Callan Park
Aboriginal Due Diligence Assessment

FINAL REPORT

Prepared for Greater Sydney Parklands

20 September 2023

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- Otto Reichelt (assistance in the field).
- Astrid Mackegard (mapping).

Glossary

ACHA	Aboriginal Cultural Heritage Assessment
ADDA	Aboriginal Due Diligence Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AHO	Aboriginal Heritage Office
AHMP	Aboriginal Heritage Management Plan
Biosis	Biosis Pty Ltd
BP	Before present
CMP	Conservation Management Plan
CPD	CPD Architects Pty Ltd
DA	Development Application
DP	Deposited Plan
DCP	Development Control Plan
Due Diligence Code	*Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*
EP&A Act	*Environmental Planning and Assessment Act 1979*
GSV	Ground Surface Visibility
Heritage NSW	Heritage NSW, Department of Planning and Environment
ICOMOS	International Council on Monuments and Sites
JMCHM	Jo McDonald Cultural Heritage Management
LEP	Local Environment Plan
LGA	Local Government Area
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
PAD	Potential Archaeological Deposit
Study area	Precinct One of Callan Park, Glover Street Lilyfield (part of Lot 130 DP1280992), New South Wales
The Code	*The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*

Summary

Biosis (Biosis Pty Ltd) has been commissioned by Greater Sydney Parklands (GSP) to undertake an Aboriginal Due Diligence Assessment (ADDA). The ADDA will consider the proposed tree management and arboriculture works within Precinct One of Callan Park, Glover Street, Lilyfield (part of Lot 130 DP1280992), in New South Wales (NSW). The ADDA will support a Review of Environmental Factors (REF) that will be assessed in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

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

Background research indicated that the study area is located within the Hawkesbury Sandstone geological unit, which is commonly associated with grinding groove sites, rock shelters and rock art sites. Topographically, the study area slopes towards Iron Cove, a second-order perennial water course. The study area is also underlain by Hawkesbury and Gymea soil landscapes, both typically feature higher levels soil erosion and shallow soils deposits. Within the Hawkesbury soil landscape rocky outcrop formations are common, which could indicate the presence of grinding groove sites, rock shelters with art or deposits. The Gymea soil landscape is characterised as highly erosional, and this high erosion potential suggests that the presence of Aboriginal sites and objects is unlikely.

Background research also included a search of the Aboriginal Heritage Information Management System (AHIMS) database and a review of relevant reports. The AHIMS search identified 111 Aboriginal archaeological sites within a 2.5 kilometre search area centred on the study area (Client service ID: 800086). Of these registered sites, four are located within and two are adjacent to the study area. The recorded locations of AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3; AHIMS 45-6-1972/Rozelle Hospital 4 and AHIMS 45-6-3693/Callan Park Scared Tree were visited during the archaeological survey. AHIMS 45-6-3695/Callan Park Grinding Groove (possible) was unable to be relocated during the archaeological survey.

Previous surveys within the local and regional areas and their findings were also reviewed as part of this assessment. The results of the previous surveys along with a review of the geology, hydrology and soil landscape characteristics of the study area have been examined to provide a series of predictive statements of the study area's archaeological potential. The predictive statements indicated that there was low potential for Aboriginal objects or sites to be present within the study area.

An archaeological survey of the study area was undertaken by Crystal Garabedian (Heritage Consultant, Biosis) Otto Reichelt (Graduate Heritage Consultant, Biosis) and Rowena Welsh (Cultural Sites Officer, Metropolitan Local Land Council (LALC)) on 17 July 2023. The field investigation was hampered by generally low ground surface visibility (GSV) due to grass coverage, leaf litter and disturbances which obscured the ground surface from view including the buildings and roads. High levels of disturbance were noted throughout the study area suggesting a moderate-to-high level of disturbance in subsurface soils. No Aboriginal objects were identified within the study area. Most of the study area was determined as containing low archaeological potential due to the high levels of disturbance present that will have disturbed potential Aboriginal sites. Despite the evident disturbance within the study area, several Aboriginal sites exist within it. There is the potential for further Aboriginal objects to exist in these areas, albeit possibly not *in situ*. As such, a

buffer of 25 metres has been placed around AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3 and AHIMS 45-6-1972/Rozelle Hospital 4. A buffer of 5 metres has been placed around AHIMS 45-6-3693/Callan Park Scared Tree, but excludes areas with higher levels of disturbance i.e., the road. Within these areas, further investigation may be required where ground disturbing works cannot be avoided. Ground disturbing works include tree planting, stump grinding, excavation, stockpiling and grading of the ground surface. It does not include works that are considered to have a minimal disturbance such as grass cutting, leaf litter removal and tree trimming or pruning.

The proposed development involves arboriculture works, including the removal of dead trees, stump grinding, canopy lifting, selective pruning, management of weed species and hazardous trees and tree planting. Some of these works may occur in areas with mature and native vegetation. As such the mature, native vegetation within the study area requires further assessment by an arborist to identify the age, species, and any potential cultural modification. Areas featuring mature vegetation for further assessment are identified in this report. These areas have been selected based on the archaeological survey paired with the aerial photographs to identify areas that historical were cleared of vegetation and are shown on Figure 8.

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

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

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

Recommendation 1: No further archaeological assessment is required in areas of low archaeological potential

No further archaeological work is required in areas of low archaeological potential (Figure 8). Works may proceed within caution in these areas in accordance with Recommendations 2 to 7 below.

Recommendation 2: Further assessment required for specific areas with mature and native vegetation

The proposed development involves arboriculture works, including the removal of dead trees, stump grinding, canopy lifting, selective pruning, management of weed species and hazardous trees and tree planting. Some of these works may occur in areas with mature and native vegetation. As such, where works are proposed in the areas of mature native vegetation within the study area, further assessment should be undertaken by an arborist to identify the age, species, and any potential cultural modification (see Figure 8 for locations). These areas have been selected based on the archaeological survey paired with the aerial photographs to identify areas that historical were cleared of vegetation.

Recommendation 3: Avoidance of AHIMS sites within the study area

AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3, and AHIMS 45-6-1972/Rozelle Hospital 4 are present within the study area. Due to the location, nature, and potential of the sites to contain further Aboriginal

archaeological material, a buffer of 25 metres is proposed around them. Further assessment in the form of an Aboriginal Cultural Heritage Assessment (ACHA) is recommended if impacts to these sites cannot be avoided during the proposed works. Impacts include ground disturbances as a result of the proposed works such as, tree planting, stump grinding, excavation, stockpiling and grading of the ground surface.

If, as part of the ACHA, test excavations are required it will be necessary to apply for an Aboriginal Heritage Impact Permit (AHIP). Under Requirement 14 of the Code, any test excavations in or within 50 metres of a known or suspected shell midden, or within 50 metres of an area where burial sites are known or likely to exist, require an AHIP (DECCW 2010b, pp. 24–5). It is recommended a test excavation methodology be developed in consultation with Heritage NSW, Department of Planning and Environment (Heritage NSW) and registered Aboriginal parties (RAPs) being consulted as part of the ACHA. AHIPs should be prepared by a qualified heritage consultant and lodged with Heritage NSW.

Recommendation 4: Avoidance of AHIMS sites adjacent to the study area

AHIMS 45-6-3693/Callan Park Scared Tree is located adjacent to the study area. A proposed buffer of 5 metres has been placed around the site. This buffer does not apply to the area around the site which has been significantly disturbed by the road. If ground disturbing works cannot be avoided in the proposed buffered area, further assessment in the form of an ACHA is recommended. This does not include disturbed areas within the proposed buffer, including the road. Ground disturbing works include tree planting, stump grinding, excavation, stockpiling and grading of the ground surface. It does not include works that are considered to have a minimal disturbance such as grass cutting, leaf litter removal and tree trimming or pruning.

Recommendation 5: Preparation of an updated Aboriginal Heritage Management Plan

The Conservation Management Plan (CMP) (Tanner Architects 2011) for Callan Park makes some references to the management of Aboriginal cultural heritage. However, these considerations are surface level and the CMP recommends consideration of the Aboriginal Heritage Management Plan (AHMP) prepared by Dallas (2000). This AHMP was prepared in 2000 and does not address recent sites identified within Callan Park. The AHMP is also limited in its depth and consideration beyond Aboriginal sites containing midden material. It is recommended that an updated AHMP be prepared in consultation with the Aboriginal community and Heritage NSW. The updated AHMP should be a comprehensive document that provides strategies for the management of known and potential Aboriginal cultural heritage sites within the study area. The updated AHMP is not required for the proposed works considered in this report to proceed within the study area.

Recommendation 6: Discovery of Unanticipated Aboriginal Objects

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

Recommendation 7: Discovery of Aboriginal Ancestral Remains

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

1. Immediately cease all work at that location and not further move or disturb the remains.

2. Notify the NSW Police and Heritage NSW Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

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1 Introduction

1.1 Background

Biosis has been commissioned by GSP to undertake an ADDA. The ADDA will consider the proposed tree management and arboriculture works within Precinct One of Callan Park, Glover Street Lilyfield (part of Lot 130 DP1280992), in NSW (Figure 1). The ADDA will support a REF that will be assessed in accordance with Part 5 of the EP&A Act.

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

1.2 Location of the study area

The study area is located within the Inner West Council Local Government Area (LGA), Parish of Petersham, County of Cumberland (Figure 1). The study area is located within Lot 1 DP 1043540, within Precinct One of Callan Park, amassing approximately 38 hectares of parklands including sporting grounds, walkways and roads, cottages, gardens, greens, heritage listed buildings, and harbour views. The study area is bounded by Iron Cove to the north, Balmain Road to the south, Lot 1 DP1043540, and Glover and Wharf Street to the west, and King George Park, Lot 131 DP1280992, Lot 1 DP814430, Lot 663 DP729277 and Manning Street to the east (Figure 2).

1.3 Proposed works

The proposed works involve:

- The removal of dead trees including stump grinding.
- Canopy lifting or selective pruning to trees adjacent to structures or impacting movement corridors.
- The management of weed species.
- The management of hazardous trees.
- Tree planting.

GSP is reviewing tree and vegetation management within the Callan Park site and is seeking Aboriginal heritage advice to ensure that these management activities no adverse impacts to any known or unknown Aboriginal heritage values. The client is seeking mitigation measures associated with the above tree management activities, with particular attention to stump grinding activities to ensure that no excavation permits are required, or that alternative management measures are recommended. There are currently no specific proposals in relation to further activities.

1.4 Planning approvals

The proposed development will be assessed in accordance with Part 5 of the EP&A Act. Other relevant legislation and planning instruments that will inform the assessment include:

- NPW Act.
- *National Parks and Wildlife Amendment Act 2010* (NSW).
- *Inner West Local Environmental Plan 2022* (LEP).
- *Leichhardt Development Control Plan 2013* (DCP).
- *Callan Park (Special Provisions) Act 2002* (CP Act).

