412-414 CESSNOCK ROAD, GILLIESTON HEIGHTS, NSW

ABORIGINAL DUE DILIGENCE ASSESSMENT

Report to The Bathla Group February 2022



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EXECUTIVE SUMMARY

Apex Archaeology has been engaged to assist The Bathla Group in the Aboriginal due diligence assessment of 412-414 Cessnock Road, Gillieston Heights, NSW, in order to assess the Aboriginal archaeological values of the study area. This assessment has been prepared to support a Development Application (DA) for the site.

This report has been produced in accordance with the 2010 *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (the Due Diligence Code of Practice).

The study area is located within the suburb of Gillieston Heights and is legally known as Lot 21 & 22 in DP 1091205. The study area is located 27 km north west of Newcastle, within the Maitland City Council (MCC) Local Government Area (LGA). The study area comprises approximately 3.8ha.

A site visit was conducted in January of 2022. No previously registered archaeological sites were located within the study area. No newly identified archaeological material was identified during the survey.

Ground surface visibility (GSV) was low throughout the study area. GSV was rated at <10% overall. No raw material sources were identified within the study area.

Ground disturbance was moderate within portions of the study area due to historic vegetation clearance, agriculture and subsequent residential development and landscaping, along with discrete linear site disturbance relating to sewer related infrastructure excavated through the study area for new residential subdivisions located to the west of the study area.

The level of disturbance within the site from prior land clearing activities, land use practices and disturbance is evident. Landscape modification has reduced the potential for any intact archaeological sub-surface deposits within the majority of the study area to nil, along with the general slope of the site falling west from Cessnock Road not being attractive for Aboriginal occupation in the past.

It is recommended that:

- No further Aboriginal archaeological assessment is required prior to the commencement of works as described in this report.
- The results of this assessment fulfil the requirement for archaeological assessment in accordance with the OEH 2010 *Guide to Investigation, assessing and reporting on Aboriginal cultural heritage in NSW* and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Code of Practice). Works may proceed with caution.



- The proposed works <u>must</u> be contained to the area assessed during this archaeological assessment, as shown on Figure 1. If the proposed location is amended, further archaeological assessment may be necessary to determine if the proposed works will impact any Aboriginal objects or archaeological deposits.
- Should unanticipated archaeological material be encountered during site works, all work must cease and an archaeologist contacted to make an assessment of the find. Further archaeological assessment and Aboriginal community consultation may be required prior to the recommencement of works. Any objects confirmed to be Aboriginal in origin must be reported to Heritage NSW.



Apex Archaeology would like to acknowledge the Aboriginal people who are the traditional custodians of the land in which this project is located. Apex Archaeology would also like to pay respect to Elders both past and present.

DOCUMENT CONTROL

The following register documents the development and issue of the document entitled '412-414, Cessnock Road, Gillieston Heights NSW – Aboriginal Due Diligence Assessment', prepared by Apex Archaeology in accordance with its quality management system.

Revision	Prepared by	Reviewed by	Comment	Issue Date
1 – Draft	Leigh Bate	Jenni Bate	Issue for client review	6 February 2022
2 - Final	Leigh Bate	Vaishnavi Kulpagiri	Final issued to client	7 February 2022



GLOSSARY OF TERMS

Aboriginal Object	An object relating to the Aboriginal habitation of NSW (as defined
	in the NPW Act), which may comprise a deposit, object or material evidence, including Aboriginal human remains.
AHIMS	Aboriginal Heritage Information Management System maintained by Heritage NSW, detailing known and registered Aboriginal archaeological sites within NSW
AHIP	Aboriginal Heritage Impact Permit
BP	Before Present, defined as before 1 January 1950.
Code of Practice	The DECCW September 2010 Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales
Consultation	Aboriginal community consultation in accordance with the DECCW April 2010 Aboriginal cultural heritage consultation requirements for proponents 2010. Consultation is not a required step in a due diligence assessment; however, it is strongly encouraged to consult with the relevant Local Aboriginal Land Council and to determine if there are any Aboriginal owners, registered native title claimants or holders, or any registered Indigenous Land Use Agreements in place for the subject land
DA	Development Application
DCP	Development Control Plan
DECCW	The Department of Environment, Climate Change and Water – now Heritage NSW
Disturbed Land	If land has been subject to previous human activity which has changed the land's surface and are clear and observable, then that land is considered to be disturbed
Due Diligence	Taking reasonable and practical steps to determine the potential for an activity to harm Aboriginal objects under the <i>National Parks</i> <i>and Wildlife Act 1974</i> and whether an application for an AHIP is required prior to commencement of any site works, and determining the steps to be taken to avoid harm
Due Diligence Code of Practice	The DECCW Sept 2010 Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales
GCP	Growth Centres Precinct
GIS	Geographical Information Systems
GSV	Ground Surface Visibility
Harm	To destroy, deface or damage an Aboriginal object; to move an object from land on which it is situated, or to cause or permit an object to be harmed
Heritage NSW	Heritage NSW in the Department of Premier and Cabinet – responsible for heritage matters in NSW
LALC	Local Aboriginal Land Council
LGA	Local Government Area
NPW Act	NSW National Parks and Wildlife Act 1974
OEH	The Office of Environment and Heritage of the NSW Department of Premier and Cabinet – now Heritage NSW
RAPs	Registered Aboriginal Parties



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1.0 INTRODUCTION

Apex Archaeology has been engaged to assist The Bathla Group in the Aboriginal due diligence assessment of 412-414 Cessnock Road, Gillieston Heights, NSW, in order to assess the Aboriginal archaeological values of the study area. This assessment has been prepared to support a Development Application (DA) for the site.

