

PENSHURST PUBLIC SCHOOL UPGRADE

PENSHURST, NSW

ABORIGINAL ARCHAEOLOGICAL ASSESSMENT

Report to Perumal Pedavoli Architects on behalf of The Department of
Education

LGA: Georges River

September 2017





EXECUTIVE SUMMARY

Apex Archaeology has been commissioned by Perumal Pedavoli Architects to undertake an Aboriginal archaeological assessment to support a Development Application (DA) for the upgrade of the Penshurst Public School (PPS). It is a requirement to prepare an archaeological assessment considering both European and Indigenous archaeological values of the area. This report details the results of the Aboriginal archaeological assessment of the study area, and this report has been produced in accordance with the OEH 2010 *Guide to Investigation, assessing and reporting on Aboriginal cultural heritage in NSW* and the OEH 2010 *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (the Due Diligence Code of Practice).

The PPS is located in Penshurst approximately 15 kilometres south west of Sydney Central Business District. It is located within the Georges River Local Government Area (LGA).

The PPS is bounded by Percival Street to the north, Arcadia Street to the east, Forrest Road to the south and St Declan's Catholic Primary School to the west. The study area comprises approximately 1.05ha in total.

A search of the AHIMS database was undertaken for the study area with a 1km radius. Two previously recorded sites were identified on the AHIMS database for this project. However, none of the sites recorded on the database fall within the current study area.

A site visit was conducted on 5 September. No newly identified archaeological material was identified during the survey. Ground surface visibility (GSV) was low throughout the study area. GSV was rated at 5% overall. No raw material sources were identified within the study area.

A visual inspection of the study area was undertaken to identify any surface objects or the potential for subsurface deposits to be present. This inspection would allow conclusions to be made regarding the probability of archaeological objects occurring within the proposed development areas. No surface archaeological sites or areas of sub-surface potential were identified during the visual inspection.

It is recommended that:

- No further Aboriginal archaeological assessment is required prior to the commencement of upgrade works as described in this report.
- The results of this assessment fulfil the requirement for Due Diligence in accordance with 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 due diligence assessment, as shown on Figure 2. 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 the OEH under Division 1, Section 89A of the NPW Act.



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 'Penshurst Public School Upgrade, Penshurst, 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	Initial preparation	13 September 2017
2 - Draft	Leigh Bate	Carmit Harnik/Stephen Earp	Client Review	15 September 2017
3 - Final	Leigh Bate		Final Report	25 September 2017
4 - Final	Leigh Bate		Updated Site Plan	1 November 2017



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 OEH, detailing known and registered Aboriginal archaeological sites within NSW
AHIP	Aboriginal Heritage Impact Permit
ATER	Aboriginal Test Excavation Report
BP	Before Present, defined as before 1 January 1950.
Code of Practice	The DECCW September 2010 <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i>
Consultation	Aboriginal community consultation in accordance with the DECCW April 2010 <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> . 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 OEH
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 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 <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i>
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
LALC	Local Aboriginal Land Council
LGA	Local Government Agency
NPW Act	NSW <i>National Parks and Wildlife Act 1974</i>
OEH	The Office of Environment and Heritage of the NSW Department of Premier and Cabinet
PPS	Penshurst Public School
RAPs	Registered Aboriginal Parties



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1.0 INTRODUCTION

Apex Archaeology has been commissioned by Perumal Pedavoli Architects to undertake an Aboriginal heritage due diligence assessment to support a Development Application (DA) for the upgrade of the Penshurst Public School (PPS). It is a requirement to prepare an archaeological assessment considering both European and Indigenous archaeological values of the area. This report details the results of the Aboriginal heritage due diligence assessment of the study area, and this report has been produced in accordance with the OEH 2010 *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 PPS is located in Penshurst, approximately 15 kilometres east of Sydney Central Business District (Figure 1). It is located within the Georges River Local Government Area (LGA).

The PPS is bounded by Percival Street to the north, Arcadia Street to the east, Forrest Road to the south and St Declan's Catholic Primary School to the west. The study area comprises approximately 1.05ha in total. Further details of the study area can be seen in Figure 2.