1.5 Scope of the assessment

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

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

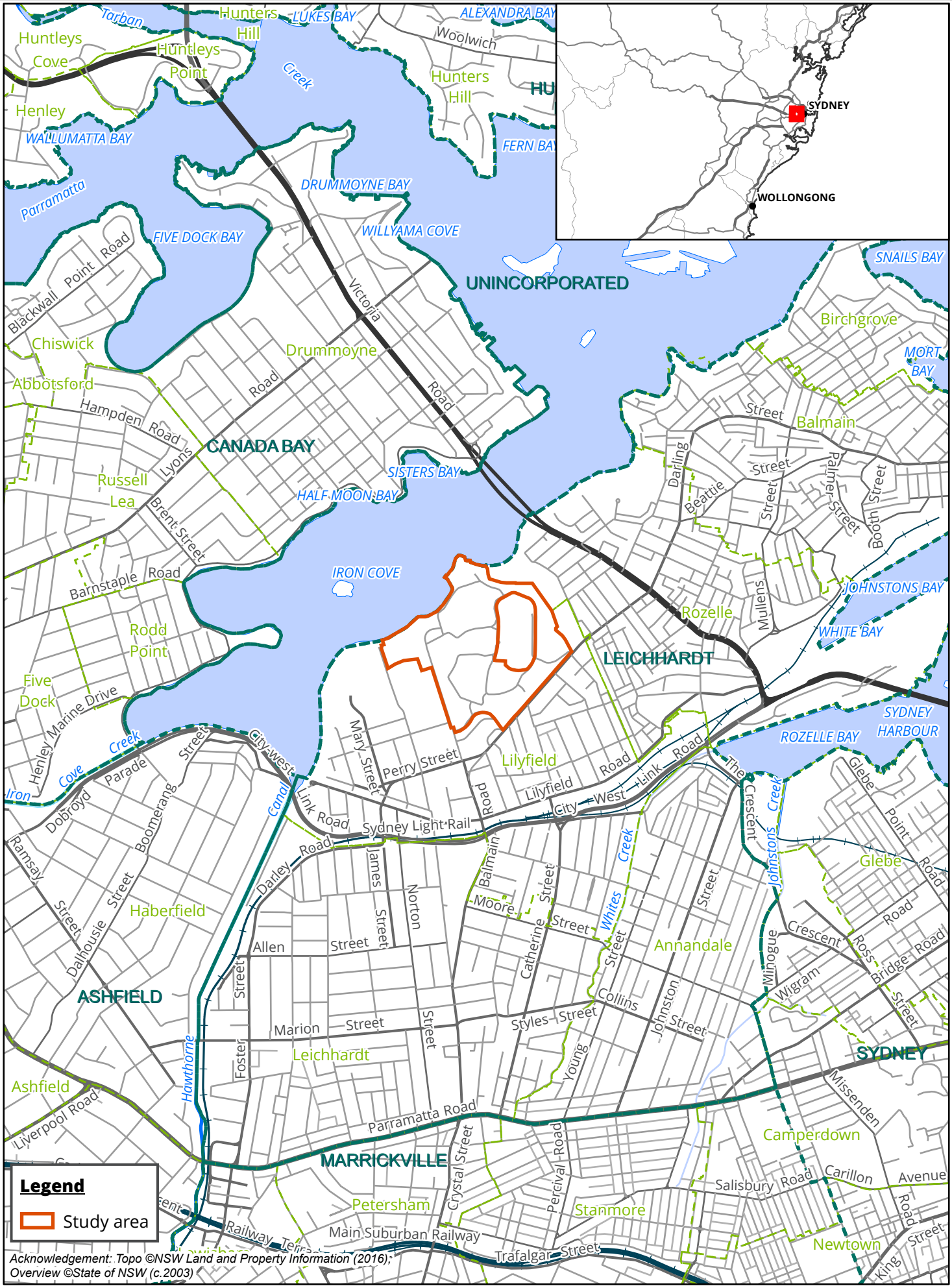
1.6 Aboriginal consultation

Rowena Walsh (Metropolitan LALC) attended the archaeological survey on 17 July 2023. Throughout the survey, comments were made by Rowena Walsh regarding the cultural significance of the study area, the surrounding landscape, and the Aboriginal sites within the study area. These included:

- The significance of the location of Callan Park, being near a significant water source.
- The importance and uniqueness of the shell midden sites, and the importance of marine resources in Aboriginal subsistence structures.
- The significance of fig trees in Aboriginal birthing practices.

1.7 Limitations

The findings in this report are based on previous archaeological assessments within the local and regional areas and their findings, a review of historical aerial imagery, geology, hydrology and soil landscape characteristics of the study area and an archaeological survey. As the study area has been significantly developed throughout the 19th and 20th centuries, historical aerials were used to aid in determining Aboriginal archaeological potential and the presence of potential modified trees. The earliest aerial available was from 1943, however historic aerials were not available for every year after this. This presented limitations in determining the exact frequency and degree of disturbances throughout the study area over time, however they have been used to best what occurred historically within the study area. Historic aerials are included in Section 2.4.



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

biosis

Figure 1 Location of the study area

Matter: 39466, Date: 13 July 2023,
Drawn by: AM, Checked by: CG, Last edited by: amackegard
Location: P:\39400s\39466\Mapping\39466_CallanPark
Layout: 39466_ADDA_F1_Locality

0 200 400 600 800 1,000
Metres

Scale 1:25,000@ A4, GDA 1994 MGA Zone 56

N

Figure 2 Study area detail

Matter: 39466, Date: 13 July 2023,
Drawn by: AM, Checked by: CG, Last edited by: amackegard
Location: P:\39400s\39466\Mapping\
39466_CallanPark,
Layout: 39466_ADDA_F2_StudyArea

2 Desktop assessment

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

2.1 Landscape context

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

2.2 Geology, soils, and landforms

The study area contains two geological units: the Hawkesbury Sandstone formation, and anthropogenic deposits (Figure 3). The Hawkesbury Sandstone formation is the dominant geological formation within the study area. It consists of friable medium- to coarse-grained quartz sandstone with some shale and laminate lenses. It weathers cavernously to form overhangs, which occur in a range of topographic locations. It also occurs as flat topped outcrops (platforms of varying sizes) and boulders, mainly on ridge tops, and also along the sides of gullies and in valley bottoms (JMCHM 2008). This geological unit is commonly associated with grinding groove sites, rock shelters and rock art sites. The Hawkesbury Sandstone has a local relief of 40 to 200 metres, with slope gradients between 20 and 70% and rock outcrops appearing in up to 50% of the surface landscape (DPIE 2020). Anthropogenic deposits (reclaimed estuarine areas) exist in the north-eastern portion of the study area, along the bank of Iron Cove. This geological unit refers to the reclamation of the estuary through infilling since the arrival of Europeans in 1788 (Lee & Birch 2014, pp. 17).

Stream order is recognised as a factor which assists in the development of predictive modelling in Sydney Basin Aboriginal archaeology, and has seen extensive use in the Sydney region, most notably by Jo McDonald Cultural Heritage Management (JMCHM) (JMCHM 2000, JMCHM 2005, JMCHM 2005, JMCHM 2006, JMCHM 2008). Predictive models, which have been developed for the region, tend to favour higher order streams as having a high potential for campsites as these types of streams would have been more likely to provide a stable source of water and by extension, other resources which would have been used by Aboriginal groups.

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

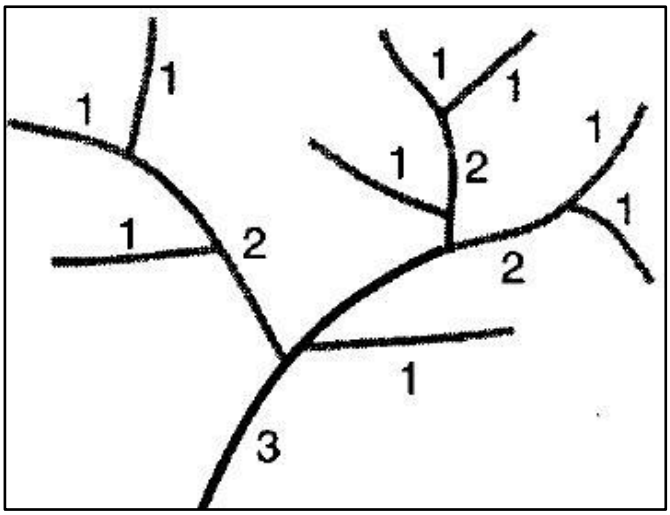


Photo 1 Diagram showing Strahler stream order (Ritter, Kochel, & Miller 1995, pp. 151)

The study area is located adjacent to Iron Cove, a second-order perennial natural water course and a bay on the Parramatta River (Figure 4). The study area gently slopes towards Iron Cove in the north, with a maximum elevation of 38 metres in the south; most of the land adjacent to Iron Cove is less than 8 metres in elevation.

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

The study area is located within two soil landscapes: Hawkesbury and Gymea (Figure 5). The Hawkesbury soil landscape comprises approximately 20 hectares of the study area and is classified as a colluvial landscape. It has shallow discontinuous lithosols/siliceous sands greater than 50 centimetres associated with rock outcrops, earthy sands, yellow earths, and some locally deep sands on the inside of benches and along joints and fractures. Localised yellow and red podzolic soils associated with shale lenses, siliceous sands and secondary yellow earths occur along drainage lines (Chapman et al. 1989). The soil characteristics of the Hawkesbury soil landscape are outlined in Table 1 and Photo 2.

Table 1 Hawkesbury soil landscape characteristics (Chapman et al. 1989, pp. 44–48)

Soil material	Description
***Ha1*—Loose, coarse quartz sand**	A sand to sandy loam with loose, apedal single-grained structure and porous sandy fabric. It generally occurs as topsoil (A1 horizon). Colour ranges from brownish black (10YR 3/2) when abundant organic matter is present, to bright yellowish brown (10YR 7/6) and often becomes lighter with depth. The pH ranges from strongly acid (pH 4.0) to moderately acid (pH 5.5). Weakly weathered sandstone fragments may be present whilst charcoal fragments and roots are common. This material is commonly water repellent.
***Ha2*—Earthy, yellowish brown sandy clay loam**	A clayey sand to sandy clay loam with apedal massive or occasionally weakly pedal structure and a distinctly porous, earthy fabric. Ha2 generally occurs as subsoil, often in association with sandstone bedrock (B or C horizon). Where peds are present they are large subangular blocky and rough-faced. Ped sizes range from 30mm to 60mm. Common colours include yellow orange (10YR 7/8), bright yellowish brown (10YR 6/8, 6/6) and yellowish brown (10YR 5/6). The pH ranges from strongly acid (pH 4.0) to moderately acid (pH 5.5). Gravels, stones and ironstone-plated sandstone fragments are common but roots and charcoal fragments are rare.

Soil material	Description
***Ha3*—Pale, strongly pedal light clay**	A fine sandy clay loam to medium clay with strongly pedal structure and rough faced ped fabric. It commonly occurs as subsoil derived from shale lenses within the Hawkesbury Sandston (B or C horizons) but does not always occur. Structure is strongly pedal when dry and apedal when saturated. Peds range in size from 20mm to 60mm and are sub angular blocky to angular blocky in shape. Colours are most often pale but can vary according to site drainage characteristics. Colour ranges from bright yellowish brown (10YR 6/6) to reddish brown (5YR 5/6). Red, orange and grey mottles are often present. The pH varies from strongly acid (pH4.1) to moderately acid (pH 5.5). Stratified ironstone gravels are common but roots and charcoal fragments are usually rare or absent