This report has been produced in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (the Due Diligence Code of Practice).

1.1 STUDY AREA

The study area is located within the suburb of Gillieston Heights and is legally known as Lot 21 & 22 in DP 1091205. The study area is located 27 km north west of Newcastle, within the Maitland City Council (MCC) Local Government Area (LGA). The study area comprises approximately 3.8ha.

1.2 INVESTIGATORS AND CONTRIBUTORS

This report has been prepared by Leigh Bate, Director and Archaeologist with Apex Archaeology, and Jenni Bate, Director and Archaeologist with Apex Archaeology. Both have over fifteen years of consulting experience within NSW.

Name	Role	Qualifications
Leigh Bate	Primary Report Author, GIS, Field inspection	B.Archaeology; Grad. Dip. Arch; Dip. GIS
Jenni Bate	Project Manager, Review	B.Archaeology; Grad. Dip. CHM

1.3 STATUTORY CONTEXT

Heritage in Australia, including both Aboriginal and non-Aboriginal heritage, is protected and managed under several different Acts. The following section presents a summary of relevant Acts which provide protection to cultural heritage within NSW.

1.3.1 COMMONWEALTH NATIVE TITLE ACT 1993

The *Native Title Act 1993*, as amended, provides protection and recognition for native title. Native title recognises the traditional rights of Aboriginal and Torres Strait Islanders to land and waters.

The National Native Title Tribunal (NNTT) was established to mediate native title claims made under this Act. Three registers are maintained by the NNTT, as follows:

- National Native Title Register
- Register of Native Title Claims
- Register of Indigenous Land Use Agreements

A search of the above registers did not identify any applicable Native Title claims, registrations, or applications, for the study area or surrounds.



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1.3.2 NSW NATIONAL PARKS AND WILDLIFE ACT 1974

Protection for Aboriginal heritage in NSW is provided primarily under the *National Parks and Wildlife Act* 1974 (NPW Act). Although cultural heritage is protected by other Acts, the NPW Act is the relevant Act for undertaking due diligence assessments. Protection for Aboriginal sites, places and objects is overseen by Heritage NSW, of the Department of Premier and Cabinet.

Changes to the NPW Act with the adoption of the *NPW Amendment (Aboriginal Objects and Places) Regulation* 2010 in October 2010 led to the introduction of new offences regarding causing harm to Aboriginal objects or declared Aboriginal places. These offences include destruction, defacement or movement of an Aboriginal object or place. Other changes to the NPW Act include:

- Increased penalties for offences relating to Aboriginal heritage for individuals and companies who do not comply with the legislation;
- Introduction of the strict liability offences, meaning companies or individuals cannot claim 'no knowledge' if harm is caused to Aboriginal objects or places; and
- Changes to the permitting process for AHIPs preliminary archaeological excavations can be undertaken without the need for an AHIP, providing the excavations follow the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales.

A strict liability offence was introduced, meaning a person who destroys, defaces or moves an Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP) is guilty of an offence, whether they knew it was an Aboriginal object or not. Exercising due diligence (as described in Section 1.4) provides a defence against the strict liability offence.

1.4 NSW DUE DILIGENCE CODE OF PRACTICE

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Code of Practice) was introduced in September 2010. It outlines a method to undertake 'reasonable and practical' steps to determine whether a proposed activity has the potential to harm Aboriginal objects within the subject area, and thereby determine whether an application for an Aboriginal Heritage Impact Permit (AHIP) is required. When due diligence has been correctly exercised, it provides a defence against prosecution under the NPW Act under the strict liability clause if Aboriginal objects are unknowingly harmed without an AHIP.

The Code of Practice provides the 'reasonable and practicable' steps to be followed when determining the potential impact of a proposed activity on Aboriginal objects. Due diligence has been defined by Heritage NSW as "taking reasonable and practical steps to determine whether a person's actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm" (DECCW 2010:18).



These steps include:

- Identification of whether Aboriginal objects are, or are likely to be, present within the subject area, through completing a search of the Aboriginal Heritage Information Management System (AHIMS);
- Determine whether the proposed activity is likely to cause harm to any Aboriginal objects; and
- Determine the requirement for an AHIP.

Should the conclusion of a due diligence assessment be that an AHIP is required, further assessment must be undertaken, with reference to the following guidelines:

- DECCW, April 2010, Aboriginal cultural heritage consultation requirements for proponents 2010. Part 6 National Parks and Wildlife Act 1974;
- DECCW, Sept 2010, Code of Practice for Archaeological Investigation of Aboriginal Objects In New South Wales;
- OEH, April 2011, Guide to Investigation, assessing and reporting on Aboriginal cultural heritage in NSW; and
- OEH, May 2011, Applying for an Aboriginal Heritage Impact Permit: Guide for Applicants.

1.5 MAITLAND LEP 2011

The *Maitland Local Environmental Plan (LEP) 2011* is the overarching planning instrument applicable to the Maitland LGA.

