



Yarrabilly Estate Retirement Village Stage 1 subdivision: Aboriginal cultural heritage due diligence assessment

FINAL REPORT

Prepared for Fraish Consulting

20 December 2016

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Document information

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Biosis project no.: 23961

File name: 23961.Cowra.Yarrabilly.DD.DFT01.20161220.docx

Citation: Biosis (2016). Yarrabilly Estate Retirement Village Stage 1 subdivision: Aboriginal cultural heritage due diligence assessment. Report for Fraish Consulting. Authors: R. Morris, S. Keats, M. Smith Biosis Pty Ltd, Sydney. Project no. 23961

Document control

Version	Internal reviewer	Date issued
Draft version 01	Lucy Sinclair	20/12/2016
Final version 01	Jane Raithby-Veall	20/12/2016

Acknowledgements

Biosis gratefully acknowledges the contributions of the following people and organisations (listed alphabetically) in preparing this report:

- Alex Baird, Fraish Consulting

Biosis staff involved in this project were:

- Lauren Harley for mapping
- Rebecca Morris for fieldwork and reporting
- Lucy Sinclair for quality assurance

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Contents

Glossary.....	iv
Summary	v
1 Introduction	7
1.1 Project background	7
1.2 Location of the study area	7
1.3 Planning approvals	7
1.4 Scope of the assessment	7
1.5 Aboriginal Consultation.....	8
2 Desktop assessment.....	11
2.1 Landscape context.....	11
2.2 Geology, soils and landforms.....	11
2.3 Soil landscapes	12
2.4 Flora and fauna	13
2.5 Resource statement	13
3 Aboriginal context.....	15
3.1 Ethnohistory and contact history	15
3.2 Regional context.....	16
3.3 Local context	18
3.3.1 Identified Aboriginal archaeological sites	18
3.3.2 Predictive model.....	22
4 Archaeological survey	25
4.1 Archaeological survey aims	25
4.2 Survey methods	25
4.3 Constraints to the survey	25
4.4 Visibility	26
4.5 Exposure	27
4.6 Disturbances	27
4.7 Survey results and discussion	29
5 Conclusions and recommendations	33
5.1 Conclusions	33
5.2 Recommendations	33
References.....	36
Appendices	38
Appendix 1 - AHIMS results	39

Tables

Table 1	Characteristics of the soil landscapes within the study area (Mitchell 2002).....	11
Table 2	Cowra soil landscape characteristics (Kovac and Lawrie 1990, pp. 100-101).....	13
Table 3	AHIMS sites within 500 metres of study area	18
Table 4	AHIMS Sites within the vicinity of the study area	19
Table 5	AHIMS sites within 500 metres of study area	20
Table 6	Aboriginal site prediction statements.....	22

Figures

Figure 1	Location of the study area.....	9
Figure 2	Study area detail.....	10
Figure 4	AHIMS sites within the vicinity of the study area	21
Figure 5	Survey effort and results	32
Figure 6	Due diligence flow chart	35

Plates

Plate 1	Diagram showing Strahler stream order (Ritter et al 1995, p. 151).....	12
Plate 2	<i>The Grave of a Native of Australia</i> (Oxley 1820).....	16
Plate 3	Dense vegetation in the central portion of the study area, view north, 1 metre scale	26
Plate 4	Grass cover along fenceline in the central portion of the study area, view west, 1 metre scale	26
Plate 5	Example of average visibility within the study area, view east, 1 metre scale	27
Plate 6	Area of exposure around a granite outcropping on the western edge of the study area, view west, 1 metre scale	27
Plate 7	Area of disturbance in the south west corner of the study area, view west, 2 metre scale	28
Plate 8	Earthworks and the dumping of waste from vegetation clearing on crest in the south west corner of the study area, view west, 1 metre scale	28
Plate 9	Basic slope landform within the study area, view east, 1 metre scale.....	29
Plate 10	Edge of crest landform along the western edge of the study area, view south, 1 metre scale	29
Plate 11	Area of exposure within drainage depression, view south, 1 metre scale.....	30
Plate 12	Crest landform in south east corner of the study area, view south, 1 metre scale	31
Plate 13	Location of CPP01, view south, 1 metre scale.....	31

Glossary

AHIMS	Aboriginal Heritage Information Management System
CBD	Central Business District
DoE	Department of the Environment
Due diligence code	<i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> (DECCW 2010)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GSV	Ground Surface Visibility
ICOMOS	International Council on Monuments and Sites
LEP	Local Environment Plan
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
Study area	The broader area of Observatory Park in which the subject site is located
The Code	<i>The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW 2010)

Summary

Biosis Pty Ltd was commissioned by Fraish Consulting to undertake an Aboriginal cultural heritage due diligence assessment for the proposed subdivision of 10 hectares of Lot 4 DP1092182 for Stage 1 of the Yarrabilly Estate Retirement Village, Cowra NSW. The assessment focused on a review of background resources including soil landscapes, geology, hydrology and past reports and site records to inform predictive statements about the likelihood of Aboriginal heritages sites to occur within the study area.

The assessment undertook the following steps:

- Conduct background research in order to recognise any identifiable trends in site distribution and location, including a search of the Aboriginal Heritage Information Management System (AHIMS).
- Determine levels of archaeological and cultural potential of the study area.
- Make recommendations to mitigate and manage any cultural heritage values identified within the study area.

A search of the Aboriginal Heritage Information Management System (AHIMS) identified no previously recorded archaeological sites within the study area; however, a large number of modified trees and artefact sites were located nearby to the west. The current survey was hampered by dense vegetation cover, making attempts to locate and identify Aboriginal sites less effective.

Biosis completed a survey of the study area on 14 - 15 December 2016 in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal objects in New South Wales* (the code). During the site survey areas of previous disturbance were noted and recorded. Areas of ground surface exposure were targeted in order to identify any Aboriginal objects within the study area. Two areas of archaeological potential were identified during the survey, one along the western edge of the study area where it borders the ridgeline, and the second along a crest landform in the south-eastern corner of the study area. This landform also contained CPP01 (AHIMS #44-4-0369), the location of which was revisited but the artefact was unable to be relocated. Areas of archaeological potential were identified on the basis of their proximity to previously identified sites, distance to water and suitability as campsites.

In light of the survey results, the following recommendations were made:

Recommendation 1: Further assessment is required before commencement of any physical works on site

Further archaeological work is required prior to the commencement of works if impacts to the areas designated as holding archaeological potential cannot be avoided. This will involve the preparation of an ACHA including consultation with Aboriginal stakeholders in accordance with the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010) and test excavations in accordance with the Code. This assessment will be used to support and AHIP application to OEH.

Recommendation 2: Discovery of unanticipated Aboriginal objects

All Aboriginal objects and Places are protected under the *NSW National Parks and Wildlife Act 1974*. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the Office of Environment and Heritage (OEH). 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 the OEH 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 OEH'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 OEH.

1 Introduction

1.1 Project background

Biosis Pty Ltd has been commissioned by Fraish Consulting to undertake an Aboriginal cultural heritage due diligence assessment for the subdivision of 10 hectares of Lot 4 DP1092182 for Stage 1 of the Yarrabilly Estate Retirement Village, Cowra, NSW (the study area). The assessments are to be prepared to inform two reports to be appended to the Development Application (DA) to be prepared by Fraish Consulting to support the proposed subdivision.

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 sensitivity.

1.2 Location of the study area

The study area is within the Cowra Shire Council Local Government Area (LGA), Parish of Glenlogan, County of Bathurst (Figure 1). It lies between 225 and 400 metres east of Sakura Avenue and approximately 400 metres north of Binni Street. The Cowra Prisoner of War Camp borders Lot 1 DP111554 and adjoins the north west corner of the study area (Figure 2).

1.3 Planning approvals

The proposed development will be assessed against Part 4 of the *Environmental Planning and Assessment Act 1979* NSW. Other relevant legislation and planning instruments that will inform the assessment include:

- *Environmental Planning and Assessment (EP & A) Act 1979 (NSW).*
- *National Parks and Wildlife Act (NPW Act) 1974 (NSW).*
- *National Parks and Wildlife Amendment Act 2010 (NSW).*
- *Cowra Shire Council Local Environmental Plan 2012.*

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 Aboriginal Heritage Information Management System (AHIMS).
- 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 the NSW Office of Environment and Heritage (OEH).
- 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.

1.5 Aboriginal Consultation

Consultation with the Aboriginal community is not a formal requirement of the due diligence process; however, it is recognised in NSW that Aboriginal people are the primary determinants of the significance of their cultural heritage. A landscape may hold intangible values that can be assessed only by the Aboriginal community.

