

Waterloo Estate South

Archaeological Technical Report

Report to Stockland

March 2026



 artefact

Artefact Heritage and Environment

ABN 73 144 973 526

Suite 56, Jones Bay Wharf

26-32 Pirrama Road

Pymont NSW 2009

Australia

+61 2 9518 8411

office@artefact.net.au

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
1	26.09.2025	Josh Symons	Josh Symons	1.10.2025	Draft v1
2	7.10.2025	Jonny Love	Samantha Higgs	9.10.2025	Draft v1
3	15.10.2025	Stockland	Stockland	5.12.2025	Draft v2
4	23.12.2025	RAPs	RAPs	27.1.2026	Draft v2
5	23.12.2025	Homes NSW	Homes NSW	19.1.2026	Draft v2
6a	30.3.2026	Jonny Love	Jonny Love	30.3.2026	Final

Project name:	ATR-Waterloo Estate South
Author:	Lily Hackett, Jonny Love
Project manager:	Jonny Love
Project number:	250273
Name of organisation:	Artefact Heritage and Environment
Document version:	Final

© Artefact Heritage and Environment

This document is and shall remain the property of Artefact Heritage and Environment. This document may only be used by DPHI and the Principal for the purposes for which it was commissioned and in accordance with the Terms of the Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Disclaimer: Artefact Heritage and Environment has completed this document in accordance with the relevant federal, state and local legislation and current industry best practice. The company accepts no liability for any damages or loss incurred as a result of reliance placed upon the document content or for any purpose other than that for which it was intended.

EXECUTIVE SUMMARY

Project overview

Artefact Heritage and Environment have been engaged by Stockland to prepare an Archaeological Technical Report for the concept proposal at Waterloo South, NSW (the study area). The study area is within the boundaries Metropolitan Local Aboriginal Land Council and the land of the Gadigal. The concept proposal would seek consent for a proposed mixed-use development which would include social, affordable, and market housing, community, educational, health services and commercial spaces. The concept proposal has been declared State Significant Development (State Significant Development–93222706) under the *Environmental Planning and Assessment Act 1979*.

This Archaeological Technical Report details an assessment of the study area to identify any Aboriginal archaeological resources which may be impacted by the proposal. This report includes the following:

- A summary of the regional and local archaeological character of the study area and a predictive model based on background research
- Discussion of the results of archaeological survey and background research, and an evaluation of the predictive model based on this evidence
- Assessment of likely impacts to Aboriginal objects or Potential Archaeological Deposits (PAD) based on the proposed designs
- Assessment of likely impacts and the provision of recommendations for practical measures that may be required to protect and conserve identified Aboriginal objects and places within the study area.

Background research for the project was undertaken to understand the archaeological character and potential of the study area. This information was used to create predictive statements used to inform the methodology of the archaeological survey. An archaeological survey was conducted on 24 September 2025 where one area of archaeological potential (Waterloo Estate South PAD 01 – AHIMS ID: 45-6-4171) was identified. The results and subsequent recommendations are summarised below.

Approval pathway

The concept proposal has been declared State Significant Development (State Significant Development–93222706) under the *Environmental Planning and Assessment Act 1979*. The Secretary's Environmental Assessment Requirements issued on 8 October 2025 outline that Aboriginal Cultural Heritage assessment would be required to inform the Environmental Impact Statement for the concept proposal. This report meets, in part, the Aboriginal Cultural Heritage requirements of Item 18 of the project Secretary's Environmental Assessment Requirements:

SEAR	Documentation	Response
18. Aboriginal Cultural Heritage		
<ul style="list-style-type: none"> • Where there is known, or reasonably likely, to be Aboriginal cultural heritage on or near the site demonstrate that impacts have been adequately investigated and assessed by: <ul style="list-style-type: none"> ▪ identifying that an appropriate prior planning process has already considered these impacts, e.g. a rezoning or development application, or ▪ providing an initial assessment of the potential impacts. • Provide an Aboriginal Cultural Heritage Assessment Report (ACHAR) which: <ul style="list-style-type: none"> ▪ identifies, describes and assesses any impacts to Aboriginal cultural heritage sites or values associated with the site ▪ is prepared in accordance with relevant guidelines. 	<ul style="list-style-type: none"> • Aboriginal Cultural Heritage Assessment Report 	<p>This Archaeological Technical Report was prepared to support the ACHAR in requirement of Item 18 of the SEARs.</p>

In order to satisfy Item 18 of the project Secretary's Environmental Assessment Requirements, this report has been prepared in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010)* (the Code of Practice) and will be appended to the Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared for the project.

This Archaeological Technical Report is submitted to the Department of Planning, Housing and Infrastructure on behalf of Stockland and NSW Land and Housing Corporation (the Applicant) in support of the concept State Significant Development Application for the redevelopment of the study area.

Summary of findings

The following has been identified during the background research and archaeological survey:

- A total of 18 Aboriginal Heritage Information Management System (AHIMS) registered sites are located within the extensive search area
- No AHIMS sites are located within the study area
- Two AHIMS sites are located within 200 m of the study area:
 - AHIMS ID 45-6-4138 (shell midden, since identified as not a site)
 - AHIMS ID 45-6-2597, located less than 20 m from the western boundary of the study area (since destroyed through excavation and subsequent works and is not associated with Waterloo Estate South)
- The study area is located within the Tuggerah Soil Landscape
- While the study area has been subject to significant historical ground disturbance through residential developments, Aboriginal objects may be present within deep deposits of Botany Sands as the depth of these disturbances is unknown

- An area of Potential Archaeological Deposit (PAD) was identified within the study area. This PAD was named Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171). This area was identified as a PAD based on its location within the Botany Sands.

Recommendations

The following recommendations have been informed by the above summary:

- Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171) would be harmed by the proposed works. If avoidance of the PAD is not possible during the proposal, archaeological test excavation would be required within the identified area of PAD to verify the presence of Aboriginal objects and gather enough information to assess significance and develop suitable mitigation measures. Archaeological test excavation is not a mitigation measure and data obtained from test excavation would be used to inform an impact assessment and develop mitigation measures for harm to potential subsurface Aboriginal objects
- Due to the existing buildings and built surfaces (concrete paths etc), the presence of tenants, and the social and Aboriginal cultural sensitivity of the study area, a test excavation program that adequately samples the PAD and retains “enough information” as defined by Heritage NSW (DECCW 2010: 28) prior to the submission of the concept proposal EIS may not be feasible. For this reason, a post-demolition excavation program that informs the detailed design has been recommended and has been supported by Heritage NSW and the Department of Planning, Housing and Infrastructure. This recommendation concerns the southern portion of AHIMS ID: 45-6-4171, the location of the proposed Stage 1 (Blocks 8 and 9) development for Waterloo South. The test excavation program would therefore be undertaken post-demolition and the results of the program would inform the detailed design for Stage 1 development and be incorporated into the Environmental Impact Statement for the detailed design. The excavation program would also inform additional excavations of AHIMS ID: 45-6-4171 as part of future stages of the project. For timings of the recommended test excavation program, please see Section 11.3
- A Test Excavation Methodology must be prepared by a suitably qualified archaeologist. This document must outline a methodology for test excavations within the PAD
- The results of the archaeological excavations, as recommended by this Archaeological Technical Report, would be documented in an Archaeological Excavation Report following the completion of the excavation program
- An ACHAR would be prepared in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (2011) (the Guide). The ACHAR would be prepared in consultation with the Aboriginal community in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for proponents* (2010) (the Consultation Requirements). To facilitate meaningful consultation and accessibility, the results of the archaeological assessment would be summarised within the ACHAR in concise, plain English

- Any changes made to the project should be assessed by an archaeologist in consultation with the RAPs. Any changes that may impact on Aboriginal sites not assessed as part of the project may warrant further investigation and result in changes to the recommended management and mitigation measures
- A copy of this report should be sent to Metropolitan Local Aboriginal Land Council for their records.

CONTENTS

1.0	Introduction.....	1
1.1	Project background.....	1
1.2	Study area	2
1.3	Aims and objectives.....	7
1.4	Limitations and constraints	7
1.5	Authors and contributors	8
2.0	Project framework	9
2.1	Commonwealth legislation.....	9
2.1.1	Environment Protection and Biodiversity Conservation Act 1999	9
2.1.2	Aboriginal and Torres Strait Islander Heritage Protection Act 1984.....	9
2.1.3	Native Title Act 1993	9
2.2	State legislation	10
2.2.1	National Parks and Wildlife Act 1974	10
2.2.2	Heritage Act 1977	11
2.2.3	NSW Native Title Act 1994	11
2.2.4	Aboriginal Lands Right Act 1983	11
2.2.5	Environmental Planning and Assessment Act 1979.....	11
2.3	Summary	12
3.0	Archaeological context	14
3.1	AHIMS search.....	14
3.1.1	AHIMS ID 45-6-4138	14
3.1.2	AHIMS ID 45-6-2597	15
3.2	Public AHIP register search.....	16
3.3	Review of existing archaeological literature	19
3.4	Historic records of Aboriginal material cultural	23
3.4.1	Aboriginal histories	23
3.4.2	Conclusion and summary	31
4.0	Landscape context	32
4.1	Soils and Geology	32
4.2	Hydrology and landforms.....	33
4.3	Historic land disturbance	36
5.0	Summary and predictions	43
5.1	Regional and local archaeological character.....	43
5.2	Predictive model	43
6.0	Methodology	45
6.1	Aims.....	45

6.2	Constraints and limitations	45
6.3	Survey personnel.....	45
6.4	Sample strategy.....	45
6.5	Survey procedure	45
6.6	Site recording procedure	45
7.0	Results	48
7.1	Description of survey units	48
7.1.1	Survey Unit 1	48
7.1.2	Survey Unit 2	48
7.1.3	Survey Unit 3	51
7.1.4	Survey Unit 4	51
7.1.5	Survey Unit 5	51
7.2	Summary	51
7.3	Analysis of survey coverage and effectiveness.....	54
7.4	Aboriginal sites	55
7.4.1	Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)	55
8.0	Discussion and analysis	59
9.0	Significance assessment	60
9.1	Significance assessment criteria	60
9.2	Statement of scientific value.....	60
9.2.1	Waterloo Estate South PAD 01	60
10.0	Impact assessment.....	61
10.1	Description of likely impacts	61
10.1.1	Project vision and intended outcomes.....	61
10.1.2	Project Concept SSDA	61
10.2	Potential impacts to Aboriginal heritage	62
11.0	Management and mitigation measures	66
11.1	Guiding principles	66
11.2	Site avoidance	66
11.3	Archaeological excavations	66
11.4	Aboriginal cultural heritage assessment report	67
11.5	Changes to the project area	68
12.0	Conclusion	69
12.1	Approval pathway	69
12.2	Summary	69
12.3	Recommendations.....	70
13.0	References	72
Appendix A – AHIMS records		A

14.0 Appendix B – AHIMS site card..... D
Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)D

FIGURES

Figure 1: Location of the study area	5
Figure 2: Aerial view of the Waterloo Estate and the Waterloo Estate South precinct area	6
Figure 3: Waterloo Estate South Project area	6
Figure 4: Heritage items within, and within 250 m of the study area	13
Figure 5: Likely location of AHIMS ID 45-6-2597	15
Figure 6: AHIMS extensive search results	17
Figure 7: AHIMS detail map	18
Figure 8: 'Native climbing a gum tree', Georgiana Lowe - album of drawings of New South Wales views, ca. 1842-1850, Mitchell Library, State Library of New South Wales, SAFE/PXD 390	26
Figure 9: Fishing hooks crafted by Aboriginal communities living around Sydney Harbour, John White, 1790	26
Figure 10: Quaternary aeolian dune overlapping with the study area (red). (Source: Gale and Wales 2022)	34
Figure 11: Topography of the study area	35
Figure 12: 1964 demolition works along John Street Housing Commission in the distance (Source: City of Sydney Archives)	37
Figure 13: Demolition works at Waterloo 1955 (Source: City of Sydney Archives)	37
Figure 14: 1850s sketch. (Source: Historical Land Records Viewer)	38
Figure 15: 1884–1894 City of Sydney detailed sheet (Source: City of Sydney Archives)	39
Figure 16: 1930 Historical aerial photography (Source: Historical Imagery Viewer)	40
Figure 17: 1943 Historical aerial photography (Source: Historical Imagery Viewer)	41
Figure 18: 1971 Historical aerial photography (Source: Historical Imagery Viewer)	42
Figure 19: Survey units and tracks	47
Figure 20: Flat landform with social housing. View southeast	49
Figure 21: Flat landform along Cope Street. View south	49
Figure 22: Silty sandy exposed soil	49
Figure 23: Sandy soil exposure along Waterloo green. View north	49
Figure 24: Subsurface services	49
Figure 25: Almost whole Sydney Cockle (<i>Anadara trapezia</i>)	49
Figure 26: Shell fragments within sandy soil deposit	50
Figure 27: Drainage infrastructure within shell deposit	50
Figure 28: View of AHIMS ID 45-6-4138 from the study area. View west	50
Figure 29: Potential basement carpark	52
Figure 30: Extant Victorian terrace houses	52
Figure 31: Waterloo Estate South PAD 01. View east	52
Figure 32: Waterloo Estate South PAD 01. View north west	52

Figure 33: Sandy soil exposure within Waterloo Estate South PAD 01	52
Figure 34: Slope along McEvoy Street. View north.....	52
Figure 35: Cut into natural slope. View west.....	53
Figure 36: Basement carpark along Wellington Street.....	53
Figure 37: Sand deposit along surrounding tree trunk	53
Figure 38: Terracing within the slope. View south	53
Figure 39: Mechanically cut sandstone	53
Figure 40: Landscaped area with boulders. View west.....	53
Figure 41: Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171). View northwest	57
Figure 42: Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171). View northeast.....	57
Figure 43: Sandy soil exposure	57
Figure 44: Shell fragments	57
Figure 45: Shell fragment within silty sandy deposits	57
Figure 46: Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171).....	58
Figure 47: Aerial render showing the proposed future development	63
Figure 48: Location of concept proposal basement extents.....	64
Figure 49: Location of concept proposal built development.....	65

TABLES

Table 1: Item 18 of the project SEARs	1
Table 2: Legal description of the study area	3
Table 3: Summary of authors and contributors	8
Table 4: Frequency of site features in AHIMS search results	16
Table 5: Effective survey coverage	54
Table 6: Landform survey coverage	54
Table 7: Archaeological survey results	55
Table 8: Significance assessment	60
Table 10: Key development metrics	61
Table 11: Impact assessment	62
Table 11: Item 18 of the project SEARs	69

1.0 INTRODUCTION

1.1 Project background

Artefact Heritage and Environment (Artefact Heritage) have been engaged by Stockland to prepare an Archaeological Technical Report (ATR) for the concept proposal at Waterloo South, NSW (the study area). The study area is within the boundaries Metropolitan Local Aboriginal Land Council (LALC) and the land of the Gadigal. The concept proposal would seek consent for a proposed mixed-use development which would include social, affordable, and market housing, educational and health facilities, community and commercial spaces, as detailed in Section 10.0.

The concept proposal has been declared State Significant Development (SSD–93222706) under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Secretary’s Environmental Assessment Requirements (SEARs) issued on 8 October 2025 outline that Aboriginal Cultural Heritage assessment would be required to inform the Environmental Impact Statement (EIS) for the concept proposal. This report has been prepared to meet, in part, the Aboriginal Cultural Heritage assessment requirements of Item 18 of the project SEARs:

Table 1: Item 18 of the project SEARs

SEAR	Documentation	Response
18. Aboriginal Cultural Heritage		
<ul style="list-style-type: none"> • Where there is known, or reasonably likely, to be Aboriginal cultural heritage on or near the site demonstrate that impacts have been adequately investigated and assessed by: <ul style="list-style-type: none"> ▪ identifying that an appropriate prior planning process has already considered these impacts, e.g. a rezoning or development application, or ▪ providing an initial assessment of the potential impacts. • Provide an Aboriginal Cultural Heritage Assessment Report (ACHAR) which: <ul style="list-style-type: none"> ▪ identifies, describes and assesses any impacts to Aboriginal cultural heritage sites or values associated with the site ▪ is prepared in accordance with relevant guidelines. 	<ul style="list-style-type: none"> • Aboriginal Cultural Heritage Assessment Report 	<p>This ATR was prepared to support the ACHAR in requirement of Item 18 of the SEARs.</p>

In order to satisfy Item 18 of the project SEARs, this report has been prepared in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010)* (the Code of Practice) and will be appended to the Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared for the project.

This ATR is submitted to the Department of Planning, Housing and Infrastructure (the Department) on behalf of Stockland and NSW and and Housing Corporation (the Applicant) in support of the concept State Significant Development Application (Concept SSDA) for the redevelopment of the study area.

In this report reference to “Homes NSW” “or “the Applicant” shall also be taken to mean “New South Wales Land and Housing Corporation (LAHC)” who is the registered owner of 93 per cent

of land within the study area. Any reference to “Waterloo South” in this report should be read as the redevelopment of land owned by NSW Land and Housing Corporation and associated public land (such as roads) throughout the Precinct Area.

The concept development is categorised as SSD as per Section 26, Schedule 1 of *State Environmental Planning Policy Planning Systems 2021* (Planning Systems SEPP) as the project includes housing development carried out by or on behalf of the LAHC, with an estimated development cost (EDC) of more than \$30 million.

The concept, in summary, aims to deliver:

- High quality mixed tenure housing in the context of a rapidly transforming area
- Approximately 3,300 new dwellings, of which a minimum 30% will be social housing, approximately 20% will be affordable housing, and a maximum of 50% will be market housing (measured as a percentage of the total residential gross floor area)
- Publicly accessible open space and public realm activation
- An authentic mixed-use precinct, with housing co-located with non-residential uses, community essential services, and access to public transport.

The concept SSDA will guide the detailed design of future buildings, open spaces, and the public realm within the Waterloo South site. The concept SSDA seeks development consent for key planning metrics, including maximum building envelopes, building heights, setbacks, vehicular access points and road network, and the distribution of floor area across different land uses and residential tenure types.

A state-assessed rezoning application has also been prepared and submitted concurrently to give effect to this concept SSDA. The state-assessed rezoning application seeks amendments to the *Sydney Local Environmental Plan 2012* (SLEP 2012) and the *Waterloo Estate (South): Design Guide 2022* (2022 Design Guide) to align with the maximum building envelopes sought in this concept SSDA. Notably no additional gross floor area (GFA) or density is sought under the state-assessed rezoning application than is currently permissible on the site under the SLEP 2012.

1.2 Study area

The study area is located within the suburb of Waterloo, NSW (Figure 1). The study area is within the Sydney Local Government Area (LGA) and the Parish of Alexandria, within the County of Cumberland. The study area contains public housing lots owned by the NSW LAHC, as well as private residential and commercial lots and strata apartment buildings. The study area is bounded by Raglan street and Redfern Estate Heritage Conservation Area (HCA) to the north, residential development and Waterloo HCA to the east, McEvoy Street and industrial development to the south, and Cope Street and Waterloo Metro Station to the west.

The study area comprises an area of approximately 123,149 m² across 10 street blocks. The study area, excluding any privately owned properties within the Waterloo South Precinct Area, comprises approximately 114,822 m², or just over 93 per cent of the land within.

The legal description of the study area is detailed in Table 2.