Clause 5.10(2) (e) identifies that no buildings may be erected on land within a heritage conservation area or which contains an Aboriginal object, without first obtaining development consent. Further, Clause 5.10(2) (c) states that archaeological sites may not be disturbed or excavated without development consent. Exceptions to the requirement for development consent are detailed by Clause 5.10(3) and include low impact activities, or activities for the maintenance of a heritage item. Clause 5.10(8) requires that the effect of any development on an Aboriginal place of heritage significance must be considered, and the Aboriginal community must be notified of any proposed developments.

There are no heritage items, heritage conservation areas or archaeological sites identified on the LEP heritage maps within the study area.

1.6 MAITLAND DCP 2011

The Maitland Development Control Plan 2011 (DCP) provides detailed planning requirements for developments within the Maitland LGA. Section C.4 – Heritage Conservation addresses heritage items within the Maitland LGA; however, the DCP does not specifically address Aboriginal heritage significance.

There are no historic heritage items within or adjacent to the study area.



2.0 THE DUE DILIGENCE CODE OF PRACTICE PROCESS

The Due Diligence Code of Practice provides a specific framework to guide the assessment of Aboriginal cultural heritage. The following section presents the results of this process.

2.1 STEP 1: WILL THE ACTIVITY DISTURB THE GROUND SURFACE?

The proposed works will disturb the ground surface. The study area is proposed to be subdivided to accommodate new residential dwellings along with the installation of services, including sewerage, electricity, town water, roads, and associated landscaping.

Excavation relating to the development will include infrastructure and levelling of the ground surface. Connection to town water supply, sewerage, and electricity will require trenching. Earthworks would also include clearing, grubbing, stripping and stockpiling topsoil, excavation of soil and backfilling. On completion of the development the area would be landscaped. All proposed works would have an impact to some extent on the ground surface.

2.2 STEP 2A: AHIMS AND AVAILABLE LITERATURE SEARCH

Heritage NSW is required to maintain a register of Aboriginal sites recorded during archaeological assessments and other activities within NSW. This is known as the Aboriginal Heritage Information Management System (AHIMS). This register provides information about site types, their geographical location, and their current status. It is the requirement for the recorder of a newly identified site to register this site with Heritage NSW to be placed onto the AHIMS register. It is a requirement of the Code of Practice to undertake a search of this register as part of undertaking a due diligence assessment.

Heritage NSW also maintains a register of archaeological reports relating to archaeological investigations throughout NSW. These reports are a valuable source of information regarding investigations previously completed and their findings, and can inform the assessment process regarding the potential for Aboriginal cultural material and archaeological potential within a study area.

2.2.1 AHIMS RESULTS

A search of the study area in January 2022 using the Lot and DP of the properties with a 50m buffer did not identify any registered sites. A copy of the Basic Search is attached in Appendix A.



2.2.2 LITERATURE REVIEW

A review of previous archaeological work within the wider area was undertaken and a number of reports were identified from background research and the AHIMS database and are detailed below.

Numerous archaeological investigations have been undertaken within the Newcastle region, some dating back to the 1980s.

Brayshaw surveyed an area within the holdings of Ironbark Colliery in 1985, with two open campsites identified with fewer than 20 artefacts identified. The site was located near the headwaters of Four Mile Creek.

Dean-Jones completed a survey in 1989 for the area located north east of the current study area, with five open camp sites and one isolated find identified. All sites were identified within 50m of a drainage line.

In 1992, Barber undertook a survey for a proposed sub-division located in East Maitland along Three Mile Creek. Three isolated artefacts and one low density open camp site with four artefacts were identified.

Kuskie surveyed an area near the Thornton Industrial Area, in 1994. A total of ten sites were identified, comprising nine open sites and one isolated find. Additionally, an area of naturally occurring silcrete was identified. The site was later subject to test excavation by Kuskie, with grader scrapes completed at the location of each previously recorded site, and mechanically excavated trenches were also excavated, with a total of 1,234 artefacts recovered. A range of artefact types were identified, including cores, retouched flakes, flakes, and heat shatter. 82% of the items were formed from silcrete. It was noted that higher artefact densities were identified on simple and basal slopes surrounding wetlands, and that it was likely that local silcrete sources were utilised for the manufacture of artefacts.

In 1995, Ruig undertook an assessment for a proposed optic fibre route between East Maitland and Benwerrin. Two isolated finds were identified.

Rheinberger completed a survey in 1998 for Donaldson Open Cut Coal Mine, located to the south west of the current study area. Eleven sites were identified, comprising seven open camp sites, three isolated finds, and a scarred tree. The open camp sites contained fewer than five artefacts.

Also in 1998, Silcox prepared an assessment for an industrial estate north east of the current study area. One site was identified and archaeological excavation was undertaken, with nine 3m x 50cm trenches mechanically excavated, and 42 artefacts recovered. Artefact densities were assessed as between 1 and 11 items per pit, and included flakes, broken flakes and flaked pieces. 39 of the 42 items were formed on silcrete, and no cores were identified within the assemblage. It was concluded that knapping did not occur on site (Silcox 1998b), and that the site was not suitable for



camping. It was also concluded that the low density assemblage represented repeated use of the site, and opportunistic discard occurring during each of these visits over time.

Umwelt undertook an assessment for a commercial development in 1999, on the corner of the New England Highway and Chelmsford Drive. Four isolated artefacts were identified as part of the assessment.

In 2003, Stendinger Associates completed a survey of a 5 hectare lot just off Lord Howe Drive, Ashtonfield. No archaeological material was identified due to poor surface visibility.

