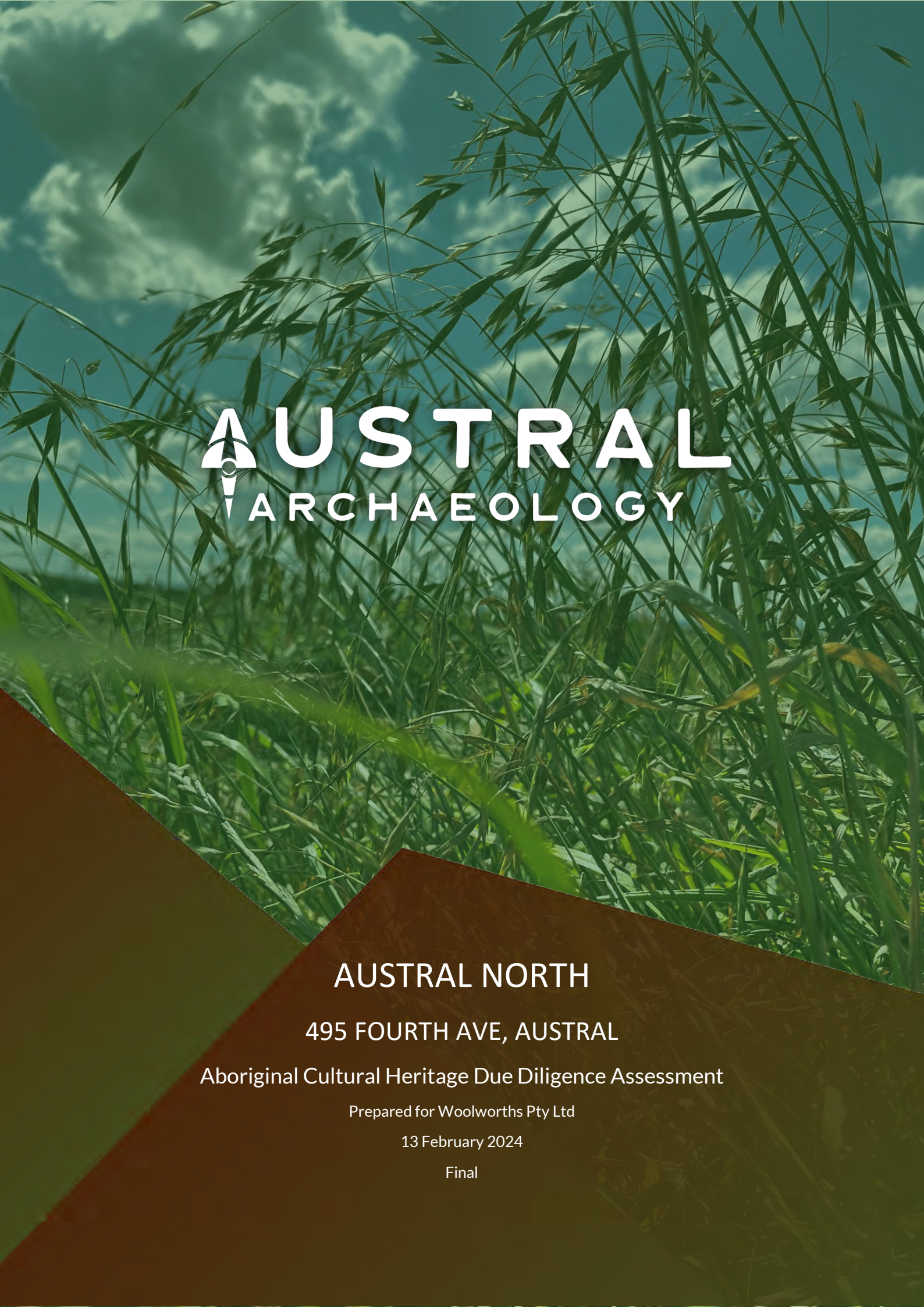

AUSTRAL ARCHAEOLOGY

AUSTRAL NORTH

495 FOURTH AVE, AUSTRAL

Aboriginal Cultural Heritage Due Diligence Assessment

Prepared for Woolworths Pty Ltd

13 February 2024

Final

DOCUMENT INFORMATION

PROJECT DETAILS

Project: Austral North

Client: Woolworths Pty Ltd

Service: ACHDDA

Authors: Jordon Coltman and Peta Rice

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1	1	15/11/2023	Woolworths Pty Ltd
2	1	13/02/2024	Woolworths Pty Ltd

Acknowledgement of Country

We respect and acknowledge the First Nations Peoples of the lands and waterways on which we live and work, their rich cultural heritage, and their deep connection to Country, and we acknowledge their Elders past and present.

Cultural warning

Aboriginal and Torres Strait Islander readers are advised that this report may contain images or names of First Nations people who have passed away.

AUSTRAL
ARCHAEOLOGY

EXECUTIVE SUMMARY

This report has been prepared for Woolworths Pty Ltd and details the results of an Aboriginal Cultural Heritage Due Diligence Assessment (ACHDDA) prepared for land situated at 495 Fourth Ave, Austral, New South Wales (NSW) [the study area], within the Liverpool City Council Local Government Area (LGA).

The study area consists of Lot 121, Deposited Plan (DP) 1220414 and is bound by Fourth Avenue on the west, Gurner Avenue to the north and residential land and buildings to the east and south.

This ACHDDA was undertaken to assess the likelihood for Aboriginal cultural material or objects to be present within the study area, and the potential for them be impacted as part of the proposed works to be undertaken within the study area. These works consist of the construction of a neighbourhood shopping centre comprising a full-line supermarket, drive-up-direct to boot facility, BWS, specialty and commercial shops as well as a combination of on grade and basement parking. The ACHDDA has been undertaken in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) [the Code].

ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was conducted on 24 October 2023 (Client service ID: 832361). The search identified 61 Aboriginal archaeological sites within a 5-kilometre search area centred on the study area, however, none of those registered sites were located within the study area. The most commonly occurring site type detected by the AHIMS search is sites where artefacts were present, this is then followed by sites of potential archaeological deposits (PADs), then sites associated with both an Artefact and a PAD. The least common site type detected in the area were those containing Art (Pigment or Engraved), Artefacts, and Modified Trees (Carved or Scarred). Background research suggested that no other archaeological assessments have been undertaken in the study area; however, a large number have been previously carried out in the wider Austral/Leppington area.

A review of the study area's previous land use indicated that the site has been subject to extensive ground disturbance associated with residential and agricultural activities. These included land clearing, animal grazing, low level farming and ploughing, as well as residential use. The geology, soils, and topography of the study area suggest that it contains no stone raw material sources or rock outcrops suitable for the manufacturing of lithic artefacts, artworks, or rock shelters. While the study area is located near small first order streams, it is likely that and past Aboriginal inhabitants would have moved closer to the larger and more reliable water source of Kemps Creek located 1.2 kilometres (km) from the study area.