Table 2: Legal description of the study area

Address	Lot/DP
Lots owned by NSW Land and Housing Corporation (land is subject to both the rezoning and the concept SSDA)	
209-219 Cope Street, Waterloo	Lot 1 DP 217386
238-246 George Street, Waterloo	Lot 1 DP 225159
229-231 Cope Street Waterloo	Lot 3 DP 10721
6 John Street, Waterloo	Lot 1 DP 533762
97-109 Cooper Street, Waterloo	Lot A DP 105916, Lot B DP 105916, Lot C DP 105916, Lot 14 DP 10721 and Lot 3 DP217386
248-254 George Street, Waterloo	Lot 2 DP 533678
232 Pitt Street, Waterloo	Lot 11 DP 635663, Lot 10 DP 635663
74-76 Wellington Street, Waterloo	Lot 1 DP 224728
331-337 George Street, Waterloo	Lot 3 DP 533680
247-251 Cope Street, Waterloo	Lot 1 DP 533679
339-341 George Street, Waterloo	Lot 1 DP 77168
250 Pitt Street, Waterloo	Lot 313 DP 606576
Lots owned by others (land that does <u>not</u> form a part of the concept SSDA)	
221-223 Cope Street, Waterloo	Lot 6 DP 10721, Lot 7 DP 10721, Lot 9 DP 10721, Lot 8 DP 1147179
225-227 Cope Street, Waterloo	Lot 5 DP 10721, Lot 4 DP 10721
233 Cope Street, Waterloo	Lot 12 DP 1099410, Lots 1-41 SP 79210
116 Wellington Street, Waterloo	Lot 10 DP 10721, Lot 11 DP 10721
111 Cooper Street, Waterloo	Lot 15 DP 10721
291 George Street, Waterloo	Lot 10 DP 1238631, Lots 1-20 SP 96906
110 Wellington Street, Waterloo	Lot 101 DP 1044801, Lots 1-58 SP 69476
336 George Street, Waterloo	Lot 3 DP 10686
213-215 Cope Street, Waterloo	Lot 2 DP 217386

Site and surrounding context

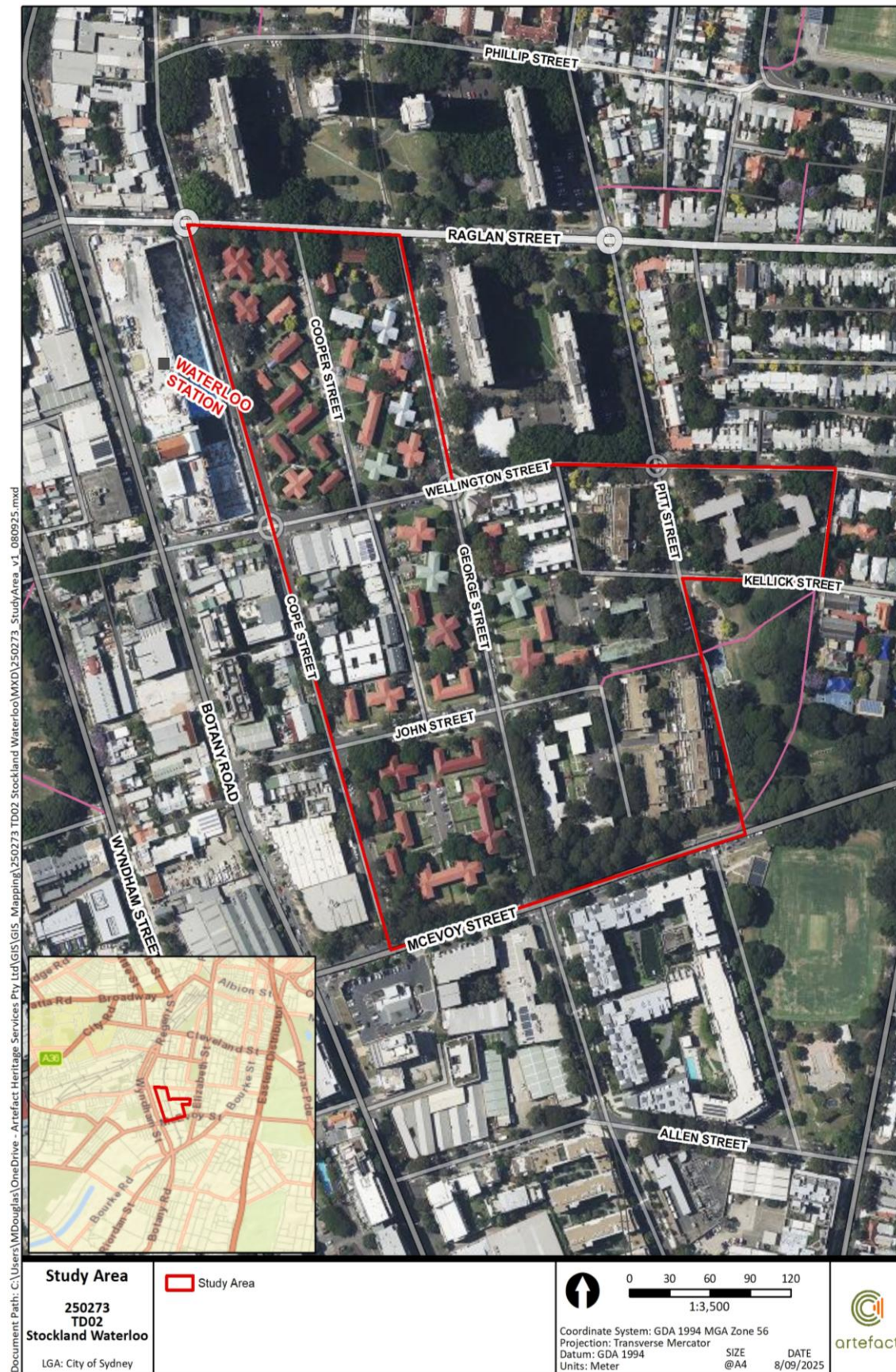
The suburb of Waterloo is located within the City of Sydney LGA and is located 3 km south of Sydney CBD. The site is part of the broader Waterloo Estate, which comprises the northern, central, and southern precincts and accommodates a significant community residing in social housing.

The Waterloo South Precinct Area is predominantly owned by NSW Land and Housing Corporation, however, as outlined in Table 2, the site, the subject of this report, excludes several privately owned lots located within the boundary of the broader Waterloo South precinct as shown in Figure 3. The privately owned lots are currently used for residential, office, light industrial, and infrastructure uses. The LAHC owned sites are currently used almost exclusively for the provision of social housing, with ancillary offices and community facilities. Overall, Waterloo South currently contains a total of 750 social housing dwellings and 120 private dwellings.

As shown in Figure 2, surrounding suburbs include Redfern to the north, Green Square to the south, Alexandria to the west and Zetland to the east. This broader area has been subject to significant change over the last 10 years with projects such as South Eveleigh, Redfern North Eveleigh Precinct Renewal, Waterloo Metro Quarter and Over Station Development (OSD) all contributing to the changing character of the area.

These broader renewal projects are supported by proximity to a range of public transport services, including Redfern Station, Green Square Station, and Waterloo Metro Station, all of which are within walking distance of Waterloo South.

Figure 1: Location of the study area



1.3 Aims and objectives

The aim of the ATR is to determine whether Aboriginal objects are likely to be present in the study area, and whether these are likely to be harmed through the proposed works.

To meet these aims, the objectives of this report are:

- Review existing knowledge, previous archaeological works, and Aboriginal Heritage Information Management System (AHIMS) search results
- Review landscape context and assess archaeological implications of the landscape features through desktop study (soil landscapes, historic land use, geomorphic character, and natural resources) relevant to the study area
- Summarise and discuss the local and regional archaeological character of the Aboriginal land use and its material traces based on the findings of the previous two steps
- Develop a predictive model for the nature and distribution of archaeological evidence of Aboriginal land use based on the three previous steps
- Complete an archaeological survey to test the predictions developed in the previous step. Archaeological survey will not include test excavations, or any ground disturbing works and is limited to a walkover of the study area
- Discuss results of the archaeological survey and re-evaluate the local and regional archaeological character accordingly
- Assess the likely impacts to Aboriginal objects and Potential Archaeological Deposits (PADs) based on the current design plans
- Consider any practical measures that may be required to protect and conserve identified Aboriginal objects and places identified within the study area.

1.4 Limitations and constraints

This report uses historical documentation prepared by third-party heritage professionals. Desktop historical research has been undertaken to supplement this existing information. This report provides an assessment of Aboriginal archaeology only and does not assess intangible Aboriginal heritage values. The scope of this ATR is based on information provided by the Stockland to date. Land located outside the study area boundary has not been assessed. This report excludes historical heritage assessment and excludes provision of any advice under the NSW *Heritage Act 1977* and does not assess built heritage or historical archaeology.

The maps in this report are for informational purposes only and are not suitable for and were not prepared for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. The register searches undertaken for this report are current only to the date a particular register was searched. In the normal course of events, items are added to or removed from heritage registers and users of this report should check that sites have not been added to or removed from a particular register since the date the register was searched.

The significance assessment made in this report is a combination of both facts and interpretation of those facts in accordance with a standard set of assessment criteria. It is possible that another professional may interpret the historical facts and physical evidence in a different way. A summary of

the statutory requirements regarding heritage is provided in this report. This is made on the basis of Artefact's experience of working with the NSW heritage system and does not purport to be legal advice.

It should be noted that legislation, regulations and guidelines change over time and users of this report should satisfy themselves that the statutory requirements have not changed since the report was written.

1.5 Authors and contributors

This report has been prepared by Lily Hackett (Heritage consultant) and Jonny Love (Senior Heritage Consultant). The Aboriginal historical background was prepared by Dr Stephen Gapps (Senior Associate–Historian), with mapping input provided by Mike Douglas (GIS Officer). Management and Quality Assurance review were provided by Dr Samantha Higgs (Archaeology Team Leader) and Josh Symons (Technical Director).

A summary of the authors, contributors and their roles are provided in Table 3 below.

Table 3: Summary of authors and contributors

Authors and Contributors	Qualifications	Experience	Tasks
Josh Symons (Technical Executive)	Bachelor of Arts (Hons), Prehistoric and Historical Archaeology	20+ years	<ul style="list-style-type: none"> Quality control Technical support
Dr Samantha Higgs (Archaeology Team Leader)	Bachelor of Arts (Hons), Prehistoric and Historical Archaeology PhD, Archaeology	20+ years	<ul style="list-style-type: none"> Technical review Management input
Mike Douglas (GIS Officer)	Bachelor of Arts North American Archaeology Master of Science Geology Master's Certificate in GIS Science	20+ years	<ul style="list-style-type: none"> Preparation of mapping GIS support
Dr Stephen Gapps (Historian)	Bachelor of Arts (Hons), History Master of Applied History PhD History	20+ years	<ul style="list-style-type: none"> Background Histories
Jonny Love (Senior Heritage Consultant)	Bachelor of Archaeology Master of Research (MRes)	2.5+ years	<ul style="list-style-type: none"> Project management Archaeological survey Report preparation
Lily Hackett (Heritage Consultant)	Bachelor of Arts (Archaeology and Ancient History) Master of Museum and Heritage studies	2.5+ years	<ul style="list-style-type: none"> Report preparation Archaeological survey

2.0 PROJECT FRAMEWORK

2.1 Commonwealth legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework for the protection and management of Australia's unique environment, including biodiversity and culturally significant places. The EPBC Act also includes provisions to identify places for addition to the National Heritage List (NHL) and Commonwealth Heritage List (CHL) to enhance the protection, conservation and presentation of those places.

A search of the NHL and CHL was completed in September 2025. No heritage items listed on the NHL or CHL were listed within the study area.

2.1.2 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act), can provide protection to places, objects and folklore that 'are of particular significance to Aboriginal people.

The Commonwealth Minister who is responsible for administering the ATSIHP Act can make declarations to protect these areas and objects from specific threats of injury or desecration under Section 10 of the Act in situations where state or territory laws re determined to not provide adequate protection.

The ATSIHP Act may apply to contemporary Aboriginal cultural property as well as ancient sites and takes precedence over state cultural heritage legislation where there is conflict.

A Search the Federal Gazette for declarations under the ATSIHP Act was conducted on 16 September 2025 which resulted in no declared Aboriginal places within or In proximity to the study area.

2.1.3 Native Title Act 1993

The main purpose of the *Native Title Act 1993* is to recognise and protect native title. Native title is the rights and interests in land and waters that Aboriginal and Torres Strait Islanders have under their traditional laws and customs.

The following list is indicative of the type of land, which might be subject to native title:

- Vacant Crown land and any other public or Crown lands including oceans and inland waterways, beaches and foreshores, State forests, national parks and public reserves
- Pastoral leases
- Land held by government agencies
- Land held in trust for Aboriginal communities.

Under the amended *Native Title Act 1993*, Native Title is extinguished by the following:

- Private freehold land, valid grants of private freehold land or waters
- Residential, commercial or exclusive possession leases

- Mining dissection leases
- Community purpose leases (e.g. religious, sporting or charitable purposes)
- Scheduled interests that give exclusive possession
- Public works (e.g. schools, public amenities, hospitals etc.).

Applicants are not required to comply with the requirements of steps 4.1.2 to 4.1.7 of the Consultation Requirements where there is an approved determination of native title that native title exists in relation to the entire study area. In this circumstance, proponents need only consult with the native title holders. However, steps 4.1.2 to 4.1.7 are applicable for any portion of the study area not covered by a native title determination.

A search of the National Native Title Tribunal database was completed in September 2025. The search determined that there are no Native Title claims to the study area, meaning that steps 4.1.2 to 4.1.7 of the Consultation Requirements are applicable.

2.2 State legislation

2.2.1 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act), administered by Heritage NSW provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW), and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community).

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture.

There are no gazetted Aboriginal places in the study area. All Aboriginal objects, whether recorded or not, are protected under the NPW Act.

Section 86 of the NPW Act identifies that it is an offence to harm or desecrate an Aboriginal object and/or an Aboriginal place. Section 86 outlines penalty units applicable where it is identified that a person or corporation is in breach of Section 86.

The NPW Act defines harm to an object or place as any act or omission that:

- (a) destroys, defaces or damages the object or place, or
- (b) in relation to an object moves the object from the land on which it had been situated, or
- (c) is specified by the regulations, or
- (d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c).

A section 90 permit is the only Aboriginal Heritage Impact Permit (AHIP) available under the *National Parks and Wildlife Act 1974* and is granted by Heritage NSW. Various factors are considered by Heritage NSW in the AHIP application process, such as site significance, Aboriginal consultation requirements, Ecological Sustainable Development (ESD) principles, project justification and consideration of alternatives. The penalties and fines for damaging or defacing an Aboriginal object were increased in 2010.

As this project is being assessed under Part 4 Division 4.1 of the EP&A Act, permits issued under the NPW Act are not required for impacts approved under the SSD provisions. Impacts to Aboriginal objects will be authorised by the Conditions of Approval for the project issued under the EP&A Act.

2.2.2 Heritage Act 1977

The Heritage Act 1977 protects protection to heritage items (natural and cultural) in NSW. Under the *Heritage Act 1977*, 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant. While Aboriginal heritage is primarily protected under the *National Parks and Wildlife Act 1974* but may also be subject to the provisions of the *Heritage Act 1977* if an item listed on the State Heritage Register or subject to an interim heritage order. In such cases, Aboriginal objects and places are protected under Section 60 of the *Heritage Act 1977* and approval from the Heritage Council of NSW may also be required in addition to an AHIP. Section 60 approvals are not required for an approved SSD project.

A summary of State Heritage Register (SHR) items listed within the study area is outlined below:

- Pressure Tunnel and Shafts (SHR no. 01630) (State).

2.2.3 NSW Native Title Act 1994

The *Native Title Act 1994* was introduced to ensure that the laws of NSW are consistent with the Commonwealth *Native Title Act 1993*. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act. As discussed in Section 2.1.3 of this report, the study area is not subject to any Native Title claims.

2.2.4 Aboriginal Lands Right Act 1983

The *Aboriginal Land Rights Act 1983* (ALR Act) established Aboriginal Land Councils (at State and Local levels). These bodies have a statutory obligation under the ALR Act to:

(a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and

(b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

The study area is within the boundary of the Metropolitan LALC.

2.2.5 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the framework for cultural heritage values to be formally assessed in the land use planning, development assessment and environmental impact assessment processes. Part 3, Division 3.4 deals with the development of Local Environmental Plans (LEPs). Planning decisions within Local Government Areas (LGAs) are guided by LEPs. Each LGA is required to develop and maintain an LEP that includes Aboriginal and historical heritage items which are protected under the *EP&A Act* and in some cases also protected under the *Heritage Act 1977*.

The proposal will be assessed under Part 4, Division 4.1 of the EP&A Act, which establishes an assessment and approval regime for SSD. Part 4, Division 4.1 applies to development that is declared to be an SSD by a State Environmental Planning Policy (SEPP). Section 4.41 (previously

section 89J(c)) of the EP&A Act specifies that approvals or permits under section 90 of the NPW Act 1974 are not required for approved SSD.

2.2.5.1 *Sydney Local Environmental Plan 2012*

Heritage items listed on the Sydney Local Environmental Plan (SLEP) 2012 are managed in accordance with the provisions of Section 5.10 Heritage Conservation of this LEP (Sydney LEP 2012).

A summary of heritage items within the study area is outlined below:

- Duke of Wellington Hotel including Interior (SLEP no. I2085) (Local)
- Former Waterloo Pre-School (225 Cope Street) including interior (SLEP no. I2077) (Local)
- 2-storey Victorian terrace houses (circa 1880) (SLEP no. I2078) (Local)
- Single-storey interwar building, Electricity Substation No 174 (SLEP no. I2086) (Local).

2.3 Summary

A search of all the relevant registers was undertaken in September 2025. The summary of heritage items listed within and within 250 m of the study area is shown in Figure 4.

3.0 ARCHAEOLOGICAL CONTEXT

3.1 AHIMS search

NOTE: The location of Aboriginal sites is considered culturally sensitive information. It is advised that this information, including the AHIMS data appearing on mapping below must be removed from this report if it is to enter the public domain.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 22 August 2025 (Client Service ID: 1036401) (see Appendix A – AHIMS records) to determine the location of Aboriginal sites in relation to the current study area. The search area was defined as 2 km x 2 km and include of land surrounding the study area to inform the characterisation of the local archaeological context. The AHIMS search parameters were as follows:

GDA, Zone 56	331807-335807m E 6245574-6249574m N
Number of sites	18

A total of 18 AHIMS registered sites are located within the extensive search area (see Table 4 and Figure 6). No AHIMS sites are located within the study area. Two of these are listed as 'not a site', two have been partially destroyed and two have been completely destroyed'. Two AHIMS sites are located within 200 m of the study area, one of which was located less than 20 m from the western boundary of the study area (since destroyed) outlined in detailed below (Figure 7). The majority of these AHIMS registered sites comprise PADs followed by subsurface stone artefacts. The distribution of these sites appears sporadic and no discernible site pattern regarding site type concentrations or connection to landform is obvious within the extensive search results. This is likely due to the highly developed nature of the local area that has been subject to significant historical industrial and residential ground disturbances and significant road and rail infrastructure prior to the first iteration of National Parks and Wildlife ACT in 1969. Therefore, evidence of past Aboriginal activities within the local area have likely been significantly impacted or destroyed.

Aboriginal objects that have survived or areas of PAD that are identified are frequently located within small areas of bush or park where comparatively less historical ground disturbances have occurred. Several of the subsurface artefact scatters that have survived identified through test or salvage excavations are also often encountered within highly disturbed context, as with the case with the subsurface scatter at central station (AHIMS ID 45-6-3654) north of the study area and within Waterloo Metro (AHIMS ID 45-6-4138) west of the study area.

One Aboriginal Resource and Gathering site within the extensive search is located in Victoria park approximately 1.30 km northwest of the study area (AHIMS ID 45-6-2767) (Figure 6). However, this site is related to the Aboriginal Tent Embassy first established here in 2000 and has been successively used as a gathering space for Aboriginal people since and therefore not considered archaeological in nature.

The two closest AHIMS registered sites within 200 m of the study area are summarised below.

3.1.1 AHIMS ID 45-6-4138

AHIMS ID 45-6-4138 is located approximately 18 m west of the study area and comprised a subsurface artefact scatter. AMBS Ecology and Heritage undertook archaeological test excavations for the Western half of Waterloo Metro Station. A total of four artefacts were recovered, three from one test pit and a single artefact from another test pit. All four artefacts were recovered from 0-200 mm. The assemblage comprised one Backed blade, one core and 2 small flakes of silcrete, indurated

mudstone and chert. The artefacts were deposited within a highly disturbed context due to the historical successive phases of building across the area. Due to the low numbers of artefacts and highly disturbed context meaningful interpretation was limited. While the 'soils encountered were representative of those found within the botany sands, they had experienced significant disturbance from past land clearance, construction, and infrastructure installation...'. The site was completely destroyed through subsequent development of the station.

3.1.2 AHIMS ID 45-6-2597

AHIMS ID 45-6-2597 is recorded approximately 14 km northwest of the study area as a shell midden. Within the site card the site is named 'Wynard Station' and drawn on an unscaled site plan located adjacent 'Wynard Street'. However, the site card also describes the site as '100 m south of Redfern station, come to park on west side of street' and describes the site as 50 m from the closest drinking water source. The eastings and northings plot the site within Botany Road over 300 m south of Redfern station and approximately 832 m north of Sheas Creek (now channelised), the closest water source to this location. On historical aerial photography this area also appears to have been bulk excavated prior to registration of the site. As such the site is likely incorrectly mapped and is actually located along Wynard Street which is around 100 m south of Wynard Station adjacent to Wynard park and an apartment block which aligns more so with the description provided in the site card, and therefore actually 3.32 km north of the study area (Figure 5). The site card describes the midden as in poor condition but does not provide any more detail on depth, extent nor species of shell. The site is listed on AHIMS as no longer considered a site however no explanation as to why is give within the site card. This site is not associated with Waterloo South.