Many of the recent archaeological investigations within the wider region have focussed on coal mining operations, particularly to the south of the study area with the Abel Underground Coal Mine and Bloomfield Collieries.

These investigations identified a range of Aboriginal cultural sites in various landforms. These included grinding groove sites, artefact scatters, isolated finds, scarred trees, and rockshelters with and without PAD. Most surface expressions of lithic items are low density (for example, at Bloomfield Colliery, six sites with 19 individual loci were identified across 108 hectares, with a total of 53 artefacts recorded [SEA 2008]).

In 2006 Jim Wheeler conducted a preliminary Aboriginal archaeological investigation over land located between Gillieston Road and Cessnock Road, Gillieston Heights. No Aboriginal sites were located during the survey. Areas of subsurface potential were identified and subsequent geotechnical assessment was reccomeded to determine whether the area was intact from a landform perspective.

Mary Dallas conducted a survey in 2007 of an area consisting of 30 hectares of land on the eastern side of the Cessnock Road at Gillieston Heights. The survey site was located on a prominent ridgeline, oriented north-south, and was bounded in the east by a channelled portion of Wallis Creek. The terrain consisted of gently to moderately undulating slopes which drained away towards the Wallis Creek floodplain. One open campsite, recorded as an Aboriginal Resources and Gathering place (AHIMS #38-4-1018) was located, and three areas of potential archaeological deposits (PADs) were identified: (AHIMS #38-4-1039, #38-4-1019, and #38-4-1059).

RPS completed excavations in 2013 of two PAD sites located within Farley north of the study area, on a mid slope to the south of a third-order tributary of Stony Creek and the other on the southern side of Wentworth Swamps, north of the Farley Waste Water Treatment Plant. Stony Creek had a deep archaeological deposit up to one metre in depth, from which 1442 artefacts were recovered. Pits from Wentworth Swamp recovered 2819 artefacts and pits were shallower often less than 30cm in depth.



More recently RPS completed an Aboriginal due diligence assessment for Ravensfield Downs Pty Ltd at a proposed residential lot development at Farley. The Project Area extended approximately 2.8 kilometres along Wollombi Road. No Aboriginal artefacts were identified; however, five areas of subsurface archaeological potential were identified from analysis of the landform and archaeological information from surrounding areas.

RPS conducted further assessment and test excavation at Farley for Ravensfield Downs Pty Ltd in October 2017, following recommendations from the earlier Due Diligence Assessment. A total of 54 test pits were excavated and fifteen artefacts were found from seven of the pits comprising a low density artefact deposit.

Heritage Now completed an Aboriginal due diligence assessment for 59 Owlpen Lane, Farley in 2019. No artefacts were identified on the surface; however, an area of moderate potential archaeological deposit (PAD) was identified within the elevated ridge crest in the south-east portion of the property. A subsequent program of test excavation under the Code of Practice was completed in 2020. No artefacts were recovered from the test excavation.

2.3 STEP 2B: LANDSCAPE FEATURES

An assessment of landscape features is required to determine whether Aboriginal objects are likely to be present within the proposed activity area. Certain landscape features are more likely to have been utilised by Aboriginal people in the past and therefore are more likely to have retained archaeological evidence of this use. Focal areas of activity for Aboriginal people include rock shelters, sand dunes, water courses, waterholes and wetlands, as well as ridge lines for travel routes.

The presence of specific raw materials for artefact manufacture, as well as soil fertility levels to support vegetation resources, are also factors to be considered in the assessment of the environmental context of a study area. Geomorphological factors, such as erosion and accretion of soils, affect the preservation of potential archaeological deposits and therefore need to be considered when making an assessment of the potential for archaeological material to be present within a study area. This assessment is predominantly a desktop exercise.

2.3.1 EXISTING ENVIRONMENT

The study area is located within the East Maitland Hills physiographic region of the Newcastle region. This area is characterised by "predominantly undulating low hills on Permian sediments in the mid-west of the area" (Matthei 1995:2). The study area has been mostly cleared. Residential homes are located to the north and west.



HYDROLOGY

The nearest major permanent water source is Wallis Creek which lies approximately 3.1km to the east of the study area. Stony Creek is located 600m east of the study area. Wallis Creek is defined as a third order water course according to the Strahler system as used by DPI Water (Figure 5). Watercourse classification ranges from first order through to fourth order (and above) with first order being the lowest, ie a minor creek or ephemeral watercourse and fourth or above being a large watercourse such as a river.

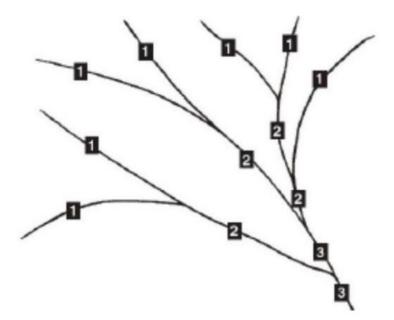


Figure 2: The Strahler system (Source: Department of Planning and Environment 2016).

SOILS, GEOLOGY AND TOPOGRAPHY

The study area falls within the Bolwarra Heights soil landscape. The Bolwarra Heights soil landscape consists of rolling low hills with slopes ranging from 5–20%. Underlying geology for the area consists of predominantly the Branxton formation of the Maitland Group. This includes sandstone, siltstone and conglomerate with small areas of Muree Sandstone, conglomerate and siltstone and the Farley Formation which consists of sandstone, mudstone, siltstone and shale.