No sites were identified during the archaeological survey. The site was found to have low archaeological potential due to significant disturbances. The study area has most recently been used for cattle grazing. A tap near the southwest corner of the study area indicated likely subsurface disturbance for water and similar utilities along Fourth Avenue.

CONSIDERATION OF DUE DILIGENCE PROCESS

This assessment has determined that using the steps outlined in the Code is acceptable means of determining the potential for the proposed works to impact on any Aboriginal cultural material which may be present within the study area. The following table summarises the steps undertaken in accordance with the Code.

Table ES-1 Consideration of key steps in the Code in relation to the study area/proposed works

Step 1: Will the activity disturb the ground surface or any culturally modified trees?	Yes, the activity will disturb the ground surface. There are no culturally modified trees within the study area.
Step 2a: Search the Aboriginal Heritage Information Management System (AHIMS) Database and use any other sources of information of which you are already aware.	A search of the AHIMS database identified 0 sites within the study area. A 5 km search of the surrounding area identified 61 sites in the surrounding vicinity.
Step 2b: Activities in areas where landscape features indicate the presence of Aboriginal objects.	The activity will be undertaken in an area which has been disturbed due to past land use and is not likely to have been a location of Aboriginal occupation. As such, the predictive statements included in this step indicate that the study area does not contain topographic elements where Aboriginal objects or places are likely to occur.
Step 3: Can you avoid harm to the object or disturbance of the landscape feature?	It is not possible to avoid harm to the disturbance of the landscape.
Step 4: Desktop assessment and visual inspection.	The results of the desktop assessment and visual inspection indicated that the study area is not likely to contain Aboriginal cultural material which may be impacted by the proposed works.
Step 5: Further investigations and impact assessment.	Based upon the outcome of Steps 1 to 4 of the Code, further assessment is not warranted.

RECOMMENDATIONS

Based upon the outcome of Steps 1 to 4 of the Code, further assessment is not warranted based on the history of disturbance and absence of appropriate landforms and geological features. The following recommendations apply:

1. No further archaeological assessment is required, and the proposed works may proceed with caution. In the event that any unexpected Aboriginal cultural heritage finds occur during any activity within the study area, all works in the vicinity of the find must immediately cease. The find must be left in place and protected from any further harm. Depending on the nature of the find, the following processes must be followed:
    - If, while undertaking the activity, an Aboriginal object is identified, it is a legal requirement under Section 89A of the *National Parks and Wildlife Act 1974* (NPW Act) to notify Heritage New South Wales's (NSW) Environmental Line 131 555, as soon as possible. Further investigations and an Aboriginal Heritage Impact Permit (AHIP) may be required prior to certain activities recommencing.
    - If, human skeletal remains are encountered, all work must cease immediately and NSW Police must be contacted, they will then notify the coroner's office. Following this, if the remains are believed to be of Aboriginal origin, then the Aboriginal stakeholders and Heritage NSW must be notified.
2. 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 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.

3. 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:
    - immediately cease all works at that location and not further move or disturb the remains.
    - 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.
    - not recommence work at that location unless authorised in writing by Heritage NSW.

CONTENTS

FIGURES

TABLES

1. INTRODUCTION

Austral has been engaged by Shaun Carrey on behalf of Woolworths Pty Ltd (the Proponent) to prepare an ACHDDA for the proposed development at 495 Fourth Avenue, NSW [the study area]. The study area is 1.19 hectares in area and defined by [the boundaries of Lot 121, DP1220414; Fourth Avenue to the West, Gurner Avenue to the North and residential land to the east and south]. The location of the study area is shown Figure 1-1 and Figure 1-2.

This advice is intended to assist the Proponent in determining their obligations with regard to the NPW Act and to determine whether the project will involve activities that may harm Aboriginal objects or places.

1.1. ASSESSMENT OBJECTIVES

Section 87 of the NPW Act makes it a strict liability offence to knowingly or unknowingly harm Aboriginal objects or declared Aboriginal places without an AHIP. Section 5 of the NPW Act defines harm as:

> *"any act or omission that – (a) destroys, defaces or damages the object or place or (b) in relation to an object, moves the object from the land on which it had been situated."*

The NPW Act allows for a person or organisation to exercise due diligence in determining whether their actions will, or are likely to, impact upon Aboriginal objects or places. Any person or organisation who can demonstrate that they have exercised due diligence has a defence against prosecution under the strict liability provisions of the NPW Act. Where an activity is likely to harm Aboriginal objects or places, consent in the form of an AHIP is required.

The *National Parks and Wildlife Regulation 2009* (NPW Regulation) adopted the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) [the Code], which sets out the reasonable and practicable steps which individuals and organisations need to take in order to:

- Identify whether Aboriginal objects are, or are likely to be, present within the study area.
- If Aboriginal objects are, or are likely to be present, determine whether their activities are likely to cause harm.
- Determine whether further assessment or an AHIP application is required for the activity to proceed.

This advice has been formulated to provide a robust assessment that will identify whether Aboriginal objects or places are present, or are likely to be present, within the study area. This has been achieved by the completion of a desktop review and archaeological survey of the study area. An overview of the archaeological context of the site is presented in Section 2 of this assessment, and the due diligence questions are addressed in Section 4.