Figure 5: Likely location of AHIMS ID 45-6-2597

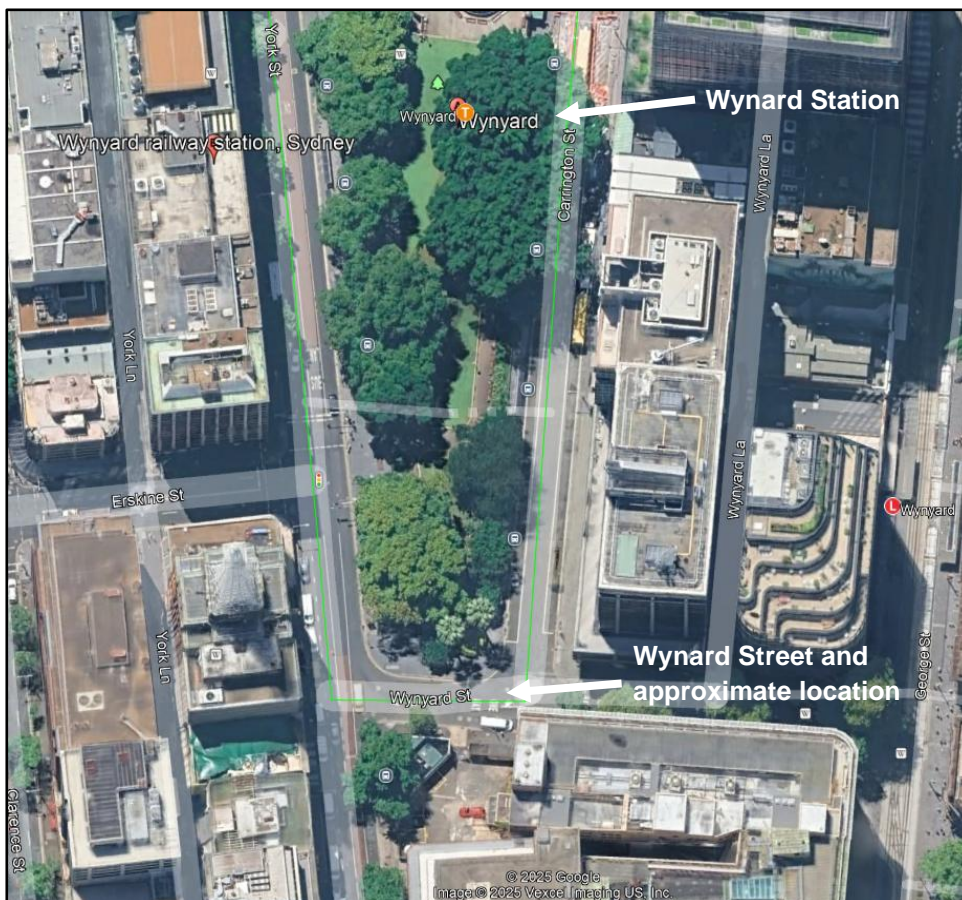


Table 4: Frequency of site features in AHIMS search results

Site Types	Frequency	Percentage (%)
PAD	8	47.1
Artefact	7	41.2
Aboriginal Resource and Gathering	1	5.9
Artefact, Potential Archaeological Deposit (PAD)	1	5.9
Total	17	100

3.2 Public AHIP register search

A search of the public AHIP register was conducted on 16 September 2025. No AHIPS overlap or are located in proximity to the study area.

Figure 6: AHIMS extensive search results

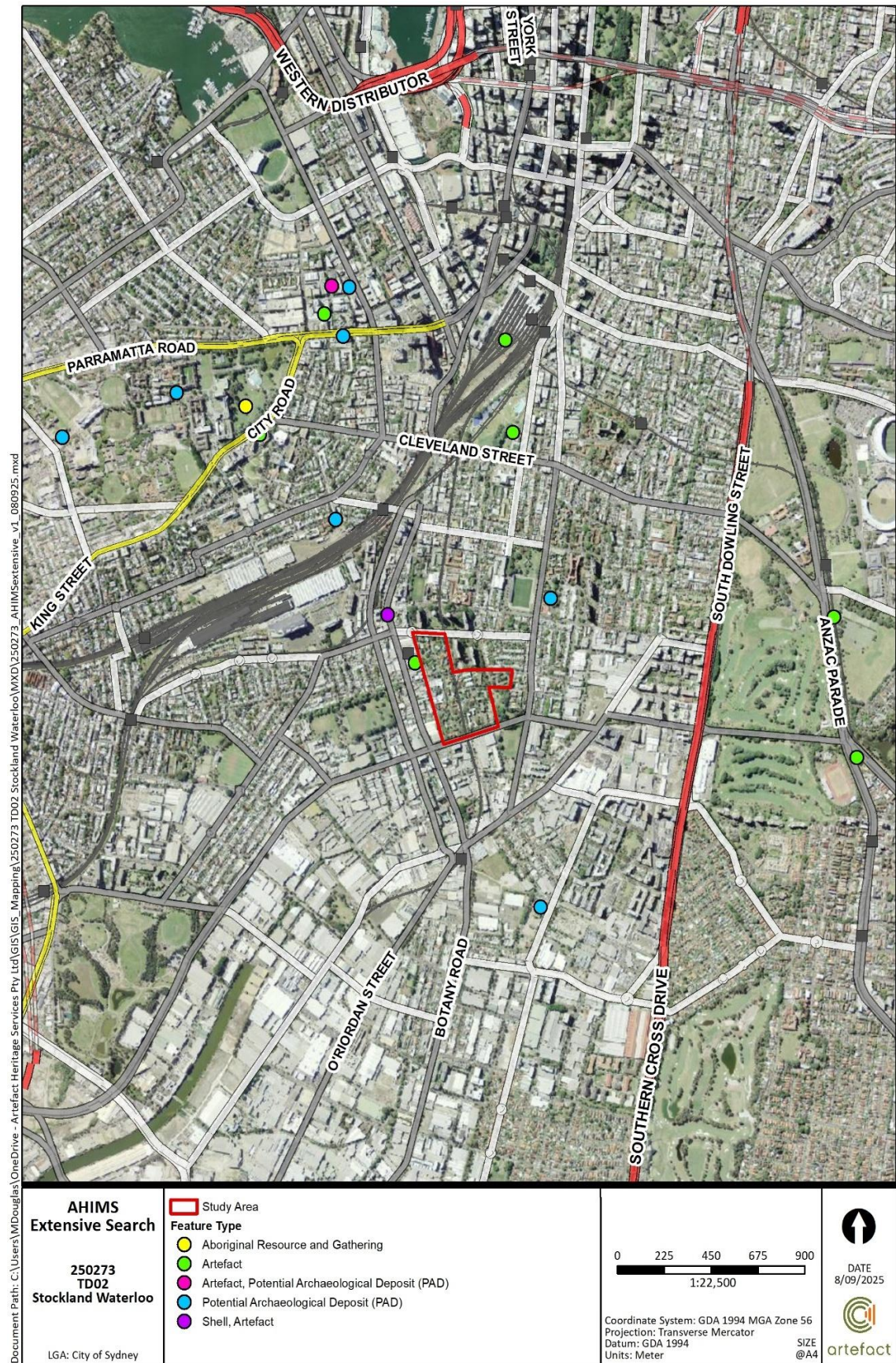
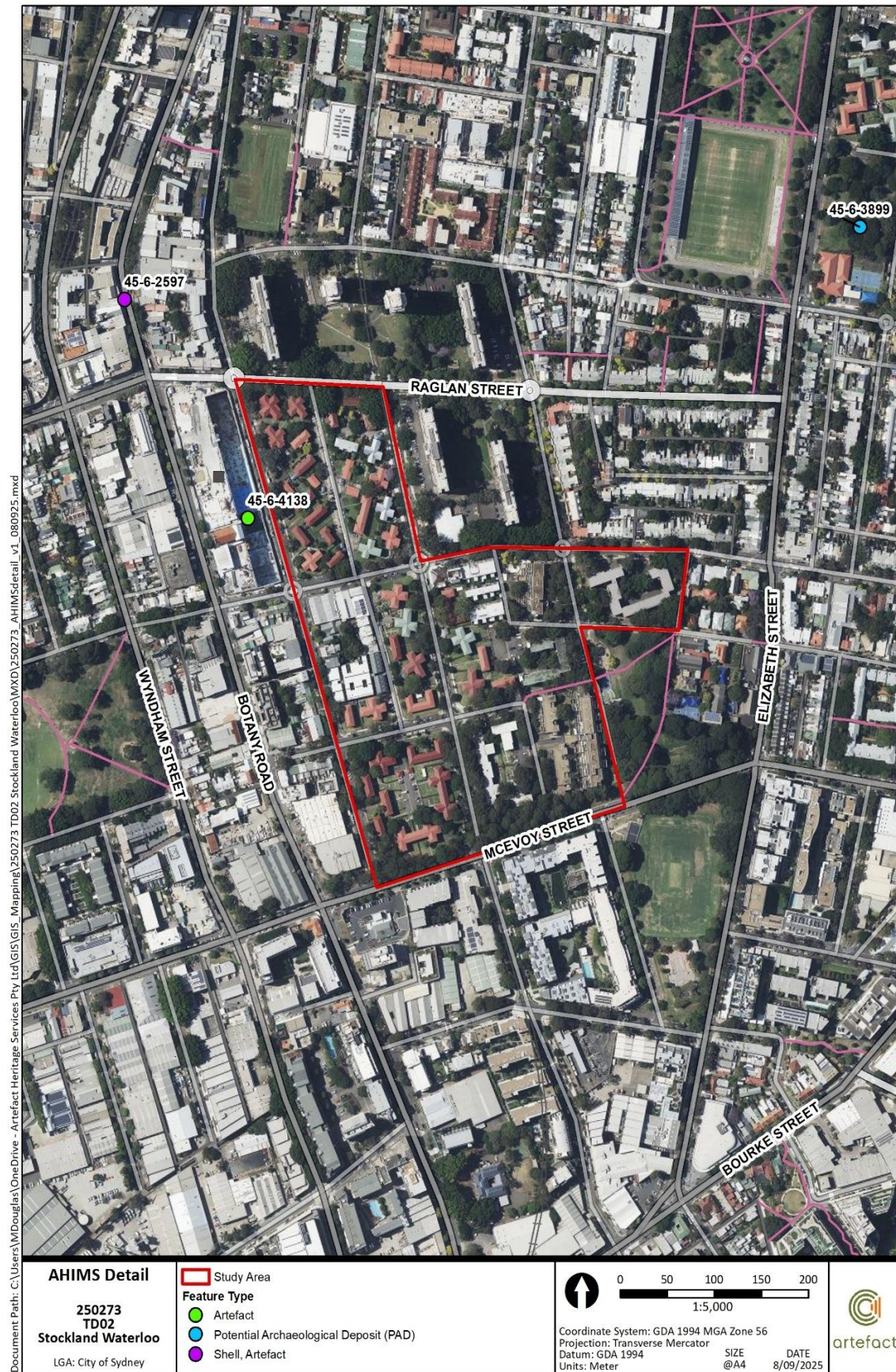


Figure 7: AHIMS detail map



3.3 Review of existing archaeological literature

Etheridge Jr., R. (1905). The Further Discovery of Dugong Bones on the coast of NSW. Records of the Australian Museum, Vol. 6, No. 1, June.

AHIMS ID 45-6-0751 comprises highly significant Dugong remains with stone artefacts and is located approximately 2.20km southwest of the study area. The site was discovered in 1896 during the excavation of Shea's Creek for the construction of the Alexandria Canal. The site comprised portions of the remains of a dugong (including ribs), which showed marks made by stone tools and evidence of butchering activity by Aboriginal people. The dugong remains were dated by Haworth et al (2004) to 5520±70BP(Wk8616). The items were found 91 to 457cm below the high-water mark at that time and 137 to 228.6 cm below the surface of the swamp.

This site provides evidence that much of the Botany Basin was submerged as recently as 5,500 years ago (Artefact 2020). At the time, staff from the University of Sydney further identified submerged woodland and peat lenses within sand beds (Etheridge, R. David T. and J. Grimshaw 1896). Haworth et al (2004) noted that dugong habitat consists of stable, warm marine lagoons of 1 to 5m depth. If the dugong had been butchered near the shore of such a lagoon, it would support the hypothesis of the inundation of the Botany Basin around 5,500 years ago forming a much larger Botany Bay than is the case today. This proposition supports Etheridge et al's (1896) hypothesis which proposed an expanded shoreline for Botany Bay.

Etheridge also found peat, shell and wood layers at the dugong site in 1896. Some of the wood recovered in 1896, was later dated and indicated fluctuating sea levels in Botany Bay suggesting that the location of the coastline varied throughout the period from 8,841±65 BP to approximately 4,000 BP (ie through the mid-Holocene). In which case, the stratigraphic position of the dugong find is not anomalous (Haworth et al 2004), but it would suggest dugong were living a long way south of their present biogeographic limit on the Australian east coast at that time.

The stratigraphic sequence drawn by Etheridge clearly indicates a transition from estuarine and intertidal deposits to a terrestrial surface (blown sands and then peats) accreting vertically, and then being eroded at a wave impacted edge (see Figure 3).

Recent reviews suggest mean sea level (MSL) would be 1.0 to 1.5m higher than present from 7500 to about 1,500 years ago along the NSW coastline (Dougherty et al 2019; Lewis et al 2008; Sloss et al 2007). The recent mapping by Gale and Wales (2022 (Figure 10) provides first-order models of the likely areas where shorelines would have been, on-lapping or interstratifying with earlier deposits during the mid and later Holocene.

From 4,000 BP cooler and drier conditions dominated and those previously inundated lands dried up to form sand sheets and new dunes developed on top. The sea levels dropped further and by 2,000 BP fell to 1 to 1.5 m (Harrison and Dodson. 1993). The Tuggerah soils that formed on top of the sand sheets now predominate in the Botany Basin and constitute the most recent strata of the Botany Sands and the include the land on which Aboriginal people lived.

The stratigraphy in which the dugong finds were located were in the banks of Shea's Creek. The construction work cut through the Shea's Creek floodplain, which, according to Haworth et al (2004: 48):

Rose to the east of Redfern in low sandy hills, some of which still survive in what is now Moore Park. From here the stream flowed for 6km south-south-west to join the Cooks River 1 km above where this estuary entered Botany Creek. The canal had

been cut through an extended are of tidal and non-tidal marsh...[and a] long section displayed consistent strata along most of the cutting...

The bones of the dugong and the stone hatchets are currently held at the Australian Museum.

Attenbrow, 2002 – Pre-colonial land and resource use in Centennial, Moore and Queens Parks, NSW

In an assessment for the preparation of a cultural heritage management plan for Centennial, Moore and Queens Parks, Attenbrow discussed archaeological evidence within the wider parklands, identifying art sites in Centennial Park (sites since destroyed) and Queens Park, along with rock shelters present within Queens Park. The soils in Attenbrow's study area were Tuggerah Soils. Attenbrow found in general that archaeological potential at Centennial Park and areas of similar sandy soil would be limited to locations where the uppermost soil units had remained intact, while archaeological potential would be limited or absent where the uppermost soil units had been removed.

Artefact Heritage, 2015 – CSELR Early Works, Moore Park Tennis Centre

An archaeological test excavation took place in 2014 in the Moore Park Tennis Centre, located approximately 2km northeast of the study area. Excavation consisted of five test pits measuring 2 x 0.8m. This investigation identified that the area had 500mm of introduced fill overlying sands. A total of five artefacts were recovered from a vestigial lower layer of a tg1 unit of Tuggerah sands resulting in the identification of a low-density artefact scatter (Moore Park AS1). Artefacts were limited to the extent and depth of preserved tg1 soil unit.

Artefact Heritage, 2016 – Sydney Metro Chatswood to Sydenham, Aboriginal Heritage Archaeological Assessment

An Aboriginal heritage archaeological assessment was undertaken as part of the Sydney Metro Chatswood to Sydenham Project as a technical study for the Environmental Impact Assessment. This included the proposed Metro Station at Waterloo located between Botany Road, Raglan Street and Cope Street. The proposed Metro Waterloo Station is located directly west of the study area assessed in this report.

The assessment identified that the location of works is on a Quaternary sand sheet where discrete portions of intact stratified deposits containing Aboriginal objects may occur beneath extant buildings and deep layers of introduced fill. Overall, it was considered that there would be moderate-high potential for Aboriginal objects in sub-surface contexts where there had not been extensive subsurface impacts.

AMBS, 2018 – Sydney Metro City & Southwest, Archaeological Method Statement: Barangaroo, Martin Place, Pitt Street & Waterloo

An archaeological method statement was prepared by AMBS for the proposed Sydney Metro station at Waterloo to assess site specific impacts and provide a methodology for archaeological investigation. AMBS noted the existing building construction and development in the area is likely to have impacted the Quaternary sand sheet. However, based on the presence sand identified through geotechnical investigation, it was determined that there was potential for undisturbed soil layers which could retain Aboriginal archaeological deposits to be present beneath areas of limited ground disturbance.

GML Heritage, 2018. Investigations of Aboriginal Site RSY1, Randwick, Post Excavation Report. Report prepared for Acciona and Transport for NSW.

Large numbers of English flint fragments and nodules were identified by GML Heritage at the Randwick Stabling Yards site of the CSELR, located 2.5km southeast of the study area. Test and salvage archaeological excavation identified a preserved Tuggerah Soil tg1 and tg2 profile beneath the carpark hardstand located in what had once been a horse paddock behind ancillary buildings of the Randwick Racecourse. It is understood that English flint ballast dumped in this location was utilised by Aboriginal people in manufacturing stone tools some time between 1788 and about 1830. Following analysis, these fragments were found to include over 2400 Aboriginal stone artefacts formed from flint, and five Aboriginal glass artefacts.

The preservation and retention of artefacts in this site was due to specific historical processes that had resulted in the capping of natural ground surfaces beneath fill. The location had once comprised rolling dunes slightly south of a now removed branch of the Lachlan Swamp. With the increase of horse racing activities in the location during the 1830s, the site was used as a horse paddock. This resulted in some disturbance to the Tuggerah Soil tg1 unit, including trampling of artefacts resting on it into the underlying tg2 soil unit. Successive phases of introduced fill to level and elevate the site mitigated further damage to the Tuggerah Soil tg1 unit, as did the eventual introduction of a hardstand surface.

The Randwick Stabling Yard Site (RSY1) is not statistically representative of general archaeological sensitivities in the area. It comprises a discrete high-density deposit of imported high quality lithic material in a geographical area that contains no equivalent lithic resources. The location, quality, quantity and degree of utilisation of this European flint is not reflective of Aboriginal resource utilisation prior to colonisation (as the flint was an introduced material). Further, the artefactual material at this site was fortuitously protected through the combined effects of the introduced fill acting as a “lid” or a cap, together with the relatively low usage of the site.

Nonetheless, the Randwick Stabling Yards site can be interpreted as playing an important role serving as a snapshot in time of the soil conditions and artefact production methods during the first decades following British colonisation. It further demonstrates the close relationship between the habitation surface t1 soil unit, and the presence of lithic artefacts.

Artefact Heritage, 2020. CSELR: Aboriginal Archaeological Excavation Report.

Artefact Heritage have conducted numerous previous archaeological investigations within Moore Park, approximately 2.45km east of the study area of this report.

Archaeological excavation along an artificial embankment at Kensington Ponds, across Alison Road revealed disturbed sands containing quantities of both historical artefacts and Aboriginal artefacts (FZ-23 artefact scatter, AHIMS site 45-6-3812). The post excavation report from Randwick Stabling Yards 1 site of the CBD and Southeast Light Rail (CSELR) (Artefact 2020a) identified a preserved Tuggerah Soil profile, with specific historical processes occurring that had resulted in the capping of natural ground surfaces beneath fill, yielded a vast number of Aboriginal artefacts.

A test excavation at Moore Park Tennis Centre, also for CSELR (Artefact 2020b), identified a small scatter of Aboriginal artefacts within the preserved Tuggerah soil unit (500mm of introduced fill overlying sands) and buried beneath a layer of fill. Further archaeological test excavations conducted by artefact within Moore Park Road corridors and the substation building southwest of the study area resulted in the presence of a disturbed top layer overlaying natural sands. However, no Aboriginal artefacts were present (Artefact 2020).

The results of the previous Aboriginal archaeological investigations at AHIMS ID 45-6-3155, AHIMS ID 45-6-3645 and AHIMS ID 45-6-3704 demonstrate that the survival of the archaeologically sensitive Tuggerah soils varies across the Botany Sands. The implications of these investigations are that although archaeological potential in Tuggerah Sands may be drastically reduced when Tuggerah soils

are removed and disturbed, it is possible that intact or truncated Tuggerah soil contexts are preserved beneath layers of historical fill.

Urbis 2020, Waterloo South Planning Proposal: Aboriginal Cultural Heritage Study. Report to NSW Land and Housing Corporation.

Although no soil profile detail was available for Urbis' study area, attention was drawn to geotechnical borehole data derived from investigations at the former Rachel Forster Hospital at 134-144 Pitt Street, immediately north of the study area. Two geotechnical studies identified natural brown to light grey sand below modern fill, and overlying clays. AHMS (2014) were quoted and agreed with by Urbis, that preserved aeolian sands should be considered archaeologically sensitive to 2.5m in depth as they may represent previous habitation surfaces that had been buried beneath overlying historical fill.

While a large portion of the study area was identified to have nil to low archaeological potential, one area of low to moderate archaeological potential was identified in the southern portion of the project area.