VEGETATION

Prior to the arrival of European settlers, the vegetation of the area would have comprised predominantly of cleared tall open-forest. Eucalyptus maculata (*spotted gum*) is the most dominant species, with *E. fibrosa* (broad-leaved ironbark). *E. tereticornis* (forest red gum) occurs on some lower slopes. *Angophora floribunda* (rough-barked apple) and *Allocasuarina torulosa* (forest oak) may also occur, with *Casuarina glauca* (swamp oak) along drainage lines.



2.4 RAW MATERIALS

A wide range of raw materials were selected by Aboriginal people for flaking to create stone implements. Material types ranged from high quality to poor quality for flaking purposes, depending on the geology of the area and readily available material types. The following is a description of a range of raw material types known to have been utilised by Aboriginal people for the creation of stone artefacts.

BRECCIA

Breccias are coarse, angular volcanic fragments cemented together by a finer grained tuffaceous matrix.

CHALCEDONY

Chalcedony is a microcrystalline, siliceous rock which is very smooth and can be glossy. Introduction of impurities can produce different coloured versions of chalcedony, including yellow/brown (referred to as carnelian), brown (sard), jasper (red/burgundy) and multicoloured agate. It flakes with a sharp edge and was a prized material type for the creation of stone artefacts in parts of Australia (Kuskie & Kamminga 2000: 186).

CHERT

Chert is a highly siliceous sedimentary rock, formed in marine sediments and also found within nodules of limestone. Accumulation of substances such as iron oxide during the formation process often results in banded materials with strong colours. Chert is found in the Illawarra Coal Measures and also as pebbles and colluvial gravels. It flakes with durable, sharp edges and can range in colour from cream to red to brown and grey.

PETRIFIED WOOD

Petrified wood is formed following burial of dead wood by sediment and the original wood being replaced by silica. Petrified wood is a type of chert and is a brown and grey banded rock and fractures irregularly along the original grain.

QUARTZ

Pure quartz is formed of silicon dioxide, and has a glossy texture and is translucent. Introduction of traces of minerals can lead to colouration of the quartz, such as pink, grey or yellow. The crystalline nature of quartz allows for minute vacuoles to fill with gas or liquid, giving the material a milky appearance. Often quartz exhibits internal flaws which can affect the flaking quality of the material, meaning that in general it is a low-quality flaking material (Kuskie & Kamminga 2000: 186). However, quartz is an abundant and widely available material type and therefore is one of the most common raw materials used for artefact manufacture in Australia. Flaking of quartz can produce small, very sharp flakes which can be used for activities such as cutting plant materials, butchering and skinning.



QUARTZITE

Formed from sandstone, quartzite is a metamorphic stone high in silica that has been heated or had silica infiltrate the voids found between the sand grains. Quartzite ranges in colour from grey to yellow and brown.

SILCRETE

Silcrete is a siliceous material formed by the cementing of quartz clasts with a matrix. These clasts may be very fine grained to quite large. It ranges in colour from grey to white, brown, red or yellow. Silcrete flakes with sharp edges and is quite durable, making silcrete suitable for use in heavy duty woodworking activities and also for spear barbs (Kuskie & Kamminga 2000:184).

TUFF/INDURATED MUDSTONE

There is some disagreement relating to the identification of lithic materials as tuff or indurated mudstone. The material is a finely textured, very hard yellow/orange/reddish-brown or grey rock. Kuskie and Kamminga (2000: 6, 180) describe that identification of lithic materials followed the classification developed by Hughes (1984), with indurated mudstone described as a common stone material in the area. However, Kuskie and Kamminga's analysis, which included x-ray diffraction, identified that lithics identified as 'indurated mudstone' was actually rhyolitic tuff, with significant differences in mineral composition and fracture mechanics between the stone types. They define mudstone as rocks formed from more than 50% clay and silt with very fine grain sizes and then hardened.

The lithification of these mudstones results in shale (Kuskie & Kamminga 2000: 181) and thus 'indurated mudstone', in the opinion of Kuskie and Kamminga, do not produce stones with the properties required for lithic manufacture.

In 2011, Hughes, Hiscock and Watchman undertook an assessment of the different types of stones to determine whether tuff or indurated mudstone is the most appropriate terminology for describing this lithic material. The authors undertook thin section studies of a number of rocks and determined that the term 'indurated mudstone' is appropriate, with an acknowledgment that some of this material may have been volcanic in origin. They also acknowledge that precise interpretation of the differences between material types is difficult without detailed petrological examination, and suggest that artefacts produced on this material are labelled as 'IMT' or 'indurated mudstone/tuff'.

2.4.1 PROCUREMENT

Assemblage characteristics are related to and dependent on the distance of the knapping site from raw materials for artefact manufacture, and different material types were better suited for certain tasks than other material types. Considerations such as social or territorial limitations or restrictions on access to raw material sources, movement of groups across the landscape and knowledge of source



locations can influence the procurement behaviour of Aboriginal people. Raw materials may also have been used for trade or special exchange between different tribes.