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 nine 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 OEH GUIDELINES

The OEH 2011 *Guide to investigation, assessing and reporting on Aboriginal cultural heritage in NSW* provides guidelines for the assessment of Aboriginal heritage. It states that if it is not known whether the site contains Aboriginal cultural values, it is appropriate to follow the Due Diligence Code of Practice (see Section 1.4.1) to determine if the site possesses Aboriginal cultural values and determine if further assessment is required. This archaeological assessment report has been prepared in accordance with the Due Diligence Code of Practice to determine if the site possesses archaeological and/or Aboriginal cultural values.

1.3.1 NSW DUE DILIGENCE CODE OF PRACTICE

The Due Diligence 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.

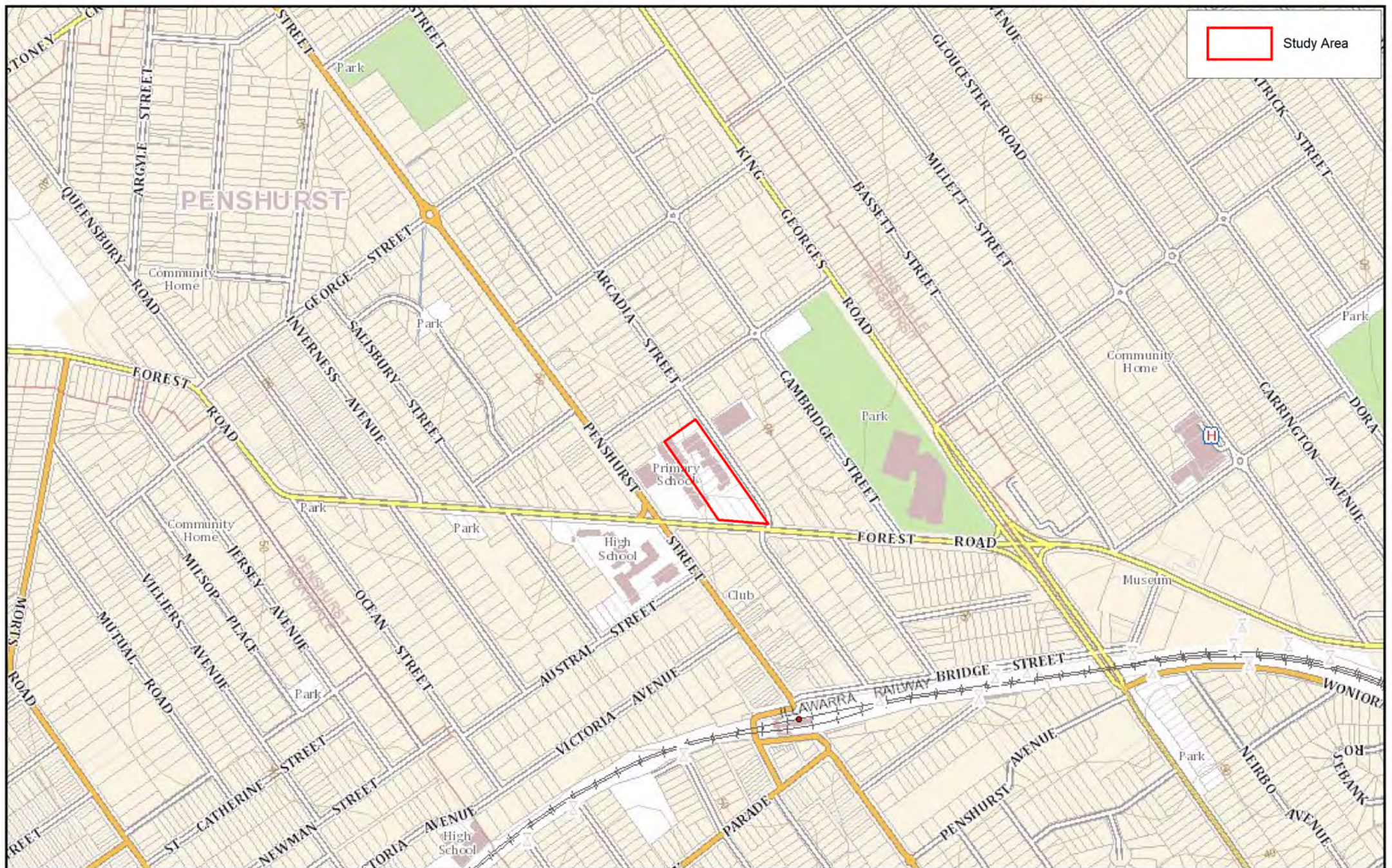
The Code of Practice provides the 'reasonable and practicable' steps to be followed when determining the potential impact of a proposed activity on Aboriginal objects. Due diligence has been defined by OEH as "taking reasonable and practical steps to determine whether a person's actions will harm an 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:

