MGA Zone 55*

N

biosis

Matter: 37066, Date: 09 May 2022,
Drawn by: AM, Checked by: ML, Last edited by: amackegard
Location: P:\37000s\37066\Mapping\37066_ADDA_Coolamon,
Layout: 37066_ADDA_F7_SurveyResults

# 5 Conclusions and recommendations

## 5.1 Conclusions

This assessment has determined that there is low potential for Aboriginal sites to be located within the entirety of the current study area. This is due to the significant levels of disturbance seen throughout the study area and distance from permanent water sources, which decreases the likelihood of potential. The results of this assessment are also demonstrated in the due diligence flow chart provided by the Code (Figure 9).

## 5.2 Recommendations

The following management recommendations have been developed relevant to the study area and influenced by:

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
  - Ethos of the Australia ICOMOS Burra Charter (2013).
  - The Code.

Prior to any impacts occurring within the study area, the following is recommended:

### Recommendation 1: No further archaeological assessment is required

No further archaeological work is required in the study area due to the entire study area assessed as having low archaeological potential.

### Recommendation 2: Discovery of Unanticipated Aboriginal Objects

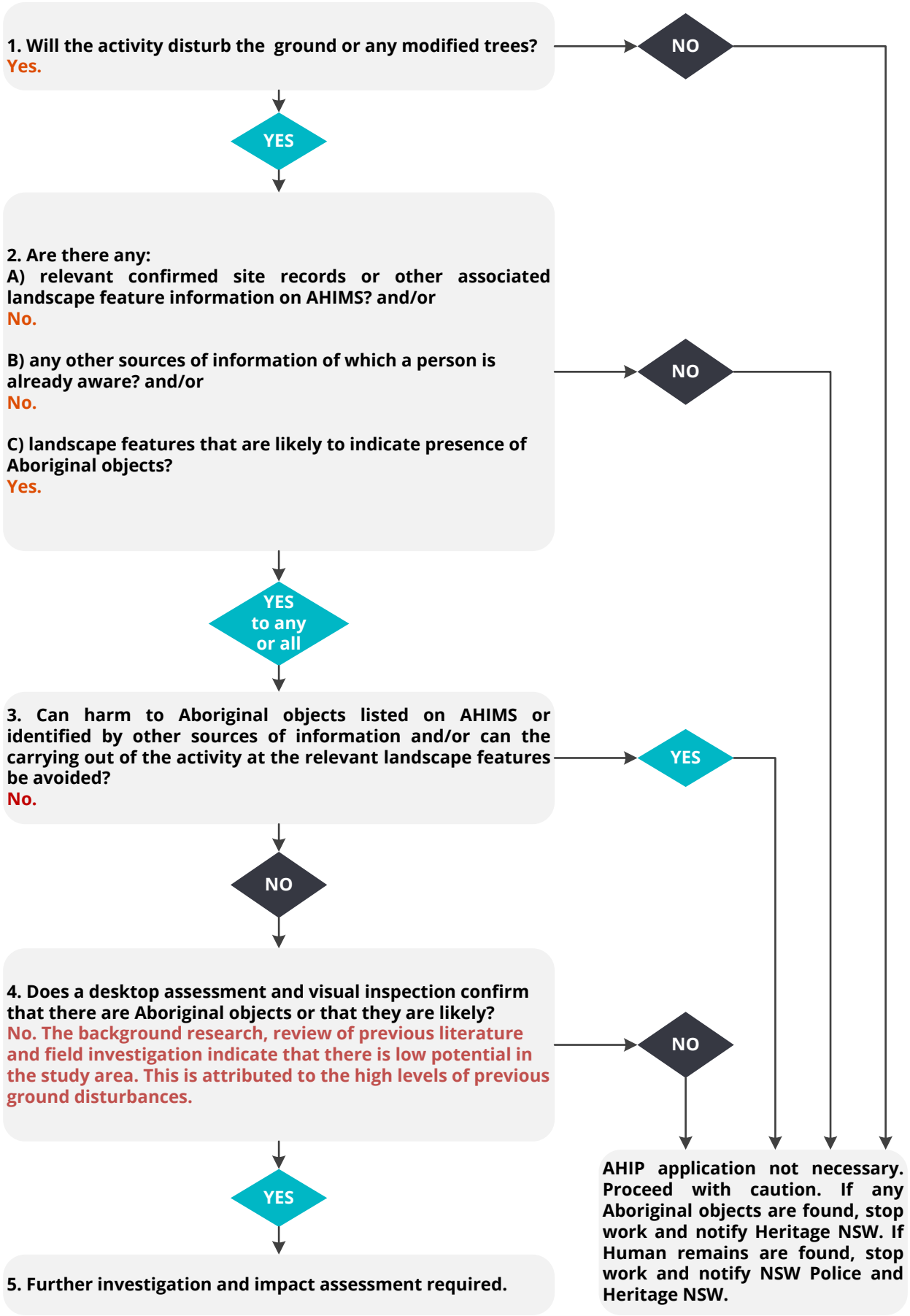
All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the Heritage NSW. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.