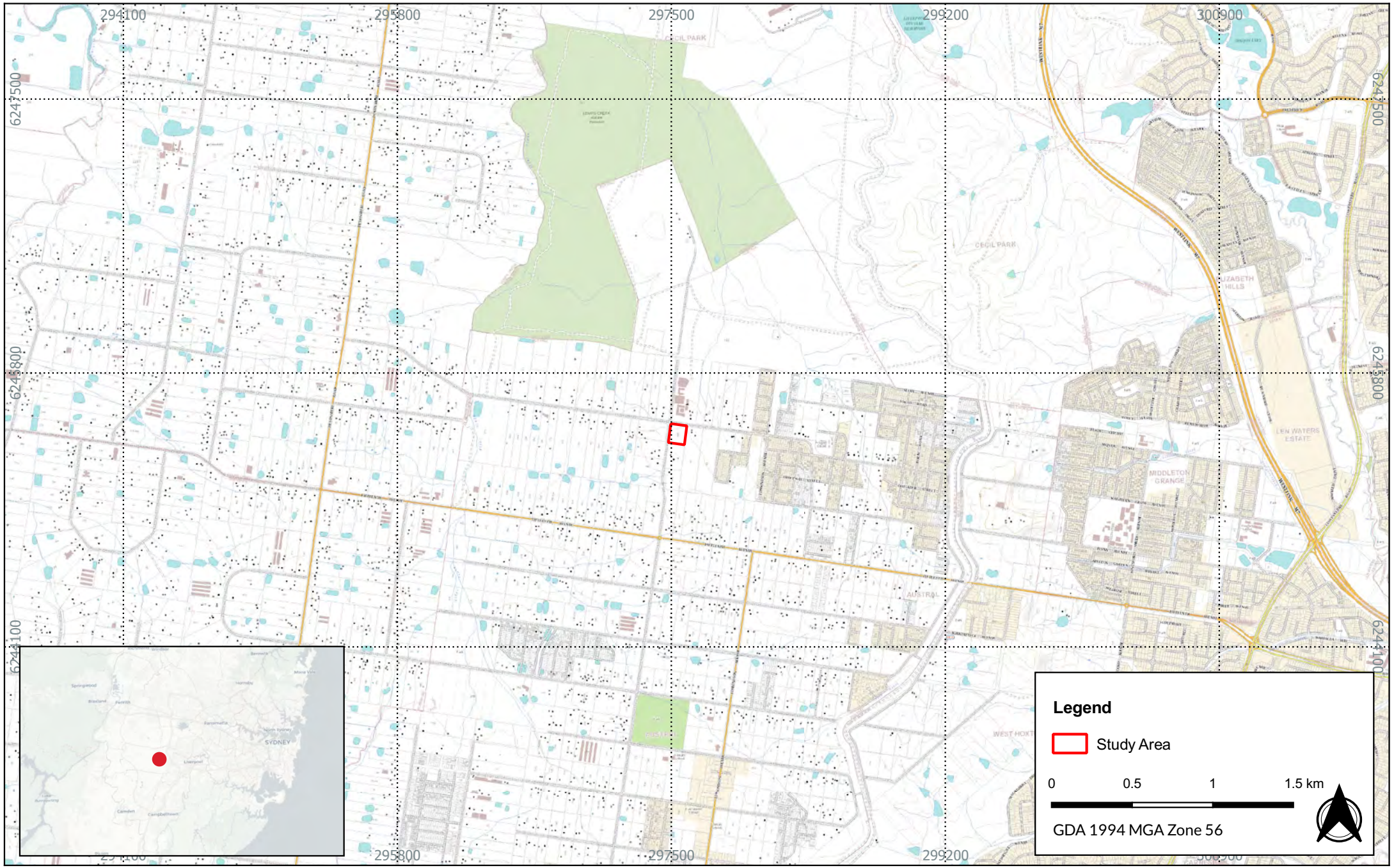

Figure 1.1 - Location of the study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Basemap, CartoDB Positron

Drawn by: FOT Date: 2023-11-02

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Figure 1.2 - Detailed aerial of the study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Aerial, CartoDB Positron

Drawn by: FOT Date: 2023-11-02

AUSTRAL ARCHAEOLOGY

1.2. PROJECT TEAM AND QUALIFICATIONS

The following personnel have been involved in the preparation of this ACHDDA.

PETA RICE (B. ARTS HISTORY, ANCIENT HISTORY, ARCH)

Peta brings experience in the practical issues of heritage management, archaeological survey, and excavation, especially in the Illawarra and Greater Sydney regions. Peta is a mid-level archaeologist who specialises in both Aboriginal and historical heritage. Peta has experience managing projects across these regions and has a strong understanding of the technical aspects of Australian archaeology as well as legislative processes and consultation with Aboriginal communities.

JORDON COLTMAN (B. ARCH, HUMAN BIOLOGY)

Jordon is a graduate archaeologist who has assisted in the completion of Aboriginal Cultural Heritage Assessments, Due Diligence Assessments, and Aboriginal consultation. Jordon has completed background research and reporting and test excavations for projects throughout the Illawarra and Greater Sydney. Jordon has also completed excavations overseas in Romania and Malta and has experience in funerary archaeology and osteoarchaeology.

DR. AMANDA MARKHAM (B. ARTS, ANTHROPOLOGY [HONS], PhD PHILOSOPHY [ANTHROPOLOGY], GRAD CERT. [ARCHAEOLOGY]

Amanda has reviewed this report for quality assurance and technical adequacy and had input into the management recommendations.

1.3. ABBREVIATIONS

The following are common abbreviations that are used within this report:

ACHDDA	Aboriginal Cultural Heritage Due Diligence Assessment
AHIMS	Aboriginal Heritage Information Management System
AHMS	Archaeological and Heritage Management Solutions
AHIP	Aboriginal Heritage Impact Permit
km	kilometre
LGA	Local Government Area
m	metre
NPW Act	*National Parks and Wildlife Act 1974*
NPW Regulation	*National Parks and Wildlife Regulation 2009*
PAD	Potential Archaeological Deposit
The Code	*Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*
The Proponent	Woolworths Pty Ltd
Study Area	495 Fourth Ave, Austral, NSW (Lot 121, DP1220414)

2. ARCHAEOLOGICAL OVERVIEW

This section serves to provide a summary of previous heritage studies which are relevant to the study area, as well as the results of a search for previously known sites of Aboriginal cultural heritage either within or in close proximity of the study area in order to understand the regional context of how Aboriginal people occupied the land surrounding the study area. This will assist in determining the potential for the study area to contain Aboriginal cultural material which may be affected by the proposed works.

2.1. AHIMS DATABASE SEARCH

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was conducted on 24 October 2023 (Client service ID: 832361). The search identified 61 Aboriginal archaeological sites within a 5-km search area centred on the study area (**Error! Not a valid bookmark self-reference.** and Figure 2-1). None of these registered sites are located within the study area. The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps from Aboriginal heritage reports, if available. Where notable discrepancies occurred, these descriptions and maps were considered the determinant for site location.

Spatial information for this report is displayed using the GDA94 Datum. Where AHIMS site records were provided on a different datum, they were converted using standard functions in QGIS software.

Table 2.1 AHIMS sites identified within 5 kilometres of the study area.

Site Feature Type	Occurrence	Frequency (%)
Artefact	46	75.41%
Potential Archaeological Deposit (PAD)	8	13.11%
Artefact, Potential Archaeological Deposit (PAD)	6	9.84%
Art (Pigment or Engraved), Artefact, Modified Tree (Carved or Scarred)	1	1.64%
TOTAL	61	

The most commonly occurring site type detected by the AHIMS search are sites where artefacts were present; this accounts for 86.89% (n=53) of sites. This is then followed by sites of PAD, which make up 22.95% (n=14) of sites. Generally, when these occur, they are more common independently; however, 42.86% of sites of PAD were identified in association with an artefact (n=6). The least common site features are art and modified trees, which make up only 1.64% (n=1) of site types in the area and always occur in association with other site feature types. Therefore, the overall most likely site feature to be present in and around the study area are artefact sites.