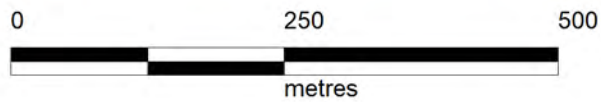
- DECCW, April 2010, *Aboriginal cultural heritage consultation requirements for proponents 2010*. Part 6 National Parks and Wildlife Act 1974;
- DECCW, Sept 2010, *Code of Practice for Archaeological Investigation of Aboriginal Objects In New South Wales*;
- OEH, April 2011, *Guide to Investigation,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



Study Area



PO Box 291
Macarthur Square
NEW SOUTH WALES 2560



Projection:
MGA Zone 56 (GDA 94)
Base Map:
Google Earth Pro
FINAL - Version 1

Figure 1: General location of the Penshurst Public School in its local context



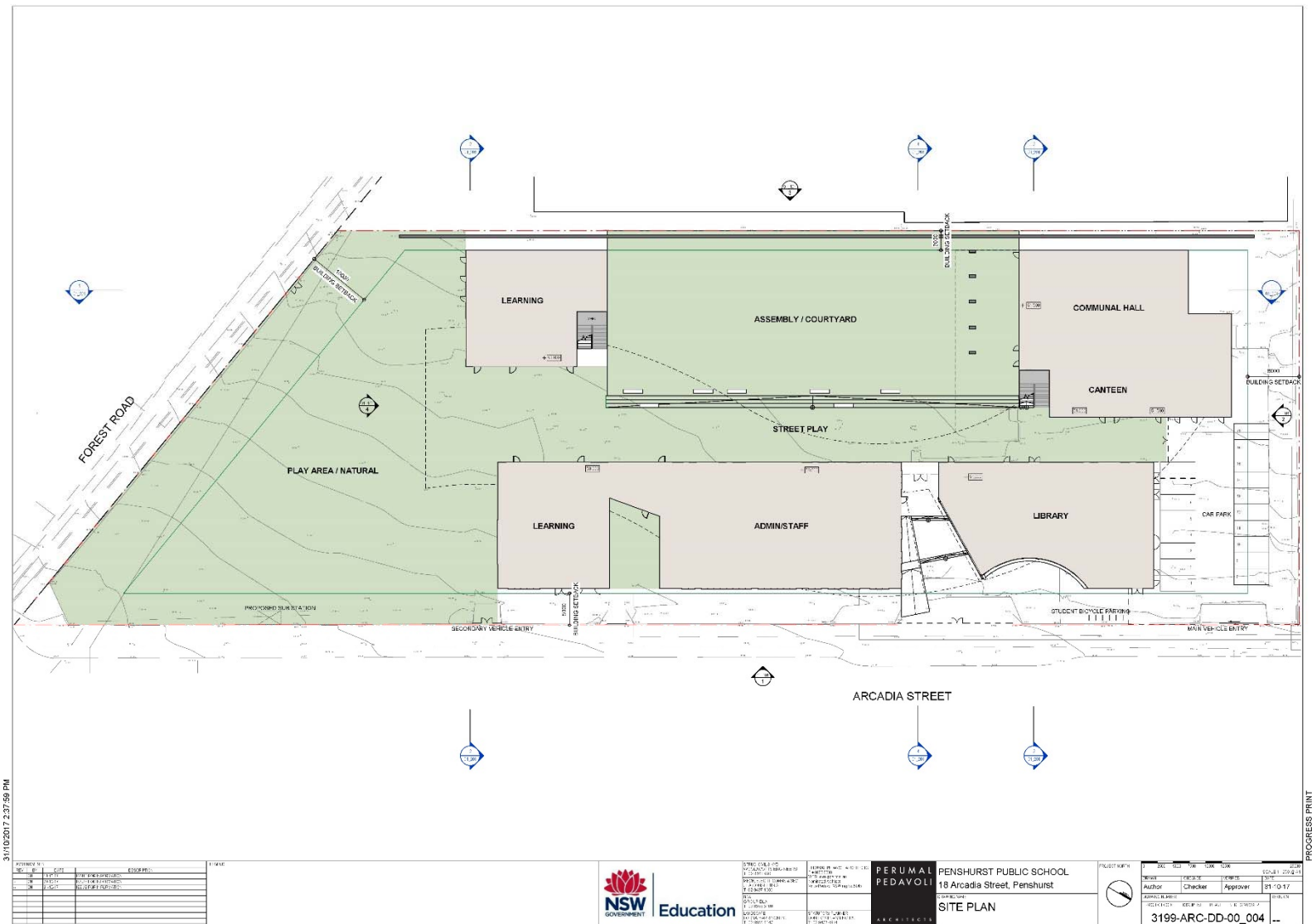


Figure 2: Proposed layout of the Penshurst Public School upgrade.



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 proposed upgrade of Penshurst Public School will result in new core facilities and 47 permanent teaching spaces to accommodate a total student number of approximately 1,012 and approximately 59 staff members. This would include replacing the existing demountable classrooms with permanent facilities in line with the Department's Education Facilities Standards and Guidelines and to facilitate 21st Century and Future Focused learning objectives. Construction of these facilities would include excavation and trenching for new foundations and services.

2.2 STEP 2A: AHIMS AND AVAILABLE LITERATURE SEARCH

OEH 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 OEH 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.

OEH 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 with a 1km buffer was conducted on 28 August 2017. Subsequently, an extensive search of the database was completed, with a total of two sites registered on the AHIMS database, as shown in Table 1 below. A copy of the extensive search is attached in Appendix A.

Table 1: Sites identified during AHIMS search

Site ID	Site Name	Context	Recorders
45-6-1738	Oatley Pleasure Ground;	Open site	Warren Bluff



Site ID	Site Name	Context	Recorders
45-6-1739	Oatley Pleasure Ground;	Open site	Warren Bluff

These sites are both listed as open sites, comprising one shell midden site and one rock engraving. Figure 3 shows the location of these sites in relation to the current study area.

2.2.1 LITERATURE REVIEW