### Recommendation 3: Discovery of Aboriginal Ancestral Remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and Heritage NSW' Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

# Due Diligence Flow Chart



# References


Allen J & O'Connell J 2003. 'The long and the short of it: archaeological approaches to determining when humans first colonised Australia and New Guinea', *Australian Archaeology*, 57: 5–19.

Andersson K & McNamara M 2009. *Soil Landscapes of the Cootamundra 1:250,000 Sheet map and report. NSW Department of Environment, Climate Change and Water, Sydney.*,.

Archaeo Analysis 2007. *Archaeological Survey and Aboriginal Site Recording in Livingstone National Park and State Conservation Area, Near Wagga Wagga, NSW*, Report prepared for DECC South West Slopes Region. Williams. D, Archaeo Analysis.

Atlas of Living Australia 2021. *7 Heath Road, All Species List*, *Atlas of Living Australia*, https://biocache.ala.org.au/explore/your-area#-33.9761|150.8079|12|ALL_SPECIES.

Attenbrow V 2002. *Sydney's Aboriginal Past: Investigating the archaeological and historical records*, University of New South Wales Press Ltd, Sydney.

Burke H & Smith C 2004. *The Archaeologist's Field Handbook*, 1st edn, Allen and Unwin, Sydney, NSW.

Chapman G, Murphy C, Tille P, Atkinson G, & Morse RJ 1989. *Soil Landscapes of the Sydney 1:100,000 Sheet map*, Department of Environment, Climate Change and Water, Sydney.

Coolamon Shire Council n.d. *Coolamon Shire: Our Heritage*, accessed 5 January 2022, https://visitcoolamonshire.com.au/heritage.

CSIRO 2009. *Australian soil and land survey field handbook*, 3rd edn, CSIRO Publishing & National Committee on Soil and Terrain, Collingwood, Victoria.

DECCW 2010a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*, Department of Environment, Climate Change and Water, Sydney NSW.

DECCW 2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*, Department of Environment and Climate Change, Sydney NSW.

Department of Planning, Industry and Environment 2016. *South Western Slopes Bioregion*, *Bioregions*, accessed 16 June 2020, https://www.environment.nsw.gov.au/bioregions/NSWSouthWesternSlopesBioregion.htm.

Flood J 1996. *Moth Hunters of the Australian Capital Territory, Aboriginal Traditional Life in the Canberra Region*, Gecko Books, Marleston, South Australia.

Go Green Services 2002. *Wiradjuri Heritage Study*, Report to Wiradjury and Associated Community of Wagga Wagga, https://wagga.nsw.gov.au/__data/assets/pdf_file/0020/4646/Wiradjuri_Heritage_Study2.pdf.

Hamm G, Mitchell P, Arnold L, Prideaux G, Questiaux D, Spooner N, Levechenko V, Foley E, Worthy T, Stephenson B, Coulthard V, Coulthard C, Wilton S, & Johnston D 2016. 'Cultural innovation and megafauna interaction in the early settlement of arid Australia', *Nature*, 539: 280–297.

JMCHM 2000. *Archaeological Survey for Aboriginal Sites: Proposed Light Industrial Subdivision, 'Austral Site', Mamre Road, Erskine Park, NSW*, Report prepared for Gunninah Environmental Consultants for Austral Brick Company. Jo McDonald Cultural Heritage Management Pty Ltd.