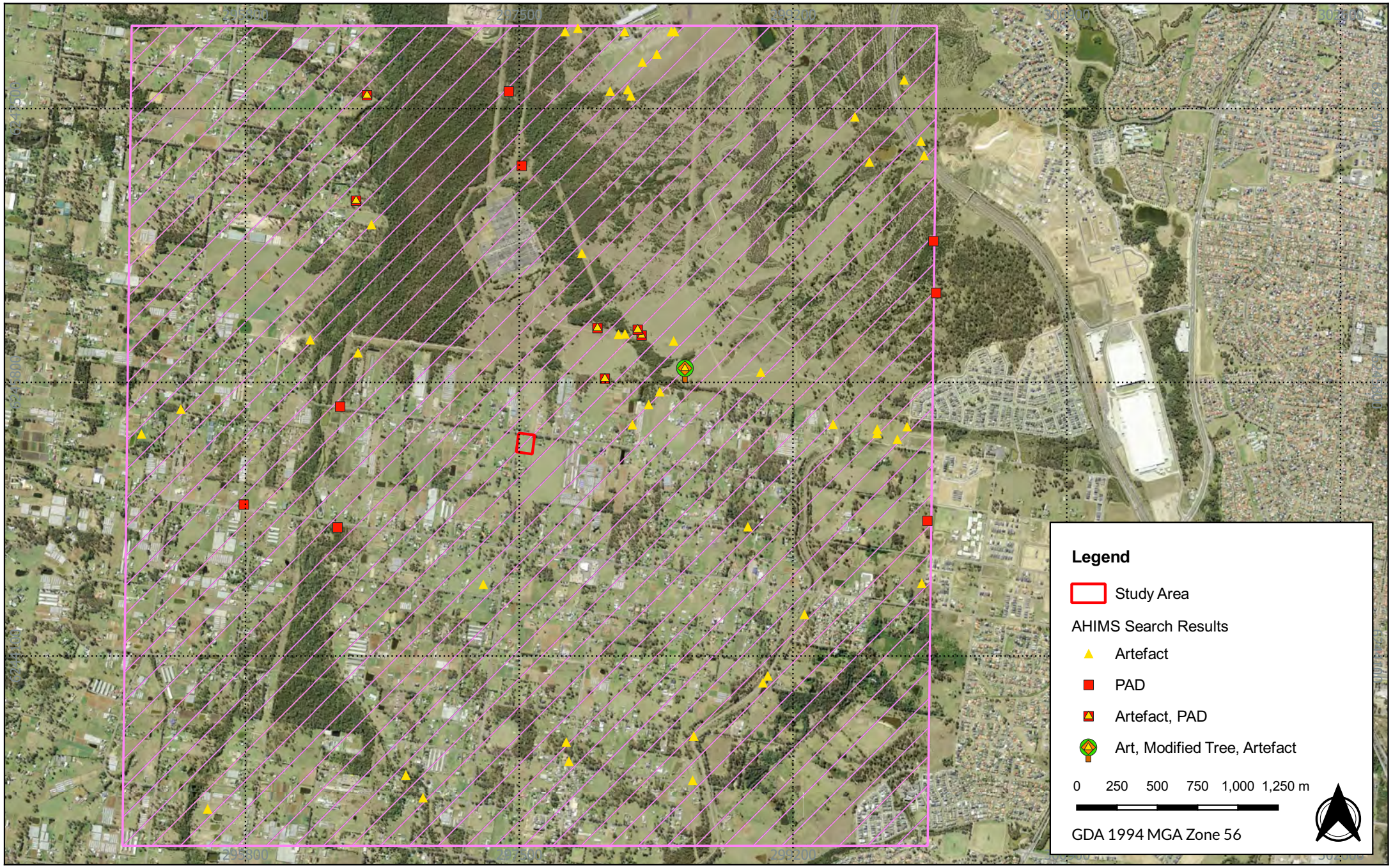

Figure 2.2 - AHIMS sites within 5km of the study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Aerial

Drawn by: FOT Date: 2023-11-02

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2.2. LOCAL ARCHAEOLOGICAL CONTEXT

Archaeological investigations of the Austral region are generally conducted as a part of development assessments or in response to impacted cultural heritage or the proposition of the development residential development. The limited ethnographic accounts of early settlers and explorers were once considered the primary source for archaeological inquiry. However, with the recent spread of urban development within the Southern Highlands environs, archaeological investigations have increased accordingly.

The major studies which have contributed to our understanding of the Austral region and those with direct relevance to the study area are outlined in Table 2.2. Reference is made to the main trends garnered from these investigations which serve to provide a broad framework on which to base the current study.

Table 2.2 Archaeological studies undertaken in the vicinity of the study area

Reference	Details
Helen Brayshaw and Elizabeth Rich (1996)	Helen Brayshaw and Elizabeth Rich prepared an archaeological assessment of Aboriginal heritage for a study undertaken 4.5km from the current study area in the Liverpool LGA. It was completed in regard to the proposed development of the Western Sydney Orbital Road, Prestons to Cecil Park Section. This assessment identified 23 sites total over the 40-hectare study area. The study identified 12 artefact scatter sites and 8 isolated finds containing 161 artefacts between them. The materials of the artefacts consisted of mostly silcrete (78%), quartz (12%), or mudstone/chert (9%). The tool types present at these sites are listed as mostly debitage and flakes (83%), with cores and tools making up a smaller portion of the artefacts (17%). The assessment also identified four areas of PAD throughout the study area. Subsurface excavation was recommended for the areas of PAD that were to be affected by the proposed works.
Navin Officer Heritage Consultants (1997)	Navin Officer Heritage Consultants conducted a cultural heritage assessment 2.3 km to the north of the current study area in the Fairfield LGA. The report was for the proposed development of an Olympic shooting venue at Cecil Park. This assessment identified eight sites total. Two of the identified sites were artefact scatter sites. The first site was located on the eastern side of the main study area, where five silcrete flake artefacts were recorded along a 25-metre (m) stretch of creek. The second artefact scatter consists of eight artefacts over a 70-m stretch of creek on the eastern side of the main study area. Seven of these artefacts were silcrete flake artefacts, and one was a white quartz flake artefact.