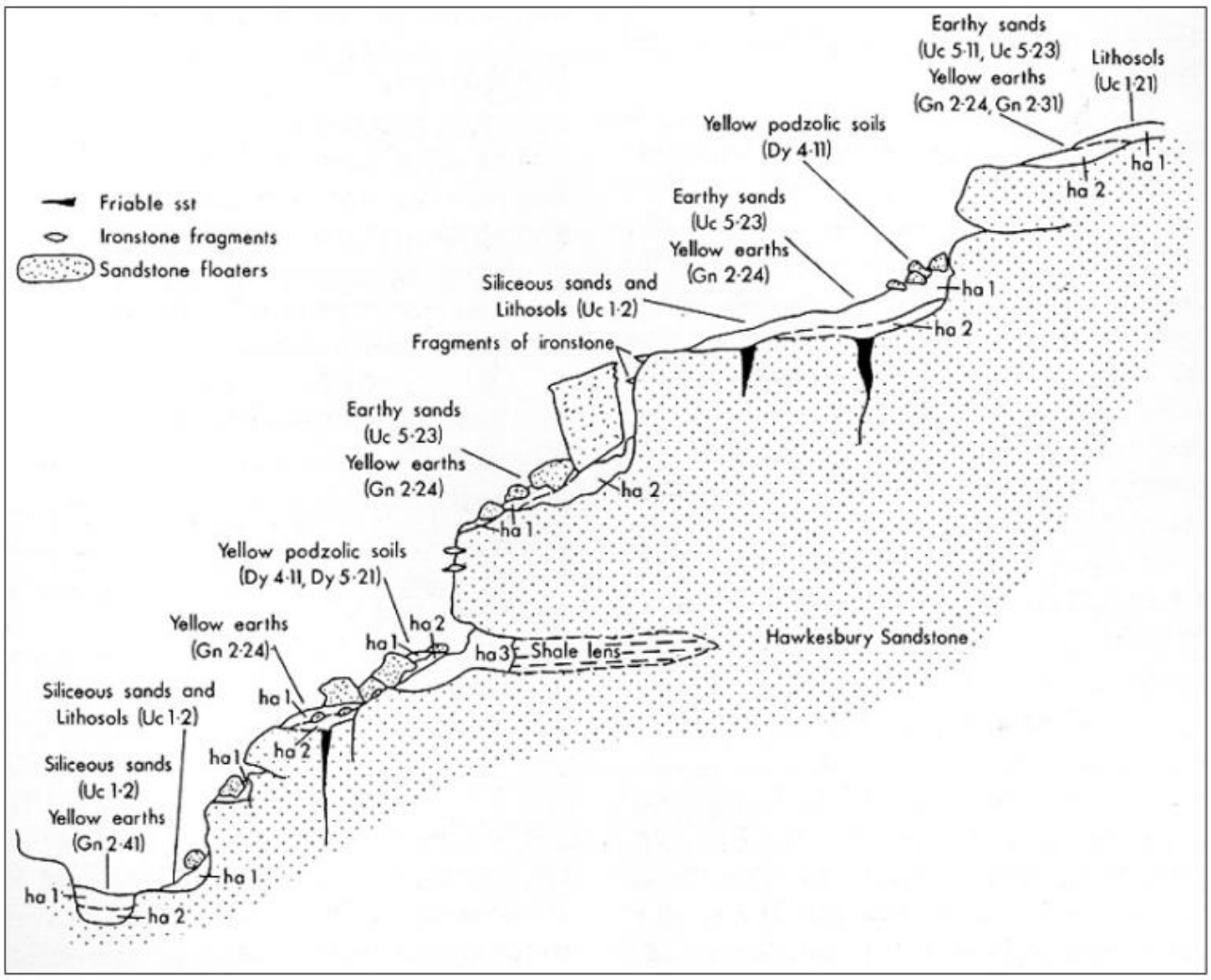


Photo 2 Schematic cross section of the Hawkesbury soil landscape (Chapman & Murphy 1989, pp. 54)

Shallow soils and significant soil erosion are common within this soil landscape, which can limit the potential for archaeological deposits. However, the presence of rock shelters with art or deposits is common within the rocky outcrop formations associated with Hawkesbury soil landscape.

The Gymea soil landscape underlies approximately 22 hectares within the study area and is classified as an erosional landscape underlain by the Hawkesbury Sandstone formation. The soil characteristics of this landscape include shallow to moderately deep (30-100 centimetres) yellow earths and earthy sands on crests and inside of benches, shallow (less than 20 centimetres) siliceous sands on leading edges of benches, localised grey podzolic soils and yellow podzolic soils on shale lenses, shallow to moderately deep (less than

100 centimetres) siliceous sands and leached sands along drainage lines. A description of the Gymea soil landscape characteristics is provided in Table 2 and Photo 3.

Table 2 Gymea soil landscape characteristics (Chapman et al. 1989, pp. 64–67)

Soil material	Description
***Gy1*—Loose, coarse sandy loam**	A loamy sand to sandy loam with loose, apedal single-grained structure and porous sandy fabric. It generally occurs as topsoil (A1 horizon). The colour often becomes lighter with depth and ranges from brownish-black (10YR 2/2), when organic matter is present, to bleached dull yellow-orange (10YR 7/2). It is often water repellent under native vegetation. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.0). Small sandstone and platy ironstone fragments, charcoal fragments and roots are common.
***Gy2*—Earthy, yellowish-brown clayey sand**	Commonly a yellowish brown clayey sand with apedal massive structure and porous earthy fabric. It commonly occurs as subsoil over sandstone bedrock (B horizon). Where it is exposed at the surface it forms a hard-setting topsoil. Texture may increase gradually to a light sandy clay loam with depth. Colour is commonly yellowish-brown (10YR 6/8) and orange mottles are occasionally present with depth. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.5). Sandstone and ironstone fragments are common and are often concentrated in stone lines in the upper parts of this material. Charcoal fragments are common whilst roots are rare.
***Gy3*—Earthy to weakly pedal, yellowish-brown sandy clay loam**	Commonly a yellowish-brown sandy clay loam to sandy clay with an apedal massive structure and an earthy porous fabric. It usually occurs as subsoil (B or C horizon) on coarse sandstone. Texture is commonly sandy clay loam but may increase gradually with depth to sandy clay. Occasionally a weakly pedal structure of sub-angular blocky shaped peds is present. Peds are commonly rough-faced and porous and range in size from 5–20mm. Colour is commonly yellowish brown (10YR 5/8, 6/6, 6/8; 2.SY 5/6, 5/4). Orange mottles may occur with depth. The pH ranges from strongly acid (pH 4.5) to slightly acid (pH 6.0). Strongly weathered sandstone fragments are common. Roots and charcoal fragments are rare.
***Gy4*—Moderately to strongly pedal, yellowish-brown clay**	Commonly a yellowish-brown sandy clay or light clay with a moderately to strongly pedal structure and either a smooth or rough-faced ped fabric. This material occurs as subsoil on shale bedrock (B and C horizons). Peds ranging in size from 5–50mm, are either smooth or rough-faced and are polyhedral to sub-angular blocky. Colour is commonly yellow-brown (10YR 6/6) but can vary from dark reddish brown (2.5YR3/6) to light grey (7.5YR 8/1). Red, orange, and grey mottles are occasionally present at depth. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.0). Shale and ironstone fragments are often present but charcoal fragments are absent and roots are rare.

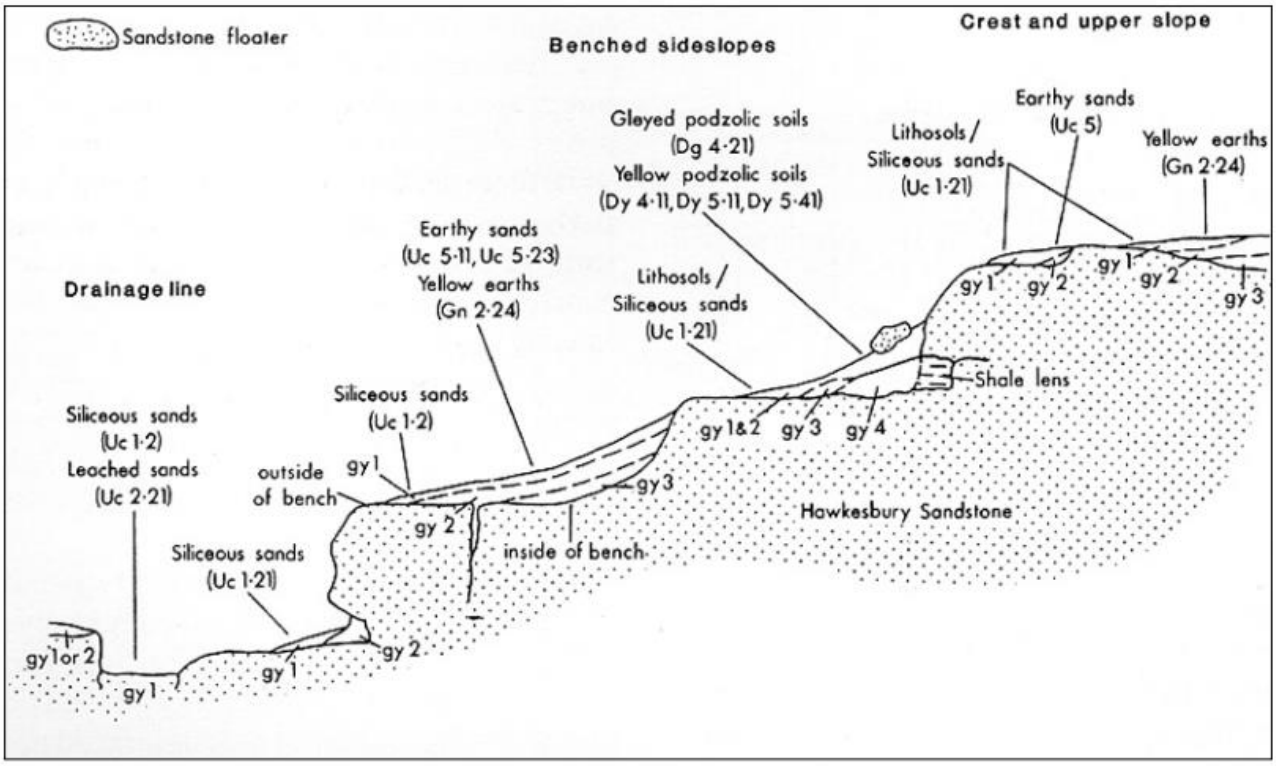
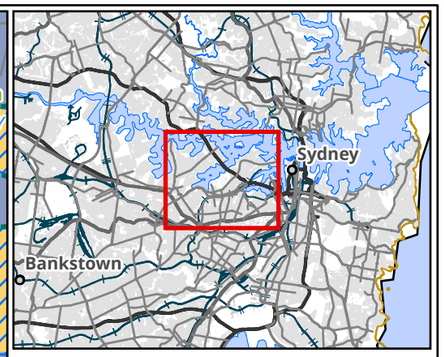


Photo 3 Schematic cross section of the Gymea soil landscape (Chapman et al. 1989, pp. 66)

Since erosional soils, such as those in the Gymea soil landscape, are generally subject to movement of shallow soils, the result is poor preservation of the archaeological record. Dispersed sandy soils of Hawkesbury Sandstone bedrock and loose quartz sandy loam, and earthy clayey sands which occur as A1 and B horizons have a low erosion potential. However, when cleared of vegetation, the soils can be subject to high levels of erosion. As this soil landscape is characterised as highly erosional, the soil can be shallow and highly permeable, as well as producing low soil fertility. This would indicate that the presence of Aboriginal sites and objects is unlikely (Chapman et al. 1989, pp. 64–67, McInnes 1997, p.45, cited by Umwelt (Australia) Pty Limited 2016, pp. 13).



Legend

Study area

Geological units

- MZui__v,Ungrouped Mesozoic igneous units - breccia
- QH_ebw,Estuarine basin and bay (subaqueous)
- QH_eci,Estuarine in-channel bar and beach deposits
- QH_hr,Anthropogenic deposits - reclaimed estuarine areas
- Q_av,Alluvial valley deposits
- Q_avf,Alluvial fan deposits
- Q_h,Anthropogenic deposits
- Tuth,Hawkesbury Sandstone
- Twia,Ashfield Shale

Figure 3 Geological units in the vicinity of the study area

0 150 300 450 600 750

Metres

Scale: 1:20,000@ A3

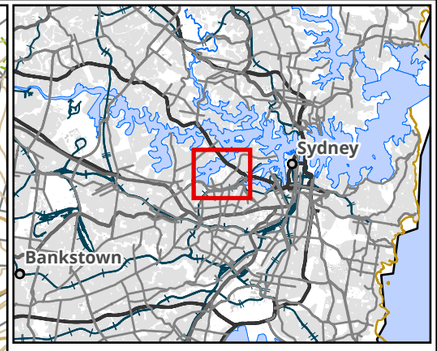
Coordinate System:
GDA 1994 MGA Zone 56

N

biosis

Matter: 39466, Date: 13 July 2023,
Drawn by: AM, Checked by: CG, Last edited by: amackegard
Location: P:\39400s\39466\Mapping\
39466_CallanPark,
Layout: 39466_ADDA_F3_Geology

Acknowledgements: Basemap © NSW Land and Property Information 2016; Geology © State of New South Wales through Regional NSW 2020



Legend

- Study area
- Contour (2m)
- Index contour (2m)

Strahler Order

- 1
- 2

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

0 100 200 300 400 500 N

Metres

Scale: 1:10,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

biosis

Matter: 39466, Date: 13 July 2023,
Drawn by: AM, Checked by: CG, Last edited by: amackegard
Location: P:\39400s\39466\Mapping\,
39466_CallanPark,
Layout: 39466_ADDA_F4_Hydrology

Legend

Study area

Soil landscape units

- WATER - WATER
- bg - BIRRONG
- bt - BLACKTOWN
- gy - GYMEA
- ha - HAWKESBURY
- la - LAMBERT
- lh - LUCAS HEIGHTS
- xx - DISTURBED TERRAIN

Figure 5 Soil landscapes in the vicinity of the study area

0 150 300 450 600 750

Metres

Scale: 1:20,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

N

biosis

Matter: 39466, Date: 13 July 2023,
Drawn by: AM, Checked by: CG, Last edited by: amackegard
Location: P:\39400s\39466\Mapping\
39466_CallanPark,
Layout: 39466_ADDA_F5_Soils

Acknowledgements: Basemap © Land and Property Information 2016; Soils: Chapman G.A., Murphy, C.L., Tille P.J., Atkinson G. and Morse R.J., 2009 Ed. 4, Soil Landscapes of the Sydney 1:100,000 Sheet map, Department of Environment, Climate Change and Water, Sydney;

2.3 Flora and fauna

The diverse natural environment would have provided vast and plentiful floral and faunal resources and the temperate climate would have made the area suitable for year-round occupation. Although extensively cleared today, the Hawkesbury soil landscape featured open-woodland with pockets of tall open-forest and closed-forest. This landscape would have typically supported Red Bloodwood *Eucalyptus gummifera*, Narrow-leafed Stringybark *E. oblonga*, Scribbly Gum *E. haemostoma*, Brown Stringybark *E. capitellata* and Old Man Banksia *Banksia serrata* (Chapman et al. 1989, pp. 45).