This assessment has been prepared without consultation with the Aboriginal Community at the request of the client. If impacts to Aboriginal heritage sites or objects are found to be a possibility from the proposed works then consultation should be undertaken to discuss management and mitigation options.

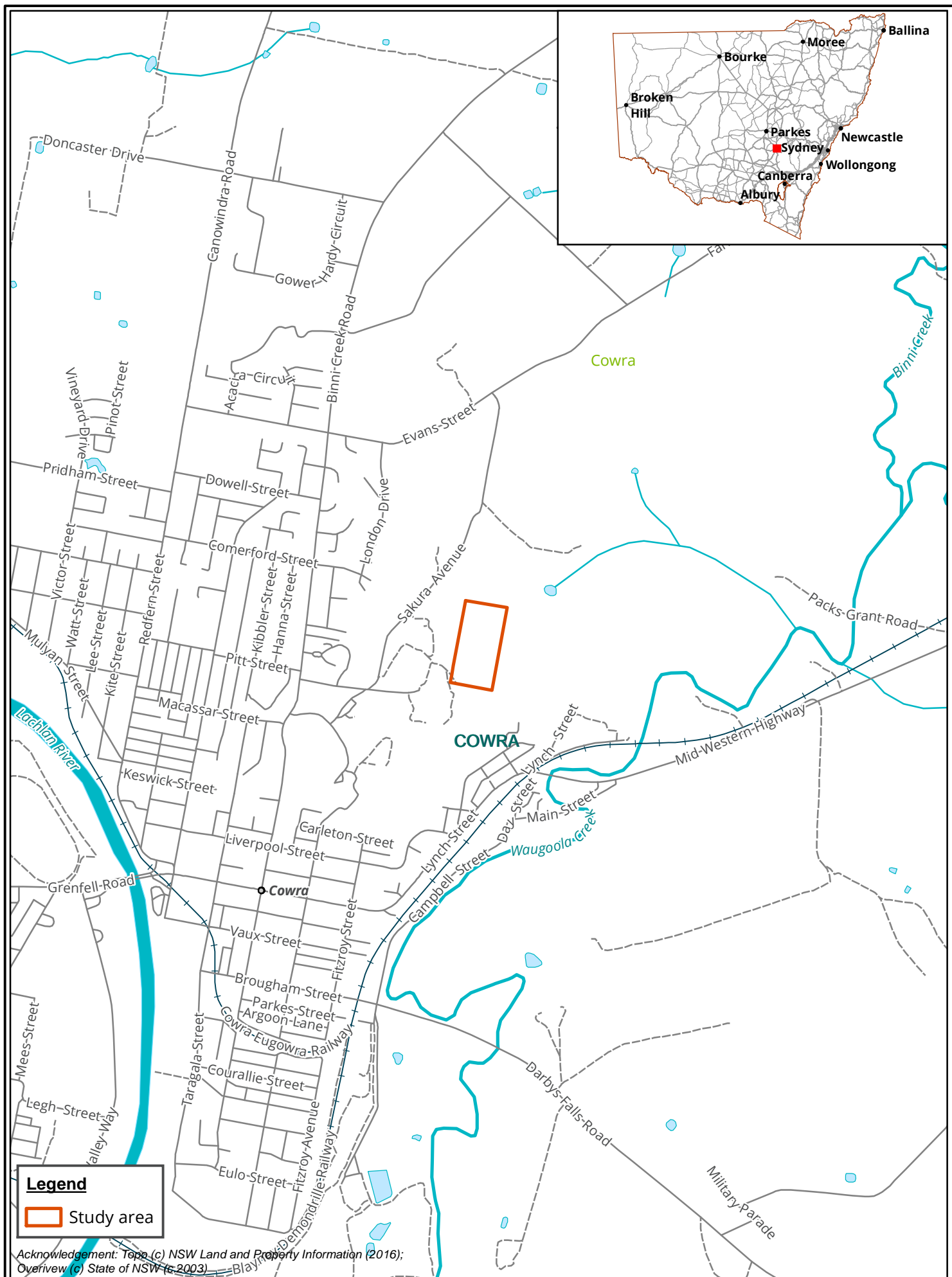
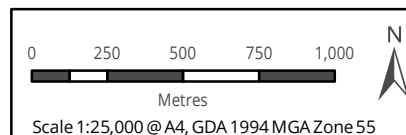


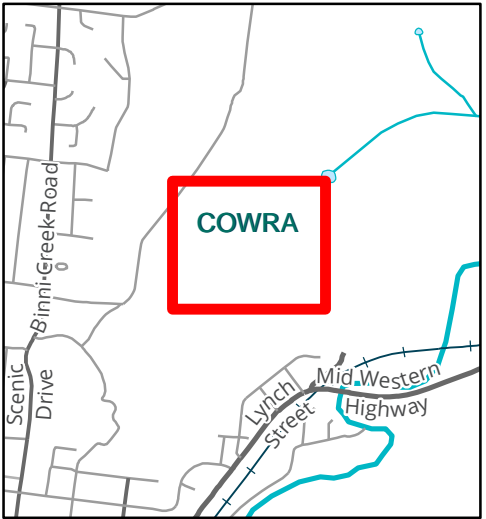
Figure 1: Location of the study area



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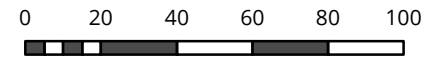
 Study area

Figure 2: Aerial of Lot 4 DP 1092182



Metres
Scale: 1:2,000 @ A3
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2 Desktop assessment

A desktop assessment has been undertaken to review existing archaeological studies for the study area and surrounding region. This information has been synthesised to develop an Aboriginal site prediction model for the study area and to 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 in 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. 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 in the south western slopes bioregion of NSW, an area characterised by its ancient landscape, lakes and waterways. The broader landscape formed over 60 million years when the area was covered by an inland sea. At this time marine sands were deposited and these sands are present in the current landscape. Subsequent draining of the sea led to periods of inundation by a giant fresh water lake and periods of deposition of clays and carbonates. The present landscape surface therefore represents the final phase of deposition, the youngest of which is approximately 36,000 years old (Porteners 1993).

The south western slopes comprise of foothills and ranges from the western fall of the Great Dividing Range to the edge of the Riverina bioregion. The area lies within the eastern part of the Lachlan Ford Belt, which consists of a complex series of north to north westerly trending folded bodies of Cambrian to Early Carboniferous sedimentary and volcanic rocks (OEH 2016). Granites are common and occur as either basins surrounded by steep hills or as high plateau features with rock outcrops and tors.

The geology of the study area is dominated by 419 to 443 million year old Silurian I-S trans-type granites which includes S-type granite with quartz feldspar muscovite biotite and cordierite. Also within the study area is a small portion of Silurian sedimentary rocks like sandstone and siltstone that have been metamorphosed to slate and quartzite along with volcanic rocks such as dacite and airfall tuffs.

The study area belongs to the Canobolas Slopes Mitchell's Landscapes, a summary of which is provided in Table 1 (Mitchell 2002).

Table 1 Characteristics of the soil landscapes within the study area (Mitchell 2002)

Soil Material	Description
Canobolas Slopes (Cnb)	Strike ridges, rounded hills, peaks and ranges on variable Ordovician-Silurian felspathic sandstone, tuffaceous sandstone and thin limestone units, Silurian lithic sandstone, quartz sandstone, tuff and quartz-feldspar porphyry, Silurian-Devonian granite. General elevation 500 to 900m local relief 100m.

Topographically, the study area is primarily located within a basic slope landform, with the western edge of the study area abutting the edge of a crest, which slopes down toward the east, broken by a shallow drainage depression through its southern half.

Stream order is recognised as a factor which assists the development of predictive modelling in New South Wales archaeology, and has seen extensive use in the Sydney region, most notably by Jo McDonald Cultural Heritage Management (JMCHM 2000, 2005a, 2005b, 2006, 2008). Predictive models which 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.