Reference	Details
AHMS (2012)	Archaeological and Heritage Management Solutions (AHMS) conducted an Aboriginal heritage preliminary assessment 11 km southwest of the current study area in the Campbelltown LGA. The report was done in relation to the proposed Glenfield Waste Disposal Site, Glenfield, NSW. This assessment identified two sites in the study area along with two known sites that had been previously recorded in the area. The two previously recorded sites consisted of an isolated object and a culturally modified tree in the northwest quadrant of the study, however it was not investigated due to difficulties accessing the area. Two modified trees are located within the study area, one located in the western quadrant of the site (although there are doubts about whether this is genuinely a culturally modified tree) and another in the northwest quadrant. The study also recorded a PAD in the southeast quadrant of the site. This PAD was identified due to the undisturbed nature of the terrain and its proximity to the Georges River. The PAD was not further investigated. The study concluded that the archaeological deposits in the area would most likely consist of artefact scatters, isolated finds, scarred trees and PADs.
Comber Consultants (2016)	Comber Consultants conducted an ACHDDA 2.1 km to the south of the current study area in the Liverpool LGA. The assessment was done as part of a development application for proposed works at the St. Anthony of Padua Catholic School at 140-170 Eleventh Avenue, 135 Tenth Avenue, 145 Tenth Avenue, 155 Tenth Avenue, and 165 Tenth Avenue in Austral. There were no previously recorded AHIMS sites in the study area, and no sites were located during the site inspection. However, the study highlights the presence of sites in the vicinity of the area and the small unnamed stream located within 200 m. The report recommends that sub-surface testing is carried out to understand the full extent of PADs.
Comber Consultants (2017)	Comber Consultants conducted an ACHDDA 450 m to the west of the current study area in the Liverpool LGA. 145 Gurner Avenue, Austral, covered 2.6 hectares of land intended for development as a residential subdivision. The assessment area is predominantly occupied by a flat with a small ephemeral creek cutting northeast-to-southwest in the northern half. Eight archaeological sites within a 1 km radius of the assessment area were identified in an AHIMS search. The sites consisted of two PAD sites, two artefact scatters, and four isolated finds. All sites were located in proximity to streams associated with Kemps Creek. Site inspections did not identify any further Aboriginal sites, with Comber Consultants concluding any sites that once existed at the surface may have been destroyed or removed by significant ground disturbance and erosion.

2.3. ETHNOHISTORY

The earliest dates for Aboriginal occupation in Australia reach back to at least 65,000 years (Clarkson et al. 2017). Within the Cumberland Plain, in which the study area is situated, the earliest known occupational site is located north of Pitt Town, on the southern bank of the Hawkesbury River, where cultural deposits were dated by optically stimulated luminescence to 36,000+/-3000 BP (Williams et al. 2012).

The study area is likely to have been an intersecting point of occupation for the Dharawal, Darug, and Gundungurra language groups. The Dharawal group generally occupied coastal environments with their territory spanning from the Shoalhaven River to Botany Bay and as far inland as Camden. The Gundungurra were noted to have occupied regions to the west and southwest of the Dharawal. The Darug group were located throughout much of the Cumberland Plain and was divided into coastal and hinterland dialects (Attenbrow 2010a).

Early ethnographic accounts note that local Aboriginal people throughout the Sydney region were grouped as clans or bands consisting of between 25 and 50 people (Attenbrow 2010, p.29). The George's River and its associated landscapes were utilised by the local peoples with evidence of their occupation remaining in the form of campsites, middens, and artworks (Goodall and Cadzow 2014). Estuaries such as the Georges River were particularly important for fishing and shellfish gathering. Ethnographic accounts recorded local Aboriginal people gathering resources from the estuary shallows within canoes and using tools such as pronged spears with tips of bone and fish traps consisting of plant materials. Generally, shell middens were located along the banks of the Georges River and its tributaries, however many were destroyed by early Europeans due to their yield of lime fit for use in construction and agriculture (Attenbrow 2010 p.5). Aboriginal people were noted to employ the use of rocky overhangs as shelters within the extents of the Hawkesbury Sandstone. In the absence of rock shelters, such as in the study area, semi-permanent huts were constructed of the bark of stringy bark trees supported by a frame of branches. These huts were observed to accommodate three to four people, though larger cone-shaped dwellings could hold up to 8 people (Turbet 1989, pp.16-17).

With the arrival of British colonists within the wider Sydney area came the destabilisation of local Aboriginal groups as the land was claimed and transformed for settlement and agricultural purposes. Resources and landscapes once readily available to local groups such as timber, plainlands, and water sources were also exploited and depleted by the colony. Interactions between the local Aboriginal groups and European settlers became increasingly hostile, with Aboriginal people eventually being largely driven out of their homelands. Aboriginal populations were later restricted to living within Camden Park and along Georges River near Liverpool (Liston 1988).

2.4. GEOLOGY

Geological units are used to predict the presence and/or absence of certain Aboriginal site types including rock shelters, grinding grooves or quarries in addition to providing an insight into the range of raw material types that may have been available to past Aboriginal groups for stone tool production.

The study area is located within the Upper South Creek geological unit which is comprised of low hills on Triassic shale and sandstone within the Sydney Basin at Badgerys Creek and Catherine Field. The geology is made up of sedimentary rocks from the Triassic Wianamatta Group, the study area lies within the Bringelly Shale geological landscape. Alluvial gravels and sands from these rocks are present along creeks and streams. Evidence of stone artefacts associated with this geological unit may be detected should outcroppings be present within the study area.

The underlying geology of the study area and surrounding region would have provided a range of stone material types suitable for the production of flaked stone artefacts. Silcrete is the most common raw material type associated with stone tool manufacture based on assemblages recovered from archaeological sites across the Cumberland Plain and the Cumberland Lowlands. Known silcrete sources in the wider region include the St Marys Formation, Rickabys Creek gravels, and terraces along the Nepean River. No known stone sources are located within the study area.

Geological units identified within the study area are shown on Figure 2-2.

2.5. SOILS AND TOPOGRAPHY

The study area is associated with the Blacktown (bt) soil landscape, which is characterised by shallow to moderately deep hard setting mottled texture contrast soils, red and brown Podzolic soils on crests grading to Yellow Podzolic soils on lower slopes and in drainage lines.

The Blacktown (bt) soil profile is made up of:

- bt1 – friable greyish brown loam
- bt2 – hard-setting brown clay loam
- bt3 – strongly pedal, mottled brown, light clay
- bt4 – light grey plastic mottled clay

It is noted that Blacktown (bt) soils are moderately erodible, with topsoils (bt1 and bt2) being generally hard setting with significant fine sand and silt contents, offset by moderate amounts of organic matter (NSW Department of Environment and Climate Change. 2008). Areas within the Blacktown (bt) soil landscape are considered to have potential for subsurface artefacts to be identified, as the soil profile is suitable for the retention of deposited objects.

The landscape consists of gently undulating rises on Wianamatta Group shales, broad rounded crests, and ridges with gently inclined slopes. There is a local relief of 30m, and slopes are usually less than 5 percent. The vegetation is made up of cleared Eucalypt woodland and tall open dry sclerophyll forest. Outcrops of shale do not naturally occur on the surface. They may, however, occur where soils have been removed.

The soil landscape of the study area and surrounds are shown on Figure 2-3. A preliminary mapping of key landforms present within the study area is shown on Figure 2-4.

2.6. HYDROLOGY

The study area is located near two 1st order tributaries of Kemps Creek (Figure 2-2). One of these tributaries is located approximately 554 m south of the study area, and the other is located approximately 227 m northeast of the study area. Kemps Creek also traverses north to south approximately 1.2 km west of the study area. It is possible that Aboriginal communities may have chosen to move closer to Kemps Creek, which would have provided a more permanent reliable source of fresh water and associated resources. The other small tributaries near the study area may have been briefly utilised by Aboriginal communities, however it is unlikely that evidence of a long-term settlement will be found. Unsurprisingly, most registered AHIMS sites in proximity to the study area are located along creek lines and water courses.