The Gymea soil landscape consisted of dry sclerophyll woodland and open forest that have been extensively cleared today. Common species include Red Bloodwood, Yellow Bloodwood *E. eximia*, Scribbly Gum, Brown Stringybark and Old Man Banksia. On the more sheltered slopes, Black Ash *E. sieberi*, Sydney Peppermint *E. piperita* and Smooth-barked Apple *Angophora costata* are common tree species (Chapman et al. 1989, pp. 64–65).

Many of the plants found within the Sydney Basin were important to Aboriginal people and could be used for numerous purposes. These include using wood to make implements, berries, leaves and tubers for food and medicines as well as bark for shelters. One of the plants exploited may have been the eucalypt, whose leaves can be crushed and used for medicinal purposes, while the sap can be used as a sweet sugary food source and the bark could be used to make bowls and shelters (Rhodes & Dunnett 1985).

Given the proximity to the Iron Cove and Parramatta River, fish, eel, ducks, crayfish, shellfish, molluscs, and turtles would have formed an important part of people's diets. Middens in the area have confirmed that cockles, mud whelks, oysters, winks and horn shells were also eaten (Casey & Lowe Pty Ltd 2005, pp. 55). Aquatic species such as freshwater crayfish, fish and eels would have been easily accessible in larger waterways, such as the Parramatta River (Rosen 1995).

In addition to marine resources, terrestrial and avian resources were not only used for food, but also provided a significant contribution to the social and ceremonial aspects of Aboriginal life through their use as ritual implements or even simply through fashioning as personal adornments (Attenbrow 2010, pp. 107–110). Mammals such as kangaroos and wallabies and arboreal mammals such as possums were used as a food source, and for tool making. Bones and teeth were also used as points or barbs for hunting spears and fishing spears. Tail sinews are known to have been used as a fastening cord, whilst 'bone points' can occur in rock shelters (Attenbrow 2010, pp. 109). Animal skin, fur and sinews were also used for personal adornment and in making cloaks. Animals such as Brush-tailed Possums were highly prized for their fur, with possum skin cloaks recorded by the first settlers in the area. The cloaks were worn fastened over one shoulder and under the other. Kangaroo teeth were incorporated into decorative items such as head bands and beads were made from reeds and teeth (Rosen 1995).

2.4 Land use history

The study area is contained within the original land grant of Lawrence Butler, who was granted 100 acres (40.5 hectares) on 31 August 1819 in the Parish of Petersham (NSW Land Registry Services, Crown plan C416.2030). Butler arrived in NSW in 1802 on the *Atlas*, having been convicted for aiding, abetting and assisting in murder and also acting as a Revel Captain during the 1798 Irish Rebellion. Butler was a cabinet-maker by trade and was assigned to the lumber yard in Sydney and established a cabinet-making business.

In 1839, the Butler grant was acquired by John Ryan Brenan. A qualified Irish attorney, Brenan arrived in Sydney in 1834 on the *Jessie* with his wife Anna and two sons, John and Joseph. The following year, Brenan was appointed as the Coroner for the Town of Sydney by Governor Richard Bourke, and then in 1836 was temporarily appointed as the Principal Superintendent of Convicts; this role was confirmed the following year,

at which point he had to withdraw from private practice (Barbera 2020, Tanner Architects 2011, pp. 11–2, Reynolds & Leong 2008). In 1864, Brenan lost the estate to his main creditor, Frederick Fanning, a merchant from Sydney, who auctioned Garry Owen in the same year. John Gordon, a Sydney businessman acquired the estate and renamed it Callan Park (Barbera 2020, Tanner Architects 2011, pp. 11–2, Reynolds & Leong 2008).

Around 1873, the government allocated funding of £75,000 for the establishment of a new lunatic asylum (Reynolds & Leong 2008). The study area is located within the grounds of the previous 'Callan Park Hospital for the Insane', which was constructed between 1880 and 1884. In 1915 it was renamed to 'Callan Park Mental Hospital' and again to 'Callan Park Hospital' in 1976. Since 1994, it has been known as the 'Rozelle Hospital'.

Historical aerial photography provides a record of development within the study area during the 20th century. An aerial photograph of the study area dated to 1943 shows the then hospital layout and the subdivision of the surrounding land and development within Lilyfield (Photo 4). Within the study area and the surrounds, extensive vegetation clearance and landscaping has taken place. There is a diversity in the land use within the study area, including open greens, roads, pathways, market gardens, and structures associated with residential, hospital and agricultural purposes.

Photo 4 1943 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

An aerial image dated to 1955 shows that minimal changes occurred within the study area during this time (Photo 5). Two new building exist within the central portion of the study area. Some larger trees have been removed and new, juvenile trees have been planted in various locations throughout.

Photo 5 1955 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

An aerial photograph dated to 1965 shows that several additional structures have been constructed through the study area (Photo 6). In the central portions, two large new buildings have been added to the green space, in the south-western portion, the market gardens have been replaced with small buildings. Some market gardens still exist in the southernmost portion of the study area, but some of this area is now a car park. Two small structures have been added in the northernmost portion, and three additional structures have been added in the south-east. A structure in the north-west has been demolished and three new buildings exist in its vicinity. Some buildings within the study area have been demolished are replaced with new structures, namely in the southern portion. A range of landscaping activities has impacted large proportions of the study area, with changes in the distribution of large vegetation.

Photo 6 1965 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

An aerial imaged dated to 1971 shows further changes to the study area have occurred within this time (Photo 7). Another new building has been constructed in the central portion as well as in the north-western portion. The swimming pool in the northernmost part of the study area has been filled in and new roads and landscaping have been established, namely in the central portion.

Photo 7 1971 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

By 1986 more buildings and roads have been constructed within the study area (Photo 8). Small buildings, potentially cottages, smaller wards or offices have been constructed in various locations throughout. The roads and green spaces have become more refined, and vegetation has matured throughout.

Photo 8 1986 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

Aerial imagery from 1994 shows that changes have occurred within the study area most notable in the southern portion (Photo 9). Within this area, several buildings have been demolished and replaced with new structures and roads. Vegetation has regenerated in various areas throughout, appearing increasingly dense in places, namely the eastern and central portions.

Photo 9 1994 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

Aerial imagery dated to 2005 shows that limited changes have occurred within the study area during this time (Photo 10). The existing vegetation throughout has matured and grown.

Photo 10 2005 aerial photograph with the study area outlined in turquoise (Source: NSW Spatial Services 2023)

Current aerial imagery shows that limited changes have occurred within the study area during this time, with some construction and a demolished building in the north-western portion (Figure 2).

3 Aboriginal context

3.1 Ethnohistory and contact history

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

Despite a proliferation of Aboriginal heritage sites there is considerable ongoing debate about the nature, territory and range of pre-contact Aboriginal language groups in the greater Sydney region. These debates have arisen largely because, by the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late 19th century, pre-European Aboriginal groups had been broken up and reconfigured by European activity. The following information relating to Aboriginal people is based on such early records.

Prior to the arrival of British colonists in 1788, the area was occupied by the Cadigal and/or Wangal, a clan of the Dharug people. The exact boundaries of the Cadigal and/or Wangal clans' estates (the area over which a local descent group exercises primary spiritual and occupation rights) are unclear. Steele (2002, pp. 19) suggests that the eastern boundary of the Wangal lands belonging to the neighbouring Burramatta clan may have been somewhere in the Homebush Bay area. Turbet (2001, pp. 21) suggests that the lands inhabited by the Wangal extend along the southern foreshores of the Parramatta River from Petersham to Rosehill. The Cadigal clan occupied the area to the immediate east along Port Jackson. The "Eora people" was the name given to the coastal Aboriginal people around Sydney. Central Sydney is therefore referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the languages spoken and currently there are debates as whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language.

At the time of European arrival, the Aboriginal peoples of Sydney functioned within a complex system of relationships, customs, rituals, beliefs and mutual obligations. It is estimated there were at least two dozen clans in the Sydney region, likely containing 25-60 people each, with ancestral relationships through their fathers. Clans were named after their lands, highlighting the importance of connection to country. Different clans were also distinguished by hair styles, body decoration, weapons and tools and also the techniques used to create those items. The coastal Aboriginal people of Sydney held strong relationships with other coastal groups north and south of Sydney, with less involvement with the inland Aboriginal peoples of the greater Sydney area (Irish 2017, pp. 17–19, Karskens 2009, pp. 42, Attenbrow 2010, pp. 28). This area has been termed the Affiliated Coastal Zone by Irish (2017), which spans from around Port Stephens in the north to Shoalhaven in the south, and extending into the Southern Highlands.

The Cadigal and Wangal lived primarily on fish and shellfish, supplementing their diet when necessary with vegetables, marsupials, birds and insects. The negative effects of European settlement in the 1780s and 1790s were quickly felt by local groups. Limited food supplies led to competition between settlers and local Aboriginal groups for what resources existed, and the difficulties caused by this were compounded by a smallpox epidemic in 1789 (Beecroft-Cheltenham History Group 1995, pp. 13–18).

3.2 Regional context

Negerevich (1978) reported on work undertaken to record Aboriginal rock engravings at South Head, Sydney Harbour National Park, approximately 10.4 kilometres north-east of the current study area, for the Department of Housing and Construction on behalf of the Department of Defence. Twelve separate groups of rock engravings have been previously identified at South Head by John Lough. Three sites originally recorded by W.D. Campbell in 1899 have been destroyed by development, with a further site also likely destroyed. Several previously recorded sites could also not be relocated. However, seven sites were relocated and recorded, with most motifs consisting of fish or marine species and human figures, and one instance of an animal (most likely a wallaby or kangaroo). One new site was also identified as part of the fieldwork. Most of the visible engravings are located on exposed rock platforms near cliff edges and are badly eroded due to being situated on soft sandstone and/or in exposed areas.