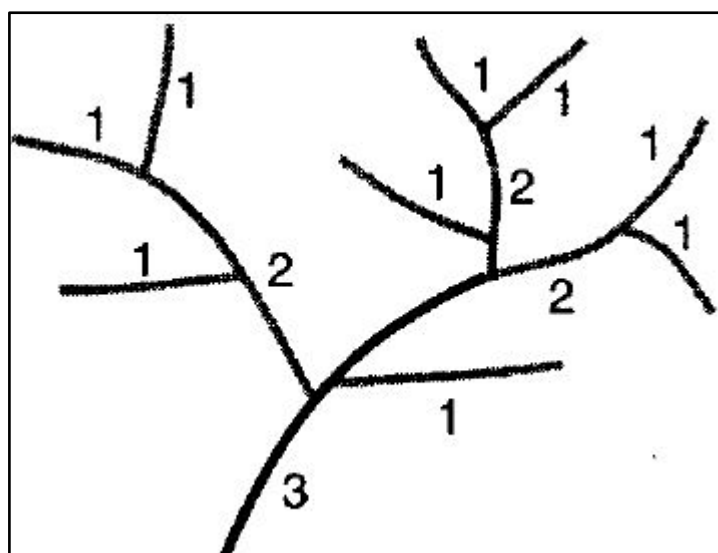


Plate 1 Diagram showing Strahler stream order (Ritter et al 1995, p. 151)

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 Plate 1. As stream order increases, so does the likelihood that the stream would be a perennial source of water. The closest water source to the study area is Waugoola Creek, a fifth order perennial watercourse which runs 520 metres to the south-east and would have provided a stable source of fresh water and associated resources to Aboriginal groups in the area. The Lachlan River, the major eight order watercourse for the region passes approximately 1.8 kilometres south-west of the study area.

2.3 Soil landscapes

Soil landscapes have distinct morphological and topological characteristics that result in specific archaeological potential. Because 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 contained within the *Cowra soil landscape*. The *Cowra soil landscape* is characterised by its undulating to rolling hills and granite outcrops are common. The local relief typically ranges from 100 – 160 metres and slopes are generally between 8-20% (Kovac and Lawrie 1990, p. 100). The soil characteristics of this landscape are described in Table 2Table 1.

Table 2 Cowra soil landscape characteristics (Kovac and Lawrie 1990, pp. 100-101)

Soil material	Description
Red Podzolic Soils - Topsoil	Dull to dark reddish brown, fine sandy loam to sandy loam with weak structure to 10 cm depth, pH 6.5-7.0. A2 present in some cases, is massive and sandy with pH 6.0. Low erodibility.
Red Podzolic Soils - Subsoil	Clear change to dark reddish brown light medium to medium clay with strong structure to 30 cm depth. Low to moderate erodibility.
Red-Brown Earths - Topsoil	Dark reddish brown light sandy clay loam with weak structure, pH 7.0. Clear change to bleached light reddish brown sandy loam AS horizon with weak structure to 30 cm depth. Low erodibility.
Red-Brown Earths - Subsoil	Clear change to yellowish red to reddish brown moderately structured sandy clay loam to medium clay, pH 6.5-8.0. Moderate erodibility.

2.4 Flora and fauna

The study area is north east of the town of Cowra and supports natural and modified vegetation communities. The term modified is used to describe land where the original natural vegetation cover has been cleared and replaced with agricultural land uses. The state of vegetation in these modified areas varies considerably from recently cropped areas to regenerating native vegetation. Although some areas of natural vegetation remain within and in the vicinity of the study area, most plant communities have been disturbed or degraded as a result of development, physical disturbance from earthworks, livestock and pest animal grazing, weed invasion and forestry activities (Biosis 2014). Flora associated with the Canobolas Slopes includes grassy woodlands of Yellow Box, Grey Box, Blakely's Red Gum, Apple Box and Broad-leaved Peppermint. The grassy open forests of this soil landscape consist of White Box, Grey Box, Red Ironbark, Red Stringybark with Yellow Box and Rough-barked Apple on the flats and River Oak along the streams. The Upper Lachlan Channels and Floodplains soil landscape supports the dominant River Oak with River Red Gum and Yellow Box becoming more common along the downstream reaches (Mitchell 2002).

These vegetation communities supported a range of faunal species that would have been utilised by Aboriginal peoples. Terrestrial, aquatic and avian resources were not only used for food, but also provided a significant contribution to the social and ceremonial aspects of Aboriginal life through their use as ritual implements or even simply through fashioning personal adornments (Attenbrow 2002). A total of 314 species have been recorded within the study area. These include, but are not limited to, frogs, skinks, snakes, Eastern Blue-tongue, Lace Monitor, emu, Malleefowl, ducks, egrets, Wedge-tailed Eagle, kites, falcons, parrots, cockatoos, kookaburras, thornbills, honeyeaters, platypus, echidna, koala, Common Wombat, Eastern Pygmy-possum, Sugar Glider, possums, wallabies and Eastern Grey Kangaroo (OEH 2016).

2.5 Resource statement

Resources in the vicinity of the study area would have provided adequate sources of nutrition for subsistence activities; however, these resources would be largely tied to seasonal variations and the flow of the nearby Waugoola Creek and Lachlan River. In this respect, activities in and around the study area would resemble that elsewhere in Western New South Wales, with the Lachlan finding parallels in the riverine environments surrounding the Murray, Darling and Murrumbidgee River systems.

Hundreds of plant species in the South Western Slopes region were exploited by Aborigines, and were most commonly utilised as food and medicine. Plants also played an essential role in providing raw material for

implements, weapons, shelter, glue, burials and ceremonial purposes. For example, gubudha (common reed) which grows along the waters edge was use for fishing nets, baskets, spear shafts, fire making, knives and food (Green 2002). Tuber plants such as Cumbungi were an important food resource in the region. The plant rhizomes were cooked by steaming in an earth oven, and after the outer layers were peeled off, the central more starchy part was twisted into a simple knot. These were chewed until no starch remained, and the residual fibre was used to make string (Gott and Conran 1991). Fruit bearing bushes such as the guwandang (quandang) were a staple of Aboriginal diet. Guwandang is a small valuable tree with fruit rich in vitamin C, protein and oil. Wiradjuri were said to be able to predict the seasonal conditions by the growth of the guwandang (Green 2002). Other plant food sources included nardoo, which is a small fern that was roasted and ground up, separating the hard dark spore cases from the whitish spores. The spores swell with water, and were made into a cake and cooked (Zola and Gott 1992).

The South Western Slopes would have been abundant with native animals including possums, kangaroos, wallabies, bats, wombats, koalas, bilbies, bandicoot, quoll, native mice and rats. Reptiles and amphibians such as snakes, goannas, lizards, turtles and frogs would also have been present (Green 2002). Apart from supplying meat, these animals provided skins for cloaks and rugs, water carriers, decorative and ceremonial purposes. Fur, sinews and bones were also used for sewing and binding (Green 2002).

Creeks and rivers would have contained a number of species of fish and shellfish that would have provided year round food resources. There is likely to have been seasonal variation in Indigenous occupation, with higher numbers in summer when Aboriginal occupation may often have been focused on waterways within the South Western Slopes. These water bodies would have provided a wider range of resources for Aboriginal people than the plains and a much more reliable water source, with waterfowl, lizards, and small marsupials providing a reliable food source throughout most of the year. Freshwater mussels were available in most rivers and creeks although they were never as abundant as coastal and estuarine shellfish resources.

The geology of the study area provides various resources useful for stone tool manufacture including quartzites, mudstones and cherts likely to be present in the identified Silurian aged sediments and metamorphosed rocks. In the wider region stone re sources such as silcrete and rhyolite have been recorded on sites around Lake Cargelligo (White 2011).

3 Aboriginal context

3.1 Ethnohistory and contact history

Aboriginal occupation of the region dates back to around 50,000 years ago (Hiscock 2008:44). The study area falls within an area identified by Tindale (1974) as being within the boundaries of the Wiradjuri linguistic group. The Wiradjuri people are known to have occupied the Lachlan, Murrumbidgee and Macquarie River regions and surrounds, exploiting a broad range of resources. Occupation would not have been restricted to the riverine margins, with evidence of extensive occupation being observed in a variety of landforms away from major water sources (Kelton 2000).

The first encounter many of these people would have had with Europeans was when John Oxley explored the region in 1817 and 1818. Oxley (1820) kept journals of his explorations which detail many observations of Aboriginal people in the region before European settlement of the area. It is through these observations that an insight into the lifeways of Aboriginal people living on the South Western Slopes can be imagined. Early ethnographic accounts for the Orange and Bathurst districts suggested that small groups of 20-40 closely related people occupied the river valleys and came together to feast on seasonal resources, while large gatherings occurred for ceremonies and inter-clan fighting (Pearson 1984). A distinctive feature of Wiradjuri country is carved trees which served as markers for burials of important people and initiation sites. Oxley observed this by writing:

To the west and north of the grave were two cypress-trees distant between fifty and sixty feet; the sides towards the tomb were barked, and curious characters deeply cut upon them, in a manner which, considering the tools they possess, must have been a work of great labour and time (Oxley 1820).