The hydrology and stream order mapping for the study area and surrounds is shown on Figure 2-2.

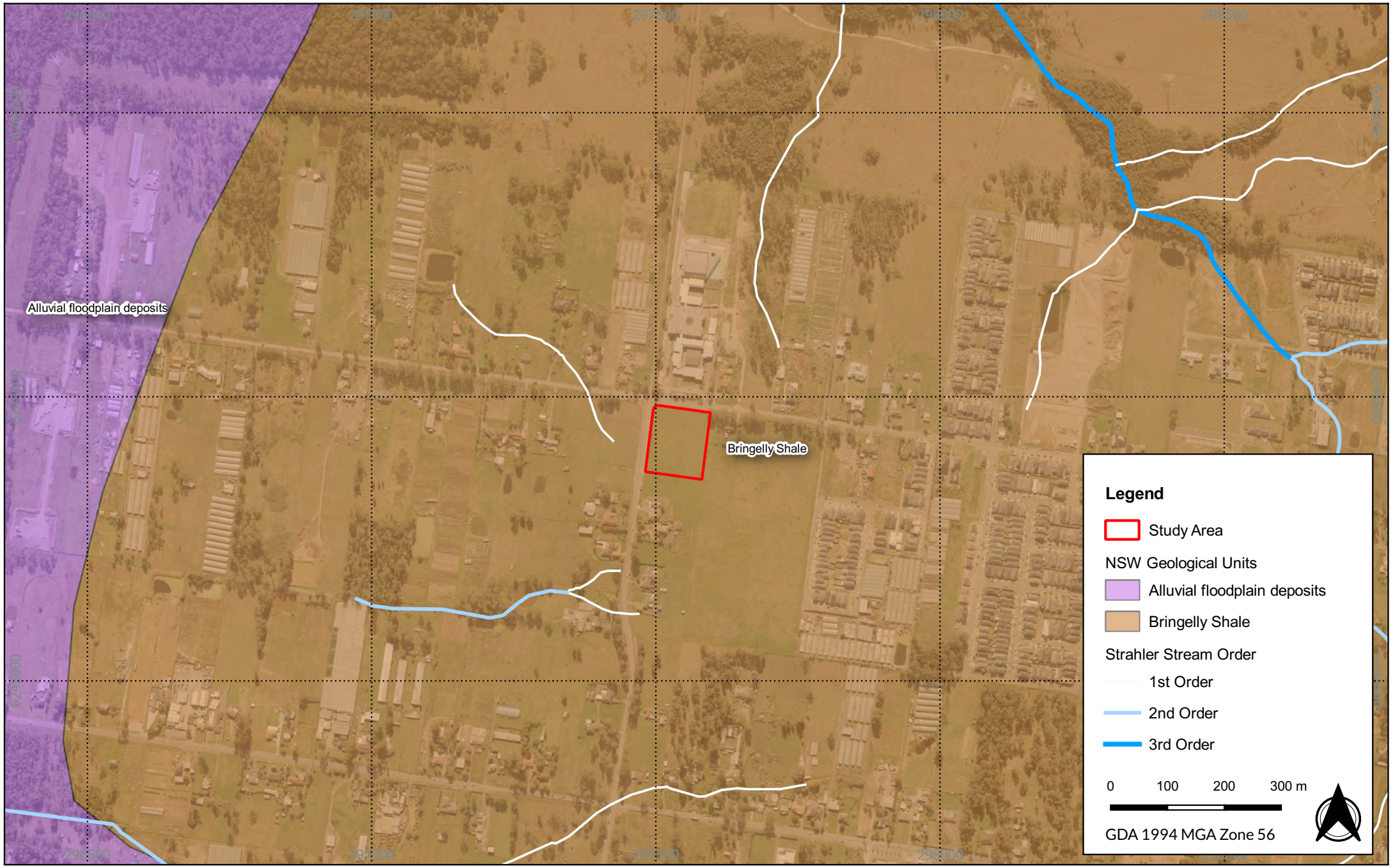

Figure 2.2 - Geological and hydrological units within and surrounding the study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Aerial, NSW Seamless Geology

Drawn by: FOT Date: 2023-11-02

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Figure 2.3 - Soil landscapes of the study area and surrounds

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Aerial, NSW Soil Landscapes

Drawn by: FOT Date: 2023-11-02

AUSTRAL ARCHAEOLOGY

Figure 2.4 - Landform units identified within study area 23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Aerial

Drawn by: FOT Date: 2023-11-07

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2.7. LANDSCAPE RESOURCES

The study area lies in a landscape that would have been rich in biological and ecological diversity prior to the introduction of European farming practices. The landscape likely supported a wide variety of flora and fauna which, coupled with proximity to watercourses, would have provided abundant natural resources for past Aboriginal people utilising the area.

Both estuarine and terrestrial resources were exploited by Aboriginal people living on the Cumberland Plain. Land mammals that were hunted for food included kangaroos, possums, sugar gliders, wombats, and echidnas as well as native rats and mice (Attenbrow 2003, p,70). Birds, such as the mutton bird and brush turkey, were also eaten and it is recorded that eggs were a favourite food (Attenbrow 2003 pp.75–76). Evidence of yam harvesting has also been recorded on the Hawkesbury River, and fish traps are known to have been used in the Nepean River (Kohen 1985). Kohen also notes that in 1810, the diet of the Gundungurra people was described as consisting of a variety of foods including "possums, eels, snakes, blue-tongued lizards, freshwater mussels and a variety of birds" (Kohen 1985).

Attenbrow has noted that "Sydney vegetation communities include over 200 species that have edible parts, such as seeds, fruits, tubers/roots/rhizomes, leaves, flowers and nectar" (Attenbrow 2003, p.76).

The small nature of the immediately proximal water sources likely meant that Aboriginal inhabitants of the area would have moved closer to the larger Kemps Creek source, 1.2 km to the west of the study area. The lack of stone outcroppings in and around the area, suggests there would have been few sources for the knapping of stone tools and the use of rock shelters.

2.8. PAST LAND USE PRACTICES

Historic aerials indicate the study area was mainly used for residential occupation once most of the region had been cleared. A 1930s aerial (Figure 2-5) shows the study area cleared, but without surrounding developments. A 1955 aerial (Figure 2-6) shows further clearing of the area, and a residence with driveway and outbuildings is present in the study area. The study area would have been a part of a larger property before it was subdivided. It appears the property was used for residential occupancy with low-level grazing. A 1978 aerial (Figure 2-7) shows plough lines and the study area being used for agricultural farming, as well as removal of the residence, driveway, and outbuildings. It also shows a significant amount of land clearing as well as development in the surrounding area and on the pre-subdivided property that encapsulates the study area. The appearance and use of the study area changes very little from this 1978 aerial to its current state.