Attenbrow (1990) undertook an investigation titled "The Port Jackson Archaeological Project" for the Australian Museum (Photo 11). The purpose of this report was to improve upon the existing literature about Aboriginal life as previous work had focused on historical accounts and did not utilise the archaeological record. The report was broken into two stages: stage 1 involved documentary research, survey and site recording, and stage 2 utilised excavation of selected sites. Fieldwork focused largely on existing recorded Aboriginal sites, and supplementary surveys in areas which had the potential to hold further Aboriginal sites. Two research areas which the project aimed to investigate were the roles played by marine and land animals in the diet of Aboriginal people within the Port Jackson area, as well as their use of stone, bone and shell in implements and weapons. The project found that many middens and deposits were still able to be located within the Port Jackson landscape despite the development and expansion of Sydney and its surrounding suburbs. The survey relocated and recorded 112 sites with middens and deposits. The report concludes that there are more unregistered sites that had not been reported. Attenbrow (1990) concluded that the distance from the harbour mouth influenced the range and predominance of particular shellfish species. It was also noted that the location of middens is dependent upon fresh water, fish, and shellfish resources. It appears that Aboriginal people were occupying areas of the foreshore and exploiting shellfish for at least 4500 years, and that over time there was a change in the predominance of particular shellfish species.

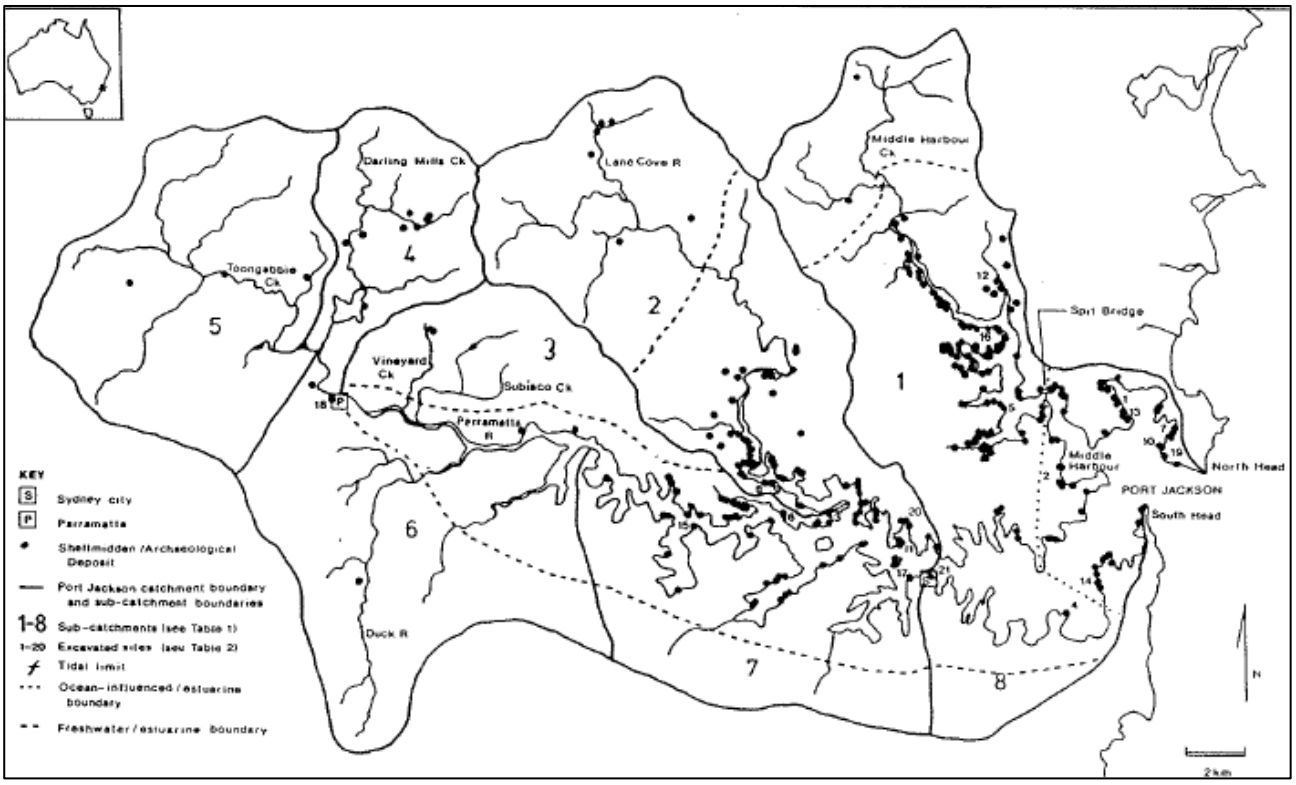


Photo 11 **Port Jackson catchment area, sub catchment and aquatic zones, with registered shell midden and archaeological deposit sites as at 28 February 1990 and known excavated sites (Source: Attenbrow 1990)**

Attenbrow (1990) reported on three weeks of excavations at two rock shelters with shell middens (AHIMS 45-6-560/Mt. Trefle Nelson Park Point 1 Mt. Trefle Midden Mt. Trefle Cave and AHIMS 45-6-1045/Hydrofoil Cave) located in Neilson Park, Vaucluse, approximately 9.8 kilometres east of the study area, as part of Stage 2 of the Port Jackson Archaeological Project. The middens were excavated in spits measuring 5-7 centimetres where stratigraphic units exceeded these thicknesses, and the excavated materials sieved through nested 7 millimetre and 2.5 millimetre sieves. Shell, bone, stone artefacts, charcoal and other cultural materials were extracted and bagged separately on site and analysed in an off-site laboratory. At AHIMS 45-6-560/ Mt. Trefle Nelson Park Point 1 Mt. Trefle Midden Mt. Trefle Cave, an area measuring 2 by 1 metres was established within and outside of the rock shelter and divided into 50 by 50 centimetre units. Two instances of human bone were identified in two units within the shelter and following consultation with the La Perouse LALC, the bones were left in-situ. These areas were backfilled and no further work undertaken in these locations. Excavations continued in the units established outside of the shelter; the deposit was excavated to a maximum depth of 70 centimetres, but this varied due to the presence of sloping bedrock and rock slab. Soils in this location consisted of dark humic-rich soils and were less stratified than the deposit within the shelter. A hearth was recovered and excavated at a depth of 2–5 centimetres. In addition to Aboriginal objects and cultural material, European artefacts were also recovered, with the shelter having been used during the Great Depression in the 1930s. At AHIMS 45-6-1045/Hydrofoil Cave, an area measuring 1 by 1 metres was marked out for excavation in units measuring 50 by 50 centimetres; however, only one unit was excavated to test the integrity of the deposit. This pit reached a depth of 80 centimetres, where it reached rock. A hearth was identified and excavated at a depth of 5-15 centimetres, and the soils consisted of a black to very dark brown sandy sediment. The presence of rusted metal pieces throughout the soil profile suggests that the deposit was significantly disturbed; no further excavations took place at AHIMS 45-6-1045/Hydrofoil Cave.

Conyers (1990) completed an assessment which consisted of background research and a survey carried out to record the 'Aboriginal carvings and areas' in the Lane Cove River State Recreation Area (Conyers 1990, pp.

1). The predictive modelling undertaken for this study identified the coastal margins of the area as the likely location of shell midden deposits, occurring in both open contexts and rock shelters. Areas where the underlying geology consists of shales were considered the locations where campsites, Potential Archaeological Deposit (PAD), quarries and scarred trees would occur, with it being noted that due to extensive vegetation clearance scarred trees are unlikely to be identified. Areas overlying the Hawkesbury Sandstone were the likely locations of rock shelters, art sites, rock engravings, and grinding grooves (Conyers 1990, pp. 30–34). The survey relocated three previously recorded sites, identified seven new sites, and noted five potential habitation sites. The three relocated sites were all rock engravings. Two newly recorded sites were rock engravings, and five were middens. The five potential habitation sites were all rock shelters with PADs. It was recommended that all sites be managed appropriately, and in some cases be subject to further investigation.

Ross and Attenbrow (1990) completed an Aboriginal site survey of Bradley's Head in Mosman, approximately 7.7 kilometres east of the study area, in advance of proposed works to redevelop the memorial to HMAS Sydney in this location. The southern part of the peninsula of Bradley's Point has been extensively disturbed since 1839. These disturbances include construction of several fortifications over time, quarrying, construction of wharf facilities, landscaping, roadworks, and infrastructure associated with the reserve. While no new sites were identified in proposed works, one of several registered AHIMS sites, a shell midden, was relocated at Bradley's Beach (AHIMS 45-6-2062/Bradleys Beach). One part of the area of proposed works, a flat above the car park, was noted for potential to contain sub-surface evidence of Aboriginal occupation, and it was recommended that sub-surface testing must take place in consultation with the Aboriginal community should disturbances be proposed for this area.

3.3 Local context

Attenbrow (1988) undertook a study into the Aboriginal heritage of Hunters Hill which examined environmental, archaeological and documentary evidence in order to build a picture of Aboriginal occupation within the municipality. In addition to the desktop research, existing AHIMS sites were inspected where they could be relocated, noting information not included in the site card records, and recording any new sites encountered during the survey. Archaeological work dating from 1925 was reviewed, with particular attention paid to a study on Port Jackson site location patterns by Hawthorne (1982, cited in Attenbrow 1988), in which a model is proposed whereby there is a horizontal order of site types in relation to their distance from the littoral zone, with engravings the furthest distance, followed by shelters, then middens. In relation to distance to drinking water, engravings were the furthest away, followed by middens, then shelters. The littoral zone is an area of a river, lake or the sea that is close to the shoreline and extends from the high-water mark to parts of the shoreline which are always submerged. Attenbrow (1988) also summarises Hawthorne's findings regarding the locations of 77 engravings and grinding groove sites. Of these, 43% were located on ridgetops, and 48% were high up on hillsides with wide views of the ocean and surrounding area. Regarding distance from the littoral zone, 92% were within 2.5 kilometres of this area, while 96% occurred at a height below 120 metres. Hawthorne (1982, p. 104, cited in Attenbrow 1988) concludes that engravings in particular are located in areas not used for occupation or resource extraction (i.e. ridges and hillsides), middens are as close as possible to food resources, while shelters are close to food resource areas as well as drinkable water.

Attenbrow (1988) provided a summary of the registered Aboriginal sites present within the Hunters Hill municipality specifically at the time of reporting. These include shell middens, archaeological deposits, artwork (drawings, stencils, paintings, engravings and outline figures), grinding grooves and human burials. Regarding engravings, Attenbrow (1988) notes two existing sites on the National Parks and Wildlife Service Register, at Kelly's Bush and Boronia. These are both located on rock platforms with the former being two circles with one featuring a central pecked mark, and the latter a fish, which Attenbrow could not relocate during survey. The fish is noted as a common motif in the Port Jackson area, but the circle is uncommon.

Three grinding groove sites were also discussed, with only one relocated during the survey. At each grinding groove site there are only two grooves, and all are located beside rock pools on rock platforms. Each of the sites were noted for their location on slopes more than 10 metres away from the shoreline, but on a relatively low slope gradient, and also found on both the eastern and western sides of the peninsula (with the study area marking the divide between eastern and western zones). However, the numbers of engravings and grinding grooves within the Hunters Hill area were very low, and Attenbrow (1988) proposed that maintenance or manufacture of ground-edged tools was not an important activity in this location. Equally, the low number of engravings and art make it difficult to determine whether these were part of ceremonial activities taking place in the area. Attenbrow (1988) also suggested that much of the Hunters Hill peninsula was accessed by canoe, considering the presence of most sites adjacent to the shoreline, with only short-term occupation, i.e. stopping for a meal or a maximum of a few days.

Comber (2009) undertook an ADDA including a survey for the construction of the Sydney Metro light rail project, running from Sydney University (Broadway) to Parramatta. The proposed rail line's route ran approximately 7 kilometres south-east of the current study area and concluded that this area was highly disturbed. Following the survey, Comber recommended that no subsurface excavations were needed.

Aboriginal Heritage Office (AHO) (2011) undertook a broad assessment of Aboriginal cultural heritage for the City of Ryde Council. The area included the foreshores of the Parramatta River, approximately 10 kilometres north-west of the current study area. The report contains a detailed discussion of Aboriginal socio-cultural history for the Ryde area, as well as information on landscape resources and current Aboriginal perspectives on cultural heritage. With regards to the Parramatta River foreshore area, AHO determined that middens were the most common site type, followed by rock shelters with middens. As AHO's report is a broad survey of a municipal area, its recommendations focus on high level legislative policy and guideline formulation, rather than recommendations for specific Aboriginal heritage sites.