AHMS (2014) undertook a desktop study within the location of Waterloo which indicated that some portions of the area may contain archaeological potential. The study found that:

...bounded by Phillip Street to the north, Pitt Street to the east, McEvoy Street to the south, and Cope Street to the west. 'Waterloo' was described as located on the upper slopes of Mount Carmel, likely to represent the upper slope of a large sand dune of the Tuggerah soil landscape. The northern and western sections of the site had been subject to deep excavation, and the potential for the survival of cultural material in these locations was considered to be low to nil. However, the southern part of the site was considered to have potential for intact and complex cultural material related to the Aboriginal occupation of the area, considering the location within 200m of parts of Waterloo swamp, and the depth of the natural soil profile.

Urbis (2020) identified an area of low to moderate archaeological potential within the southern portion of the Waterloo Estate (South) study area. The area of potential is considered to have low degree of potential to contain shell middens and low to moderate degree to contain stone artefact deposits.

The area of low to moderate archaeological potential was based on predictive modelling of the study area which was informed by environmental, historical and archaeological information. It was estimated that archaeological material is most likely to occur within the less disturbed areas and in proximity to the known resource areas. Resource areas include areas such as Waterloo Swamp, which was located southeast of the study area and Shea's Creek located south of the study area.

The area of potential includes portions of the site that have been developed for residential purposes as well as associated infrastructure and landscaping. Depths of these impacts are not currently known however it is assumed that the construction of the residential dwellings are likely to have significantly impacted the subsurface contexts. Areas of potential are therefore more likely to be contained to locations that have not undergone extensive development such as the landscaped areas and beneath sealed road surfaces and footpaths where disturbances are more likely to be limited to the upper stratigraphic units.

Artefact 2021, Waterloo Estate (South): Addendum Aboriginal Cultural Heritage Study. Report to NSW Department of Planning Industry and Environment.

The addendum report investigated the impacts to the project area as a result of a new Planning Proposal including more detailed planning controls. These new impacts however are all within areas

that have been previously assessed in Urbis (2020). Overall, there would be no additional impacts to Aboriginal archaeological values as a result of the new Planning Proposal and therefore Artefact's conclusions and recommendations are consistent with the ACHS (Urbis 2020). The study identified no Aboriginal objects or new areas of archaeological potential were identified during the site survey. One area of low to moderate archaeological potential is located within the study area, which was previously identified by Urbis 2020, however, the remainder of the study area has nil to low potential for Aboriginal archaeological resources. The Planning Proposal would have total impact to the study area which would be located in areas of low to moderate archaeological potential.

Urbis, 2024, 28-32 Bourke Road, Alexandria, NSW (Stage 2) Gadigal Country. Prepared for Alexandria Property Development.

Urbis conducted an assessment as part of an ACHAR for 28-32 Bourke Road, Alexandria, NSW located approximately 542 m south of the study area of this report to support Stage 2 of a staged SSD process (SSD-59006709). No previous Aboriginal archaeological investigations were identified within the study area. Historical activities, including construction and demolition of buildings and utilisation of the subject area for industrial purposes were determined to have likely caused a high level of ground disturbance. However, geotechnical investigations indicated the presence of intact natural sand body below historical fill (at approximately 0.6/1.9m) likely the Tuggerah soil landscape. The subject area was therefore assessed as containing moderate archaeological potential for artefact scatters / campsites, burials, isolated finds, middens and PADS. Further subsurface archaeological investigation program was recommended to understand the presence of potential archaeological deposits.

3.4 Historic records of Aboriginal material cultural

3.4.1 Aboriginal histories

3.4.1.1 Living on Country for millennia

Many Aboriginal people, like other Indigenous or First Nations people around the world, have been living on Country for 'time immemorial' – they have always been here, and their origins lie in the creation of the land and animals. As Sydney Elder and Wiradjuri activist Aunty Jenny Munro expresses:

'...from time immemorial, we believe as Aboriginal people, Australia has been here from the first sunrise, our people have been here along with the continent, with the first sunrise. We know our land was given to us by Baiami, we have a sacred duty to protect that land'

Over the last few decades, archaeologists' knowledge of deep human time in Australia has expanded from just a few thousand years in the 1950s, to 25,000 years in the 1960s, then 40,000 years, to now around 60,000 years or more (Griffith 2018: 112; Karskens 2009: 25; Munro 2008: 4).

Archaeological evidence of Aboriginal people living in the Sydney region from Shaw's Creek west of the Dyarubbin (Nepean) River is dated at around 14,000 years ago and numerous other sites in the area have been dated at around 15,000 ago. While Cranebrook Terrace, near Penrith in Western Sydney, has been dated to 41,700 years and a site near Parramatta at 30,000 years old, there is growing consensus among archaeologists and historians that people have lived across the Sydney region from around 50,000 years ago. The earliest documented evidence of Aboriginal people living along the Cooks River is a 10,500 year old fireplace discovered during an archaeological dig next to Tempe House at Wolli Creek (Attenbrow 2010: 18-20; Nanson et al. 1987: 77; Williams et al. 2017: 100-109; Attenbrow 2012: 63; McDonald 2005: 28, 56).

More ancient sites lie off the coast and in river valleys, now deep under water. Before the major sea level rise event at the end of the last ice age around 17,000 years ago, Aboriginal people living along the Parramatta River could have walked downstream along the riverbanks to the sea about 30 kilometres beyond the current day coastline. Over generations they would have watched and told stories about the gradual change as the sea rose to fill the 'drowned river valley' of what is now Sydney Harbour until it reached present levels around 6,000 years ago (Nunn and Reid 2016: 11, Attenbrow 2010: 154-155, Birch 2007: 217-219).

Given the devastating impact of violent dispossession and disease upon Aboriginal people in the Sydney region during colonisation, the precise identification of language groups and historical traditional lands or Country for a given area is often difficult today. Early colonial observer Watkin Tench believed there was at the least coastal and inland dialects of the same language and, while this is challenged by some historians who prefer less distinction between what were all 'canoe cultures' around Sydney's coast and waterways, there seems to have been an alignment with inland economies of the rivers, creeks and open forests of the Cumberland Plain, and coastal 'saltwater' focused groups (Aboriginal Heritage Office 2015; Tench 1793 [2004]: 122).

Prior to colonisation, Aboriginal people in the relatively resource rich Sydney region lived in extended family groups estimated at around 30 to 50 people. These groups were associated with certain territories or places that gave clan members particular social and economic rights and obligations. Each of the estimated 30 clans in the Sydney region had a name often associated with a place or resource such as the Cabro (Gabra) gal (people) at modern day Cabramatta. Clan groups moved around a defined area in response to changing seasons and the availability of food and other resources. European observers mistakenly took this as a nomadic lifestyle, when in fact they moved around a 'limited and deeply known' area. There were also forms of more sedentary agriculture and aquaculture, and villages such as those described by early colonial diarists at Kamay-Botany Bay and later accounts of '70 huts' at Bent's Basin on the Nepean River west of Sydney (Figure 8) (Gapps 2010: 26-60; Attenbrow 2010: 78; Karskens 2009: 36; Gammage 2012: 281-304).

Some areas, particularly resource rich ones, had shared boundaries or reciprocal rights with bordering and neighbouring groups. With appropriate permission and protocols, people could travel through and hunt on other groups' lands. On special occasions such as feasts associated with the beaching of a whale; a kangaroo hunt on the open forests of southwestern Sydney; trading or exchanging stone, tools and other items, as well as ceremonial occasions, people would often travel long distances around and from outside the Sydney region (Gammage 2012; Irish 2017: 22-27).

With several rivers and estuarine coastal areas, the Sydney region sustained a comparatively large population, unlike more arid inland areas. Fish and shellfish were a major part of Saltwater peoples' diets. The nawi (tied-bark canoe) was a common sight both day and night in rivers and creeks and was even dexterously paddled off the coast. There are many accounts by early colonists of Aboriginal people in canoes fishing and cooking their catch on small fires on hearth stones within the vessels. Women were the primary fishers from nawi (men usually fished with spears). Women were highly skilled with shell hooks and twine fishing lines (Figure 9) and thus played an important economic role in Sydney. They were noted as cradling their children while fishing, as their songs floated across the waters of Sydney Harbour (Attenbrow 2010: 38; Collins 1789: 557).

People living inland across the Cumberland Plain focused on hunting small animals, gathering plants and catching freshwater fish and eels. Banksia flowers, wild honey, varieties of yam and burrawang nuts (macrozamia - a cycad palm with poisonous seeds that require processing to remove toxins) were recorded as important food sources. Xanthorrhoea, also known as the grass tree, had many uses - the nectar was eaten, the stalk used as a spear and the resin as a glue. Small animals such as bandicoots and wallabies were hunted with traps and snares. Watkin Tench noted the skill in cutting toeholds in trees to swiftly climb to hunt possums (Tench 1793 [2004]: 82, 230; Kohen 1985: 9; Attenbrow 2010: 41).

The landscape and environment before Europeans arrived was a finely managed one. In 1790 John Hunter observed people 'burning the grass on the north shore opposite to Sydney, in order to catch rats and other animals' (Hunter 1793: 312). In 1804 Henry Waterhouse described the land around Cowpastures as 'a beautiful park, totally divested of underwood, interspersed with rich, luxuriant grass ... except where recently burnt' (*Historical records of New South Wales Vol. 5*: 359). These forests that had been managed by many generations of Aboriginal people through such methods as what is known as 'firestick farming'. Fire was an important tool and also used to open up tracks, to 'clean country', drive animals into the paths of hunters, cooking, warmth, treating wood, cracking open stones and for a place to gather, dance and share stories and knowledge (White 1790 [2003]: 163; Gammage 2012: 163-185; Griffith 2018: 240).

The Sydney region was a landscape rich with the imprints of activity, art and culture such as rock engravings and paintings, scarred and carved trees, ceremonial rock and mound structures, cooking ovens, villages of bark huts, stone tool quarries, grinding grooves and tool-making sites, burial and other shell middens, and other artefacts. All this activity had a lasting impact on the landscape, and many elements such as rock engravings in particular survive, or have been kept intact or cared for by community members. Over time, many Aboriginal pathways were taken up by the colonists and made into roads, some still on the same routes today. 'Kangaroo grounds' became colonial estates, fishing creeks became drains, hills and peaks used for communication became signaling stations and lookouts, and shell middens became the limestone for the bricks and mortar of early colonial buildings (Griffith 2018: 241; Gammage 2012: xix; Attenbrow 2012).

The large swathes of Hawkesbury Sandstone across the Sydney region were the canvas for what has been likened to an enormous open air art gallery – engravings of the outlines of spirit creatures, marsupials, birds, fish, weapons, footprints and even European boats alongside people, showing a continuity that carried on beyond the arrival of British colonisers in 1788. This Sydney art tradition was distinctive from other regions such as inland New South Wales where carved trees were more prominent, or further south where painting dominates. There are more than 4,000 known rock art sites and more than 3,000 rock shelters with pigment or painted art, often featuring hand stencils. The Sydney Basin has been compared to Kakadu National Park in terms of the vast numbers of Aboriginal sites that remain today (Karskens 2009: 32; Griffith 2018: 188; Mulvaney and Kamminga 1999: 284, 376-381; McDonald 2007).

Figure 8: 'Native climbing a gum tree', Georgiana Lowe - album of drawings of New South Wales views, ca. 1842-1850, Mitchell Library, State Library of New South Wales, SAFE/PXD 390



Figure 9: Fishing hooks crafted by Aboriginal communities living around Sydney Harbour, John White, 1790



3.4.1.2 Gadigal Country

The Gadigal lived on the south side of what is now called Sydney Harbour for hundreds of generations and tens of thousands of years. According to historian Keith Vincent Smith, 'Cadi' means 'below or under' and the name of the clan group stems from Camp Cove, a place described as below South Head (Smith 2020). The Cadi (or more correctly Gadi) heartland stretched from South Head through the present-day Eastern Suburbs to Woolloomooloo Bay, Farm Cove and Warrane or Warrang (Sydney Cove), up to the entrance to Darling Harbour or Gomora (Smith 2020).

They were one of around 30 clan groups across the Sydney region. On the west side of Gomora were the Wangal, on the north side of the harbour the Cammeraygal, Borogegal and Wallumedegal. To the south and east were the Bidjigal and Gweagal. While the Gameygal have been identified with the mouth of the Cooks River at Kamay-Botany Bay, their focus seems to have been toward the bay and not inland toward present-day Waterloo (Irish 2016: 11).

It is difficult to be precise today about how far the Gadigal clan 'estate' stretched to the south. Often, natural features such as watersheds, ridges or rivers were 'boundaries'. The study area of present-day Waterloo sits on the edge of the watershed of creeks running northward to the harbour and Shea's Creek headwaters running southward to Kamay-Botany Bay. It seems present-day Waterloo would have been more connected to Gadigal Country to the north.

Western conceptions of clan groups having distinctive boundaries are of limited value. Many clan groups had shared boundaries or reciprocal rights with bordering and neighbouring groups. With appropriate permission and protocols, people could travel through and hunt on other groups' lands. The resource rich wetlands and tidal areas of the Cooks River for example - particularly around the Gumbramorra wetlands that have now been largely land filled for the development of the Marrickville area - were likely to have been a significant shared resource area, accessed by Wangal, Bidjigal and Gadigal people.

The Kameygal lived on the north shore of Kamay or Botany Bay, along the banks of the Cooks River from the west and south to Botany and La Perouse. According to historian Keith Vincent Smith, in the Sydney language, *kamey* and variations, including *kamai*, *kah-my*, *ka-mai*, and *camey*, is the generic name for a spear. Thus the Kameygal were possibly the 'spear clan' (Smith 2020).

Precisely where the Gadigal and Kamaygal (Kameygal) shared a boundary is unclear. It is almost certain they both would have moved to the beach and rocks on the coast for seasonal or ceremonial purposes, such as the gathering of several hundred people Governor Phillip witnessed in 1790. According to David Collins, 'in a cove on the sea-side, between Botany Bay and Port Jackson, [possibly Little Bay] he [Phillip] suddenly fell in with an armed party of natives, in number between two and three hundred men, women and children.' Undoubtedly, people had gathered at least from Kamay and around Sydney Harbour to muster these numbers (Collins 1798: 24-5).

In 1790, the Wangal man Bennelong related to Governor Phillip the clans around Sydney Cove;

'From the Entrance of the Harbour, along the South Shore, to the Cove adjoining this Settlement, the District is called Cadi, & the Tribe Cadigal — the Women, Cadigalleon. The South Side of the Harbour from the above-mentioned Cove to Rose-Hill, which the Natives call Parramatta, the District is called Wann, & the Tribe, Wanngal. The opposite Shore is called Wallumetta, & the Tribe, Wallumedegal. The other Tribes which live near us, are those of Gweagal, Noronggeragal, Borogegal, Gomerrigal, & Boromedegal.' (National Archives 1790 in Smith 2020: 42-43).

The Gadigal had different relations with these groups – some Gadigal ceremonial gatherings such as initiations were conducted by other clan groups with certain authority to do so. For example, according to early colonist David Collins, the Cammeraygal (on the north side of the harbour) were able to ‘oblige’ other clans to ‘attend wherever and whenever they directed’ and Collins believed they had a ‘decided superiority over all the tribes’ the colonists had encountered. Contests were delayed until the Cammeraygal arrived and they also had the ‘extraordinary privilege of exacting a tooth from the natives of other tribes inhabiting the sea coast.’ (Collins 1798: 456).

As historian Paul Irish notes, the harbour clans were bound together by women, who married between various clans. Thus, Aboriginal people who lived in the area around present-day Waterloo were in fact from a mixture of clans. Everyone was bound by ‘complex webs of spiritual and family connection’ to other places than their clan group ‘heartlands’. They were bound through marriage and by the clans of their parents and grandparents, as well as their place of birth. To meet the cultural obligations of these links, Aboriginal people regularly travelled across the broader Sydney and southern coast region (Irish 2021: 24).

Gadigal women (Gadigalleon), like the rest of the coastal or saltwater groups in the Sydney region, were important food providers for their families. One of the staple food sources was fish. While men speared fish from the shoreline with multi-pronged spears or *mooting*, the women fished from their nawi or tied-bark canoes with lines and hooks. They made their fishing lines or carr-e-jun by twisting together strands of fibre from kurrajong trees, cabbage trees or flax plants. Animal fur and grass ‘nearly as fine as raw silk’ were also used to make lines. One colonist described them as ‘nicely shredded and twisted very close and neatly’. The distinctively crescent-shaped fish-hooks or burra were crafted from the turban shell (Bradley 1802: 133; Tench 1979: 284).

Gadigalleon had extraordinary skills in fishing, swimming, diving and using watercraft. They sang as they fished and were seen fishing for long periods during the day, in all weathers, and often at night with small fires on board. These women, as historian Grace Karskens has noted, ‘dominated the waters of the harbours, coves and bays, and the coastlines in between. The men mostly only used canoes when they wanted to get from one cove to another.’ (Karskens 2014)

Although the resource rich foreshores of the harbour were the focus for Gadigal, the areas inland around what is today's Eastern Suburbs, the City of Sydney and suburbs to the south of the Gadigal foreshore around Redfern and Waterloo were used as well. Inland, there were fruits, seeds, nuts and grains. Nectars, rhizomes and tubers were also harvested. Some parts of plants would have required special preparation to remove any poisons, but the seeds of all native grasses are edible. David Collins noted the difference between the inland areas and the foreshores, although did not observe the use of plants as closely as he might have;

‘The woods, exclusive of the animals which they occasionally find in their neighbourhood, afford them but little sustenance; a few berries, the yam and fern-root, the flowers of different banksia, and at times some honey, make up the whole vegetable catalogue’ (Collins 1789)

Near the study area of present-day Waterloo, there was series of permanent ponds and semi-permanent wetlands supporting waterbirds, freshwater fish and turtles, forests of paperbark and swamp mahogany, sedges, reeds, ferns and lilies. Freshwater springs rose near current day Surry Hills. What is now known as the Lachlan Swamps (in and around today's Centennial Park), were once much larger and surrounded by wetland vegetation. The wetlands also had expanses of sandstone outcrops that provided rock shelters. The area near present-day Waterloo was a rich place. It may have been, like the Gubramorra wetlands, a shared resource (Cox Inall Ridgeway 2021: vi).

Men used wooden spears and women wooden digging sticks - two of the most important possessions of Aboriginal people in the pre-colonial past. The Melaleuca tree's paper-like bark was used as shelter, wrapping, containers and for fire lighting. In 1791 John Hunter described how Aboriginal burning the ground on the north side of the harbour, opposite the settlement', was a practice 'constantly' done when the weather was dry (Hunter 1793: 361). 'Firestick farming' was the practice of burning land to create new green shoots and thereby attract kangaroos for hunting, but fire was also used to control undergrowth and prevent larger bushfires (Tench 1789: 284).

Due to the predominance of relatively soft sandstone around Sydney Harbour, hard stone used for axes and scrapers in particular, was traded from areas such as the basalt gravel beds along the Nepean River. Trading was extensive and far-reaching. Silcrete from an outcrop near present day Plumpton Ridge on the Cumberland Plain in Sydney's west and mudstone from the Hunter Valley or near Warragamba dam have been found around Sydney Harbour (Currie 2008: 10-15).

As the seasons changed, Sydney Aboriginal people moved throughout theirs and other clan groups' Country to access resources, set up camps and hold ceremonies. Songlines passed down through the generations guided them on their travels. They navigated the woodlands using a network of trackways that crisscrossed through Country. These tracks wove through kurrajong trees, Port Jackson fig trees and paperbarks. Many of these tree species can still be seen today in Sydney bushland today.

Aboriginal pathways were often turned into roads by colonisers from the 1790s. Pathways crisscrossed the entire Sydney region and often followed the best travel routes. According to historian Keith Vincent Smith, 'one notable path, which ran from Blackwattle Creek at the Brickfields Village (now Chippendale) southwards to the north shore of Botany Bay, was the forerunner of Botany Road' (Smith 2006). Aboriginal people would have walked along what became the road to Botany Bay just west of the study area at Waterloo for thousands of years (Meadows 1999: 2).

3.4.1.3 1788 – British Invasion and Colonisation

The Gadigal would undoubtedly have heard of if not seen the ship HMB *Endeavour* when it stayed in Kamay-Botany Bay for several days in 1770. Perhaps they viewed the ship from the high points near present-day Waterloo. However, the tall ships that arrived in 1788 did not continue to travel onwards like Cook's *Endeavour* – they arrived in Warrane (Sydney Cove) to stay – changing the Gadigal and all the Sydney groups' lives forever.

The colonisers arrived with pre-conceptions about Aboriginal society, often believing it to be static and unchangeable, unable to adapt to colonisation, and highly territorial. However, the network of social, ceremonial and family relations that existed among clans right across the Sydney region and beyond meant that in fact, the Sydney people were highly mobile and adaptable. At any one time, people from various clan groups could be living in another group's Country, people could have family networks over great distances and a clan group might have several different languages spoken. This adaptability, based in a strong central core of the clan's heartland, was to shape how Aboriginal people survived the decimation of disease and the massive impact of colonisation (Irish 2017: 16-17).