JMCHM 2005a. *Archaeological Salvage Excavation of Site CG1 (NPWS #45-5-2648), at the corner of Charles and George Streets, Parramatta, NSW*, Report prepared for Meriton Apartments Pty Ltd. Jo McDonald Cultural Heritage Management Pty Ltd.

JMCHM 2005b. *Archaeological Salvage Excavation of Site RTA-GI, 109-113 George Street, Parramatta, NSW*, Unpublished Report prepared for Landcom. Jo McDonald Cultural Heritage Management Pty Ltd.

JMCHM 2008. *Austral Land Mamre Road , Erskine Park Archaeological Salvage Excavations*, Report prepared for Macquarie Goodman. Jo McDonald Cultural Heritage Management Pty Ltd.

Kelton J 2007. *An Aboriginal Archaeological Study of the Proposed Extension to the Wagga Quarry, Roach Road, Wagga Wagga, NSW. Report to Hanson Construction Materials Pty Ltd.*, Central West Archaeological and Heritage Services.

Navin Officer 1999. *Proposed Water Pipelone to Visy Pulp and Paper Mill, Gadara Plains, Tumut, NSW*, Report to Visy Pulp and Paper.

Navin Officer Heritage Consultants 1995. *Preliminary Cultural Heritage Assessment, Wadonga to Wagga Wagga Natural Gas Pipeline. Report to Sinclair Knight Merz on behalf of EAPL.,*.

Navin Officer Heritage Consultants Pty Ltd 1996. *Wodonga to Wagga Wagga Natural Gas Pipeline EIS Cultural Heritage Assessment. Report to Sunclair Knight Merz on behalf of EAPL.,*.

NGH Environmental Pty Ltd 2021. *Aboriginal Cultural Heritage Assessment: Bomen Stage 3.,*.

OzArk Environmental and Heritage Management 2012. *Aboriginal and Historic Heritage Assessment: Wagga Wagga Levee Upgrade Project.*, Report to GHD Wagga on behalf of Wagga Wagga City Council.

OzArk Environmental and Heritage Management 2018. *Aboriginal Cultural Heritage Assessment: Forest Hill Pump Station Upgrade.*, Report prepared for Wagga Wagga City Council.

OzArk Environmental and Heritage Management 2021. *Aboriginal Cultural Heritage and Historic Heritage Assessment Report, Wagga Wagga Special Activation Precinct*, Report for WSP on behalf of DPIE.

OzArk Environmental and Heritage Management Pty Ltd 2012. *Aboriginal and Historic Heritage Assessment for the Proposed Road Upgrade to the Olympic Hwy (MR78) near The Rock, NSW. Report to Roads and Maritime Services NSW.,*.

Ritter DF, Kochel RC, & Miller JR 1995. *Process Geomorphology*, Wm. C. Brown.

Sams DEJ 1982. *A reconstruction of the Indigenous culture of the Tumut Valley - An assessment of ethnographic and material evidence*, University of New England.

Smith L 1992. *Archaeological Predictive Study of the Proposed Route of the Optus Fibre Optic Cable Network Between Albury and Cootamundra, NSW. Report to Landscan Pty Ltd on behalf of Optus Pty Ltd.*, Johnstone Centre of Parks Recreation and Heritage Charles Sturt University.

Strahler A 1952. 'Hypsometric (area-altitude) analysis of erosional topology', *Geological Society of America Bulletin*, 63, 11: 1117–1142.

Tindale NB 1974. *Aboriginal Tribes of Australia: The Terrain, Environmental Controls, Distribution, Limits and Proper names*, Australian National University, Canberra.

Umwelt (Australia) Pty Limited 2016. *Aboriginal Cultural Heritage and Archaeological Assessment. Haerses Road Quarry*, Prepared for Dixon Sand.

Williams D 1993. *Further Archaeological Investigations of the Proposed Route of the Optus Communications Fibre Optic Cable between Albury and Wagga Wagga*, Report prepared for Landscan Pty Ltd.

Wood V 1992. *Preliminary archaeological survey of the proposed NAVCOMMSTA facilities in the Wagga Wagga Region, New South Wales, report to Dames & Moors, Canberra.*,.