The land clearing and agricultural activities of the study area have caused moderate disturbance. This disturbance will have affected the preservation of Aboriginal sites in the study area. The study area is completely cleared of trees, so the potential for culturally modified trees in the study area is negligible.

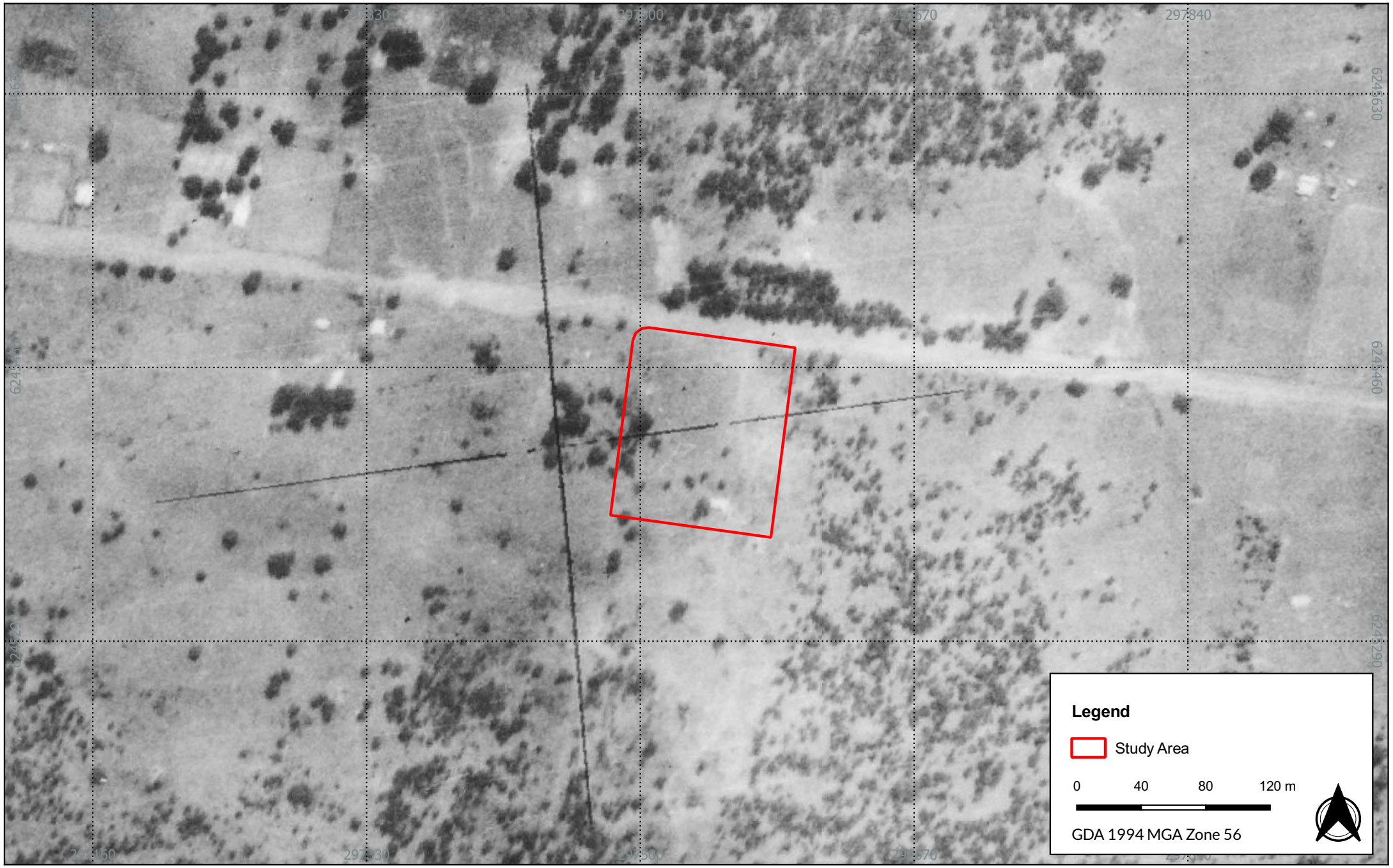

Figure 2.5 - 1930 aerial of study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW Spatial Services

Drawn by: FOT Date: 2023-11-02

AUSTRAL ARCHAEOLOGY

Figure 2.6- 1955 aerial of study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW Spatial Services

Drawn by: FOT Date: 2023-11-02

AUSTRAL ARCHAEOLOGY

Figure 2.7 - 1978 aerial of study area

23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW Spatial Services

Drawn by: FOT Date: 2023-11-02

AUSTRAL ARCHAEOLOGY

2.9. PREDICTIVE STATEMENTS

In general, an archaeological predictive statement for any study area draws on surrounding environmental data, previous archaeological research, and predictive models for Aboriginal occupation. Another essential aspect to predicting the archaeological integrity of a site and something that must be considered is previous land uses of the study area and the degree of disturbance.

The main trends broadly seen within Austral NSW are that:

- Site frequency and density are dependent on their location in the landscape.
- There is a dominance of artefact scatters and isolated artefact sites.
- Artefact scatters are commonly located in close proximity to permanent water sources along creek banks, alluvial flats and low slopes. More complex sites are usually located close to major water sources.
- The dominant raw material used in artefact manufacture is silcrete and fine-grained siliceous material with smaller quantities of chert, quartz and volcanic stone seen.
- Artefact assemblages usually comprise a proportion of formal tool types with the majority of assemblages dominated by flakes and debitage.
- While surface artefact scatters may indicate the presence of subsurface archaeological deposits, surface artefact distribution and density may not accurately reflect those of subsurface archaeological deposits.
- Aboriginal scarred trees may be present in areas where remnant old growth vegetation exists.

While these statements provide an adaptable framework for applying a predictive model to the study area, the information contained in this section allows for the creation of predictive statements tailored to the study area. As such, the following statements are made with regards to the archaeological potential of the study area:

- While intact deposits of cultural material are present within the broader area, historical aerial imagery indicates extensive disturbance of the study area.
- Given the extensive disturbance that has occurred throughout the study area, it is unlikely any potential artefacts deposited in the study area remain. If they are present, they may be identified out of context due to disturbances such as agricultural ploughing and residential development.
- Should cultural materials be identified in the study are, they are likely to be isolated artefacts manufactured from silcrete.
- There will be no modified trees, art, or rock shelters within the study area, as there are no trees or sandstone outcrops.

3. SITE INSPECTION

To ground truth the desktop assessment, a visual inspection of the study area was undertaken on 26 October 2023 by Lindsay Costigan (Senior Archaeologist, Austral). The visual inspection consisted of a systematic survey of the study area to identify and record any Aboriginal archaeological sites visible on the surface or areas of Aboriginal archaeological potential and cultural sensitivity. The archaeological survey was conducted on foot utilising a set of four parallel north-south transects across the property. The methods used during the visual inspection conformed to requirements 5 to 8 of the Code (DECCW 2010b). Photos of the study area taken during the visual inspection are included below (see **Error! Reference source not found.**, to Figure 3-3). This survey targeted the entirety of the study area.