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

UMWELT 2001

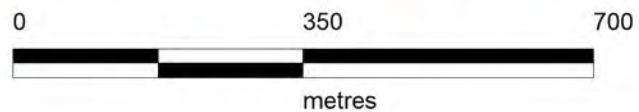
Umwelt Australia were engaged by Fisheries NSW to undertake an assessment of environmental and cultural impact of the proposed NSW fisheries program within and around the estuaries of the Georges River. The study noted that Aboriginal use of the estuaries in subsistence practices was well known and that evidence of this use is likely to occur along the banks of the estuaries. The study also noted that General Fishery practices within the Estuaries were unlikely to harm these sites, as proposed activities would not interrupt the banks or areas adjacent to the estuaries.

NAVIN OFFICER 2006

Navin Officer were commissioned by Energy Australia to undertake an assessment for a proposed transmission line running from the Bunnerong subtransmission station (STS) and Canterbury STS. 14 previously recorded sites were identified within the study area and one additional site was recorded during the survey. A program of sub-surface testing was recommended as the additional site could not be avoided, and was recorded as having moderate to high sub-surface archaeological potential, however it is not known if this recommendation was enacted.



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NEW SOUTH WALES 2560



Projection:
MGA Zone 56 (GDA 94)
Base Map:
Google Earth Pro
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Figure 3: Known Aboriginal sites within a 1km² radius of the study area.





KAYANDEL ARCHAEOLOGICAL SERVICES 2010

Kayandel Archaeological Services were engaged by SMEC on behalf of the Georges River Estuary Management Committee to prepare a desktop heritage assessment on cultural heritage sites identified within the Georges River Estuaries. The assessment considered Aboriginal and non-Aboriginal sites within the estuarine zone from Liverpool Weir to Botany Bay. The study identified 112 Aboriginal sites within the estuarine zone along the Georges River. Middens were the most commonly recorded site type, although artefact sites and scarred trees were also noted. The study mapped the distribution of site types across the landscape, which indicated that middens were more common in the eastern portion of the study area and shelters in the west.