Biosis (2012) was engaged to undertake an ACHA for 445–473 Wattle Street, Ultimo, a site for proposed student accommodation, approximately 3.6 kilometres south-east of the study area. Background research for the site indicated that the Cadigal and possibly Wangal clans were associated with the Ultimo area at the time of European settlement. The presence of Blackwattle Creek nearby would have provided multiple resources for local Aboriginal people, and shell middens and stone artefact sites are located across the City of Sydney area and in the vicinity of the subject area. The predictive statements developed for the site noted that areas of PAD were likely to be present within the study area, with potential cultural material including stone artefacts, midden deposits, burials, and post-contact sites. A full coverage survey was not possible due to the presence of built items and the ground surface being obscured by concrete and asphalt surfaces. As such a discussion of the proposed development and general landform attributes took place with the developer and registered Aboriginal party representatives. The site was assessed as holding archaeological potential in the natural alluvial soils beneath historical fill layers and was registered as AHIMS 45-6-3064/445-473 Wattle St PAD. Avoidance of the alluvial soils was recommended, as were test excavations prior to any construction impacts taking place.

Biosis (2012) undertook an Aboriginal archaeological assessment, with full consultation with the Aboriginal community under the consultation requirements, for The Quay Project at the corner of Quay Street and Ultimo Road, Haymarket, located approximately 3.8 kilometres south-east of the current study area. An ADDA had been previously undertaken by Biosis in 2011 of the site, which assessed that, while the site location would have been of considerable value to Aboriginal people due to nearby resources and topographical suitability for camping, impacts to the natural soils through European development since the 18th century would have removed evidence of Aboriginal occupation from the soil. However, remnant natural topsoils were encountered during historical archaeological excavations, which prompted further investigation of any potential cultural deposits through a program of test excavations, focusing on areas of potentially intact

topsoils. The test excavations confirmed the findings of the ADDA and found that the remnant soil deposits were very shallow and contained only European artefacts, with no Aboriginal objects identified. It should be noted though that a stone artefact (AHIMS 45-6-2987/Poultry Market 1) was recovered from the fill deposit of a post hole near Test Pit 5. As this artefact was recovered from a disturbed context, the significance of the artefact was considered to be low, and did not alter the assessment of the significance of the site as low.

Dominic Steele Consulting Archaeology (2015) undertook test excavations at AHIMS 45-6-1925/ Bill Mitchell Park 5 as part of mitigation measures for impacts to Aboriginal heritage for the construction of a new section of boardwalk in Glades Bay Park, Gladesville, approximately 4.6 kilometres north-west of the current study area. These test excavations were carried out under an Aboriginal Heritage Impact Permit. Three test pits measuring 50 by 50 centimetres were excavated; no Aboriginal objects or archaeological deposits were identified. The soil profile presented redeveloped alluvial and colluvial soil that were waterlogged and affected by tide movements, overlying sandstone bedrock. Shell material was present on a partly grassed flat sandstone platform approximately 0.5 metres east of the boardwalk, and it was suggested that it was also likely that archaeological deposits may be present in this area due to its location above the high-water mark and higher likelihood of survival. This assessment indicated that AHIMS 45-6-1925/Bill Mitchell Park 5 was restricted to the surface of the rock platform with a low likelihood that archaeological shell midden material would occur in sub-surface deposits in the immediate vicinity.

Coffey (2018) undertook a geotechnical survey approximately 6.5 kilometres north-west of the study area. A total of 17 core samples were taken over then entire study area. The survey identified that the broader study area sat on geological deposits of Ashfield Shale, Hawksbury Sandstone and Quaternary Alluvium, with a layer of Mittagong Formation between the former layers. The underlying soil profiles were largely disturbed fill, overlaying a clay base at approximately 0.5 to 1.4 metres. The results of this study strongly suggest that the chance of subsurface cultural deposits being located within the assessment area was low. Biosis (2018) undertook an ADDA and an ACHA (2019a) for the same area assessed by Coffey as part of the Stage 1 Concord Hospital redevelopment works to support a review of environmental factors. The investigation comprised a foot survey of the Stage 1 area of the project. The area was assessed as being highly modified by previous construction and hospital use. No Aboriginal cultural heritage objects were located, and the area was assessed as having low archaeological potential.

Biosis (2019b) completed an ACHA at St Joseph's College Hunters Hill, approximately 3.7 kilometres north of the study area. The assessment included background research, Aboriginal community consultation, field investigation, and test excavations. The field investigation identified low archaeological potential due to the high levels of previous disturbance, and a lack of landscape features which would indicate Aboriginal people utilised the area for occupational purposes. Archaeological test excavations were undertaken within the north-western and the north-eastern portions of the site within areas of low potential to confirm whether any subsurface archaeological deposits were present. No subsurface archaeological deposits were identified within the study area. The study area was assessed to contain low archaeological potential. No further archaeological investigations were recommended.

Biosis (2022) completed an ACHA and Historical Archaeological impact Assessment (HAIA) as a State Significant Development (SSD) at the Royal Prince Alfred Hospital, Camperdown, approximately 2.77 kilometres south-east of the study area. The assessment included background research, Aboriginal community consultation and a field investigation. The field investigation identified low archaeological potential due to high levels of previous development to contain intact archaeological deposits. Ongoing consultation with the Aboriginal Land Council and registered Aboriginal stakeholders was part of recommendations but no further archaeological investigations was required.

Biosis (2023) was commissioned by the University of Sydney (UoS) on behalf of UoS, Sydney Local Health District (SLHD) and the NSW Government to undertake an ACHA for the proposed Sydney Biomedical

Accelerator, approximately 2.93 kilometres south-east of the study area. The assessment included background research, Aboriginal community consultation and a field investigation. The results of the survey indicated significant development, with past earthworks cause severe modification of the natural landforms in numerous locations across the study area. While sitting on a deep Blacktown soil landscape, the artefact bearing A horizon soils can range in depth from 20-60 centimetres. As such, it is highly likely that the previous works within the study area have removed this soil profile. No further archaeological investigations were recommended due to the high levels of previous development.

3.3.1. Identified Aboriginal archaeological sites

An extensive search of the AHIMS database was conducted on 13 July 2023 (Client service ID: 800086). The search identified 111 Aboriginal archaeological sites within a 2.5 kilometre search area, centred on the proposed study area (Figure 6). Of these registered sites, four are located within the study area and two are listed near the boundary of the study area (Figure 6). The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps from Aboriginal heritage reports where available. These descriptions and maps were relied upon where notable discrepancies occurred.

It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the list. Large areas of NSW have not been subject to systematic, archaeological survey, hence AHIMS listings may reflect previous survey patterns and should not be considered a complete list of Aboriginal sites within a given area. Some recorded sites consist of more than one element, for example artefacts and a modified tree, however for the purposes of this breakdown and the predictive modelling, all individual site types will be studied and compared. Therefore, there are 196 results presented here compared to the 111 sites identified in AHIMS.

Table 3 AHIMS sites within the study area

Site type	Occurrences	Frequency (%)
Shell	81	41.33
Artefact	75	38.27
Art (Pigment or Engraved)	17	8.67
PAD	9	4.59
Burial	4	2.04
Grinding Groove	3	1.53
Aboriginal Resource and Gathering	2	1.02
Water Hole	2	1.02
Modified Tree (Carved or Scarred)	1	0.51
Non-Human Bone and Organic Material	1	0.51
Habitation Structure	1	0.51
Grand Total	**196**	**100.00**

A simple analysis of the Aboriginal cultural heritage sites registered within one kilometre of the study area indicates that the dominant site type is shell, representing 41.33% (n=81), with artefact the next most frequent representing 38.27% (n=75). Art (pigment or engraved) and PAD represented 8.67% (n=17) and 4.59% (n=9) respectively. Burial sites constituted 2.04% (n=4) and grinding groove sites made up 1.53% (n=2) of the total sites. Aboriginal resource and gathering and water hole sites both made up 1.02% (n=2) of the

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3.3.5. Predictive statements

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

This model is based on:

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

Based on this information, a series of predictive statements have been developed, indicating the site types most likely to be encountered during the survey and subsequent sub-surface investigations across the present study area (Table 4). The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the study area.

Table 4 Aboriginal site prediction statements

Site type	Site description	Potential
Flaked stone artefact scatters and isolated artefacts	Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds.	Moderate: Stone artefact sites have been previously recorded in the region on level, well-drained topographies in proximity to reliable sources of fresh water. Due to the distance from permanent freshwater resources, the potential for artefacts to be present within the study area is assessed as moderate.
Shell middens	Deposits of shells accumulated over either singular large resource gathering events or over longer periods of time.	Moderate: Shell midden sites have been recorded within the study area. There is a moderate potential for additional shell middens to be in the study area despite the disturbances from development in the study area.
PADs	Potential sub surface deposits of cultural material.	Low: PADs have been previously recorded in the region across a wide range of landforms. PADs are likely to be present within areas adjacent to water courses or on high points in undisturbed landforms. The study area contains disturbed landforms and erosional soils, reducing the likelihood of finding intact PAD sites.
Modified trees	Trees with cultural modifications	Low: Scarred trees have been recorded within the vicinity of the study area. Due to extensive vegetation clearance only a small number of mature native trees have survived within the vicinity of the study area.

Site type	Site description	Potential
Grinding grooves	Grooves created in stone platforms through ground stone tool manufacture.	Low: Suitable horizontal sandstone rock outcrops could occur along drainage lines, of which there are none in the study area.
Burials	Aboriginal burial sites.	Low: Aboriginal burial sites are generally situated within deep, soft sediments, caves, middens, or hollow trees. Areas of deep sandy deposits will have the potential for Aboriginal burials. The soil profiles associated with the study area are not commonly associated with burials. There are midden sites within the study area however the description of the deposits in the site cards does not indicate that there are deposits deep enough for burials within the middens.
Rock shelters with art and/or deposit	Rock shelter sites include rock overhangs, shelters, or caves, and generally occur on, or next to, moderate to steeply sloping ground characterised by cliff lines and escarpments. These naturally formed features may contain rock art, stone artefacts or midden deposits and may also be associated with grinding grooves.	Low: The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist, which are present only at one small part in the north of the study area. There are shelters with deposits here and these sites have already been recorded on the AHIMS database (see Section 3.3).
Aboriginal Ceremony and Dreaming sites	Such sites are often intangible places and features and are identified through oral histories, ethnohistoric data, or Aboriginal informants.	Low: There are currently no recorded mythological stories for the study area.
Post-contact sites	These are sites relating to the shared history of Aboriginal and non-Aboriginal people of an area and may include places such as missions, massacre sites, post-contact camp sites and buildings associated with post-contact Aboriginal use.	Low: There are no post-contact sites previously recorded in the study area and historical sources do not identify one.
Aboriginal places	Aboriginal places may not contain any 'archaeological' indicators of a site but are nonetheless important to Aboriginal people. They may be places of cultural, spiritual, or historic significance. Often, they are places tied to community history and may include natural features (such as swimming and fishing holes), places where Aboriginal political events commenced or particular buildings.	Low: There are currently no recorded Aboriginal historical associations for the study area.
Quarries	Raw stone material procurement sites.	Low: There is no record of any quarries being within or surrounding the study area.

3.4 Conservation Management Plan

Tanner & Associates were commissioned by NSW Health Department to prepare a CMP in 2002. Since then, along with new historical information, the CP Act came into effect, which lapsed NSW Health Department's

endorsement of the CMP. As such, Tanner Architects were commissioned by Leichardt Municipal Council in 2011 to review the CMP as part of a proposed Master Plan. The CMP was to guide the management of the State significant Callan Park (SHR #00818) during the development of the Master Plan, whilst maintaining the significance and integrity of the site. The primary aims of the CMP were:

- *To establish the cultural significance of Callan Park and its elements;*
- *To formulate appropriate policies for the conservation of the place as a whole, taking into account both the care of significant items and ongoing use and management.* (Tanner Architects 2011, pp. 1)

The CMP provided policies that recommend specific actions relating to the conservation of Callan Park. While several of these pertain to the built fabric and European heritage components of the site, the CMP included policies considering Aboriginal heritage. These policies are presented in Table 5.