Lieutenant William Bradley's diary of the first year of the British outpost in the middle of Gadigal land shows a pattern of increasing conflict between the colonisers and the Sydney people during 1788. At first, in late January, Bradley reported how the people they met at Botany Bay were 'Well disposed to us' and for two days 'our People & the Natives were mixed together'. In the first two weeks at Warrane (Sydney Cove), he said 'Men, Women & Children' were 'very friendly'. At the 'Middle Branch', they 'met us in the most cheerful manner' and 'danced with us' and at Spring Cove on the north shore Bradley met 'several canoes' and the people 'had so much confidence in us' they 'mixed together and were quite sociable' (Bradley 1802: 61-65).

Bradley also noted how the men were reluctant to allow the Europeans near women. He admired their tactical good sense, as even when 'socialising' they 'had Arms ready to protect them' {women}, or had someone guarding their weapons, which 'increased my favourable opinion of them'. In the last few days of January Bradley recorded nine instances of communication that he witnessed, and only one of conflict (a spear thrown), and that was reported to him.

But as the days turned to months, conflict increased. During February Bradley recorded several times where 'the natives would not come nearer the camp' or 'ran off in great confusion'. On the 9th of February he wrote that the French under La Perouse at Botany Bay 'had been obliged to fire on the Natives' 'to keep them quiet' and at Garden Island how some Sydney men stole axes and shovels, 'but not without their skin being well pepper'd with small shot'. Still, he recorded personally observing ten instances of 'communication' and only two of conflict.

Tension between the Sydney people and the colonisers grew. As Tench and Dawes noted, there was an association made between all the colonists and firearms – 'gooroobeera' according to Tench was the name given to the colonists as 'those who carry guns' and according to Dawes 'djerebar', the name given to the musket and which 'the natives frequently called us by'. Bradley noted at North Head he met three men and two boys who 'made signs for us not to fire our Musquets' (Gapps 2020).

By September, Bradley's initial idea 'of their being Friendly disposed' had changed. He was now convinced the Sydney people were only friendly when 'we have them in our power' or they 'are well prepared by being armed'. He noted that lately 'they have attack'd almost every person who has met with them that has not had a musquet & have sometimes endeavoured to surprise some who had'. Indeed, he writes 'the Musquet now seems to be the only thing to keep them in Awe' and that some of them have been killed by Musquet balls ... I have not the least doubt'. At this point, no Aboriginal people living around Sydney Harbour would approach the British encampment at Warrane (Sydney Cove). The Gadigal now refused to communicate with those occupying their lands (Bradley 1802: 112-127).

3.4.1.4 Prisoners and the deadly Galgala

In April 1789, what Sydney Aboriginal people called galgala or smallpox broke out and more than half - possibly even 80 percent - of the population around Sydney Harbour were dead within a month. While there is no historical evidence to suggest smallpox was intentionally released by the colonists, it has been strongly associated with them by Aboriginal people ever since.

With Warrane as in effect the 'ground zero' point of the British invasion and occupation of Aboriginal lands, the Gadigal stood little chance. Bennelong, a Wangal man from west of Gomora (including his 'estate' of Me-mel or Goat Island), told the colonists that his Gadigal friend Colebee's 'tribe' (as David Collins put it) was reduced by smallpox to just three people (Collins 1798: 487).

Sydney was still very much an Aboriginal place for a long period during the 19th century, particularly as people came to the city from other areas. During the 1830s to 1860s there was a surprising number of camps around Sydney Harbour and in the broader area, hundreds of Aboriginal people were a regular sight paddling their nawi (bark canoes), guiding foreign visitors, selling fish to people and travelling the roads and tracks. The coves and creeks around the more rugged areas of today's eastern suburbs were still very much undeveloped bushland, offering fishing and other resources.

3.4.1.5 The Protection Era and 20th century

By the 1890s, most Aboriginal people had either moved away from the city or had been forced to move to reserves and missions. Some few managed to survive in camps along creeks and rivers to the south and west such as at the Hawkesbury and Georges River, but as the city rapidly expanded from the 1880s it became almost impossible to live close to the city.

The access to fishing and traditional foods at La Perouse, as well as being far enough away from the city to be relatively 'out of sight' from the authorities - but also close enough to southern Sydney for work opportunities - meant it had become a focal point for the southern coastal Aboriginal people of Sydney who had survived invasion and dispossession (Irish 2021: 59).

But in the 1880s, there was a major – and devastating - shift in government policy. The Parkes government was under increasing pressure to take action on Aboriginal affairs and in 1882 George Thornton was appointed as Protector of Aborigines. In 1883, Thornton's role was replaced by the Aborigines Protection Board. The Board wanted to segregate Aboriginal people onto small areas of land and by 1885, seven acres of land at La Perouse was declared a 'Reserve for the use of Aborigines' – the only one at this stage in the Sydney region.

In 1895, the reserve was enclosed by a fence and only the local constable and the resident missionary had keys. Aboriginal people were prevented from selling fish at the markets and restrictions placed upon boat and rail travel. In 1897 the Aborigines Protection Board rejected requests by missionaries for more huts and increased rations for the La Perouse community because the board believed this would encourage more people to move from the south coast to La Perouse. The late 19th and early 20th centuries were a grim period of Australian racism (Kensy 2008).

From the early 1900s, the Aboriginal population in the Sydney city area began to grow. The working class suburb of Redfern became a hub for Aboriginal people to live and work. Jobs on the railways at the Eveleigh Railway Workshop in particular, offered an opportunity for people to move away from missions and reserves and the control of the Aborigines Protection Board. A strong community began to develop in the Redfern, Eveleigh and the Waterloo area. The opportunity to work was one factor – other people came to 'reconnect with family'. Very soon the area became known as 'Aboriginal Redfern'. It also became the most recognised and significant urban Aboriginal place in Australia (Cox et al. 2021: v).

3.4.2 Conclusion and summary

The local region and study area has been inhabited and utilised by the Gadigal people. While archaeological evidence of these subsistence activities does survive within the local area, notably dugong remains at Shea's Creek, they are sporadic and often located within highly disturbed contexts which is reflective of the significant impacts historical development has had within the local landscape. This is also the case where no registered AHIMS sites are located within the study area.

4.0 LANDSCAPE CONTEXT

4.1 Soils and Geology

The study area is located within the Botany Basin, a geological feature that is largely filled by a Quaternary sand sheet, often of considerable depth. The sand sheet was deposited by prior watercourses during marine inundation, and most recently by wind. These sands constitute a geological unit referred to as Botany Sands (Australian Stratigraphic Unit 2352) (Australian Stratigraphic Units Database, 2021) (Figure 10). The uppermost layers of the Botany Sands have been classified as Tuggerah Soils on the *Soil Landscapes of the Sydney 1:100,000 Sheet* (Chapman & Murphy, 1989). Within the Botany Basin, much of the Botany Sands and all of the Tuggerah Soils it contains only reached their current natural forms within the past 25,000 years. The dynamic nature of land formation in the Botany Basin has included several periods of significant inundation over this period. Carbon dates taken from swale fills of dunes, which post-date the formation of main dune bodies, range from 1700 years ago to the present, reflecting the recent and ongoing aeolian (wind) deposition of dune material (Gale, deRocheffort, Moore, & Timms, 2018). Following the stabilisation of sea levels from approximately 4,500 years ago, local sand dunes in the Botany Basin formed and were stabilised by vegetation. A stained grey sand surface formed representing a habitation surface and this stained grey surface represents the archaeologically sensitive unit of the Botany Sands.

It is important to note that not all units of the Botany Sands or Tuggerah Soils are archaeologically sensitive. The archaeologically sensitive layer of the Botany Sands consists primarily of the sands deposited by the Holocene winds, stained grey from organic materials, which once comprised the ground surface during Aboriginal habitation of the area. As noted above, they are likely to date no earlier than from approximately 4,500 years ago. These stained grey sands are the top unit (tg1) of the Tuggerah Soil Landscape. This topsoil unit (tg1) is described as a surface of about 300mm deep of organically grey-stained unconsolidated sand, sitting above bleached sands (tg2) of one to two metres in depth. Traces of more recently deposited degrading vegetation may be preserved as an overlying thin darker grey layer above the archaeologically sensitive grey tg1 sands. The full description of tg1 in the *Sydney Soil Landscape 1:100,000 series* reads:

tg1: Loose speckled grey-brown loamy sand. This is grey-brown speckled sand to loamy sand with apedal single-grained structure and porous sandy fabric. It generally occurs as topsoil (A1 horizon). This material consists of a mixture of small dark organic fragments and clean, well sorted, quartz sand grains. Colour ranges from brownish-grey (10YR 4/1) to brownish-black (10YR 2/3) or black (10YR 2/1) with increasing organic matter. It is characteristically water repellent. The pH is slightly acid (pH 6.0) to neutral (pH 7.0). Roots are abundant and charcoal fragments are often present. Stones are absent (Chapman & Murphy 1989).

The Tuggerah Soil units that underlie the bleached tg2 sands can continue to tens of metres in depth. They vary in colour and composition largely according to local hydrology and position on the landform. They frequently include combinations of stained brown sand (tg3), yellow massive sand often to considerable depths (tg6) and lenses of iron-indurated sand pan (coffee rock) (tg5). These sand units rest on earlier Pleistocene sands, which in turn rest on Hawkesbury Sandstone or at times Wianamatta shale.

While the study area has been subjects to significant ground disturbance through residential developments, Aboriginal objects may be present within deep distributed Botany Sands, as was the case with the adjacent Waterloo Metro Station subsurface scatter (AHIMS ID 45-6-4138).

4.2 Hydrology and landforms

The study area is situated within a sloped landform part of a small ridgeline spur. The slope ascends eastwards towards a crest in the landscape a small portion of which is located in the very eastern corner of the study area (Figure 11).

The surrounds of the study area were once a rolling plain of sand dunes (Quaternary sand sheet) interspersed with waterbodies, freshwater swamps and occasional streams. Covered by an open woodland and herbaceous shrubland, the study area would have constituted an advantageous location for Aboriginal people in the past, particularly given the likely presence of waterfowl, fish and eels in local waterbodies. It would be expected that such utilisation of the landscape would result in preferential deposition of Aboriginal artefacts in swales (low points between dunes), and at the toe of slopes overlooking local waterbodies.

Shea's Creek is the nearest waterway located approximately 245 m south of the study area and is now largely confined to a stormwater channel that flows through Alexandria southwards into the Alexandria Canal and joins the Cooks River into Port Jackson. Prior to construction of the Alexandria Canal, and in the early days of British colonisation Shea's Creek was a part tidal, narrow flowing tributary of the Cooks River (Ringer 2013). Waterways were ideal locations for providing food resources and camping grounds in proximity to these resources along the creek for Aboriginal people for millennia. This is reflected in the significant Shea's Creek Dugong site (AHIMS ID 45-69751) found in 1896 during the canal's construction.

The waste matter from the local industries was released into Sheas Creek, making it one of the worst polluted waterways in Sydney (Ringer 2013). The canal was built by the NSW Department of Public Works in 1887 and was intended to connect Botany Bay to Sydney Harbour and transport coal, blue metal and building materials to the Sydney docks.

Figure 10: Quaternary aeolian dune overlapping with the study area (red). (Source: Gale and Wales 2022)

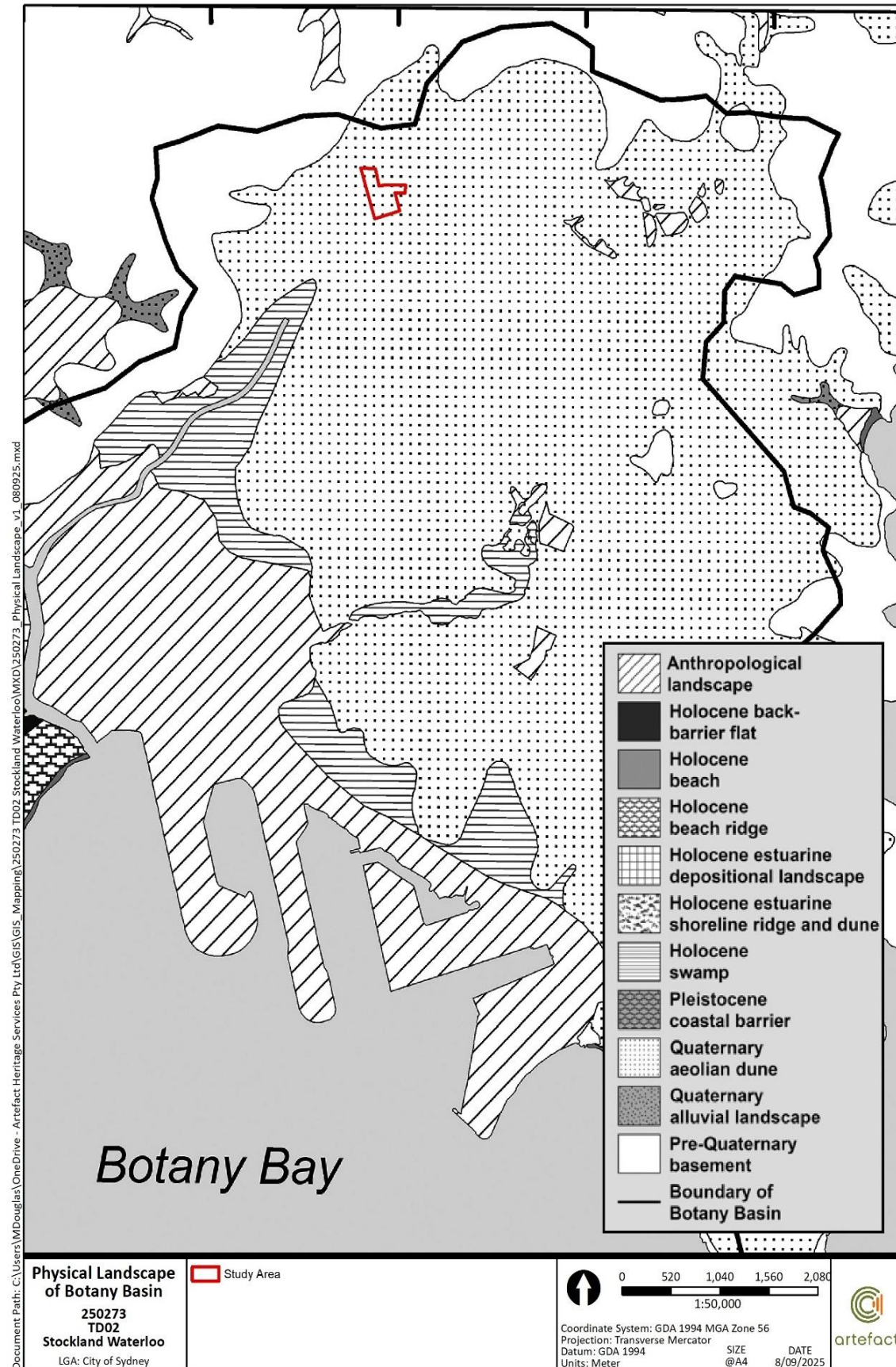


Figure 11: Topography of the study area



4.3 Historic land disturbance

In the 1850s, the area was largely undeveloped (Figure 14). The eastern portion of the study area was part of the early land grant of John Thomas Campbell. No known structures were built within the study area at this time however the native vegetation had likely been removed. By 1884, a city of Sydney surveyor sheet showed the area subdivided and completely developed comprising of small Victorian terrace housing and small commercial shops (e.g. bakery, old fur works, and a hotel) (Figure 15).

The surrounding suburbs to the south and west of the study area such as Erskineville, St Peters, Alexandria and Marrickville were noted as not suitable for agriculture in the early years of the colony and was described as having shallow water and large swamps (Ringer 2013). For this reason, the colonial administrator's focus for agriculture was directed towards Parramatta River and the Hawkesbury River. Land to the south and west of the study area was alternatively designated for industrial activities that included kilns for brick making tanneries, wool washing, and chemical manufacturing. The waste matter from these industries was released into Sheas Creek. The brickmaking industry thrived in at Alexandria, Waterloo, Newtown, Marrickville and Tempe, and St Peters. As Sydney's population grew, so did the demand for bricks for terraced housing. As such small inner city Victorian terraces were needed to house the workers of these industries replaced the former small holdings of these areas (Ringer 2013) which was the case for Waterloo and the study area (Figure 15).

The Victorian terrace houses and small commercial shops did not change much as seen in historical arial photography from 1930 (Figure 15 and Figure 16) till 1960s (Figure 18) with the exception of some demolition for larger warehouses, namely for Waters Trading Co Ltd and Goldberg Browns Pty Ltd in the central portion of the study area (Figure 17). The existing housing commission is also evident within Figure 15 and Figure 16 confined to three buildings in the north of the study area. By 1971 all of the Victorian terrace houses were demolished (Figure 12 and Figure 13) and additional Housing commission buildings comprised the entirety of the study area (Figure 18). The study area has remained relatively the same until present day with the exception of road upgrades, landscaping and subsurface infrastructure (e.g. NBN).

Pockets of retained and disturbed areas within the Botany Sands are known to preserve Aboriginal objects. The implications of previous investigations were that although archaeological potential in Tuggerah soils may be drastically reduced when Tuggerah soils are removed and disturbed, it is also possible that intact or truncated Tuggerah soil contexts are preserved beneath layers of historical fill. While the study area has been significantly developed over the last 140 years the depth of these impacts is unknown, and no obvious areas of deep bulk excavation are apparent within historical maps and arial photography. Therefore, despite significant historical ground disturbances, artefacts may still be present within the study area.

Figure 12: 1964 demolition works along John Street Housing Commission in the distance
(Source: City of Sydney Archives)



Figure 13: Demolition works at Waterloo 1955 (Source: City of Sydney Archives)



Figure 14: 1850s sketch. (Source: Historical Land Records Viewer)



Figure 15: 1884–1894 City of Sydney detailed sheet (Source: City of Sydney Archives)

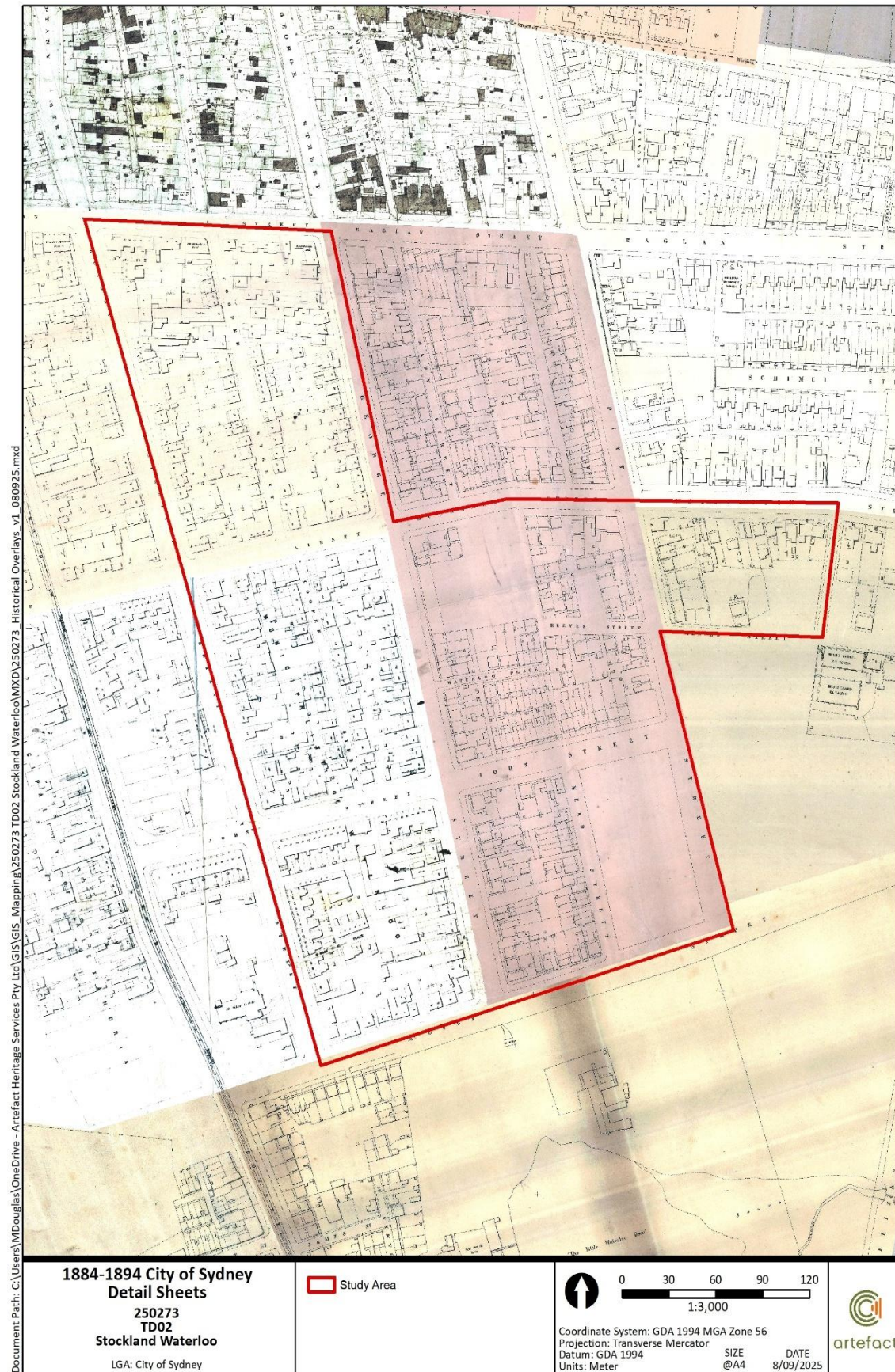


Figure 16: 1930 Historical aerial photography (Source: Historical Imagery Viewer)