2.4.2 MANUFACTURE

A range of methodologies were used in the manufacture of stone artefacts and tools, through the reduction of a stone source. Stone may have been sourced from river gravels, rock outcrops, or opportunistic cobble selection. Hiscock (1988:36-40) suggests artefact manufacture comprises six stages, as follows:

- 1. The initial reduction of a selected stone material may have occurred at the initial source location, or once the stone had been transported to the site.
- 2. The initial reduction phase produced large flakes which were relatively thick and contained high percentages of cortex. Generally, the blows were struck by direct percussion and would often take advantage of prominent natural ridges in the source material.
- 3. Some of these initial flakes would be selected for further reduction. Generally, only larger flakes with a weight greater than 13-15 grams would be selected for further flaking activities.
- 4. Beginning of 'tranchet reduction', whereby the ventral surface of a larger flake was struck to remove smaller flakes from the dorsal surface, with this retouch applied to the lateral margins to create potential platforms, and to the distal and proximal ends to create ridges and remove any unwanted mass. These steps were alternated during further reduction of the flake.
- 5. Flakes were selected for further working in the form of backing.
- 6. Suitable flakes such as microblades were retouched along a thick margin opposite the chord to create a backed blade.

Hiscock (1986) proposed that working of stone materials followed a production line style of working, with initial reduction of cores to produce large flakes, followed by heat treatment of suitable flakes before the commencement of tranchet reduction. These steps did not necessarily have to occur at the same physical location, but instead may have been undertaken as the opportunity presented.

2.5 ETHNOHISTORY

Aboriginal society was constructed of a hierarchy of social levels and groups, with fluid boundaries (Peterson 1976), with the smallest group comprising a family of a man and his wife/wives, children and some grandparents, referred to as a 'clan (Attenbrow 2010). The next level consists of bands, which were small groups of several families who worked together for hunting and gathering purposes, also known as a 'band' (Attenbrow 2010). The third level comprised regional networks with a number of bands, and these bands generally shared a common language dialect and/or had a belief in a common ancestor. Networks would come together for specific ceremonial purposes. The highest level is described as a tribe, which is



usually described as a linguistic unit with flexible territorial boundaries (Peterson 1976); although Attenbrow (2010) argues that "these groups were not tribes in the current anthropological sense of the word".

The study area falls within the territory of the Awabakal people (Tindale 1974). The Awabakal territory is described as extending south from the Hunter River to Wyong and Norah Head, and inland west to Kurri Kurri and Maitland. The Awabakal are considered by some to be a sub-group of the Wonnarua people, with the Wonnarua boundaries extending to the ocean and past Wyong. Tindale (1974) considered them to be a separate tribe. Boundaries between tribes were considered fluid and it may not be possible to definitively define these boundaries.

The traditional lifestyles of Aboriginal groups such as the Awabakal depended largely on the environment in which they lived. The diet of Aboriginal people varied depending on the resources that were available to them and which were related to the landscape in which people lived. The Gilleston Heights area would likely have had open woodlands prior to the arrival of colonists, and these would have supported a range of resources for food, medicine, and everyday living.

Threlkeld, a missionary from England who arrived in Australia in 1817, established an Aboriginal mission near Lake Macquarie just outside Newcastle. He recorded much of what he observed of Aboriginal people, particularly the Awaba. This included the consumption of wild plums, lizards, goanna, snakes, cockles, beached whales, crayfish, kangaroo, swans, pigeons, geese, wild ducks, and fish. Small macropods such as bandicoots and possums were also hunted, with their skins used for clothing and sewn together to create shelters, and their meat cooked for food. Fish were also cooked and small fires were kindled on top of clay within canoes while fishing was occurring. Threlkeld recorded details of the manner in which fishing was undertaken, as shown in the following quote:

"Their mode of fishing is curious, sometimes angling with hook and line thrown by the hand as they are seated in the bark canoe, sometimes diving for shell fish, sometimes standing in their frail bark darting their spears into the fish as they pass, or at other times using hand nets forming a circle in shallow waters and enclosing the fish, but the most curious method is that of planting sprigs of bushes in a zig-zag form across the streams leaving an interval at the point of every angle where the men stand with their nets to catch what others frighten towards them by splashing in water." (Threlkeld in Gunson 1974:190).

Swamps and marshes were also rich resource zones, with people digging roots and bulbs for consumption. The roots were roasted and then "beat[en] with a stone upon a larger one, when they use it for bread" (Threlkeld in Gunson 1974:55).



Access to fresh water was an important consideration for the Aboriginal people of the Gilleston Heights region. Wallis Creek is located approximately 600m east of the study area and would have provided fresh water for people living in the area.

The different environments of the Gilleston Heights area contain a diverse range of plant and animal species. On creek banks and surrounds, a wide variety of game would have been found. The vegetation communities along the creeks and gullies, primarily woodlands, would have provided shelter for numerous animal and plant species that could be eaten or used for other purposes such as providing shelter and medicines.

2.6 REGIONAL CONTEXT

The archaeological work previously completed within the wider region is summarised here.

The study area is located within the Newcastle Region. Many archaeological assessments have been completed within this region, including a range of academic assessments, resource management studies and development impact assessments. All of these assist in informing the archaeological assessment of sites within the region.

Generally, the arrival of humans within Australia is considered to have occurred around 43-45 ka (O'Connell & Allen 2004; McDonald 2008). However, recent work at the Madjedbebe site in Arnhem Land in the Northern Territory revealed archaeological evidence confidently dated to the period before 45-46 ka and possibly up to 50-55 ka (Clarkson et al 2015). In NSW, there is strong evidence available to support Aboriginal occupation of the Cumberland Plain region in the Pleistocene period (approximately 10 ka) and likely earlier. Work in Cranebrook Terrace was dated to 41,700 years BCE by Stockton and Holland (1974), and a site in Parramatta within deep sandy deposits was dated to 25-30 ka (JMcDCHM 2005). Kohen's 1984 assessment of Shaws Creek in the Blue Mountain foothills yielded dates of 13 ka, while Loggers Shelter at Mangrove Creek was dated to 11 ka by Attenbrow 1987. These dates are obtained from both radiocarbon and optically stimulated luminescence (OSL) dating.