Table 5 Conservation Policies from the CMP (Tanner Architects 2011)

CMP Section	Policy	Conservation policy
6.3.9 Archaeology	20	Proposed works in the vicinity of the identified Aboriginal sites or along the foreshores in general should be carried out only after consultation with NPWS and the local Aboriginal Land Council.
	21	Should previously unidentified Aboriginal objects (or potential objects) be discovered during excavation, ground disturbance or vegetation removal then all works should cease immediately and the Heritage Division of the NSW Department of the Environment, Climate Change and Water (DECCW) informed. Depending on the outcomes of discussions with DECCW, the Metropolitan Local Aboriginal Land Council may also need to be informed.
6.3.10 The interpretation of the site	27	An understanding of the Aboriginal occupation of the site should be incorporated into site interpretation consistent with the interpretation policy recommendations contained in this CMP.
6.3.15 Hazardous Materials	42	Excavation or ground disturbance for remediation should be undertaken in a manner that is consistent with the recommendations for Aboriginal heritage contained in Section 6.3.9 of this CMP.
6.4.5 Specific Landscape Policies for Zones Zone 1 - The Waterfront and Callan Point Precinct	75	Use the 199B 'Draft Plan of Management for Callan Point' to guide all landscape conservation actions on Callan Point. Adopt the 'Management Action Plan' outline in 'Callan Point Aboriginal Heritage', M. Dallas 2000 for treatment of Aboriginal sites.

3.5 Aboriginal Heritage Management Plan

As part of the Callan Point Coastcare Project, Dallas (2000) prepared an AHMP for Callan Park. The purposes of the AHMP were to:

- *Record the sites noting observable changes in the condition of the sites.*
- *Supply recorded information as additional to the existing NPWS Site Forms, including a photographic record.*
- *Prepare best scale mapping of the Point showing site locations and the current extent of observable scatters of midden material and identify potential sub-surface archaeological deposit Which would be labelled "archaeologically sensitive". Each class of data to be accompanied by a management strategy appropriate to it.*
- *Provide a review of the current management recommendations concerning these areas and an Action Plan for recommended on-site protection works.*

- *Produce a brief report on the above tasks including site descriptions, mapping and photographic record, the management review and a preferred management strategy [if different].*

The AHMP considered the four existing midden sites within the study area: AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555; AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1; AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3; and AHIMS 45-6-1972/Rozelle Hospital 4. It also addressed AHIMS 45-6-1481/Rozelle Hospital 3, outlining how it is not an Aboriginal heritage site.

The AHMP comprised of the following aspects, which provided further insight into the site remediation works:

- A management plan with mapping illustrating the location of existing sites.
- A series of visits which detailed observable changes in the condition of the site over time.
- Identification of impacts and threats to the sites.

The conservation requirements were developed in consultation with Metropolitan LALC. The AHMP does not consider the management or protection of any sites that were discovered in the past 20 years or provide any measures for potential, unrecorded Aboriginal sites.

Photo Redacted.

Photo 12 Aboriginal heritage sites addressed in the AHMP (Source: Dallas 2000)

4 Archaeological survey

An archaeological survey of the study area was undertaken on 17 July 2023 by Crystal Garabedian (Biosis, Heritage Consultant), Otto Reichelt (Biosis, Graduate Heritage Consultant) and Rowena Welsh (MLALC, Cultural Sites Officer). The survey sampling strategy, methodology and a discussion of results are provided below.

4.1 Archaeological survey aims

The principle aims of the survey were to:

- Undertake a systematic survey of the study area targeting areas with the potential for Aboriginal heritage.
- Identify and record Aboriginal archaeological sites visible on the ground surface.
- Identify and record areas of Aboriginal archaeological and cultural sensitivity.
- Locate and assess mature, native vegetation for evidence of cultural modification.
- Attempt to relocate AHIMS sites within the study area: AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555; AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1; AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3; and AHIMS 45-6-1972/Rozelle Hospital 4.
- Attempt to relocate AHIMS sites adjacent to the study area: AHIMS 45-6-3693/Callan Park Scared Tree and AHIMS 45-6-3695/Callan Park Grinding Groove (possible).

4.2 Survey methods

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

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

Where possible, the identification of natural soil deposits within the study area was undertaken. Photographs and recording techniques were incorporated into the survey including representative photographs of survey units, landform, vegetation coverage, GSV and the recording of soil information for each survey unit where possible. Any potential Aboriginal objects observed during the survey were documented and photographed.

The location of Aboriginal cultural heritage and points marking the boundary of the landform elements were recorded using a hand-held Global Positioning System and the Map Grid of Australia (94) coordinate system.

4.3 Constraints to the survey

With any archaeological survey there are several factors that influence the effectiveness (the likelihood of finding sites) of the survey. The factors that contributed most to the effectiveness of the survey within the study area were reduced visibility from extensive grass coverage and ground disturbances throughout the study area. Ground disturbances which reduced the effectiveness of the survey included the hospital development, historical structures, and park facilities within the study area, the artificial dam in the south-east, and stockpiling and shed structures in the north-east. The western portion of the study area was inaccessible due to the active construction in this area (Photo 13). Areas in the central portion were inaccessible due to them being closed off for the removal of asbestos in this area (Photo 14).

Photo 13 **Area inaccessible due to construction in the western portion of the study area, facing south-west**

Photo 14 **Area inaccessible due to asbestos hazard in the central portion of the study area, facing south-east**

4.4 Visibility

In most archaeological reports and guidelines visibility refers to GSV and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (DECCW 2010b).

Visibility throughout the study area varied and was generally (0–30%). GSV was obscured by extensive grass coverage, leaf litter and ground disturbances; including the hospital development, historical structures, roads and driveways, landscaped areas (Photo 15 to Photo 18). Visibility increased in areas within playing fields, under trees, near fence lines, and within walking tracks (Photo 19 to Photo 21).

Photo 15 **Grass and leaf litter causing low GSV in the eastern portion of the study area, facing north-west**

Photo 16 **Dense grassy vegetation causing low GSV in the north-eastern portion of the study area, facing north-east**

Photo 17 **Park amenities causing low GSV in the northern portion of the study area, facing south-west**

Photo 18 **Low GSV in the central portion of the study area, facing north-west**

Photo 19 **Increased GSV within playing fields in the western portion of the study area, facing north-west**

Photo 20 **Increased GSV under trees in the southern portion of the study area, facing north-east**

Photo 21 **Increased GSV within near fence lines and underneath trees in the southern portion of the study area, facing north-east**

4.5 Exposure

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

Overall, the study area displayed limited areas of exposure, ranging between 0–20%. The western and southern portions of the study area had the highest levels of exposure, averaging 10%, and could be seen predominantly in areas underneath trees (Photo 22 and Photo 24). Exposure was limited by extensive grass coverage and disturbances including the hospital and historical developments, roads and driveways.

Photo 22 **Area of exposure in the southern portion of the study area, facing south-west**

Photo 23 **Area of exposure in the western portion of the study area, facing south-west**

Photo 24 **Exposure in the northern portion of the study area, facing south-west**

4.6 Disturbances

Disturbance in the study area is associated with natural and human agents. Natural agents generally affect small areas and include the burrowing and scratching in soil by animals, such as wombats, foxes, rabbits and wallabies, and sometimes exposure from slumping or scouring. Disturbances associated with human action a generally cover large sections of the land surface. The agents associated with human disturbance often include: residential development such as landscaping and construction of residential buildings; construction of dams with raised walls; farming practices, such as initial vegetation clearance for creation of paddocks, fencing, stock grazing and stock piling; and agricultural practices such as market gardening.

Disturbance levels within the study area were assessed during the archaeological survey. Levels of disturbance were categorised through an inspection of the ground surface, landforms, and aerial imagery. Disturbance levels within the study area have been categorised according to the following criteria:

- High disturbance—the landform has been heavily disturbed and all natural soil horizons have been displaced or removed; these areas are unlikely to contain Aboriginal cultural material.
- Moderate disturbance—the landform has undergone disturbances to a certain degree, but the extent and nature of these disturbances cannot be fully quantified; Aboriginal cultural material may be present within these locations but is unlikely to be *in situ*.
- Low disturbance—the landform has not been significantly disturbed and is highly likely to contain intact soil horizons; Aboriginal cultural material if present is likely to be *in situ*.

The study area has experienced varying levels of disturbance throughout and over time. The entire study area has been subjected to extensive native vegetation clearance, with limited native, mature vegetation within it. Disturbance due to market gardening, historical residences, landscaping, bulk excavation, the hospital development and associated infrastructure was evident in historical aerial imagery and during the field investigation. The historical imagery showed that the ground surface had been extensively disturbed with multiple stages of construction occurring from at least 1943 (Photo 4 to Photo 10).

Throughout the study area, high levels of disturbance was evident in the buildings, fencing, landscaping, park facilities, roads, driveways, and subsurface services (Photo 17, Photo 25 to Photo 29). Throughout the study area, several areas of the ground surface had been altered as evidenced through grading and unnatural flattening of raised areas (Photo 30). Constructing these items and altering the natural contours of the ground surface would have involved cutting, terracing and filling activities and resulted in a high level of ground disturbance. This would therefore have impacted both surface and subsurface deposits. Limited areas within the study area were observed to have not been subject to moderate or high levels of disturbance. These areas are discussed in Section 4.7 below.

Soils disturbed from vegetation clearing and market gardening experience higher levels of displacement and re-deposition but with shallower impacts. The two soil landscapes within the study area also experience higher levels of erosion, especially when cleared of vegetation. The hospital development, park amenities, other structures and associated infrastructure involved the removal or modification of soils for installation of building foundations, fence lines, roads, gardens and landscaped areas and utilities including sewer, water, and electricity. Disturbances of this nature are characterised as high. The construction of the artificially raised and flattened areas would have likely involved bulk excavation. This would have displaced the soils in these areas and resulting in high disturbance levels. The disturbances observed throughout the study area would likely result in the limited preservation of *in situ* archaeological deposits in subsurface layers.

Photo 25 **Structures in the eastern portion of the study area, facing north-west**

Photo 26 **Structures in the northern portion of the study area, facing south-east**

Photo 27 **Roads, hospital buildings and landscaped area in the central portion of the study area, facing north-west**

Photo 28 **Roads, landscaped areas, and park amenities in the northern portion of the study area, facing north-west**

Photo 29 **Roads, buildings, landscaped areas, and park amenities in the eastern portion of the study area, facing north-west**

Photo 30 **Terracing in the western portion of the study area, facing north-west**

4.7 Investigation results and discussion

The archaeological investigation consisted of one meandering transect walked across the entire study area. The transect locations are provided in Figure 7 and the results of the field investigation have been summarised below and presented in Figure 8. During the archaeological survey, no previously unrecorded Aboriginal sites or objects were identified.

Background research indicated that the study area is located within the Hawkesbury Sandstone geological unit, which is commonly associated with grinding groove sites, rockshelters and rock art sites. Topographically, the study area slopes towards Iron Cove, a second-order perennial water course. The study area is also underlain by Hawkesbury and Gymea soil landscapes, both of which typically feature higher levels of soil erosion and shallow soils deposits. Within the Hawkesbury soil landscape, rocky outcrop formations are common which could indicate the presence of grinding groove sites and rock shelters with art or deposits. The Gymea soil landscape is characterised as highly erosional, and this high erosion potential suggests that the presence of Aboriginal sites and objects is unlikely.

The diverse natural environment of the study area and vicinity would have provided vast and plentiful floral and faunal resources. The temperate climate would have made the area suitable for year-round occupation. This is also evident in the nearby rockshelters and associated midden sites in the northern portion of the study area. The recorded locations of AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3 and AHIMS 45-6-1972/Rozelle Hospital 4 were visited during the archaeological survey. The condition of all four sites were noted to be consistent with the site cards (Photo 31 to Photo 34).