# Appendices

# Appendix 1 AHIMS search results

**This Appendix is not to be made public.**

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 50-4-0003 | Boggy Creek 5 | AGD | 55 | 510730 | 6145890 | Open site | Valid | Artefact : - | Open Camp Site | |
| | **Contact** | **Recorders** | Annie Nicholson | | | | | **Permits** | 424 | |
| 50-4-0023 | Coolamon Gov Dam TSR 1 | GDA | 55 | 519463 | 6148047 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0024 | Coolamon Gov Dam TSR 2 | GDA | 55 | 520032 | 6148302 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0025 | Coolamon Gov Dam TSR 3 | GDA | 55 | 519482 | 6148182 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0026 | Coolamon 1914 TSR Scar Tree 1 | GDA | 55 | 513051 | 6155495 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0027 | Coolamon 1914 TSR Scar Tree 2 | GDA | 55 | 512728 | 6155364 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0028 | Coolamon 1914 TSR Scar Tree 3 | GDA | 55 | 512828 | 6155538 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0029 | Coolamon 1914 TSR Scar Tree 4 | GDA | 55 | 512803 | 6155575 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0030 | Coolamon 1914 TSR Scar Tree 5 | GDA | 55 | 512897 | 6155656 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0031 | Coolamon 1914 TSR Scar Tree 6 | GDA | 55 | 512828 | 6155672 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0032 | Coolamon 1914 TSR Scar Tree 7 | GDA | 55 | 512813 | 6155705 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |

**Report generated by AHIMS Web Service on 30/04/2022 for Samantha Keats for the following area at Datum :GDA, Zone : 55, Eastings : 508722.0 - 529760.0, Northings : 6138880.0 - 6159938.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 66**

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 50-4-0033 | Coolamon 1914 TSR Scar Tree 8 | GDA | 55 | 512798 | 6155683 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0034 | Coolamon 1914 TSR Scar Tree 9 | GDA | 55 | 512824 | 6155767 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0035 | Coolamon 1914 TSR Scar Tree 10 | GDA | 55 | 512826 | 6155768 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0036 | Coolamon 1914 TSR Scar Tree 11 | GDA | 55 | 512671 | 6155555 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0037 | Coolamon 1914 TSR Scar Tree 12 | GDA | 55 | 512681 | 6155536 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0038 | Coolamon 1914 TSR Scar Tree 13 | GDA | 55 | 512688 | 6155554 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0039 | Coolamon 1914 TSR Scar Tree 15 | GDA | 55 | 512974 | 6155062 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0040 | Coolamon 1914 TSR Scar Tree 16 | GDA | 55 | 513003 | 6154997 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0041 | Coolamon 1914 TSR Scar Tree 17 | GDA | 55 | 513169 | 6155076 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0042 | Coolamon 1914 TSR Scar Tree 18 | GDA | 55 | 514064 | 6153573 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 50-4-0043 | Coolamon 1914 TSR Scar Tree 20 | GDA | 55 | 514238 | 6153312 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0044 | Coolamon 1914 TSR Scar Tree 21 | GDA | 55 | 514337 | 6153508 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0045 | Coolamon 1914 TSR Scar Tree 22 | GDA | 55 | 514443 | 6153291 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0046 | Coolamon 1914 TSR Scar Tree 23 | GDA | 55 | 514321 | 6153288 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0047 | Coolamon 1914 TSR Scar Tree 24 | GDA | 55 | 514421 | 6153148 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0048 | Coolamon 1914 TSR Scar Tree 25 | GDA | 55 | 514430 | 6153066 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0012 | Coolamon Land Care 3 | GDA | 55 | 519131 | 6148386 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0013 | Coolamon Land Care 4 | GDA | 55 | 519187 | 6148506 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0014 | Coolamon Land Care 6 | GDA | 55 | 519011 | 6148529 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0015 | Coolamon Land Care 7 | GDA | 55 | 519011 | 6148503 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |

**Report generated by AHIMS Web Service on 30/04/2022 for Samantha Keats for the following area at Datum :GDA, Zone : 55, Eastings : 508722.0 - 529760.0, Northings : 6138880.0 - 6159938.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 66**