Figure 17: 1943 Historical aerial photography (Source: Historical Imagery Viewer)

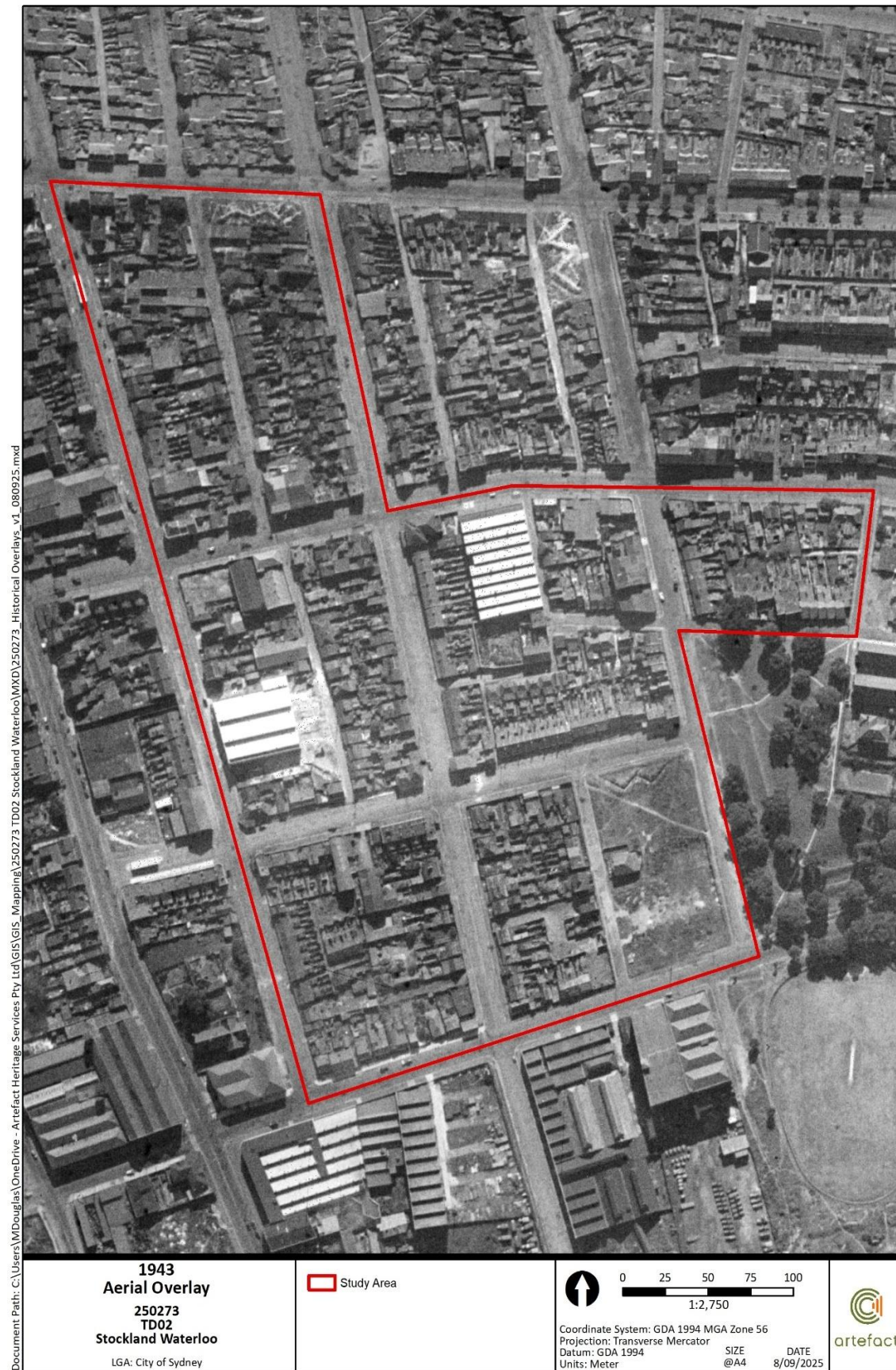


Figure 18: 1971 Historical aerial photography (Source: Historical Imagery Viewer)



5.0 SUMMARY AND PREDICTIONS

5.1 Regional and local archaeological character

The broad archaeological characteristics of the regional area is characterised by its location within the Sydney Basin and within the Botany Sands, an area known to have been inhabited in its hinterland for at least 36 000 years. However, this evidence for occupation from the late Pleistocene is scarce due to the historical fluctuating sea levels of Port Jackson with a majority of sites dating no earlier than 6,000 years ago. The hydrologically significant Port Botany, a large estuary, and its surrounding swamps and creeks provided resources for Aboriginal people in the past. This is reflected within the extensive AHIMS search where evidence of past activities has been identified within the regional landscape. However, the more local area surrounding and within the study area has been subject to intense historical ground disturbances. This is reflected in the local archaeological character in that site distribution patterns of registered sites in the local area do not appear consistent with landform patterning or obvious concentration of sites due to historical impacts.

The evidence gathered from the geomorphological data regionally like that in Moore Park and locally like that in Waterloo Metro Station carried out in Tuggerah Soils in the wider vicinity of the study area indicates that there exists only low archaeological potential where the archaeologically sensitive t1 upper soil unit has been removed or disturbed through development including road formation and housing. Where archaeological sites have been located in such disturbed t1 soils these are either low density deposits, or sites where specific historical mechanisms have acted to aggregate artefacts such as redeposition of artefact bearing botany sands.

5.2 Predictive model

Based on desktop research and assessment, the following predictive statements are made, and which will serve to inform further investigations or management recommendations.

- Although the study area has been subject to different phases of construction, it is possible that intact Tuggerah soil profiles may survive in the study area
- Artefacts are known to preserve in areas of Botany Sands beneath housing foundations, roads and modern fill and may be present within similarly disturbed areas within the study area
- Subsurface low density artefact scatters have the highest potential to be present within the study area
- Culturally modified trees, rock shelters or engravings are unlikely to be present within the study area
- Depths of developmental impacts are not currently known however it is assumed that the construction of the residential dwellings are likely to have significantly impacted the subsurface contexts. Areas of potential are therefore more likely to be contained to locations that have not undergone extensive development such as the landscaped areas, gardens and beneath sealed road surfaces and footpaths where disturbances are more likely to be limited to the upper stratigraphic units
- On the basis of the site listing AHIMS ID 45-6-2597, Urbis (2020) proposed that the study area should be considered sensitive for midden sites. However, based on AHIMS ID 45-6-2597 listed as not a site, is mapped in the wrong location, and the highly disturbed nature of the

study area and surrounding Sheas Creek, it is predicted shell middens have low potential to be present within the study area

- Urbis (2020) identified an area of low to moderate archaeological potential within the southern portion of the Waterloo Estate (South) study area. The area of potential is considered to have low degree of potential to contain shell middens and low to moderate degree to contain stone artefact deposits. The area of low to moderate archaeological potential was based on predictive modelling of the study area which was informed by environmental, historical and archaeological information. It was estimated that archaeological material is most likely to occur within the less disturbed areas and in proximity to the known resource areas. Resource areas include areas such as Waterloo Swamp, which was located southeast of the study area and Shea's Creek located south of the study area.

6.0 METHODOLOGY

6.1 Aims

The aims of archaeological survey are to:

- test the predictive model by ground truthing the findings of the desktop assessment
- identify and record all Aboriginal objects visible within the study area
- identify and define areas of PAD (as defined by the predictive model)
- gather enough information to assess scientific values of identified Aboriginal objects.

6.2 Constraints and limitations

No constraints or limitations were encountered during the survey.

6.3 Survey personnel

The survey was undertaken on 24 September 2025 by Lily Hackett (Heritage Consultant) and Jonny Love (Senior Heritage Consultant). Will Middleton (Aboriginal Engagement Manager, Stockland) accompanied the team to ensure ingress and egress to the study area. Raymond Weatherall (Site officer, Metro LALC) was scheduled to attend the survey however due to a last minute conflicting event he was unable to attend the survey.

6.4 Sample strategy

A pedestrian archaeological survey of the study area was conducted in accordance with the Code of Practice (DECCW 2010). Due to the large size of the study area, the survey was divided by landform. The western half of the study area was located within one flat landform and was therefore further divided by block, 5 survey units in total (Figure 19).

6.5 Survey procedure

Archaeological survey was completed in accordance with the Code of Practice. Ground exposures were inspected for Aboriginal objects. A handheld Global Positioning System was used to track the path of the survey teams and record coordinates of any identified Aboriginal sites or areas of interest. The coordinates system projection used for all recording was GDA MGA 56. The land surface, soil exposures, ground disturbances and vegetation were observed and photographed where appropriate.

6.6 Site recording procedure

An Aboriginal site is generally defined as an Aboriginal object or place. An Aboriginal object refers to any deposit, object or material evidence (not being a handicraft) relating to Aboriginal habitation of the area that comprises New South Wales (DECCW 2010b). Aboriginal objects may include stone tools, scarred trees or rock art. Some sites, or Aboriginal places, can also be intangible and although they might not be visible, these places have cultural significance to Aboriginal people. Heritage NSW guidelines states, regarding definition of a site and its boundary, that one or more of the following criteria must be used when recording material traces of Aboriginal land use:

- The spatial extent of any visible Aboriginal objects, or direct evidence of their location

- Obvious physical boundaries where present, e.g., middens (if visibility is good).

Figure 19: Survey units and tracks



7.0 RESULTS

7.1 Description of survey units

7.1.1 Survey Unit 1

Survey unit 1 encompassed two blocks of existing residential social housing apartment buildings. Survey unit 1 is bounded by Cope Street to the west, Raglan Street to the north, George Street to the east, Wellington Street to the south, and bisected by Cooper Street. The survey unit features a flat landform with a very gentle slope towards the eastern boundary (Figure 20 and Figure 21). The majority of the ground was obscured by concrete driveways, bitumen, and grass vegetation however patches of exposed soil were observed within landscaped gardens and around tree trunks. Soils exposed comprised light brown/grey silty sand which is consistent with the description of upper soil unit of tg1 (Figure 22). Waterloo Green and T.J. Hickey Park directly north of survey unit 1 outside the study area comprised more undulating terrain suggestive of natural ancient dune undulation. A soil exposure in this area was consistent with the sandy deposits observed within the study area also suggestive of Tuggerah soils (Figure 23). However similar sandy soils were also observed beneath cut bitumen along the pedestrian pathways suggesting it may indicate fill as opposed to remnant soil deposits.

Numerous underground services, such as drainage infrastructure, NBN conduits, and electrical services were observed indicating localised high levels of ground disturbance (Figure 24). The footings of the existing buildings and any grading that had occurred for their construction also likely caused ground disturbances. Because the depth of these disturbances is unclear, botany sands with potential archaeological objects may be present and therefore an area of PAD was identified. The PAD was identified as Waterloo Estate South PAD 01.

A sandy soil exposure measuring approximately 20 m by 16 m was observed in the front garden in the southwestern corner of survey unit 1 (Figure 26) located opposite AHIMS ID 45-6-4138 (Figure 28). This exposure also contained highly fragmented shells several of which were half buried. The species observed included Common Pipi or Goolwa Cockle (*Plebidonax deltoides*), Sydney Cockle (*Anadara trapezia*), and Sydney Mud Whelk (*Pyrazus ebeninus*). Although the shells were highly fragmented and of low density, the Sydney Cockle was the dominant species with the most intact shell fragments (Figure 25). A large drainage gate was located in the centre of the exposure (Figure 27). Due to the low-density, highly fragmented nature of the shell deposit and a far distance from the nearest Creeklane (536 m) it was assessed unlikely to be a shell midden. Further investigation would be required to determine if the fragments represent disturbed midden or organic material within fill.

7.1.2 Survey Unit 2

Survey unit 2 comprised two blocks north of John Street of social housing that continued in the eastern and southern sections. In the northwestern corner, more modern, larger commercial buildings alongside some historical late 1800s and early Victorian terrace houses were located (Figure 30). The same flat landform from survey unit 1 continued into survey unit 2. Similar levels of ground disturbance from underground services and landscaping were also observed. Therefore, it was assessed the PAD continues into survey unit 2 within the social housing areas.

Comparatively, the larger commercial buildings comprised the entirety of the lot up to the pedestrian pathway as opposed to the social housing lots which had landscaped gardens surrounding them. As such, no visible ground surface or soil exposures were observed surrounding the commercial buildings in the west. A potential underground car park was also identified suggesting greater disturbance in this area and limited archaeological potential (Figure 29).

Figure 20: Flat landform with social housing.
View southeast



Figure 21: Flat landform along Cope Street.
View south



Figure 22: Silty sandy exposed soil



Figure 23: Sandy soil exposure along Waterloo green.
View north



Figure 24: Subsurface services



Figure 25: Almost whole Sydney Cockle
(*Anadara trapezia*)



Figure 26: Shell fragments within sandy soil deposit



Figure 27: Drainage infrastructure within shell deposit



Figure 28: View of AHIMS ID 45-6-4138 from the study area. View west



7.1.3 Survey Unit 3

Survey unit 3 consisted of a single block of housing commission, bounded by John Street to the north, George Street to the east, Cope Street to the west, and McEvoy Street to the south. The flat landform continued into survey unit 3. This block comprised larger gardens and grassed areas which also contained fewer ground services with less ground disturbance. This area overlapped with the previous area of potential identified by Urbis (2020). Based on the similar levels of disturbance and location within the botany sands as survey unit 1 and 2, it was assessed archaeological potential remains within this area (Figure 31).

7.1.4 Survey Unit 4

The flat landform continued east into survey unit 4 located between George Street and Pitt Street. From Mead Street eastward, the survey unit sloped with increasing steepness progressively towards the eastern boundary along Pitt Street. The flat portion of survey unit 4 in the west with extant social housing comprised the same ground services, landscaping and disturbances observed in the previous survey units with the exception of greater ground disturbance through basement carparks in the northern portion along West Street (Figure 36). Similar grey-brown sandy soil was observed within landscaped garden beds surrounding tree trunks in the southeastern corner of survey unit 4 (Figure 33 and Figure 37). It was assessed the PAD extended into survey unit 4 (Figure 32).

Comparatively greater ground disturbance than the social housing areas were observed within the elevated slope (Figure 34 and Figure 37). The same brown, grey sandy soil was also present within large exposures sporadically observed along the sloped landform however with significant cuts and terracing into the slope for the construction of pedestrian pathways, roads and extant apartments it was therefore assessed the PAD did not extent beyond Mead Street (Figure 35).

7.1.5 Survey Unit 5

Survey Unit 5 is located within the steepest portion of the entire study area. The slope continued to ascend to the east with the southeastern corner rising to a crest (the majority of the crest was located outside of the study area). Survey unit 5 was similar to the eastern half of survey unit 4 in that it had also been heavily modified through cutting, grading and terracing of the natural slope (Figure 40). A single sandstone boulder was identified however it displayed evidence of mechanical cutting and was relatively small and had therefore likely been redeposited through landscaping works (Figure 39). A second mound of boulders observed in the area also appeared to be imported from outside the study area (Figure 40). Due to the extent of disturbance and the steep topography, no areas of archaeological potential were identified within survey unit 5.

7.2 Summary

No Aboriginal objects were identified within the study area. One area of archaeological potential (Waterloo Estate South PAD 01) was identified within survey unit 1, 2, 3 and 4 (Figure 46). One area of highly fragmented shell was identified within survey unit 1 however further investigation would be required to determine if this is a shell midden or deposited organic material within fill.

Figure 29: Potential basement carpark



Figure 30: Extant Victorian terrace houses

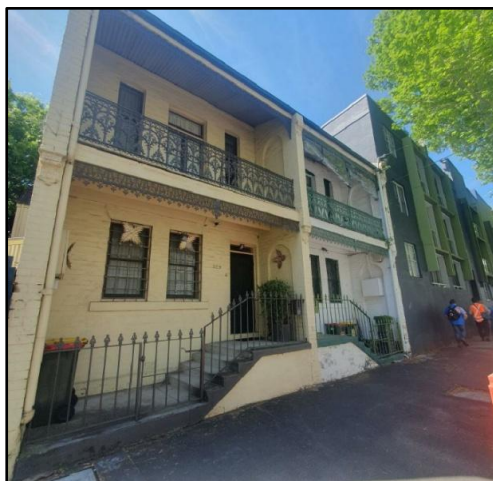


Figure 31: Waterloo Estate South PAD 01. View east

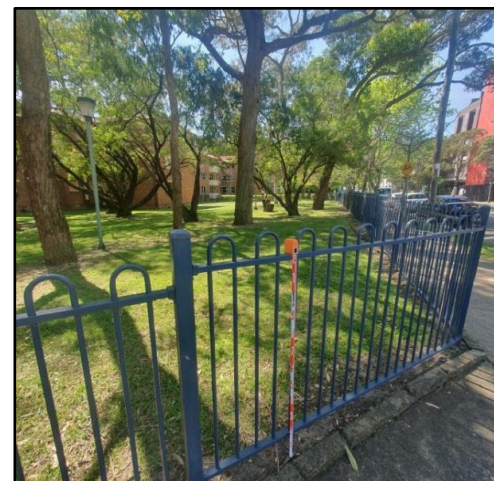


Figure 32: Waterloo Estate South PAD 01. View north west



Figure 33: Sandy soil exposure within Waterloo Estate South PAD 01



Figure 34: Slope along McEvoy Street. View north



Figure 35: Cut into natural slope. View west.



Figure 36: Basement carpark along Wellington Street



Figure 37: Sand deposit along surrounding tree trunk



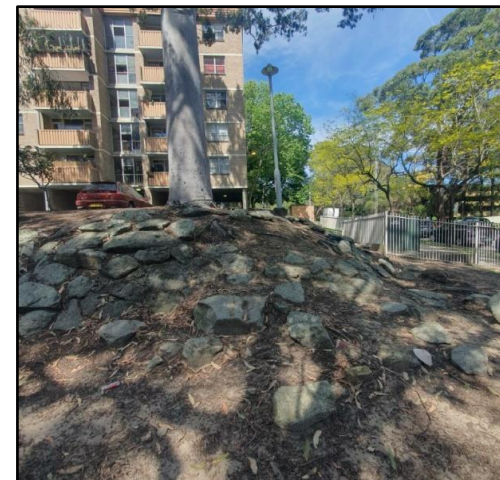
Figure 38: Terracing within the slope. View south



Figure 39: Mechanically cut sandstone



Figure 40: Landscaped area with boulders. View west



7.3 Analysis of survey coverage and effectiveness

The Code of Practice (DECCW, 2010) specifies that survey coverage should be assessed to the nearest 10%, and provides the following definitions:

Visibility:

Is the amount of bare ground (or visibility) on the exposures which might reveal artefacts or other archaeological materials. It is important to note that visibility, on its own, is not a reliable indicator of the detectability of buried archaeological material. Things like vegetation, plant or leaf litter, loose sand, stony ground or introduced materials will affect the visibility. Put another way, visibility refers to 'what conceals'

Exposure:

Is different to visibility because it estimates the area with a likelihood of revealing buried artefacts or deposits rather than just being an observation of the amount of bare ground. It is the percentage of land for which erosion and exposure was sufficient to reveal archaeological evidence on the surface of the ground. Put another way, exposure refers to 'what reveals'.

Effective survey coverage is outlined in Table 5, and landform survey coverage is outlined in Table 6.

Table 5: Effective survey coverage

Survey Unit	Landform	Survey unit area (m ²)	Visibility (%)	Exposure (%)	Effective Survey Coverage (m ²)	Effective Coverage (%)
1	Flat	28919	10	5	144	0.50%
2	Flat	21303	0	0	0	0
3	Flat	17355	5	5	43	0.25%
4	Flat and Slope	38851	10	0	0	0
5	Slope	15208	10	0	0	0

Table 6: Landform survey coverage

Landform	Landform area (m ²)	Area effectively surveyed (m ²)	% of landform effectively surveyed	Number of sites
Flat	87002	187	0.21%	1 (Waterloo Estate South PAD 01)
Slope	34633	0	0	0

7.4 Aboriginal sites

A summary of the archaeological survey results is provided in Table 7 below.

Table 7: Archaeological survey results

Site number	Feature(s)	Survey unit	Landform
Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)	PAD	1, 2, 3 and 4	Flat and lower slope.