Some experts have cast doubt onto the assessment of the items from Cranebrook Terrace as artefactual (Mulvaney & Kamminga 1999; McDonald 2008), although they do not doubt the results of the radiocarbon dates – it is the association of the artefacts with the dated deposits is problematic, and Mulvaney and Kamminga (1999) consider that there are better examples of sites with more robust identification of age available. There has certainly been a great deal of research undertaken within NSW and Australia in general in the intervening years.



As part of the many archaeological investigations undertaken within NSW, over 5,000 archaeological sites have been recorded and registered on the HNSW Aboriginal Heritage Information System (AHIMS). In general, the dominant site types identified within the Newcastle region include rock shelters with archaeological deposit (including middens), rock shelters with art, pictographs (rock engravings), artefact concentrations in open contexts, grinding grooves and open middens. The nature and extent of individual sites is closely related to the environmental context in which they are found – for example, rockshelters are found within sandstone escarpments, while middens are generally located close to water bodies including marine, estuarine and freshwater contexts, and grinding grooves are found on flat sandstone platforms in close proximity to water sources.

2.7 PREDICTIVE MODEL

Based on the results of previous archaeological investigations within the wider region, a number of predictions regarding Aboriginal use of the area can be made. These predictions focus on the nature, extent and integrity of the remaining evidence.

The landscape characteristics of the area influence the prediction of the nature of potential sites within the landscape itself. Site types associated with sandstone country, such as grinding grooves, rock art sites, petroglyph (rock engravings) and sandstone rockshelters with art and/or archaeological deposit are not considered likely to occur within the study area. Scarred trees are also considered unlikely within the study area due to the high levels of historical clearing which have occurred within the landscape.

Disturbance is the predominant factor determining whether or not artefacts are likely to be identified within a landscape.

Surface sites are likely to have been impacted by agricultural processes within the area over the historic period. Natural actions such as bioturbation are likely to have impacted at least the upper levels of archaeological deposits, as are cultural activities such as excavation, construction, demolition ploughing, clearing and planting. Whilst these actions may impact the integrity of stratigraphy within the deposit, this does not necessarily mean associated archaeological objects will also be disturbed.

The site has been disturbed through the construction of the school and facilities such as playing fields. Historical clearing has led to erosion across much of the site and in some areas, soils are skeletal and subsurface archaeological material which may have once been present is unlikely to have survived.



In general, Aboriginal use of an area is based on a number of factors, such as:

- Proximity to permanent water sources generally permanent or areas of repeat habitation are located within approximately 200m of permanent water;
- Proximity to ephemeral water sources generally sites near ephemeral water sources were utilised for one-off occupation;
- Ease of travel ridgelines were often utilised for travel during subsistence activities; and
- The local relief flatter, more level areas were more likely to be utilised for long term or repeat habitation sites than areas of greater relief, especially if the slopes are at a distance from water.

In terms of the study area, sites are considered more likely to comprise:

- Isolated finds, which may occur anywhere across a landscape; and
- Open sites, in areas of low relief in close proximity to ephemeral or permanent water sources.

2.8 STEP 3: AVOID HARM

Given the result of previous studies within the area, it was considered necessary to undertake a visual inspection of the land parcel to identify any surface objects or landforms with potential archaeological deposits (PAD). This inspection would allow conclusions to be made regarding the probability of archaeological objects occurring within the proposed development areas. This would assist in determining if there was any archaeological potential within the study areas which could potentially be harmed by the proposed words, and in turn, assist in determining if harm to the archaeological resource could be avoided.

The proposed development would impact the entirety of the study area, either through construction of internal access roads, associated infrastructure, or landscaping works. As such, it would not be possible to avoid impact to Aboriginal cultural values within the study area, should such exist. As such, a visual inspection of the site was undertaken to confirm if any such values exist within the study area.

2.9 STEP 4: VISUAL INSPECTION

A visual pedestrian inspection of the study area was undertaken in January of 2022 by Leigh Bate, Archaeologist with Apex Archaeology.

2.9.1 SURVEY COVERAGE

The entire area was inspected by pedestrian survey to identify any surface artefacts or any areas with potential for intact subsurface deposits to be present.



2.9.2 RESULTS

Ground surface visibility (GSV) was low throughout the study area. GSV was rated at <10% overall. No raw material sources were identified within the study area.

Ground disturbance was moderate within portions of the study area due to historic vegetation clearance, agriculture and subsequent residential development and landscaping along with discreet linear site disturbance relating to sewer related infrastructure excavated through the study area for new residential subdivisions located to the west of the study area.

The level of disturbance within the site from prior land clearing activities, land use practices and disturbance is evident. Landscape modification has reduced the potential for any intact archaeological sub-surface deposits within the majority of the study area to nil along with the general slope of the site falling west from Cessnock Road not being attractive for Aboriginal occupation in the past.



Plate 1: Looking south from the front entrance into the property.





Plate 2: Looking south through the central portion of the property.



Plate 3: Looking north through the central portion of the property.