Oxley also describes the burial practices of Aboriginal people in the region as a semi-circular tomb with surrounding seats (see Plate 2):

We came to three or four layers of wood, lying across the grave, serving as an arch to bear the weight of the earthy tomb above. On removing one end of those layers, sheet after sheet of dry bark was taken out, then dry grass and leaves in a perfect state of preservation... the body deposited about four feet deep in an oval grave. The feet were bent quite up to the head, the arms having been placed between the thighs. The face downwards, the body being placed east and west, the head to the east. It had been carefully wrapped in a great number of opossum skins (Oxley 1820).

The initial interactions between the Wiradjuri and European settlers were peaceful but began to deteriorate when pastoralism expanded, which damaged waterways and drove away kangaroos (NTSCorp 2012). Clashes between the new settlers and Aboriginal people occurred mainly around Bathurst, approximately 110 kilometres to the north east of Cowra. Led by a Wiradjuri man, Windradyne, numerous pastoral stations were attacked in an attempt to regain control of the land. Martial law was declared in May 1823 by Governor Brisbane and an expedition was launched to capture Windradyne, which resulted in an unknown number of Aboriginal people being killed. An outbreak of smallpox in 1830 and 1831 was devastating and took a massive toll on the Wiradjuri people by killing one in three people as it spread (HO and DUAP 1996).



Plate 2 *The Grave of a Native of Australia (Oxley 1820)*

3.2 Regional context

A relatively small number of cultural heritage investigations have been conducted in the area surrounding Cowra and as such, there are limited Aboriginal archaeological models for the local area. However, consultancy works in the broader region provide a strong base of academic literature to draw upon to formulate models for predicting the location and type of Aboriginal sites.

Pearson (1981) conducted an intensive archaeological survey in the Wellington area and the upper Macquarie River as part of his PhD research. Pearson predicted that larger occupation sites are likely to occur near permanent watercourses, not on the flats but on the well-drained ground on the rises. The desirable features of a camp site included accessibility to water, good drainage, elevation above cold air pools in winter and an adequate breeze in summer, level ground for sleeping on, a sunny leeward aspect and adequate fuel. From his survey sample, he concluded that open woodland appears to have been the favourite vegetation zone for occupation sites. He also excavated a rock shelter south of Hill End which had an occupation date of 7,000 to 1,200 years ago.

Bell (1987) completed an archaeological survey for proposed mining leases at Mineral Hill, 55km northwest of Condobolin. Seventeen Aboriginal sites were identified that included one carved tree, seven scarred tree sites (that consisted of 10 trees) and nine open sites containing surface stone artefacts. In addition, six isolated stone artefacts were found. The open sites were mostly small with fifteen or less artefacts; however,

three of these sites contained at least 200 artefacts and occurred on eroded areas adjacent to watercourses. The scarred trees were also located along watercourses and on low ridge slopes.

Klaver (1987, 1995, 1998) has completed a number of studies focusing on the central Murrumbidgee and surrounds, primarily the area between Narrandera and Hay. Klaver's work includes large scale survey to identify Aboriginal sites, and the excavation and dating of mound sites, with a major focus being earth mounds. The excavations conducted by Klaver identified the mounds as the result of the in situ use of baked clay heat retainer ovens. Dates obtained from the Cooley Point Lagoon excavations identify a range of dates between 400 to 2660 BP. However Klaver noted that the date of 2660 BP comes from the 'core' of the mound, and that the overlying material was dated to 2000 years later.

Paton (1993) undertook a preliminary study to identify zones of potential archaeological sensitivity for a proposed installation of an optical fibre cable between Canberra and Orange. Paton looked at the environmental setting and reviewed previous archaeological reports to develop a predictive statement that suggests that the sites most likely to be encountered by the development would be open campsites represented by stone artefact scatters. The location of these sites would be found most frequently on gentle slopes adjacent to rivers and creeklines or on level areas along ridgelines.

Fanning (1999) conducted a study of changes in the arid zone of Western NSW, looking at regional change in the nineteenth and twentieth centuries. Fanning argues that since European settlement of Australia, soil erosion rates have drastically increased, to around 145 times their 'natural' rate. Fanning concludes that the introduction of domestic grazing animals, along with changes in land use and their associated effects (decreased vegetation cover, tree cutting etc.) has enhanced runoff in the arid zone. This has in turn increased the level of erosiveness water flows have had on soils.

Kelton (2000) was commissioned by Cowra Shire Council to conduct an Aboriginal archaeological study north of Cowra for a proposed residential sub-division. A survey strategy was formulated based on micro-landform unit on-foot sampling, which was combined with vehicle reconnaissance. A total of 25 Aboriginal sites were recorded during the field survey that consisted of 22 scarred trees and three open campsite stone artefact scatters. Based on data collected during various archaeological investigations in the area and his own results, Kelton formulated a site prediction model that demonstrated that some landform units are considered more sensitive than others. Relatively flat areas generally occurring along creek banks, and associated elevated alluvial and colluvial terraces are considered to be the most archaeologically sensitive landform units within the local area. In addition, occupation sites can be anticipated at other locations such as along low gently sloping hillslopes and hill and ridge crest within close proximity to the Lachlan River and Waugoola Creek.

The most likely site types would be:

- Small area – low density open campsite/stone artefact scatters along flat to gently sloping ridge crests and spurlines.
- Isolated artefacts across the entire surface of the survey area landscape.
- Scarred tree sites anywhere within the survey area that suitable old-growth native timber occurs.

Kelton found that the location of all 22 scarred tree sites conformed to the site prediction model developed for the region. The three campsites however were unanticipated and did not generally conform to the site distribution models, particularly with the three sites located some distance from reliable water sources. Kelton concluded that many factors must be taken into consideration when assessing scarred trees sites on their own and, unless they are associated with occupation sites, making broad assumptions about levels of past occupation should be approached with caution.

Fanning and Holdaway (2004) undertook a broad study of factors affecting surface artefact visibility in Western New South Wales. Their area of study took in a portion of 12 Mile Creek in the Sturt National Park,

close to the border between NSW, Queensland, and South Australia. Although geographically far away from the current study area, it does share a number of environmental characteristics namely being located in an arid zone with discontinuous vegetation coverage. The survey covered a variety of geographic units and surface types, seeking to compare exposures and artefact quantities present in each. The study did not find firm evidence to support increased or decreased artefact density in particular areas beyond general trends. It did note however that narrow survey transects were not ideal, as in many cases artefact visibility is highly dependent on very localised conditions, for example disturbance or visibility in one particular area. It concluded that artefact visibility was highest on erosional surfaces, and lowest on depositional ones, however the impacts of local variation in landscape are significant, and if a survey seeks to study relationships at a landscape level, this variation must be accounted for.

White (2011) conducted a survey of a proposed pipeline route near and within Rossi Gap, west of Lake Cargelligo in central NSW. Five artefacts sites were identified along with a scarred tree and a PAD. The artefact sites consisted of one or a few artefacts in disturbed contexts and were assessed as having low significance. Two artefact scatters were considered to have high archaeological potential and were recorded as a PAD. A total of 3,882 artefacts were recovered with rhyolite being the most common material used for flaked artefact production. White concluded that Rossi Gap was primarily used as a residential base for people utilising plant, animal and stone resources in the surrounding ranges.

3.3 Local context

3.3.1 Identified Aboriginal archaeological sites

An extensive search of the AHIMS database was conducted on 9 December 2016 (Client service ID: 258096). The search identified 97 Aboriginal archaeological sites within a 5 kilometre search area, centred on the proposed study area (Appendix 1 and Table 4). None of these registered sites are located *within* the study area (Figure 3); however, there are approximately 29 recorded AHIMS sites within 500 metres of the study area (Table 3 and Table 5). The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps derived from Aboriginal heritage reports where available. These descriptions and maps were relied 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 3 AHIMS sites within 500 metres of study area

AHIMS site no.	Site name	Site type
44-4-0001	Gooloogong Goodwins Lookout Cowra Carved Tree	Modified Tree (Carved or Scarred) : -
44-4-0340	Billy Goat Hill scarred tree1	Modified Tree (Carved or Scarred) : -
44-4-0341	Billy Goat Hill scarred tree 2	Modified Tree (Carved or Scarred) : -
44-4-0342	Billy Goat Hill scarred tree 3	Modified Tree (Carved or Scarred) : -
44-4-0343	Billy Goat Hill scarred tree	Modified Tree (Carved or Scarred) : -
44-4-0142	Cowra Town Common CTC-ST-19	Modified Tree (Carved or Scarred) : -
44-4-0092	CTC-ST-12 Cowra Town Common Scarred Tree (12)	Modified Tree (Carved or Scarred) : -
44-4-0262	CC-OS-2 (Cowra)	Artefact : -