7.4.1 Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)

The details for Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171) are outlined below and the AHIMS registered site card has been included in Appendix B – AHIMS site card

Site name	Waterloo Estate South PAD 01
AHIMS ID	45-6-4171
Site type	Potential Archaeological Deposit (PAD)
Length	516 m
Width	203 m
Zone	56
Easting	333788
Northing	6247575
Horizontal accuracy	3 m
Location method	Non-differential GPS
Landform pattern	Undulating terrain
Landform unit	Flat and lower slope
Land use	Residential
Vegetation	Cleared
Distance to water	261 m
Directions to site	The PAD is located immediately east of Waterloo Metro Station, east of Cope Street. Continue to walk south along Cope Street, east along Wellington Street and south along George Street to walk the length of the PAD.
Description of features	The PAD is located within a flat landform that gently slopes to the east. The PAD is located within Botany Sands (Figure 41, Figure 42, and Figure 43). Although the PAD has been subject to historical ground disturbances (residential buildings, footings, subsurface services), sand deposits with Aboriginal objects have been identified beneath layers of historical fill and up to 2-2.5 m deep. Therefore, it was assessed artefacts may be present beneath historical buildings and landscaping. A small soil exposure contained highly fragmented shell of different species (Figure 44 and Figure 45). Further investigation would be required to determine if this is an Aboriginal shell midden or redeposited organic material within fill.
Site interpretation	Brown-grey silty sand was identified within exposed garden beds, around tree trunks and beneath cut bitumen across the PAD which may suggest fill from the extensive historical development, demolition then re-developments in the mid 20 th century. However, it is consistent with the description of topsoil unit (tg1) soil unit and may also be remnant botany sands. Further investigation is

	required to determine if Aboriginal archaeological objects are present within the PAD.
Site condition	Disturbed
Open/closed site	Open
Restrictions	None

Figure 41: Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171). View northwest



Figure 42: Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171). View northeast

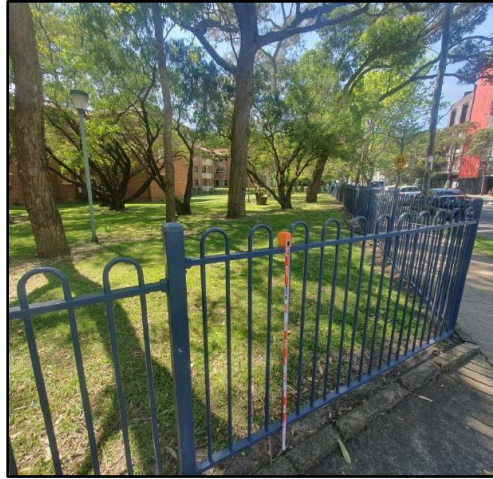


Figure 43: Sandy soil exposure



Figure 44: Shell fragments



Figure 45: Shell fragment within silty sandy deposits



Figure 46: Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)



8.0 DISCUSSION AND ANALYSIS

The results of the ground survey largely align with the predictive statements in section 5.2. The predictions suggested that intact Tuggerah soil profiles might survive despite the extensive previous and extant historical construction and ground disturbances throughout the study area. While the light brown/grey silty sand is consistent with the upper soil unit of tg1 observed throughout the whole study area, this may also indicate a sandy fill. Sand deposits with Aboriginal objects have been identified beneath layers of historical fill and up to 2-2.5 m deep within the botany sands, particularly in Moore Park and in Central Station. Therefore, if the sand exposures observed on the study are indeed sandy fill deposits, remnant botany sands with potential Aboriginal archaeological artefacts may be present beneath this fill, historical buildings, bitumen and landscaped areas. As such, Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171) was identified.

No Aboriginal surface objects were identified. This is consistent with the local and regional archaeological character of the surrounding highly urbanised landscape that has significantly impacted the preservation of surface archaeological evidence in comparison to other areas of Sydney, such as in Western Sydney where surface scatters are identified more frequently.

The presence of highly fragmented shell deposits in survey unit 1 may indicate a highly disturbed and fragmented surface expression of a shell midden. However, the shell exposure is located approximately 536 m north of Shaes Creek, the almost whole fragments that were observed were relatively small (>4cm) and the shell fragments were within a highly disturbed area. All of these contextual elements combined suggests the deposit is not a cultural shell midden but rather redeposited organic material within sandy fill. Additional archaeological investigations would be required to confirm this assumption.

The desktop assessment's prediction of low potential for culturally modified trees, rock shelters, and engravings was also confirmed by the survey, which did not identify any such features. Sandstone outcrops are not common within the Tuggerah soil landscape and therefore the minimal sandstone rocks that were identified within the study area were likely redeposited being small and within highly landscaped areas.

The prediction that areas of potential would be more likely in less disturbed locations was supported by the identification of the Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171) across survey units 1, 2, 3, and 4. The PAD overlapped the areas of housing commission that did not include basement carparks and therefore sand deposits with potential cultural material may be located beneath the extant buildings and bitumen. Further targeted investigations are necessary to refine our understanding of the potential subsurface archaeological material.

9.0 SIGNIFICANCE ASSESSMENT

9.1 Significance assessment criteria

In accordance with the Code of Practice, an assessment of the scientific value of an Aboriginal object is required in order to form the basis of its management. The Guide provides the following criteria for the assessment of scientific value:

- Research potential – does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state’s natural and cultural history?
- Representativeness – how much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?
- Rarity – is the subject area important in demonstrating a distinctive way of life, custom, process, land-use, function or design no longer practised? Is it in danger of being lost or of exceptional interest?
- Education potential – does the subject area contain teaching sites or sites that might have teaching potential?

It is important to note that heritage significance is a dynamic value.

9.2 Statement of scientific value

9.2.1 Waterloo Estate South PAD 01

It is unknown whether Aboriginal archaeological objects are located within Waterloo Estate Renewal South PAD 01 (AHIMS ID: 45-6-4171). As such the research and educational potential is unknown, and the representativeness and rarity of potential artefacts deposits is also unknown. The PAD is of unknown scientific value. Archaeological test excavation would be required to understand the extent and nature of the PAD to ascertain its scientific value.

A summary of the archaeological significance of sites identified is presented in Table 8.

Table 8: Significance assessment

Site name (AHIMS ID)	Research potential	Representativeness	Rarity	Education potential	Overall significance assessment
Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)	Unknown	Unknown	Unknown	Unknown	Unknown

10.0 IMPACT ASSESSMENT

10.1 Description of likely impacts

10.1.1 Project vision and intended outcomes

The vision for the site is to create a unique and vibrant mixed-tenure housing precinct that supports the needs of the community and delivers much needed housing in response to National and State Government priorities. Through consultation with Homes NSW, the concept aims to deliver a project that:

- High quality mixed tenure housing in the context of a rapidly transforming area
- Approximately 3,300 new dwellings, of which a minimum 30% will be social housing, approximately 20% will be affordable housing, and a maximum of 50% will be market housing (measured as a percentage of the total residential gross floor area)
- Publicly accessible open space and public realm activation
- An authentic mixed-use precinct, with housing co-located with non-residential uses, community uses, essential services, and access to public transport.

The proposed redevelopment seeks to create a unique and vibrant destination that can deliver significant social benefits to residents, visitors, and workers in the Waterloo area and broader City of Sydney LGA. The co-location of community uses with housing and employment uses will ensure the redevelopment is an integrated, accessible and connected precinct that supports the social needs of community.

10.1.2 Project Concept SSDA

The concept SSDA seeks concept approval in accordance with section 4.22 of the EP&A Act for the comprehensive redevelopment of the Waterloo South site. The concept SSDA, if approved, will guide the detailed design of future buildings, public open spaces, and the public realm within Waterloo South. It will seek concept development consent for key planning metrics for the precinct as generally described in Table 9 (indicative figures) (see Figure 47-Figure 49).

Table 9: Key development metrics

Descriptor	Project Details
Project Area	<ul style="list-style-type: none"> • Waterloo South has a developable site area of 114,822sqm / 11.5ha • The Waterloo South Precinct Area, including all LAHC owned and privately owned properties and roads within the precinct, has a site area of 123,149sqm / 12.3ha.
Project Description	<ul style="list-style-type: none"> • Maximum building envelopes, including maximum building heights, street-wall heights and setbacks • Distribution of gross floor area across the Waterloo South development blocks • Indicative allocation of floor space between social housing, affordable housing, community uses and other non-residential uses across the Waterloo South Precinct Area

- Loading, vehicular, pedestrian, and active transport access arrangements
- Public domain upgrades and new public domain and publicly accessible areas
- Indicative subdivision plan, staging plan and delivery sequencing for development
- Approval of the following management plans and strategies to inform future stages of the development:
 - Updated Design Excellence Strategy
 - Preliminary Public Art Strategy
 - Contamination Strategy
 - Flood Management Strategy
 - Stormwater Management and Drainage Strategy
 - ESD Strategy
 - Strategies for utilities and service provision including service infrastructure lead-in enabling works
 - Tree Retention Strategy.

Land Uses	<ul style="list-style-type: none"> • Social housing: no less than 30% of residential GFA • Affordable housing: ~20% of residential GFA (balance between the delivery of minimum 30% social housing, and the maximum 50% market housing) • Market housing: no greater than 50% of residential GFA • Community facilities: 5,000sqm • Non-residential floor space: 10,000sqm.
Gross Floor Area	Up to 282,485 m ² .
Building Heights	Between 2 and 33 storeys.
Car Parking	Approximately 1,500 spaces (across all land uses), excluding on-street car parking spaces.
Staging/ Phasing	The indicative staging of the redevelopment is outlined in the concept SSDA. It is expected that the redevelopment will occur in seven (7) stages (inclusive of the delivery of the large park on Block 1).

10.2 Potential impacts to Aboriginal heritage

The provided concept proposal design (see Section 10.1) demonstrates that the identified PAD (Waterloo Estate South PAD 01 – AHIMS ID: 45-6-4171) would be subject to substantial impacts and ground disturbance, likely destroying any Aboriginal objects which may be present. As no detailed designs have been provided, it is not possible to more accurately determine the precise impacts of the concept proposal, although they are anticipated to be direct and to result in a total loss of any potential Aboriginal archaeological resources. A summary of the impacts is provided in Table 10.

Table 10: Impact assessment

Site name (AHIMS ID)	Type of harm	Degree of harm	Consequence of harm
Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)	Direct	Total harm	Total loss of value

Figure 47: Aerial render showing the proposed future development



Figure 49: Location of concept proposal built development

Base 02



SJB

11.0 MANAGEMENT AND MITIGATION MEASURES

11.1 Guiding principles

The overall guiding principle for cultural heritage management is that where possible Aboriginal sites should be conserved.

Where unavoidable impacts occur then measures to mitigate and manage impacts are proposed. Mitigation measures primarily concern preserving the heritage values of sites beyond the physical existence of the site. The most common methods involve detailed recording of Aboriginal objects, archaeological test and salvage excavations, artefact analysis and, where appropriate, reburial of Aboriginal objects in a location determined by the Registered Aboriginal Parties (RAPs).

Mitigation measures vary depending on the assessment of archaeological significance of a particular Aboriginal site and are based on its research potential, rarity, representativeness and educational value. In general, the significance of a site would influence the choice of preferred conservation outcomes and appropriate mitigation measures, usually on the following basis:

- Low archaeological significance – conservation where possible. SSD Conditions of Approval would be required to impact the site before work can commence
- Moderate archaeological significance – conservation where possible. If conservation was not practicable, further archaeological investigation would be required such as salvage excavations or surface collection in accordance with the SSD Conditions of Approval
- High archaeological significance – conservation as a priority. Where all other practical alternatives have been discounted mitigation measures such as comprehensive salvage excavations in accordance with the SSD Conditions of Approval would be required.

Sites of unknown scientific value should be conserved where possible. Where conservation is not practical further investigation under the Code of Practice will be required to confirm the presence of Aboriginal objects and gather enough information to assess significance. Test excavation is not a mitigation measure, it is an investigatory action required to gather enough information to inform the development of appropriate mitigation measures.

11.2 Site avoidance

Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171) has been identified within the study area and will be harmed by the proposed works. If avoidance is not possible, archaeological test excavation will be required prior to any proposed works to understand the presence and extent of potential Aboriginal archaeological objects.

11.3 Archaeological excavations

Archaeological test excavations within the identified area of PAD should be undertaken to verify the presence of Aboriginal objects and gather enough information to assess significance and develop suitable mitigation measures. Sub-surface archaeological testing would only be required within areas of the identified PAD that overlaps with impact areas. Archaeological test excavation is not a mitigation measure and data obtained from test excavation would be used to inform an impact assessment and develop mitigation measures for harm to potential subsurface Aboriginal objects.

Test excavation typically should be undertaken to support the SSD application and should be completed prior to the submission of the EIS. However, due to the existing buildings and built surfaces (concrete paths, etc), the presence of tenants, and the social and Aboriginal cultural sensitivity of the study area, a complete test excavation that adequately samples the PAD and retains “enough information” as defined by Heritage NSW (DECCW 2010: 28) prior to the submission of the EIS may not be feasible. For this reason, a post-demolition excavation program approach has been recommended. Artefact Heritage has been advised by Stockland that the DPHI has confirmed with Heritage NSW that they will raise no objection with the below post-demolition excavation approach for the proposed Waterloo Estate South development.

The post-demolition excavation program concerns the southern portion of AHIMS ID: 45-6-4171, the location of the proposed Stage 1 (Blocks 8 and 9) development for Waterloo Estate South.

Post-demolition test excavation program

It is understood that Homes NSW will undertake demolition of the Stage 1 area in early 2026. Following demolition of extant structures to surface level, monitored by a suitably qualified archaeologist, test excavation would be undertaken in a staged approach initially limited to the southern portion of the PAD (the location of the proposed Stage 1 development – Blocks 8 and 9). If significant Aboriginal archaeological resources are identified, salvage excavations may be triggered in those areas as noted in the methodology. This approach ensures that all areas of archaeological potential are addressed within a streamlined excavation program.

Due to the sensitivity of the project and the cultural and social challenges present due to the social housing and removal of Aboriginal residents, it is practical to undertake a test excavation program following demolition works. This approach would ensure the safety of any staff undertaking the test excavation and would ensure that the full area of the PAD within Stage 1 development could be sampled without limitations including in places beneath the previously extant infrastructure. The excavation program within Stage 1 development (Blocks 8 and 9) will inform the detailed SSD, estimated to be lodged in early 2027. The excavation program would also inform additional excavations of AHIMS ID: 45-6-4171 as part of future stages of the project.

An Archaeological Excavation Methodology would be prepared prior to the excavation program by a suitably qualified archaeologist in consultation with the RAPs which outlines a protocol for the investigation of the PAD, including triggers for salvage excavations (if required). In accordance with statutory requirements, the methodology would be prepared and reviewed by RAPs during the Aboriginal stakeholder consultation process which accompanies test excavation. Consultation with stakeholders would be carried out in line with the guidelines established in the Consultation Requirements.

The results of the test excavations would be documented in an Archaeological Excavation Report after the completion of the excavation program. The amended ACHAR would include the findings of the excavation report.

11.4 Aboriginal cultural heritage assessment report

To assess the cultural values of the study area and of Aboriginal objects identified during excavations, an ACHAR would be prepared in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales (2011) (the Guide). The ACHAR would be prepared in consultation with the Aboriginal community in accordance with the Aboriginal Cultural Heritage Consultation Requirements for proponents (2010) (the Consultation Requirements).

To facilitate meaningful consultation and accessibility, the results of the archaeological assessment would be summarised within the ACHAR in concise, plain English.

11.5 Changes to the project area

Advice provided within this report is based upon the most recent information provided by the Stockland at the time of writing. Any changes made to the project should be assessed by an archaeologist in consultation with the RAPs. Any changes that may impact on Aboriginal sites not assessed as part of the project may warrant further investigation and result in changes to the recommended management and mitigation measures.

12.0 CONCLUSION

12.1 Approval pathway

The concept proposal has been declared SSD (SSD-93222706) under the EP&A Act. The SEARs issued on 8 October 2025 outline that Aboriginal Cultural Heritage assessment would be required to inform the EIS for the concept proposal. This report meets, in part, the Aboriginal Cultural Heritage requirements of Item 18 of the project SEARs:¹

Table 11: Item 18 of the project SEARs

SEAR	Documentation	Response
18. Aboriginal Cultural Heritage		
<ul style="list-style-type: none"> • Where there is known, or reasonably likely, to be Aboriginal cultural heritage on or near the site demonstrate that impacts have been adequately investigated and assessed by: <ul style="list-style-type: none"> ▪ identifying that an appropriate prior planning process has already considered these impacts, e.g. a rezoning or development application, or ▪ providing an initial assessment of the potential impacts. • Provide an Aboriginal Cultural Heritage Assessment Report (ACHAR) which: <ul style="list-style-type: none"> ▪ identifies, describes and assesses any impacts to Aboriginal cultural heritage sites or values associated with the site ▪ is prepared in accordance with relevant guidelines. 	<ul style="list-style-type: none"> • Aboriginal Cultural Heritage Assessment Report 	<p>This Archaeological Technical Report was prepared to support the ACHAR in requirement of Item 18 of the SEARs.</p>

In order to satisfy Item 18 of the project SEARs, this report has been prepared in accordance with the Code of Practice and will be appended to the ACHAR prepared for the project.

This ATR is submitted to the DPPI on behalf of Stockland and NSW Land and Housing Corporation (the Applicant) in support of the concept SSDA for the redevelopment of the study area.

12.2 Summary

The following has been identified during the background research and archaeological survey:

- A total of 18 Aboriginal Heritage Information Management System (AHIMS) registered sites are located within the extensive search area
- No AHIMS sites are located within the study area
- Two AHIMS sites are located within 200 m of the study area:
 - AHIMS ID 45-6-4138 (shell midden, since identified as not a site)

¹ NSW Government, Planning Secretary's Environmental Assessment Requirements, Application number: SSD-93222706.

- AHIMS ID 45-6-2597, located less than 20 m from the western boundary of the study area (since destroyed through excavation and subsequent works and is not associated with Waterloo Estate South)
- The study area is located within the Tuggerah Soil Landscape
- While the study area has been subject to significant historical ground disturbance through residential developments, Aboriginal objects may be present within deep deposits of Botany Sands as the depth of these disturbances is unknown
- An area of PAD was identified within the study area. This PAD was named Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171). This area was identified as a PAD based on its location within the Botany Sands.

12.3 Recommendations

The following recommendations have been informed by the above summary:

- Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171) would be harmed by the proposed works. If avoidance of the PAD is not possible during the proposal, archaeological test excavation would be required within the identified area of PAD to verify the presence of Aboriginal objects and gather enough information to assess significance and develop suitable mitigation measures. Archaeological test excavation is not a mitigation measure and data obtained from test excavation would be used to inform an impact assessment and develop mitigation measures for harm to potential subsurface Aboriginal objects
- Due to the existing buildings and built surfaces (concrete paths etc), the presence of tenants and the social and Aboriginal cultural sensitivity of the study area, a complete test excavation program that adequately samples the PAD and retains “enough information” as defined by Heritage NSW (DECCW 2010: 28) prior to the submission of the concept proposal EIS may not be feasible. For this reason, a post-demolition excavation program that informs the detailed design has been recommended and has been supported by Heritage NSW and DPHI. This recommendation concerns the southern portion of AHIMS ID: 45-6-4171, the location of the proposed Stage 1 (Blocks 8 and 9) development for Waterloo South. The excavation program would therefore be undertaken post-demolition and the results of the program would inform the detailed design for Stage 1 development and be incorporated into the EIS for the detailed design SSDA. The excavation program would also inform additional excavations of AHIMS ID: 45-6-4171 as part of future stages of the project. For timings of the recommended test excavation program, please see Section 11.3
- A Test Excavation Methodology must be prepared by a suitably qualified archaeologist. This document must outline a methodology for test excavations within the PAD
- The results of the archaeological excavations, as recommended by this Archaeological Technical Report, would be documented in an Archaeological Excavation Report following the completion of the excavation program

- An ACHAR would be prepared in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (2011) (the Guide). The ACHAR would be prepared in consultation with the Aboriginal community in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for proponents* (2010) (the Consultation Requirements). To facilitate meaningful consultation and accessibility, the results of the archaeological assessment would be summarised within the ACHAR in concise, plain English
- Any changes made to the project should be assessed by an archaeologist in consultation with the RAPs. Any changes that may impact on Aboriginal sites not assessed as part of the project may warrant further investigation and result in changes to the recommended management and mitigation measures
- A copy of this report should be sent to Metropolitan LALC for their records.