Plate 4: Looking west from the eastern boundary along the sewer line running through the property.



Plate 5: Looking east towards Cessnock Road showing water seepage and erosion.





Plate 6: Looking south through the site from the northern boundary.



Plate 7: Looking east from the new residential subdivision west of the subject site.



2.10 DISCUSSION

In accordance with the Due Diligence Code of Practice, land is considered disturbed if human activities within the area have left clear and observable changes on the landscape.

While ploughing and clearance has occurred in many areas of NSW, this has been shown to only affect the deposit up to 30-40cm deep, and even then, ploughed knapping floors have been located which are still relatively intact (McDonald 1998; Gaynor 2008). The area has been cleared and partially developed along with farming activities.

The level of disturbance from subsequent land clearing and landscape modification activities relating to the land use of the property reduces the likelihood of archaeological deposits being located within the area, along with the general slope of the site not being an attractive area for past Aboriginal occupation. There were no expressions of artefact occurrences throughout the area on the surface or within any of the exposed soil profiles or erosional areas. As such, the sub-surface potential for the area is also considered to be nil.



3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

- No previously registered Aboriginal sites are located within the study area.
- No archaeological material was identified on the ground surface of the study area.
- The study area was assessed as being moderately disturbed due to past land use practices.
- The study area was assessed as having no sub-surface archaeological potential, based on the results of the visual pedestrian inspection.
- This assessment was based on identification of landform elements, previous archaeological work undertaken within the wider region, and a visual inspection of the study area.

3.2 RECOMMENDATIONS

- No further Aboriginal archaeological assessment is required prior to the commencement of works as described in this report.
- The results of this assessment fulfil the requirement for archaeological assessment in accordance with the OEH 2010 *Guide to Investigation, assessing and reporting on Aboriginal cultural heritage in NSW* and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Code of Practice). Works may proceed with caution.
- The proposed works must be contained to the area assessed during this archaeological assessment, as shown on Figure 1. If the proposed location is amended, further archaeological assessment may be necessary to determine if the proposed works will impact any Aboriginal objects or archaeological deposits.
- Should unanticipated archaeological material be encountered during site works, all work must cease and an archaeologist contacted to make an assessment of the find. Further archaeological assessment and Aboriginal community consultation may be required prior to the recommencement of works. Any objects confirmed to be Aboriginal in origin must be reported to Heritage NSW.



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APPENDIX A: AHIMS SEARCH RESULTS

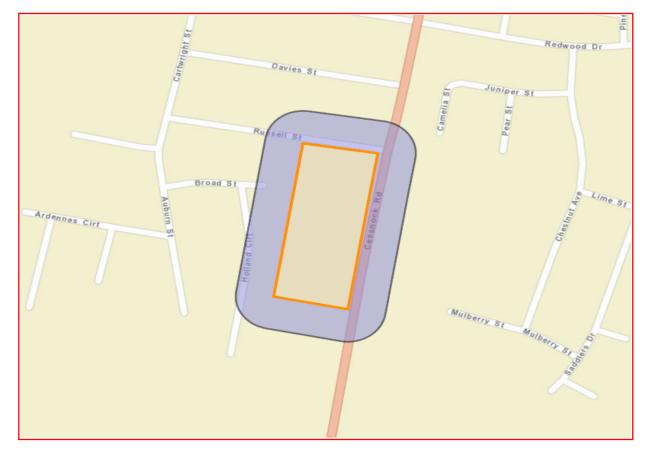


Apex Archaeology PO BOX 236 Nowra New South Wales 2541 Attention: Leigh Bate Email: leigh@apexarchaeology.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 21, DP:DP1092105, Section : - with a Buffer of 50 meters, conducted by Leigh Bate on 20 January 2022.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0 Aboriginal sites are recorded in or near the above location.
0 Aboriginal places have been declared in or near the above location. *

Your Ref/PO Number : 22007 Client Service ID : 653239

Date: 20 January 2022

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

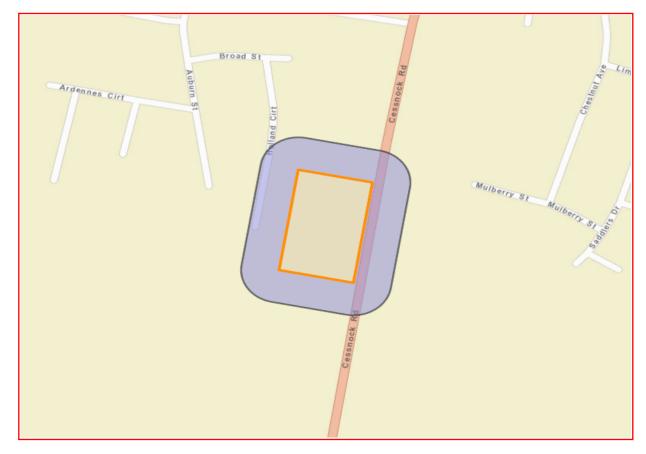


Apex Archaeology PO BOX 236 Nowra New South Wales 2541 Attention: Leigh Bate Email: leigh@apexarchaeology.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 22, DP:DP1092105, Section : - with a Buffer of 50 meters, conducted by Leigh Bate on 05 February 2022.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0 Aboriginal sites are recorded in or near the above location.
0 Aboriginal places have been declared in or near the above location. *

Your Ref/PO Number : 22007 Client Service ID : 656703

Date: 05 February 2022

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.