The study area is present within a sloped landform most recently used for grazing cattle. Residential structures are present to the east and south of the study area, while a school is located to the north, and additional rural residences and small paddocks are located to the west. A level was used to estimate slopes ranging from 0 to 5 percent within the study area, which exhibited a north aspect. The study area exhibited low visibility and exposure of the natural soil profile due to thick grass coverage throughout. No areas of exposure were identified, so the soil profile was not viewed during the survey, and no Aboriginal artefacts were observed. A tap near the southwest corner of the study area indicated likely subsurface disturbance for water and similar utilities along Fourth Avenue. A map showing the survey transects and areas of archaeological potential identified during the site inspection is shown as Figure 3-4.

Figure 3-1 View downslope toward Gurner Avenue from southwest corner of study area, facing north (1-m scale).

Figure 3-2 View across study area with rod indicative of slope, facing east (1-m scale).

Figure 3-3 Typical ground cover (1-m scale).

Figure 3.4 - Survey results and areas of archaeological potential identified in the study area 23064 - 495 Fourth Ave, Austral, NSW - ACHDDA

Source: NSW LPI Aerial

Drawn by: FOT Date: 2023-11-13

AUSTRAL ARCHAEOLOGY

4. DUE DILIGENCE PROCESS

This section considers the information provided in previous sections of the assessment in the context of the Code and the steps which it outlines. The Code initially provides a series of questions that clarify whether it is the applicable document for a given project. These questions are addressed in Table 4.1.

Table 4.1 Assessing the applicability of the Code to the proposed activity.

Question	Response
Is the activity a declared project under Part 3A of the *Environmental Planning & Assessment Act 1979*?	No
Is the activity an exempt activity listed in the NPW Act or other legislation?	No
Will the activity involve harm that is trivial or negligible?	No
Is the activity in an Aboriginal place or are you already aware of Aboriginal objects on the land?	No
Is the activity a low impact activity for which there is a defence in the NPW Regulation?	No
Do you want to use an industry specific code of practice?	No
Do you wish to follow your own procedure?	No

As none of the questions outlined in Table 1 apply to the project, due diligence must be established through the Code; this consists of a series of 5 steps, outlined below.

STEP 1. WILL THE ACTIVITY DISTURB THE GROUND SURFACE OR ANY CULTURALLY MODIFIED TREES?

The proposed works entail the development of a neighbourhood shopping centre including a full-line supermarket surrounded by additional commercial buildings and facilities and a combination of on-grade and basement parking. This will involve the complete excavation of the study area.

As the activity will disturb the ground surface, consideration of steps 2a and 2b of the Code is required.

STEP 2A. SEARCH THE ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM DATABASE AND USE ANY OTHER SOURCES OF INFORMATION OF WHICH YOU ARE ALREADY AWARE.

Section 2.1 details the results of an extensive search of the AHIMS database, which identified no sites within the study area.

A review of heritage reports identified as being relevant to the study area is detailed in Section 2.2 of this report, while details of ethnographic information relevant to the study area is included in Section 2.3. The information identified here, along with consideration of various other geological and resource-driven factors (sections 0 to 2.7) and the site disturbance history contained in Section 2.8 has enabled the preparation of predictive models which consider the potential for the study area to contain Aboriginal cultural material. These are outlined in Section 2.9 of the report and are copied below:

- While intact deposits of cultural material are present within the broader area, historical aerial imagery indicates historical disturbance of the study area.
- Given the extensive disturbance that has occurred throughout the study area, it is unlikely any potential artefacts deposited in the study area remain in-situ. If they are present, they may be identified out of context due to disturbances such as agricultural ploughing and residential development.

- Should cultural materials be identified in the study are, they are likely to be isolated artefacts manufactured from silcrete.
- There will be no modified trees, art, or rock shelters within the study area, as there are no trees or sandstone outcrops.

STEP 2B. ACTIVITIES IN AREAS WHERE LANDSCAPE FEATURES INDICATE THE PRESENCE OF ABORIGINAL OBJECTS.

The following table considers whether the study area is located in a landscape which is likely to be conducive to use of the area by Aboriginal people.

Table 4.2 Presence of sensitive landscape features listed in the Code.

Question	Response
Is the activity within 200m of 'waters'?	No
Is the activity within a sand dune system?	No
Is the activity located on a ridge top, ridge line or headland?	No
Is the activity located within 200m below or above a cliff face?	No
Is the activity within 20m of or in a cave, rock shelter or cave mouth?	No
Is the activity (or any part of it) on land that is disturbed?	Yes
Do the predictive statements of Step 2A indicate Aboriginal objects or places are likely to occur on any of the topographic elements of the activity area?	No

As the study area has been identified as being within a sensitive landscape, it is necessary to consider Step 3 of the Code.

STEP 3. CAN YOU AVOID HARM TO THE OBJECT OR DISTURBANCE OF THE LANDSCAPE FEATURE?

It is not possible to avoid disturbance of the landscape feature which has been identified as being sensitive. As such, it is necessary to undertake Step 4 of the Code.

STEP 4. DESKTOP ASSESSMENT AND VISUAL INSPECTION.

The results of a visual inspection of the study area are documented in Section 3 of this assessment.

As the survey did not identify either Aboriginal cultural material or areas of archaeological potential, no further works are required in relation to the Code.

STEP 5. FURTHER INVESTIGATIONS AND IMPACT ASSESSMENT.

Based upon the outcome of Steps 1 to 4 of the Code, further assessment is not warranted based on the history of disturbance and the absence of appropriate landforms and geological features. The following recommendations apply:

1. No further archaeological assessment is required, and the proposed works may proceed with caution. In the event that any unexpected Aboriginal cultural heritage finds occur during any activity within the study area, all works in the vicinity of the find must immediately cease. The find must be left in place and protected from any further harm. Depending on the nature of the find, the following processes must be followed:
    - If, while undertaking the activity, an Aboriginal object is identified, it is a legal requirement under Section 89A of the NPW Act to notify Heritage NSW's Environmental Line 131 555 as soon as

possible. Further investigations and an AHIP may be required prior to certain activities recommencing.

- If, human skeletal remains are encountered, all work must cease immediately and NSW Police must be contacted, they will then notify the Coroner's Office. Following this, if the remains are believed to be of Aboriginal origin, then the Aboriginal stakeholders and Heritage NSW must be notified.

2. 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 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.
3. 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:
    - immediately cease all works at that location and not further move or disturb the remains.
    - 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.
    - not recommence work at that location unless authorised in writing by Heritage NSW.

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