ARTEFACT HERITAGE 2012

Artefact Heritage were commissioned by GHD to undertake a preliminary assessment of the Aboriginal and non-Aboriginal heritage of Oatley Railway Station. The results of this assessment showed that extensive landscape modification had occurred and that the likelihood of Aboriginal sites to occur was low.

MARY DALLAS 2015

Mary Dallas undertook an Aboriginal heritage assessment of a property located at 290 Illawarra Road, Barden Ridge, prior to a DA for a residential sub-division. No previously unrecorded sites or areas of archaeological potential were identified within the study area.

ARTEFACT HERITAGE 2017

Artefact Heritage were engaged by Transport for NSW to undertake an Aboriginal and non-Aboriginal heritage impact assessment for the proposed upgrade of the Mortdale Rail Maintenance Facility. The area was surveyed and the area was assessed as having low potential for Aboriginal archaeological deposits based solely on previous consultant's predictive models.

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 characterised by a gentle simple slope. The area has been intensely modified in the last 100 years. The area would have originally been cleared and used for agricultural purposes in the past. The current use of the land is for a public school.

The study area falls within the Sydney Basin, which is roughly bounded by the Great Dividing Range to the west, the coast to the east, Newcastle to the north and Wollongong to the south. It is the geographic extent of the Hawkesbury sandstone (McDonald 2008).

Historic aerial imagery of the school in 1943 shows extensive excavations relating to air raid shelters throughout the open areas within the school grounds (Figure 4). These zig zag channels dug into the ground surface may be of historic value but in terms of potential sub-surface Archaeological potential it shows an intensely modified landscape reducing the potential for any intact deposits to nil.



Figure 4: Penshurst Public School shown outlined in red. Aerial imagery taken in 1943. Source Six Maps 2017.

HYDROLOGY

The nearest major permanent water source is the Georges River which is located approximately 2.2km to the south of the study area. The Georges River is a fourth order watercourse as defined by the Strahler stream ordering 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.