AHIMS site no.	Site name	Site type
44-4-0263	CC-05-2	Artefact : -
44-4-0092	CTC-ST-14 Cowra Town Common Scarred Tree (12)	Modified Tree (Carved or Scarred) : -
44-4-0143	Cowra Town Common CTC-ST-28	Modified Tree (Carved or Scarred) : -
44-4-0039	Cowra common numerous scarred trees;	Modified Tree (Carved or Scarred) : -
44-4-0060	CTC ST(3) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0062	CTC ST(6) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0063	CTC ST(7);Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0064	CTC ST(8) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0066	CTC ST(10) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0067	CTC ST(11) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0058	CTC ST(1) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0059	CTC ST(2) Cowra Town Common	Modified Tree (Carved or Scarred) : -
44-4-0353	YAST1 (Cowra)	Modified Tree (Carved or Scarred) : 1
44-4-0354	YAIF1 (Cowra)	Artefact : -
44-4-0368	CPP02	Artefact : 1
44-4-0369	CPP01	Artefact : 1
44-3-0098	CTC-ST 4	Modified Tree (Carved or Scarred) : -
44-4-0274	ST-1	Modified Tree (Carved or Scarred) : -
44-4-0280	ST-17	Modified Tree (Carved or Scarred) : -
44-4-0281	ST-10	Modified Tree (Carved or Scarred) : -
44-4-0284	ST-2	Modified Tree (Carved or Scarred) : -

Table 4 AHIMS Sites within the vicinity of the study area

Site type	Occurrences	Frequency (%)
Modified tree	73	75.25
Artefacts	20	20.62
PAD	2	2.06
Burial	1	1.04
Restricted	1	1.04
Total	97	100

A simple analysis of the Aboriginal cultural heritage sites registered within 5 kilometres of the study area indicates that the dominant site type is modified trees representing 75.25% (n=73), with artefacts making up

20.62% (n=20). PADs represented 2.06% (n=2) while there was a single example of a burial (1.04%) and one restricted site (1.04%).

Table 5 AHIMS sites within 500 metres of study area

Site type	Occurrences	Frequency (%)
Modified tree	24	83
Artefacts	5	17
Total	29	100

A further analysis of AHIMS sites within 500 metres of the study area show the presence of two site types consisting of modified trees and artefacts, with modified trees occurring most frequently at 83 % (n=24), and artefacts occurring in 14 % (n=5) of sites. Of these, one site (AHIMS #44-4-0039) has been revised to be considered not a site since its initial identification.

3.3.2 Predictive model

A model has 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 6). The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the study area.

Table 6 Aboriginal site prediction 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.	High: Stone artefact sites have been previously recorded in the region on rises, and level, well-drained topographies in close proximity to reliable sources of fresh water. Due to the proximity to both permanent and seasonal fresh water resources, and the presence of major ridgelines neighbouring the study area the potential for artefacts to be present within the study area is assessed as high.
Open camp sites	Open camp sites can contain a range of stone artefacts and associated hearths.	Moderate: Open camp sites have been previously recorded in the region on flood-free flat alluvial creek banks and adjacent terraces, therefore the potential for these to occur near the study area is moderate.
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 the first order drainage line is not permanent water source.
Quarries	Raw stone material procurement sites.	Low: There is no record of any quarries being within or surrounding the study area.

Site Type	Site Description	Potential
Potential Archaeological Deposits (PADs)	Potential sub surface deposits of cultural material.	High: PADs have been previously recorded in the region 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.
Scarred trees	Trees with cultural modifications	Moderate: Scarred trees are the most common site type within the vicinity of the study area. Due to extensive vegetation clearance only small pockets of mature native trees have survived within the study area.
Grinding grooves	Grooves created in stone platforms through ground stone tool manufacture.	Low: Suitable horizontal sandstone rock outcrops do not occur in 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. There is one burial recorded approximately 3 km south-west of the study area on the western side of the Lachlan River. This combined with the shallow soil profiles within the study area indicates the potential for burials is low.
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.	Low: The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist, which are not present in the study area.
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.

Site Type	Site Description	Potential
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.

4 Archaeological survey

A field survey of the study area was undertaken over two days on the 14-15 December 2016. The field 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:

- 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 archaeological survey was conducted on foot. Recording during the survey followed the archaeological survey requirements of the Code and industry best practice methodology. Information that 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 have been exploited by Aboriginal people.
- Landform elements, distinguishable areas of land approximately 40 m across or with a 20 m radius (Speight 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, ground surface visibility 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 factor that contributed most to the effectiveness of the survey was the dense

ground vegetation cover throughout the majority of the study area, which severely limited the potential for the identification of surface artefacts (Plate 3 and Plate 4).



Plate 3 Dense vegetation in the central portion of the study area, view north, 1 metre scale



Plate 4 Grass cover along fenceline in the central portion of the study area, view west, 1 metre scale

4.4 Visibility

In most archaeological reports and guidelines, visibility refers to ground surface visibility, 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 (NSW NPWS 1997: Appendix 4). Visibility throughout the study area was low, averaging 5%. Across the majority of the study area, the dense vegetation reduced the survey visibility to effectively nil (Plate 3 - Plate 5); however, in some portions of the study area visibility was higher, particularly within exposures caused by disturbance along fencelines, surrounding granite outcroppings and trees, and on the crest in the south western section where significant disturbance caused by human agents has created several large areas of exposure with visibility approaching 100%.



Plate 5 Example of average visibility within the study area, view east, 1 metre scale



Plate 6 Area of exposure around a granite outcropping on the western edge of the study area, view west, 1 metre scale

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 and Smith 2004: 79, NSW NPWS 1997: Appendix 4). Overall, the study area displayed very few areas of exposure excepting around the base of granite outcroppings and trees, along fencelines and on the south western crest (Plate 6 and Plate 7).

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 kangaroos, foxes, rabbits

and wallabies, livestock movement and sometimes exposures from slumping or scouring. Disturbances associated with recent human action occur throughout the study area but are focused in its the south western corner. Human agents include farming practices, such as initial vegetation clearance for the creation of paddocks, fencing and stock grazing; and rubbish dumping. The majority of the study area has been subject to extensive clearing for animal grazing and continues to be used for this purpose today. A crest in the south eastern corner of the study area has been subject to extensive disturbance, with its slopes cleared to the clay subsoil. This has created exposures up to 10 metres across which appear to have been affected by slopewash (Plate 7). The peak of the crest has been used for the stockpiling of soils and waste from vegetation clearing and large amounts of rubbish, including plastic, glass, textiles and household appliances were visible both within these exposures and buried within the soil (Plate 8).

Areas which have been cleared for animal grazing retain the potential to contain *in situ* subsurface Aboriginal objects as they are usually associated with only shallow disturbance.



Plate 7 Area of disturbance in the south west corner of the study area, view west, 2 metre scale



Plate 8 Earthworks and the dumping of waste from vegetation clearing on crest in the south west corner of the study area, view west, 1 metre scale

4.7 Survey results and discussion

The study area is contained within four broad landform units, all of which were assessed as a part of the survey. The central, northern and eastern portions of the study area are comprised of a basic slope landform sloping downwards to the east (Plate 9). This is associated with the most prominent ridgeline in the Cowra locality directly to the west of the study area, providing an excellent outlook east over the region. The eastern edge of this crest extends between 10 and 20 metres into the western portion of the study area (Plate 6 and Plate 10). While the crest has been subject to some disturbance from initial vegetation clearing and subsequent fence construction, it has been assessed as holding archaeological potential. This is due to its location on the periphery of the ridge landform in which large numbers of scarred trees and artefact sites have previously been recorded. Both this area of potential and previously identified sites outside the study area are shown in Figure 4. Where a spur of this ridgeline extends into the south western corner of the study area it has been subject to extensive subsurface disturbance from human agents and was therefore assessed as possessing no archaeological potential (Plate 7).



Plate 9 Basic slope landform within the study area, view east, 1 metre scale



Plate 10 Edge of crest landform along the western edge of the study area, view south, 1 metre scale

During the survey, a well incised but unmapped drainage channel was identified running from the western slope of this ridge into another low order, unmapped stream to the south, bisecting the southern half of the study area. At the time of the survey the channel was dry, but its definition suggests it has provided a longstanding non-perennial water source for the study area that was likely exploited by Aboriginal groups. Overall visibility within and surrounding the drainage channel was poor (<5%) with only one exposure measuring approximately 1 metre by 5 metres (Plate 11). Visibility approached 100% and appears to be the result of water movement along the drainage channel revealing the clay subsoil. No artefacts were identified and due to the shallow soil profiles and steep banks of the depression it has been assessed as holding no archaeological potential.