AHIMS 45-6-3693/Callan Park Scared Tree was also relocated during the archaeological survey, due to its proximity to the study area (Photo 35). The features of the scar which would indicate it as being culturally modified were difficult to discern. Rowena Welsh (MLALC) agreed that while it was likely to be a culturally modified tree, an arborist's assessment would be needed to determine its status. AHIMS 45-6-3695/Callan Park Grinding Groove (possible) was unable to be relocated during the archaeological survey.

Photo 31 **AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, showing collapsed roof, facing south-east**

Photo Redacted.

Photo 32 **AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3, showing deposit, facing south**

Photo Redacted.

Photo 33 **AHIMS 45-6-1972/Rozelle Hospital 4, showing deposit, photo facing east**

Photo Redacted.

Photo 34 **AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, showing midden material, facing south**

Photo Redacted.

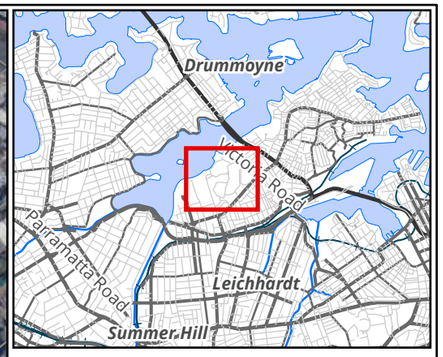
Photo 35 **AHIMS 45-6-3693/Callan Park Scared Tree, facing south-west**

Photo Redacted.

Analysis of historical aerial photographs alongside data collected during the archaeological survey indicate that the study area has been disturbed from early agricultural usage and development related to the hospital and parklands. This usage and development would have resulted in disturbances from vegetation clearance, landscaping, construction of buildings, subsurface utilities, infrastructure, roads, footpaths, park amenities. These activities would have included land clearing, excavations, and large-scale soil displacement. This is likely to have resulted in the poor preservation of archaeological material and would have destroyed any *in situ* archaeological deposits within these areas and thus contains low potential (Figure 8).

Despite the evident disturbance within the study area, several Aboriginal sites are present within it. There is the potential for further Aboriginal objects to exist in these Aboriginal site locations, albeit potentially not *in situ*. As such, it is recommended a buffer of 25 metres to be placed around AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3, and AHIMS 45-6-1972/Rozelle Hospital 4. A buffer of 5 metres has been placed around AHIMS 45-6-3693/Callan Park Scared Tree, but excludes areas with higher levels of disturbance i.e., the road. This assessment considers there to be moderate Aboriginal archaeological potential within these buffered areas (Figure 8). Within these areas, further investigation may be required where ground disturbing works cannot be avoided. Ground disturbing works include tree planting, stump grinding, excavation, stockpiling and grading of the ground surface. It does not include works that are considered to have a minimal disturbance such as grass cutting, leaf litter removal and tree trimming or pruning.

The proposed development involves arboriculture works, including the removal of dead trees, stump grinding, canopy lifting, selective pruning, management of weed species and hazardous trees and tree planting. As such, during the archaeological survey, one of the aims was to locate and assess mature, native vegetation for evidence of cultural modification. Due to timing constraints, not every large tree could be adequately investigated. As a result, Figure 8 identifies areas that requires further investigation to identify the age and species of the vegetation there. These areas have been selected based on the archaeological survey paired with the aerial photographs to identify areas that historical were cleared of vegetation.



Legend

- Study area
- Survey track

Figure 7 Survey effort

0 20 40 60 80 100

Metres

Scale: 1:3,500@ A3

Coordinate System:
GDA 1994 MGA Zone 56

N

biosis

Matter: 39466, Date: 26 July 2023,
Drawn by: AM, Checked by: CG, Last edited by: amackegard
Location: P:\39400s\39466\Mapping\
39466_CallanPark,
Layout: 39466_ADDA_F7_SurveyEffort

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5 Conclusions and recommendations

5.1 Conclusions

This assessment has determined that there is low and moderate archaeological potential for undiscovered Aboriginal sites to be located within the study area. The areas of low archaeological potential were determined due to the significant disturbances which will have disturbed any potential Aboriginal archaeological deposits. Areas of moderate archaeological potential are associated with previously recorded Aboriginal heritage sites:

- AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555.
- AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1.
- AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3.
- AHIMS 45-6-1972/Rozelle Hospital 4.
- AHIMS 45-6-3693/Callan Park Scared Tree.

The results of this assessment are also demonstrated in the due diligence flow chart provided by the Code (Figure 9).

5.2 Recommendations

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

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
  - The Burra Charter.
  - The Code.

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

Recommendation 1: No further archaeological assessment is required in areas of low archaeological potential

No further archaeological work is required in areas of low archaeological potential (Figure 8). Works may proceed within caution in these areas in accordance with Recommendations 2 to 7 below.

Recommendation 2: Further assessment required for specific areas with mature and native vegetation

The proposed development involves arboriculture works, including the removal of dead trees, stump grinding, canopy lifting, selective pruning, management of weed species and hazardous trees and tree planting. Some of these works may occur in areas with mature and native vegetation. As such mature, native vegetation within the study area requires further assessment by an arborist to identify the age, species, and any potential cultural modification. Areas featuring mature vegetation for further assessment by an arborist are identified in Figure 8. These areas have been selected based on the archaeological survey paired with the aerial photographs to identify areas that historical were cleared of vegetation.

Recommendation 3: Avoidance of AHIMS sites within the study area

AHIMS 45-6-0283/Rozelle Hospital 1; Rozelle Ho5555, AHIMS 45-6-0618/Rozelle Hospital 2, Rozelle Hospital 1, AHIMS 45-6-1971/Rozelle Hospital 5, Rozelle Hospital 3, and AHIMS 45-6-1972/Rozelle Hospital 4 are present within the study area. Due to the location, nature, and potential of the sites to contain further Aboriginal archaeological material, a buffer of 25 metres is proposed around them. Further assessment in the form of an ACHA is recommended if impacts to these sites cannot be avoided during the proposed works. Impacts include ground disturbances as a result of the proposed works such as, tree planting, stump grinding, excavation, stockpiling and grading of the ground surface.

If, as part of the ACHA, test excavations are required it will be necessary to apply for an AHIP. Under Requirement 14 of the Code, any test excavations in or within 50 metres of a known or suspected shell midden, or within 50 metres of an area where burial sites are known or likely to exist, require an AHIP (DECCW 2010b, pp. 24–5). It is recommended a test excavation methodology be developed in consultation with Heritage NSW and RAPs being consulted as part of the ACHA. AHIPs should be prepared by a qualified heritage consultant and lodged with Heritage NSW.

Recommendation 4: Avoidance of AHIMS sites adjacent to the study area

AHIMS 45-6-3693/Callan Park Scared Tree is located adjacent to the study area. A proposed buffer of 5 metres has been placed around the site. This buffer does not apply to the area around the site which has been significantly disturbed by the road. If ground disturbing works cannot be avoided in the proposed buffered area, further assessment in the form of an ACHA is recommended. This does not include disturbed areas within the proposed buffer, including the road. Ground disturbing works include tree planting, stump grinding, excavation, stockpiling and grading of the ground surface. It does not include works that are considered to have a minimal disturbance such as grass cutting, leaf litter removal and tree trimming or pruning.

Recommendation 5: Preparation of an updated Aboriginal Heritage Management Plan

The CMP (Tanner Architects 2011) for Callan Park makes some references to the management of Aboriginal cultural heritage. However, these considerations are surface level and the CMP recommends consideration of the AHMP prepared by Dallas (2000). This AHMP was prepared in 2000 and does not address recent sites identified within Callan Park. The AHMP is also limited in its depth and consideration beyond Aboriginal sites containing midden material. It is recommended that an updated AHMP be prepared in consultation with the Aboriginal community and Heritage NSW. The updated AHMP should be a comprehensive document that provides strategies for the management of known and potential Aboriginal cultural heritage sites within the study area. The updated AHMP is not required for the proposed works considered in this report to proceed within the study area.

Recommendation 6: Discovery of Unanticipated Aboriginal Objects

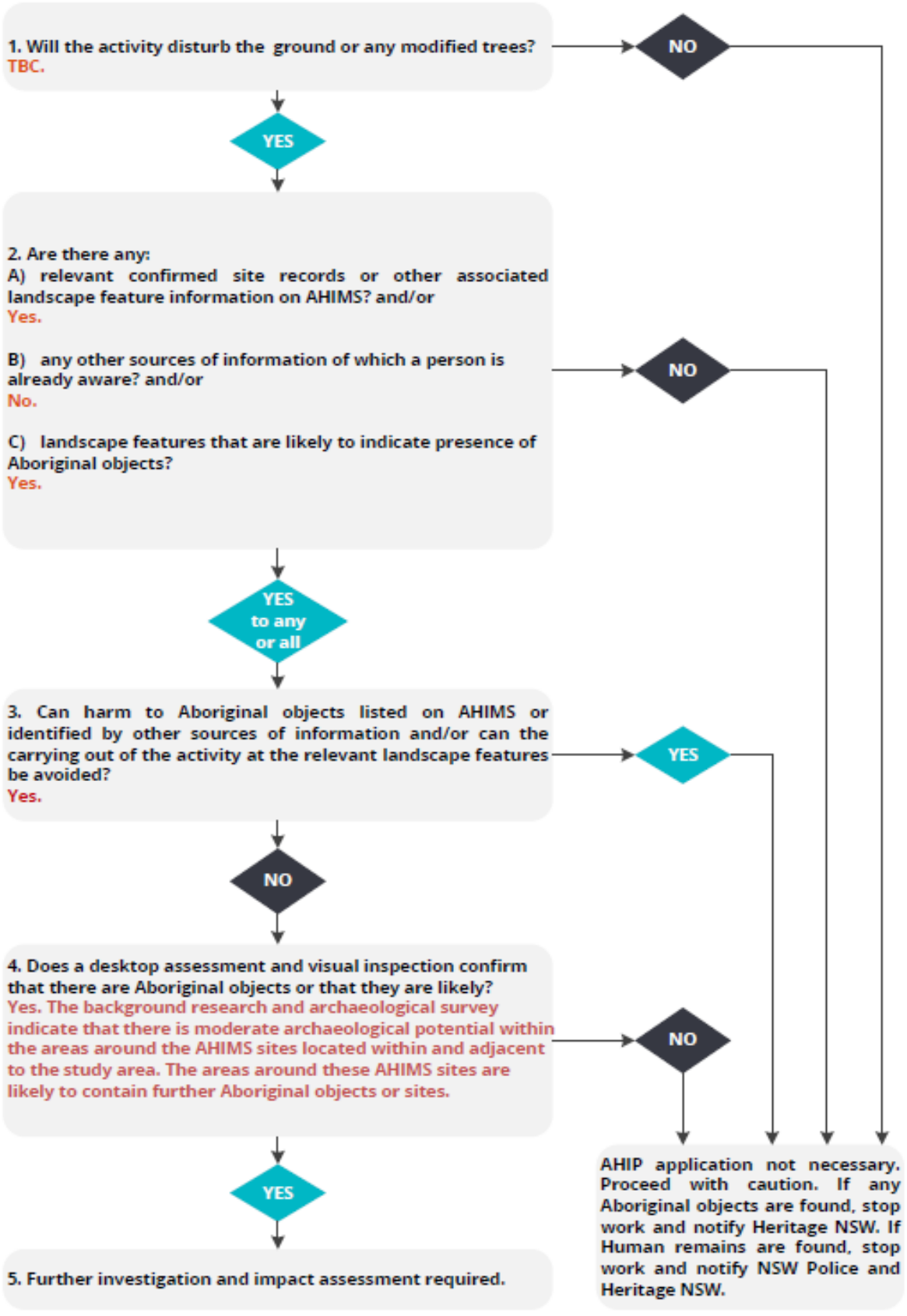
All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the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

Recommendation 7: Discovery of Aboriginal Ancestral Remains

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

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

Figure 9 Due diligence flow chart



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Appendices

Appendix 1 AHIMS search results

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