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 50-4-0016 | Coolamon Land Care 8 | GDA | 55 | 519074 | 6148620 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0017 | Coolamon Land Care 9 | GDA | 55 | 519074 | 6148620 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0018 | Coolamon Land Care 10 | GDA | 55 | 518610 | 6148750 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0019 | Coolamon Land Care 11 | GDA | 55 | 518461 | 6148310 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0020 | Coolamon Golf Course | GDA | 55 | 519108 | 6147746 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0007 | Kindra 2 | GDA | 55 | 515390 | 6152156 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0008 | Chamberlain 1 | GDA | 55 | 522308 | 6141912 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0009 | Chamberlain 2 | GDA | 55 | 522307 | 6141924 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0010 | Chamberlain 3 | GDA | 55 | 522291 | 6141923 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0011 | Chamberlain 4 | GDA | 55 | 522274 | 6141932 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 50-4-0058 | Coolaman Land Care 11 | GDA | 55 | 518413 | 6148435 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0059 | Coolaman Land care 12 | GDA | 55 | 518381 | 6148468 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0060 | Coolaman Land care 13 | GDA | 55 | 518344 | 6148518 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0061 | Coolaman Land care 14 | GDA | 55 | 518410 | 6148507 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0062 | Coolaman Land care 15 | GDA | 55 | 518468 | 6148426 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0063 | Coolaman Land care 16 | GDA | 55 | 518534 | 6148292 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0064 | Coolaman Land care 17 | GDA | 55 | 518524 | 6148233 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0065 | Garth Collection | GDA | 55 | 518307 | 6147712 | Open site | Valid | Artefact : 34 | | |
| | **Contact** Mr.Harvey Johnston | **Recorders** | Mr.John Gilding | | | | | **Permits** | 4521 | |
| 50-4-0086 | Coolamon Museum Collection | GDA | 55 | 518284 | 6147642 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | DPIE - Armidale,Mr.John Gilding | | | | | **Permits** | 4521 | |
| 50-4-0087 | Temora Rd 518435 | GDA | 55 | 518435 | 6149253 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0088 | Temora Rd 518390 | GDA | 55 | 518390 | 6149254 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0089 | Temora Rd 518413 | GDA | 55 | 518413 | 6149301 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0090 | Temora Rd 518295 | GDA | 55 | 518295 | 6149310 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0091 | Temora Rd 518019 | GDA | 55 | 518019 | 6149162 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|
| 50-4-0092 | Temora Rd 518126 | GDA | 55 | 518126 | 6149260 | Open site | Valid | Artefact : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0093 | Temora Rd 518419 | GDA | 55 | 518419 | 6149455 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Mark Saddler | | | | | **Permits** | | |
| 50-4-0078 | Dyces lane coolamon scar tree 3 | GDA | 55 | 515783 | 6145178 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0079 | Dyces lane coolamon scar tree 2 | GDA | 55 | 515645 | 6145202 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0080 | Dyces Lane coolamon scar tree 1 | GDA | 55 | 515628 | 6145207 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0081 | Muttons lane coolamon scar tree 2 | GDA | 55 | 515703 | 6145934 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0082 | Jerricks lane Coolaman Scar Tree 3 | GDA | 55 | 516566 | 6146149 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0083 | Jerricks lane Coolaman Scar Tree 2 | GDA | 55 | 516420 | 6146154 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0084 | Jerrick Lane  Coolaman Scar Tree 1 | GDA | 55 | 516365 | 6146172 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0085 | Muttons lane coolamon scar tree 1 | GDA | 55 | 515768 | 6146242 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Peter Ingram | | | | | **Permits** | | |
| 50-4-0094 | Jericks Lane Water Main TRE01 | GDA | 55 | 517450 | 6146003 | Open site | Valid | Modified Tree (Carved or Scarred) : - | | |
| | **Contact** | **Recorders** | Mr.Matthew Barber,NGH Heritage - Fyshwick | | | | | **Permits** | | |

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 37066 - CG - 10 km

Client Service ID : 678940

| SiteID | SiteName | Datum | Zone | Easting | Northing | Context | Site Status ** | SiteFeatures | SiteTypes | Reports |
|---|---|---|---|---|---|---|---|---|---|---|

**** 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 30/04/2022 for Samantha Keats for the following area at Datum :GDA, Zone : 55, Eastings : 508722.0 - 529760.0, Northings : 6138880.0 - 6159938.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 66**