Plate 11 Area of exposure within drainage depression, view south, 1 metre scale

The angle of the basic slope landform increases to the west of this drainage depression where it rises to a crest containing stands of mature native vegetation and a number of large granite outcroppings which offer some protection from wind and rain. The northern edge of this crest appears to have been cleared for animal grazing but the landscape across the remainder is largely unmodified, and as a result visibility was poor (Plate 12). The crest extends outside of the study area to the southeast before dropping off sharply to the streams to the south, with an excellent outlook of the valley and plains below as well as easy access to fresh water. Elevated terraces above streams as well as sloping hillslopes and ridge crests in close proximity to Waugoola Creek were identified by Kelton (2000) as the most archaeologically sensitive landforms in the Cowra area. As such, it would likely have been considered an attractive location for a campsite by Aboriginal groups. Small areas of exposure, with visibility approaching 100%, are located at the base of granite outcroppings and were created by eastern grey kangaroos which use the sheltered location as a resting place.

During the survey CCP01 (AHIMS #44-4-0369), an isolated find recorded by Artefact in 2011 slightly to the east of the current study area, was inspected on the basis of GPS coordinates. Artefact (2011) noted that the site was located outside of their study area and that topsoil within the area appeared truncated and as such, no significant archaeological deposits were likely to be located in the vicinity of the isolated find. While the artefact was unable to be relocated due to poor visibility, its recorded location was determined as belonging to the same crest landform which comprises the south eastern corner of the study area (Plate 13). Due to this previous find, its comparatively intact native vegetation and suitability as a campsite indicates that the landform is considered to hold the potential to contain intact subsurface archaeological deposits, despite shallow soil profiles recorded in the area. Conditions at the time of the survey appear to have been similar to the conditions encountered by Artefact during the initial inspection. As such, it is determined that visibility is

too poor to argue conclusively for a lack of subsurface deposits on the basis of the scattered visible soil profiles. This area of archaeological potential is shown in Figure 4.



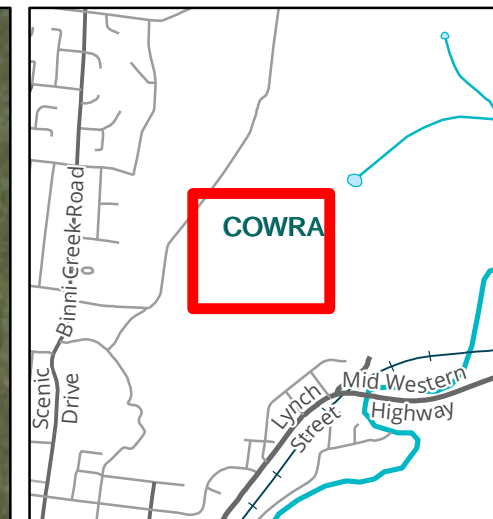
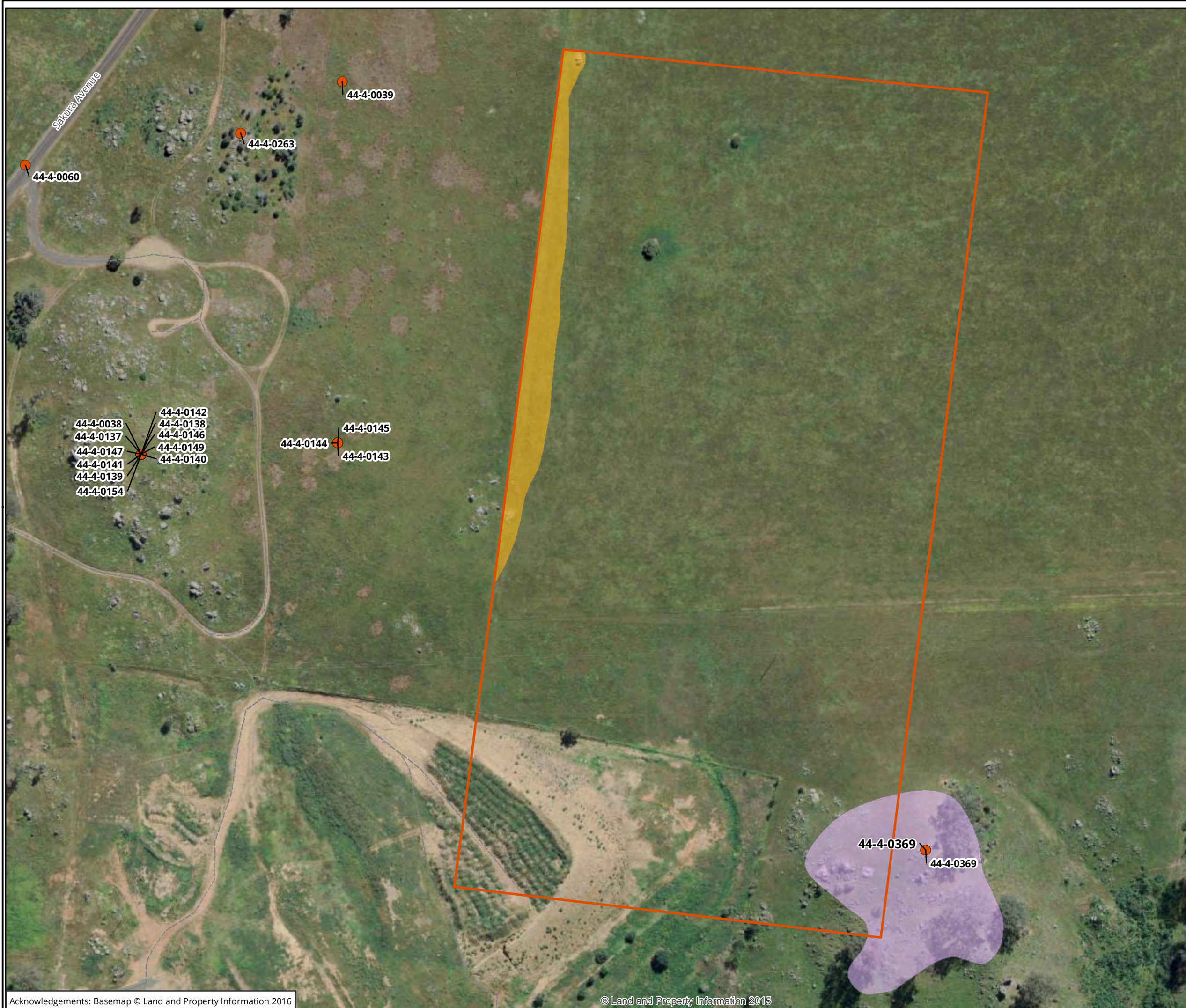
Plate 12 Crest landform in south east corner of the study area, view south, 1 metre scale



Plate 13 Location of CPP01, view south, 1 metre scale

The lack of Aboriginal objects identified within the study area during the survey is attributable to the extremely low GSV within the study area. The majority of the ground surface was covered by dense grass cover and areas where large exposures were present had been subject to extensive subsoil disturbance, as evidenced in Plate 7, or frequent animal movement. Exposures within the study area were targeted in an attempt to identify any visible surface artefacts but none were located. Some quartz fragments were identified during the survey but these were determined to be non-artefactual.

Modified or scarred trees are the dominant site type in the Cowra area and while the study area has been subject to extensive clearing, mature native trees were identified in the south eastern corner of the study area. These were inspected during the survey and none were identified as scarred or modified. No sandstone rock outcroppings were located within the study area that was capable of supporting art sites or grinding groves.



Legend

- Study area
- AHIMS Record
- Area of archaeological potential 1
- Area of archaeological potential 2

Figure 4: Aboriginal heritage sites within the study area

0 10 20 30 40 50
Metres

Scale: 1:1,800 @ A3
Coordinate System: GDA 1994 MGA Zone 56



Ballarat, Brisbane, Canberra, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 23961
Date: 16 December 2016,
Checked by: RAM, Drawn by: LH, Last edited by: lharley
Location: P:\23900s\23961\Mapping\23961_F4_AboriginalHeritageSites

5 Conclusions and recommendations

5.1 Conclusions

A review of the previous work undertaken within the local area for this project identified no AHIMS sites located within the study area; however, a large number of modified trees and artefact sites were located nearby to the west. Two areas of archaeological potential were identified during the survey, one along the western edge of the study area where it borders the ridgeline, and the second along a crest landform in the south-eastern corner of the study area. This landform also contained CPP01 (AHIMS #44-4-0369), the location of which was revisited but the artefact was unable to be relocated. Areas of archaeological potential were identified on the basis of their proximity to previously identified sites, distance to water and suitability as campsites. The current survey was hampered by dense vegetation cover, making attempts to locate and identify Aboriginal sites less effective.