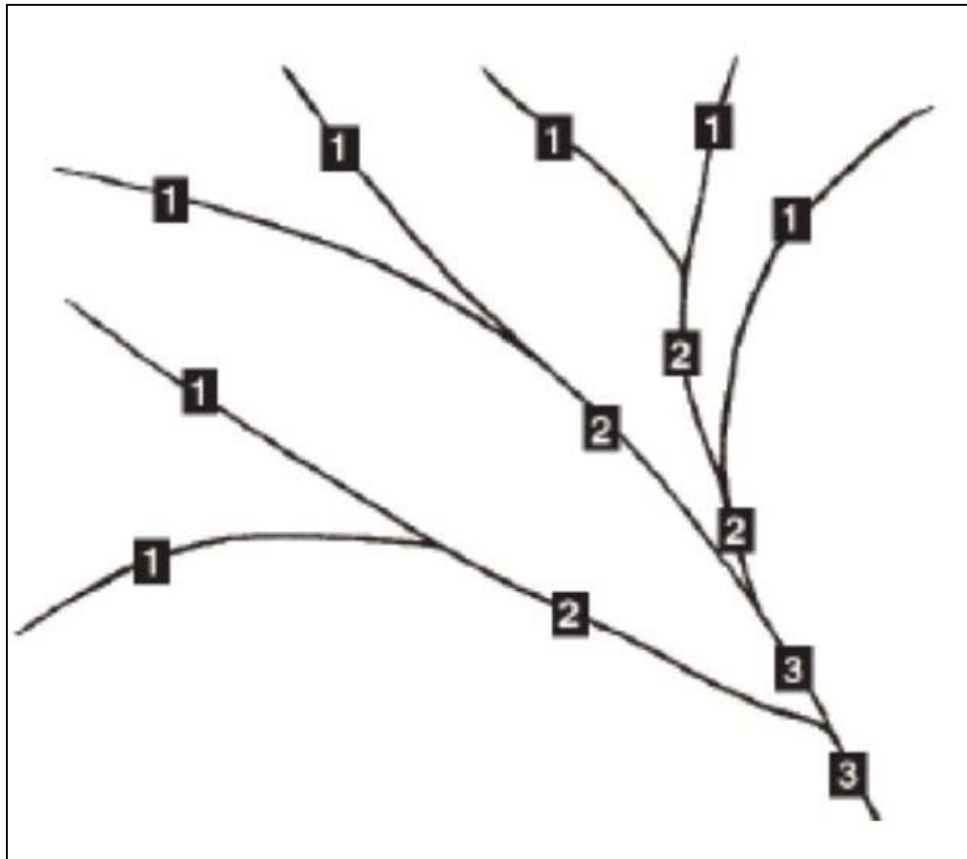


Figure 5: The Strahler system (Source: Department of Planning and Environment 2016).

The study area is not located within 200m of a natural watercourse and meets the definition of “disturbed land”. A site visit was undertaken to thoroughly extinguish the possibility of any Aboriginal cultural heritage being impacted by the proposed upgrade.

SOIL LANDSCAPES, GEOLOGY AND TOPOGRAPHY

The study area falls wholly within the Blacktown soil landscape (Figure 6). The Blacktown soil landscape is a shallow to moderately deep soil found across the Wianamatta Group shales. This soil landscape is a residual landscape in which the soils form *in situ*. There is limited erosion within this landscape which means bedrock exposures are also rare.





2.3.2 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'.

2.3.3 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.

2.3.4 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.

2.3.5 ETHNOHISTORY

The original Aboriginal inhabitants of the Penshurst region were tribes of the Darug (Daruk) language group (Tindale 1974). The Darug are the traditional owners of the Penshurst area. The Darug language group originally extended from the eastern suburbs of Sydney as far south as Botany Bay, west as far as Bathurst and north as far as the Hawkesbury River.

Early recorded accounts of European settlers have shed a light on some aspects of the traditional lifestyles of Aboriginal peoples. By studying these accounts we can reconstruct portions of the Darug traditional lifestyle.



The traditional lifestyles of Aboriginal groups such as the Darug depended largely on the environment in which they lived. The Darug people's economy and subsistence was based on a hunter gatherer society. Whilst coastal groups utilised marine and estuarine resources, hinterland groups relied on freshwater and terrestrial animals and plants. Animals such as kangaroos, wallabies, possums, gliders, bandicoots, wombats, quolls, fruit bats, echidnas, native rats and mice, emus, ducks, tortoises, snakes and goannas (Attenbrow, 2010), played a major role in the subsistence of hinterland groups.

One specific account was written by Captain-Lieutenant Watkin Tench during his exploration along the Hawkesbury-Nepean River in 1791. During their search for Richmond Hill, Tench and his companions travelled northwest from Rose Hill (Parramatta) following the Hawkesbury River to Cattai Creek. Maps drawn by Tench indicate that the party crossed directly west of the study area. Guided and informed by Colbee, an Aboriginal man from the Cadigal tribe, Tench recorded some information about the local Darug group living in the area to the north west of Parramatta (Nicol & Sewell, 1793):

We asked Colbee the name of the people who lived inland, and he called them boo-roo-ber-on-gal; and said they were bad; whence we conjectured, that they sometimes war with those on the sea coast.....We asked how they lived. He said, on birds and animals, having no fish.

Inland population densities were assessed by early settlers as being less than those on the coast. Historical sources regarding the Cumberland Plain suggest that there was a minimum population density of 0.5 persons per km². This is comparable to the coastal zone around Port Jackson with estimates being around 0.75 persons per km² (Attenbrow, 2010).

The pre-contact environments of the Penshurst area would have contained a diverse range of plant and animal species. The vegetation communities along the creeks and gullies, primarily wet sclerophyll 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.

2.3.6 PREDICTIVE MODEL

Based on the results of previous archaeological investigations within the wider area, 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. Isolated finds and small artefact scatters are the most common site type identified within the wider area, and are predicted to be the most likely site type to be identified in future.



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 not considered likely within the stud area due to the high levels of historical clearing which have occurred within the landscape.