As a result of Biosis' assessment, it is concluded that further investigation of the study area is necessary in the form of an ACHA including subsurface test excavations if impacts to these areas cannot be avoided. The results of Biosis' assessment are also demonstrated in the due diligence flowchart, provided by the due diligence code of practice (Figure 5).

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.
 - The *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010).

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

Recommendation 1: Further assessment is required before commencement of any physical works on site

Further archaeological work is required prior to the commencement of works if impacts to the areas designated as holding archaeological potential cannot be avoided. This will involve the preparation of an ACHA including consultation with Aboriginal stakeholders in accordance with the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010) and test excavations in accordance with the Code. This assessment will be used to support and AHIP application to OEH.

Recommendation 2: Discovery of unanticipated Aboriginal objects

All Aboriginal objects and Places are protected under the *NSW National Parks and Wildlife Act 1974*. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the Office of Environment and Heritage (OEH). 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

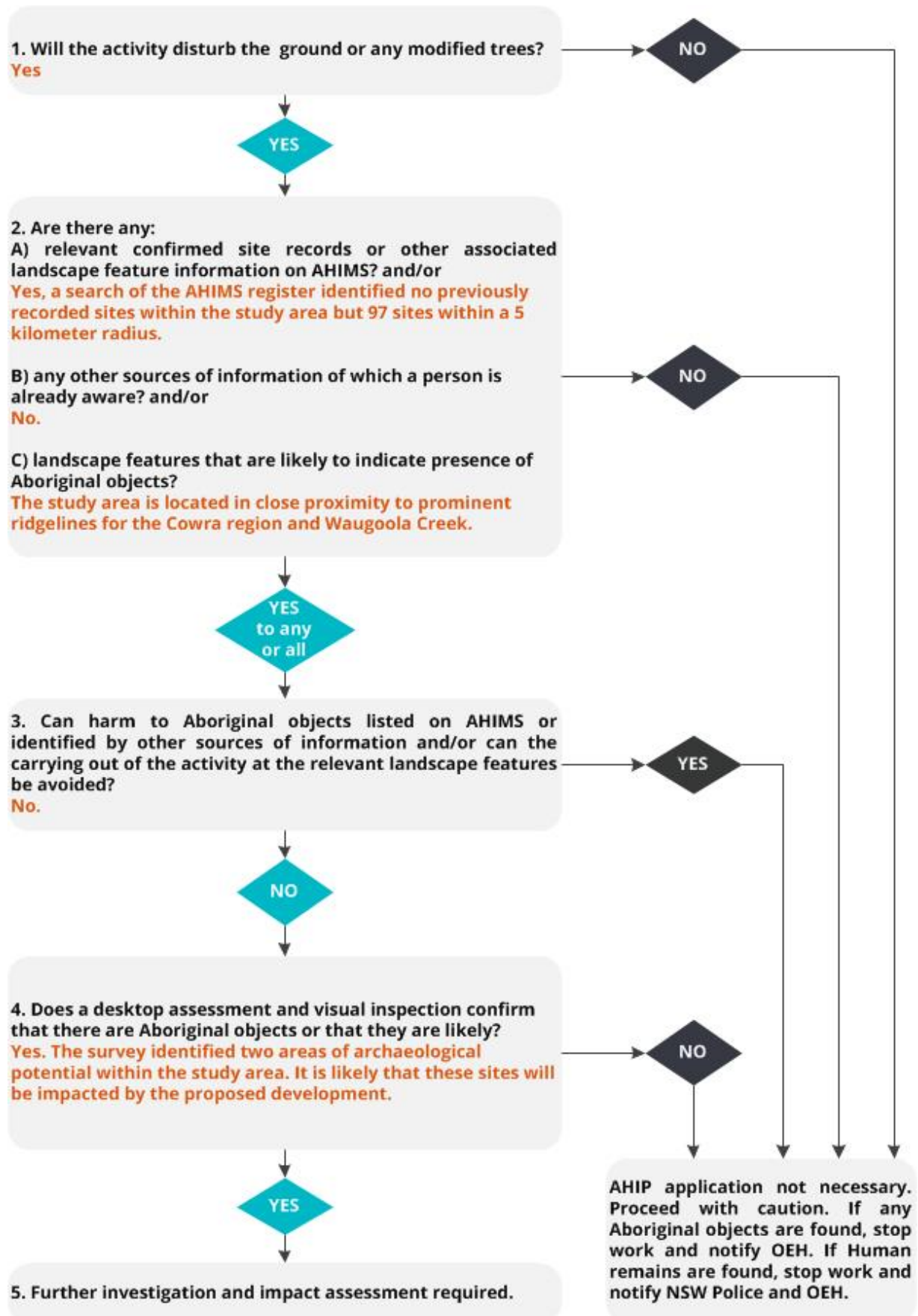
archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying the OEH and Aboriginal stakeholders.

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 OEH'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 OEH.

Figure 5 Due diligence flow chart



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Appendices

Appendix 1 - AHIMS results

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 23961

Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0233	GL-OS-1;"Glen Logan";	AGD	55	654260	6259960	Open site	Valid	Artefact : -	Open Camp Site	4721,101547
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd							
								Permits	3155	
44-4-0234	Glen Logan 1;Glen Logan Lanofill;	AGD	55	654800	6259350	Open site	Valid	Artefact : -	Open Camp Site	4211
	Contact	Recorders	Mr.Peter Kuskie							
								Permits		
44-4-0240	OFC 8;Coraminta;	AGD	55	655900	6251400	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Doctor.Tim Stone							
								Permits		
44-4-0001	Gooloogong Goodwins Lookout Cowra Carved Tree	AGD	55	657050	6255850	Open site	Valid	Modified Tree (Carved or Scarred) :	Carved Tree	2115
	Contact	Recorders	David Bell							
								Permits		
44-4-0340	billy goat hill scared tree1	GDA	55	657211	6256062	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Mr.Graeme Towney,Ms.Joedie Davis							
								Permits		
44-4-0341	billy goat hill scared tree 2	GDA	55	657190	6256105	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Mr.Graeme Towney,Ms.Joedie Davis							
								Permits		
44-4-0342	billy gaot hill scare tree3	GDA	55	657162	6256201	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Mr.Graeme Towney,Ms.Joedie Davis							
								Permits		
44-4-0343	billy goat hill scared tree	GDA	55	657216	6256269	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Mr.Graeme Towney,Ms.Joedie Davis							
								Permits		
44-4-0344	cowra mission burial	GDA	55	655308	6253816	Open site	Valid	Burial : -		
	Contact	Recorders	Mr.Graeme Towney,Ms.Joedie Davis							
								Permits		
44-4-0345	MQ - OS1	GDA	55	654443	6258111	Open site	Valid	Artefact : 4		
	Contact	Recorders	Doctor.Jodie Benton,OzArk Environmental and Heritage Management							
								Permits		
44-4-0142	Cowra Town Common;CTC-ST-19;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd							
								Permits		
44-4-0092	CTC-ST-12 Cowra Town Common Scarred Tree (12)	AGD	55	657250	6256300	Open site	Valid	Modified Tree (Carved or Scarred) :	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd							
								Permits	2748	

Report generated by AHIMS Web Service on 09/12/2016 for Rebecca Morris for the following area at Datum :GDA, Zone : 55, Eastings : 652577 - 662577, Northings : 6251177 - 6261177 with a Buffer of 0 meters. Additional Info : Due diligence. Number of Aboriginal sites and Aboriginal objects found is 97

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 23961

Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0266	MF-ST-6	AGD	55	657870	6254170	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97834
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0267	MF-ST-5	AGD	55	657870	6254170	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97834
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0268	MF-ST-3	AGD	55	658270	6253950	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97834
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0269	MF-ST-2	AGD	55	659000	6253970	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97834
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0270	MF-ST-1	AGD	55	659030	6253980	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97834
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0262	CC-OS-2 (Cowra)	AGD	55	657200	6256300	Open site	Valid	Artefact : -	Open Camp Site	97839
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0263	CC-OS-2	AGD	55	657260	6256160	Open site	Valid	Artefact : -	Open Camp Site	97839
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0093	CTC-ST-14;Cowra Town Common Scarred Tree (14);	AGD	55	657263	6256583	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0094	CTC-ST-13;Cowra Town Common Scarred Tree (13);	AGD	55	657150	6256400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0107	BGH-ST 4;Billy Goat Hill Scarred Tree (4);	AGD	55	656700	6255300	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>									
	<u>Recorders</u>									
44-4-0016	Boutland Scarred Tree	AGD	55	655000	6252100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>									
	<u>Recorders</u>									

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 23961

Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0017	Cowra - Cargo turnoff scarred tree	AGD	55	655010	6252100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	A Boutland					Permits		
44-4-0028	cowra point 1 {lachlan river};	AGD	55	655250	6252600	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0029	Cowra point 2 (Lachlan River);	AGD	55	655250	6252600	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0030	cowra tip rd 1;	AGD	55	656500	6255700	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0031	cowra tip rd 2;	AGD	55	656650	6255700	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0032	cowra tip rd 3;	AGD	55	656813	6256083	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		
44-4-0033	cowra tip rd 4;	AGD	55	656650	6255650	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0216	DL-ST-1;	AGD	55	660210	6252210	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0129	CTC-ST 15 Cowra town common	AGD	55	657050	6255850	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0130	CTC-ST 16 Cowra town common	AGD	55	657050	6255850	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	2748	

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 23961

Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0131	CTC-ST 17 Cowra town common	AGD	55	657050	6255850	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0137	Cowra Town Common;CTC-ST-25;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0138	Cowra Town Common;CTC-ST-23;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0139	Cowra Town Common;CTC-ST-22;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0140	Cowra Town Common;CTC-ST-21;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0141	Cowra Town Common;CTC-ST-20;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0143	Cowra Town Common;CTC-ST-28;	AGD	55	657300	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0144	Cowra Town Common;CTC-ST-29;	AGD	55	657300	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0145	Cowra Town Common;CTC-ST-27;	AGD	55	657300	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0146	Cowra Town Common;CTC-ST-26;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		

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AHIMS Web Services (AWS)

Extensive search - Site list report

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Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0147	Cowra Town Common;CTC-ST-18;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0148	Telecom Tower Hill;BGH-ST-5;	AGD	55	655500	6257200	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-2-0091	Thornleigh scarred tree	AGD	55	655010	6252110	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	A Boutland					Permits		
44-4-0149	Cowra Town Common;CTC-IF-1;	AGD	55	657200	6256000	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0150	Telecom Tower Hill;BGH-ST-7;	AGD	55	655600	6257200	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0151	Telecom Tower Hill;BGH-ST-6;	AGD	55	655500	6257200	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0154	Cowra Town Common;CTC-ST-24;	AGD	55	657200	6256000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0157	OFC 8;	AGD	55	655900	6251400	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Doctor.Tim Stone					Permits		
44-4-0034	wangoola ck scarred tree 1;	AGD	55	657600	6253800	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0038	cowra common site1	AGD	55	657200	6256000	Open site	Valid	Artefact : -	Open Camp Site	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0039	cowra common numerous scarred trees;	AGD	55	657313	6256183	Open site	Not a Site	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 23961

Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0041	br-st 1;	AGD	55	655000	6252400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0045	Billy Goat Hill_(bgh-st1);Scarred tree 1;	AGD	55	656800	6255600	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0046	Billy Goat Hill_(bgh-st1);Scarred tree 2;	AGD	55	656800	6255600	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0060	CTC ST(3) Cowra Town Common	AGD	55	657150	6256150	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1474	
44-4-0061	CTC ST(5) Cowra Town Common	AGD	55	657200	6256400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0062	CTC ST(6) Cowra Town Common	AGD	55	657150	6256450	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0063	CTC ST(7);Cowra Town Common;	AGD	55	657163	6256633	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		
44-4-0064	CTC ST(8) Cowra Town Common	AGD	55	657163	6256643	Open site	Destroyed	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits	1474	
44-4-0065	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits	1474	
44-4-0066	CTC ST(10) Cowra Town Common	AGD	55	657263	6256483	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits	1474	

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Extensive search - Site list report

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0067	CTC ST(11) Cowra Town Common	AGD	55	657263	6256433	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits	2748	
44-4-0058	CTC ST(1) Cowra Town Common	AGD	55	657000	6256100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0059	CTC ST(2) Cowra Town Common	AGD	55	656950	6256100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits	1474	
44-4-0106	BGH-ST 3;Billy Goat Hill Scarred Tree(3);	AGD	55	656800	6255500	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0351	MQ-OS1	AGD	55	654443	6258111	Open site	Valid	Artefact : 4		
	Contact	Recorders	OzArk Environmental and Heritage Management					Permits		
44-4-0353	YAST1 (Cowra)	GDA	55	658101	6255972	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Ms.Trish Saunders					Permits		
44-4-0354	YAIF1 (Cowra)	GDA	55	657587	6255772	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.Trish Saunders					Permits		
44-4-0355	PAD1 (Cowra)	GDA	55	658445	6255991	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Ms.Trish Saunders					Permits		
44-4-0356	Isolated Find (IF) 1 Cowra STP IF1	AGD	55	653900	6257000	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Jillian Comber					Permits	3029,3042	
44-4-0357	Isolated Find (IF) 2 Cowra STP IF2	AGD	55	653800	6257080	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Jillian Comber					Permits	3029,3042	
44-4-0358	Sewerage Treatment Plant Cowra STP AS1	AGD	55	654000	6257000	Open site	Valid	Artefact : 100		
	Contact	Recorders	Ms.Jillian Comber					Permits		
44-4-0359	STP2 Cowra STP AS2	AGD	55	654153	6257108	Open site	Valid	Artefact : 2		
	Contact	Recorders	Ms.Jillian Comber					Permits	3029,3042	
44-4-0360	Sewerage Treatment Plan Cowra STP AS3	AGD	55	653869	6256865	Open site	Valid	Artefact : 3		
	Contact	Recorders	Ms.Jillian Comber					Permits	3029,3042	

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Extensive search - Site list report

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
44-4-0367	CPP03	GDA	55	658402	6256942	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Sandra Wallace,Artefact - Cultural Heritage Management					Permits		
44-4-0368	CPP02	GDA	55	658040	6256627	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Sandra Wallace,Artefact - Cultural Heritage Management					Permits		
44-4-0369	CPP01	GDA	55	657699	6255960	Open site	Valid	Artefact : 1		
	Contact	Recorders	Doctor.Sandra Wallace,Artefact - Cultural Heritage Management					Permits		
44-4-0370	CPPPAD1	GDA	55	658446	6256795	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Sandra Wallace,Artefact - Cultural Heritage Management					Permits		
44-3-0098	CTC-ST 4;	GDA	55	657145	6256323	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		
44-4-0008	Pine Park (YLS/7) Lachlan River	AGD	55	657627	6252334	Open site	Valid	Artefact : -	Open Camp Site	1027
	Contact	Recorders	Bonhomme Craib & Associates					Permits		
44-4-0011	Kangaroo Flat Road	AGD	55	661681	6255468	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1027
	Contact	Recorders	Bonhomme Craib & Associates					Permits		
44-4-0274	ST-1	AGD	55	656960	6255980	Open site	Valid	Modified Tree (Carved or Scarred) : -		97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
44-4-0275	ST-22	AGD	55	657123	6257013	Open site	Destroyed	Modified Tree (Carved or Scarred) : -		97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		
44-4-0276	ST-21	AGD	55	657073	6256863	Open site	Destroyed	Modified Tree (Carved or Scarred) : -		97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		
44-4-0277	ST-20	AGD	55	657073	6256863	Open site	Destroyed	Modified Tree (Carved or Scarred) : -		97839
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,Jim Kelton					Permits		
44-4-0278	ST-19	AGD	55	656800	6256500	Open site	Valid	Modified Tree (Carved or Scarred) : -		97839

Report generated by AHIMS Web Service on 09/12/2016 for Rebecca Morris for the following area at Datum :GDA, Zone : 55, Eastings : 652577 - 662577, Northings : 6251177 - 6261177 with a Buffer of 0 meters. Additional Info : Due diligence. Number of Aboriginal sites and Aboriginal objects found is 97

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

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 23961

Client Service ID : 258096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
44-4-0279	ST-18	AGD	55	657013	6256633	Open site	Destroyed	Modified Tree (Carved or Scarred) : -		97839
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>	1474,2748	
44-4-0280	ST-17	AGD	55	657230	6256400	Open site	Valid	Modified Tree (Carved or Scarred) : -		97839
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
44-4-0281	ST-10	AGD	55	657033	6256533	Open site	Destroyed	Modified Tree (Carved or Scarred) : -		97839
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>	1474	
44-4-0282	ST-9	AGD	55	657033	6256533	Open site	Valid	Modified Tree (Carved or Scarred) : -		97839
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>	1474,2748	
44-4-0283	ST-8	AGD	55	656980	6256160	Open site	Valid	Modified Tree (Carved or Scarred) : -		97839
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>	1474	
44-4-0284	ST-2	AGD	55	656860	6256070	Open site	Valid	Modified Tree (Carved or Scarred) : -		97839
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>	1474	
44-4-0361	scar tree cowra caravan park	GDA	55	655949	6254717	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		
44-4-0380	PRIDHAM 1	GDA	55	655866	6257155	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>		

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