Distribution of sites is related to the landforms on which sites are known to be located. Generally, sites are focused on elevated landforms and reduce with increasing distance from high order watercourses. This includes both artefact (isolated finds and artefact scatters) and areas of PAD.

Site disturbance and post-depositional processes heavily influence the integrity of archaeological sites. An assessment of these impacts must be considered when predicting the likelihood of Aboriginal sites being present within an area. Consideration of both natural and cultural ground disturbance must be made, and past land use must also be considered. Results of this assessment assist in the prediction of the integrity of potential sites within the study area.

Surface sites are likely to have been impacted by agricultural processes and urban expansion within the area over the historic period. Flooding events are also likely to have impacted the area through the disturbance or wholesale removal of archaeological deposits. 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, 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.

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 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 high relief in close proximity to ephemeral or permanent water sources.



2.4 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 parcels 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 works, 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 through building upgrade activities. There are no recorded Aboriginal sites within the study area, and many years of the site being used as a school including associated infrastructure have erased any potential for subsurface archaeological material to be present.

2.5 STEP 4: VISUAL INSPECTION

A visual pedestrian inspection of the Penshurst PS was undertaken on Tuesday 5 September 2017 by Leigh Bate, Archaeologist with Apex Archaeology.

2.5.1 SURVEY COVERAGE

Given the small size of the study area, the area was inspected by pedestrian survey to identify any surface artefacts or any areas with potential for intact subsurface deposits to be present.

2.5.2 RESULTS

A thorough inspection of the area was undertaken. No newly identified archaeological material or sites were identified during the survey.

Ground surface visibility (GSV) was low throughout the study area. GSV was rated at 5% overall. No raw material sources were identified within the study area. The entire study area had been completely modified and the land surface built up and disturbed through past land use activities.



Plate 1: General view of Penshurst PS looking south east along Arcadia street.



Plate 2: General view looking south east within Penshurst PS.



Plate 3: General view within the southern open area showing ground disturbance (Telstra services).



Plate 4: General view looking north west from the southern end of Penshurst PS.



Plate 5: Looking north west from the front of Penshurst PS.



Plate 6: General view across the centre of Penshurst PS looking south east



Plate 7: View looking south west along the northern border of Penshurst PS.



Plate 8: View looking south east along the western border of Penshurst PS



2.5.3 DISCUSSION

The areas were noted to be consistently disturbed through the construction of the existing school and various excavated services throughout the grounds. The aerial view of the study area from 1943 (Figure 4) shows that much of the open area was utilised as air raid shelters which had been excavated into the ground. This activity and subsequent developments within the site have taken place over the years modifying the landscape to an almost unrecognizable level from its original state.

While ploughing and clearance has occurred in many areas of the Sydney Basin, this only affects the deposit up to 30-40cm deep, and even then ploughed knapping floors have been located which are still relatively intact (McDonald 1998). However, in this instance the wholesale removal and landscape modification of the site would reduce the potential for any intact archaeological sub-surface deposits to nil.



3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

- No previously recorded Aboriginal sites are located within the study area.
- No archaeological material was identified on the ground surface within the study area.
- The study area is assessed as having no potential for subsurface archaeological deposits and this is confirmed by the site 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 upgrade works as described in this report.
- The results of this assessment fulfil the requirement for Due Diligence in accordance with 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 due diligence assessment, as shown on Figure 2. 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 the OEH under Division 1, Section 89A of the NPW Act.



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APPENDIX A: AHIMS EXTENSIVE RESULTS

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 1731
Client Service ID : 298292

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
45-6-1738	Oatley Pleasure Ground; <u>Contact</u>	AGD	56	322940	6239430	Open site	Valid	Shell : -, Artefact : - <u>Permits</u>	Midden	
45-6-1739	Oatley Pleasure Ground; <u>Contact</u>	AGD	56	322940	6239450	Open site	Valid	Art (Pigment or Engraved) : - <u>Permits</u>	Rock Engraving	

Report generated by AHIMS Web Service on 28/08/2017 for Leigh Bate for the following area at Lot : 1, DP:DP8173 with a Buffer of 1000 meters. Additional Info : For mapping of AHIMS data..

Number of Aboriginal sites and Aboriginal objects found is 2

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