13.0 REFERENCES

- Aboriginal Heritage Office (2015) *Filling a void: a review of the historical context for the use of the word 'Guringai'*, North Sydney, NSW
- AMBS. (2018) *Sydney Metro City & Southwest, Archaeological Method Statement: Barangaroo, Martin Place, Pitt Street & Waterloo.*
- Artefact Heritage. (2015) *CSELR Early Works, Moore Park Tennis Centre.*
- Artefact Heritage. (2016) *Sydney Metro Chatswood to Sydenham, Aboriginal Heritage Archaeological Assessment.*
- Artefact Heritage. (2020a) *CBD and South East Light Rail (CSELR) Aboriginal Archaeological Post Excavation Report.* Report to Acciona on behalf of Transport for New South Wales. City of Sydney LGA and City of Randwick LGA, May.
- Artefact Heritage. (2020b) *CSELR: Aboriginal Archaeological Excavation Report.*
- Artefact Heritage. (2021) *Waterloo Estate (South): Addendum Aboriginal Cultural Heritage Study.* Report to NSW Department of Planning, Industry and Environment.
- Attenbrow, V. (2002) *Pre-colonial Land and Resource Use in Centennial, Moore and Queens Parks, NSW.* [Report].
- Attenbrow, V. (2010) *Sydney's Aboriginal past: investigating the archaeological and historical records.* University of New South Wales Press Sydney.
- Attenbrow, V. (2012) 'The Aboriginal Prehistory and Archaeology of Royal National Park and Environs: A Review.' *Proceedings of the Linnean Society of New South Wales.*
- Australian Stratigraphic Units Database. (2021) *Australian Stratigraphic Unit 2352.* Accessed 16 September 2025, <https://asud.ga.gov.au/>
- Birch, G. (2007) '7 A short geological and environmental history of the Sydney estuary, Australia.' Sydney University Press.
- Bladen, F.M, Britton, A, Cook, J (1892), Historical records of New South Wales Government Printer.
- Bradley, W (1802), 'A Voyage to New South Wales', December 1786 - May 1792' (compiled 1802), Mitchell Library, State Library of New South Wales, Safe 1/14, online; <https://www.sl.nsw.gov.au/gallery->
- Chapman, G.A. and Murphy, C.L. (1989) *Soil Landscapes of the Sydney 1:100 000 Sheet.* Soil Conservation Service of NSW.
- Collins, D (1798) *An account of the English colony in New South Wales from its first settlement in January 1788, to August 1801*, T Cadell and W Davies, London, [1798], 2nd edition 1804
- Cox Inall Ridgeway (2021) 'Brief Aboriginal history of the Botany Road Corridor and Surrounds', Report for the City of Sydney Council.
- Currie, J & Willoughby Council. (2008) *Bo-rā-ne ya-goo-na par-ry-boo-go = Yesterday today tomorrow: an Aboriginal history of Willoughby*, Willoughby City Council Chatswood, N.S.W.

Dougherty, A.J., Thomas, Z.A., Fogwill, C., Hogg, A., Palmer, J., Rainsley, E., Williams, A.N., Ulm, S., Rogers, K., Jones, B.G. and Turney, C. (2019) 'Redating the earliest evidence of the mid-Holocene relative sea-level highstand in Australia and implications for global sea level', *PLOS ONE*, 14(6). <https://doi.org/10.1371/journal.pone.0218430>

Etheridge Jr., R. (1905) 'The Further Discovery of Dugong Bones on the Coast of NSW', *Records of the Australian Museum*, 6(1), June.

Gale, S.J. and Wales, N.A. (2022) 'The Botany Sands of southeast Australia: a Quaternary inland dune and swamp system', *Geomorphology*, 405, pp. 1–24.

Gale, S.J., de Rochefort, C.A., Moore, S.R. and Timms, A.J.C. (2018) 'The origin and stratigraphic significance of the Waterloo Rock of the Botany Basin of south-east Australia', *Australian Geographer*, 49(2), pp. 291–316.

Gammage, B (2012) *The Biggest Estate on Earth: How Aborigines Made Australia*, Alenn & Unwin, Crows Nest, NSW.

Gapps, S & Fairfield Council (2010) *Cabrogal to Fairfield City: a history of a multicultural community* / Fairfield City Council Wakeley, N.S.W.

Gapps, S, (2020). "They have attack'd almost every person who has met with them" – Re-reading William Bradley', online; <https://thesydneywars.com/>.

GML Heritage. (2018) *Investigations of Aboriginal Site RSY1, Randwick: Post Excavation Report*. Report prepared for Acciona and Transport for NSW.

Griffiths, B. (2018) *Deep time dreaming: Uncovering ancient Australia*. Black Inc. Books. Carleton, Victoria.

Harrison, R. and Dodson, J. (1993) 'Climates of Australia and New Guinea since 18,000 yr BP', in Wright, H.E. (ed.) *Global Climates Since the Last Glacial Maximum*. Minneapolis: University of Minnesota Press, pp. 265–293.

Haworth, R., Baker, R. and Flood, P. (2004) 'A 6000 Year-old Fossil Dugong from Botany Bay: Inferences about Changes in Sydney's Climate, Sea Levels and Waterways', *Australian Geographical Studies*, 42(1), March, pp. 46–59.

Hunter, J (1793) *An historical journal of the transactions at Port Jackson and Norfolk Island: with the discoveries which have been made in New South Wales and in the Southern Ocean since the publication of Phillip's voyage, compiled from the official papers*, John Stockdale, London.

Irish, P (2016) *Aboriginal history along the Cooks River*, for Cooks River Alliance, Sydney.

Irish, P (2017) *Hidden in Plain View. The Aboriginal People of Coastal Sydney*, New South Publishing, Sydney.

Irish, P (2021) *Woollahra Local Government Area Aboriginal Heritage Study*, Report prepared for Woollahra Municipal Council.

Karskens, G (2014) 'Barangaroo and the Eora Fisherwomen', Dictionary of Sydney, http://dictionaryofsydney.org/index.php/entry/barangaroo_and_the_eora_fisherwomen.

Karskens, G. (2009) *The colony: a history of early Sydney*. Allen & Unwin Crows Nest, N.S.W

Kensy, J (2008) 'La Perouse', Dictionary of Sydney, http://dictionaryofsydney.org/entry/la_perouse.

- Kohen, J. L & Western Sydney Project (1985) *Aborigines in the west: prehistory to the present* Western Sydney Project, Armidale, NSW.
- Lewis, S.E., Wüst, R.A., Webster, J.M. and Shields, G.A. (2008) 'Mid-late Holocene sea-level variability in eastern Australia', *Terra Nova*, 20(1), pp. 74–81.
- McDonald, J. (2005) *Archaeological Testing and Salvage Excavation at Discovery Point, Site #45-6-2737 in the former grounds of Tempe House*, NSW, Report to Australand
- McDonald, J., (2007) *Dreamtime superhighway: Sydney Basin rock art and prehistoric information exchange*, ANU Press.
- Meadows, E (1999) *Aboriginal History of the Waverley Area*, Waverly Library, Sydney.
- Mulvaney, D. J & Kamminga, J. (1999) *Prehistory of Australia*, Smithsonian Institution Press Washington, D.C.
- Nanson, G., Young, R. & Stockton, E (1987) 'Chronology and palaeoenvironment of the Cranebrook Terrace (near Sydney) containing artefacts more than 40,000 years old.' *Archaeology in Oceania* 22 (20:72-78).
- Nunn, P & Reid, N. (2015) 'Aboriginal Memories of Inundation of the Australian Coast Dating from More than 7000 Years Ago', *Australian Geographer*, 47.
- Ringer, R. (2013) *From Sheas Creek to Alexandra Canal*. The Dictionary of Sydney. Accessed 16 September 2025, https://dictionaryofsydney.org/entry/from_sheas_creek_to_alexandra_canal
- Sloss, C.R., Murray-Wallace, C.V. and Jones, B.G. (2007) 'Holocene sea-level change on the southeast coast of Australia: a review', *The Holocene*, 17(7), pp. 999–1014.
- Smith, K. V (2020) 'Eora People. Saltwater People of the Sydney Area', <https://www.eorapeople.com.au/Sydney>.
- Smith, V (2006). 'Moorooboora's Daughter', National Library of Australia, News 16.
- Tench, W (1793)., *A complete account of the settlement at Port Jackson, in New South Wales, including an accurate description of the colony; of the natives; and of its natural productions*, G Nicol and J Sewell, London.
- Tench, W in L. F. Fitzhardinge (ed) (1979), *Sydney's First Four Years*, Library of Australian History, Sydney.
- Urbis. (2020) *Waterloo South Planning Proposal: Aboriginal Cultural Heritage Study*. Report to NSW Land and Housing Corporation.
- Urbis. (2024) *28–32 Bourke Road, Alexandria, NSW (Stage 2) Gadigal Country*. Report prepared for Alexandria Property Development.
- White, J. (1962) *Journal of a Voyage to New South Wales 1790*, published in association with the Royal Australian Historical Society by Angus and Robertson, Sydney.
- Williams, A. N. et al. (2017) 'The Cranebrook Terrace revisited: recent excavations of an early Holocene alluvial deposit on the banks of the Nepean River, NSW, and their implications for future work in the region', *Australian Archaeology*, 83(3), pp. 100–109.

APPENDIX A – AHIMS RECORDS



AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Waterloo Estate South
Client Service ID : 1036414

SiteID	SiteName	Datum	Zone	Eastings	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2680	Broadway Picture Theatre PAD 1	AGD	56	333150	6249000	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102142,10249 4,102763,1027 65
	Contact							Permits	1854	
45-6-2597	Wynyard St Midden	GDA	56	333469	6247920	Open site	Not a Site	Shell : -, Artefact : -	Midden	102494,10276 3,102765
	Contact							Permits		
45-6-3899	ES-PAD-2018-01	GDA	56	334251	6247993	Open site	Not a Site	Potential Archaeological Deposit (PAD) : -		105317
	Contact							Permits	4818	
45-6-4138	Waterloo Metro Artefacts	GDA	56	333600	6247700	Open site	Valid	Artefact : -		
	Contact							Permits	5387	
45-6-2822	USYD: Central	AGD	56	332750	6248550	Open site	Valid	Artefact : -		100302,10249 4,102763,1027 65
	Contact							Permits	2554	
45-6-3071	445-473 Wattle Street PAD	GDA	56	333285	6249412	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact							Permits		
45-6-2663	Mountain Street Ultimo	GDA	56	333199	6249418	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		102494,10276 3,102765
	Contact							Permits	1719	
45-6-3848	244 Cleveland Street	GDA	56	334070	6248750	Open site	Valid	Artefact : -		
	Contact							Permits		
45-6-3064	445-473 WATTLE ST PAD	GDA	56	333285	6249412	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		102763
	Contact							Permits		
45-6-3654	CRS AS 01 (Central Railway Station Artefact Scatter 01)	GDA	56	334035	6249170	Open site	Partially Destroyed	Artefact : -		104403
	Contact							Permits	4639,5173,5387	
45-6-3155	Moore Park AS1	GDA	56	335613	6247909	Open site	Valid	Artefact : -		
	Contact							Permits	4019	
45-6-4162	10 Missenden Road_PAD	GDA	56	331903	6248729	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact							Permits		

Report generated by AHIMS Web Service on 22/08/2025 for Neve Penkls for the following area at Datum :GDA, Zone : 56, Eastings : 331807.0 - 335807.0, Northings : 6245574.0 - 6249574.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 18

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



AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Waterloo Estate South
Client Service ID : 1036414

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-3944	New Green Square School	GDA	56	334204	6246587	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u> Metropolitan Local Aboriginal								<u>Permits</u> 4809	
45-6-2629	Broadway 1	AGD	56	333060	6249100	Open site	Valid	Artefact : -		102494,10276 3,102765
	<u>Contact</u>								<u>Permits</u> 1299	
45-6-4050	RNE-PAD01	GDA	56	333218	6248353	Open site	Partially Destroyed	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>								<u>Permits</u> 5205	
45-6-3704	Tay Reserve Artefact	GDA	56	335723	6247268	Open site	Destroyed	Artefact : -		
	<u>Contact</u>								<u>Permits</u>	
45-6-2767	Tent Embassy	AGD	56	332680	6248680	Open site	Valid	Aboriginal Resource and Gathering : 1		102494,10276 3,102765
	<u>Contact</u> T Russell								<u>Permits</u>	
45-6-2745	University of Sydney Law Building PAD	AGD	56	332350	6248740	Open site	Destroyed	Potential Archaeological Deposit (PAD) : -		102201,10249 4,102763,1027 65
	<u>Contact</u>								<u>Permits</u> 2153,2320,2443	

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 22/08/2025 for Neve Penklis for the following area at Datum :GDA, Zone : 56, Eastings : 331807.0 - 335807.0, Northings : 6245574.0 - 6249574.0 with a Buffer of 0 meters. Number of Aboriginal sites and Aboriginal objects found is 18

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

14.0 APPENDIX B – AHIMS SITE CARD

Waterloo Estate South PAD 01 (AHIMS ID: 45-6-4171)



Aboriginal Site Recording Form
Manager, Information Systems
Locked Bag 5020, Parramatta 2124 NSW

AHIMS site ID:	45-6-4171	Date recorded:	14-10-2025
-----------------------	-----------	-----------------------	------------

Site Location Information

Site name: Waterloo Estate South PAD 01

Easting: 333780 **Northing:** 6247555 **Coordinates must be in GDA94 (MGA)**

Horizontal Accuracy (m): 3

Zone: 56 Non-Differential GPS

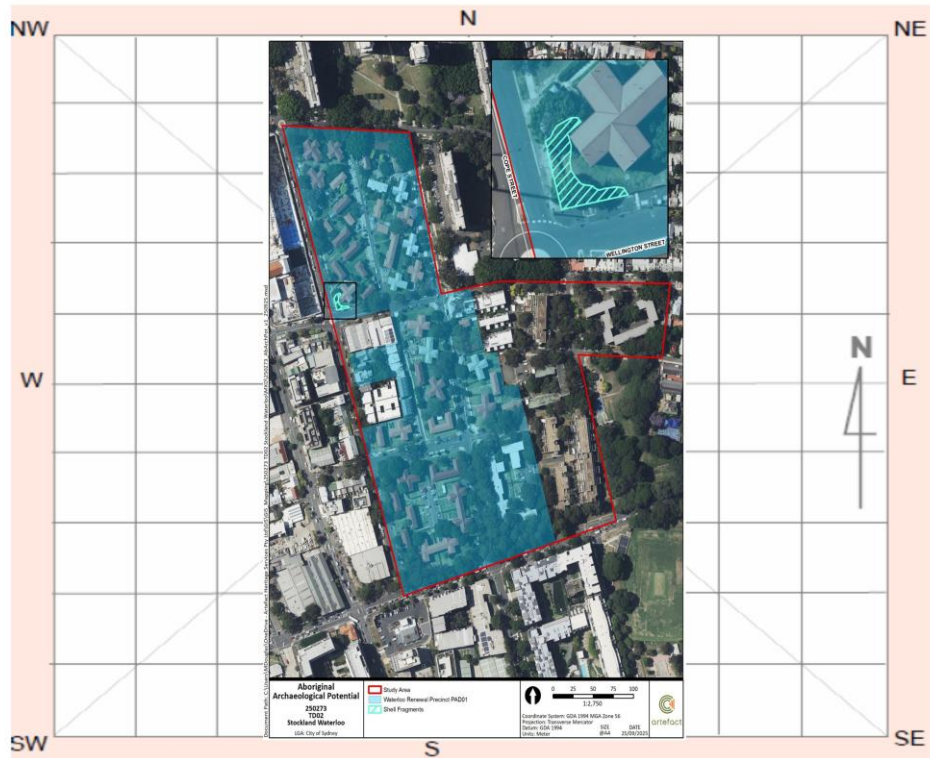
Recorder Information
(The person responsible for the completion and submission of this form)

Title	Surname	First name
Ms.	Hackett	Lily
Organisation: Artefact		
Address: Suite 56, Jones Bay Wharf, 26-34 Pirrama Rd, Pyrmont NSW		
Phone:	0409699252	E-mail: Lily.Hackett@artefact.net.au

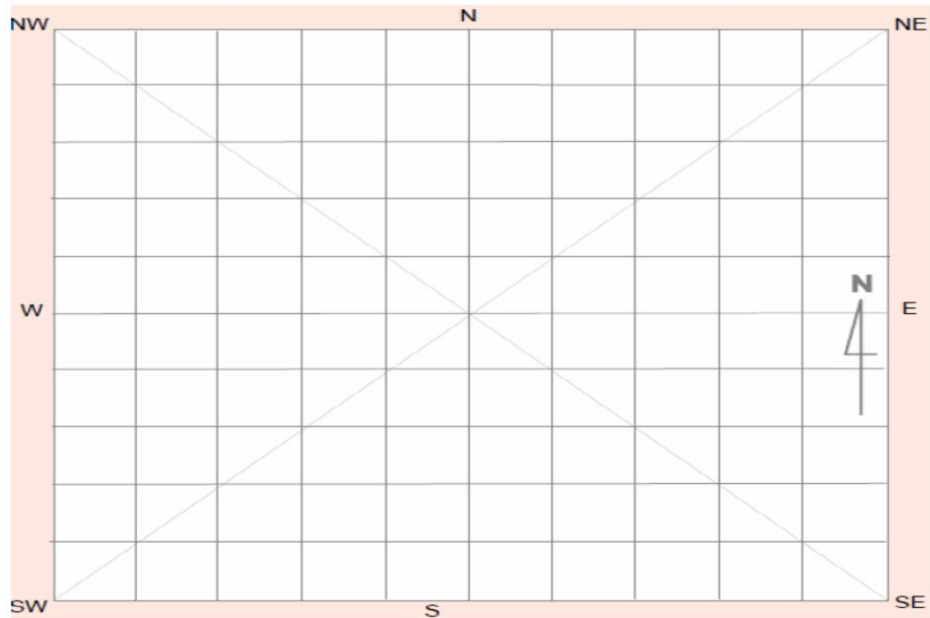
Site Context Information

Land Form Pattern:	Undulating Plain	Land Use:	Residential
Land Form Unit:	Flat	Vegetation:	Cleared
Distance to Water (m):	261	Primary Report:	Artefact Heritage 2025, Waterloo Estate South, ATR.
How to get to the site:	The PAD is located immediately east of Waterloo Metro Station, east of Cope Street. Continue to walk south along Cope Street, east along Wellington Street and south along George Street to walk the length of the PAD.		
Other site information:	A small soil exposure contained highly fragmented shell of different species, some were half buried. Further investigation is required if this is an Aboriginal shell midden or redeposited organic material within fill. Species included Common Pipi, Sydney Cockle and Sydney Mud Whelk. Although the shells were highly fragmented and of low density, the Sydney Cockle was the dominant/whole pieces.		

Site location map



Site plan



Site contents information

open/closed site:

Site condition:

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
1. <input type="text" value="Potential Archaeological Deposit"/>	<input type="text" value=""/>	<input type="text" value="516"/>	<input type="text" value="203"/>

Feature condition:

Scarred Trees			
Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Description:

The PAD is located within a flat landform that gently slopes to the east. The PAD is located within Botany Sands. Although the PAD has been subject to historical ground disturbances (residential buildings, footings, subsurface services), sand deposits with Aboriginal objects have been identified beneath layers of historical fill and up to 2-2.5 m deep and therefore artefacts may still be present.

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
2. <input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Feature condition:

Scarred Trees			
Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Description:

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)
3. <input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

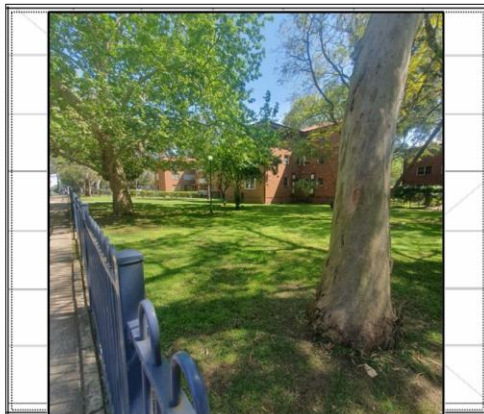
Feature condition:

Scarred Trees			
Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

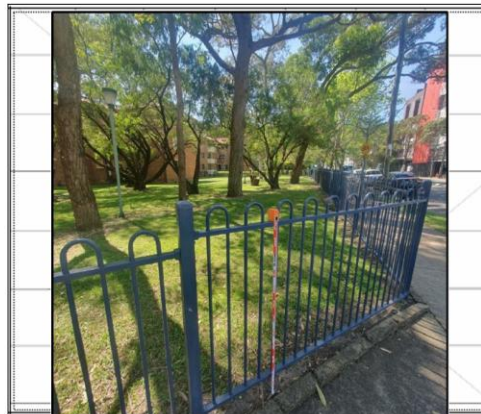
Description:

Features:	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scarred Trees			
				Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
4. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Feature condition: <input type="text"/>							
Description:							
5. <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Feature condition: <input type="text"/>							
Description:							

Site photographs



Description: Waterloo Estate South PAD 01. View north west.



Description: Waterloo Estate South PAD 01. View east.



Description: Shell fragments within sandy soil deposit with Sydney Cockle.



Description: Sandy soil exposure.

Site restrictions

Do you want to Restrict this site?:

Restriction type: Gender General Location
N/A

Why is this site restricted?:

Further information contact

Title	Surname	First name
Ms.	Lily	Hackett
Organisation: Artefact Heritage and Environment		
Address: Suite 56, 26/32 Pirrama Rd, Pyrmont NSW 2009		
Phone:	0295188411	E-mail: lily.hackett@artefact.net.au

Site interpretation and community statement

Brown-grey silty sand was identified within exposed garden beds, around tree trunks and beneath cut bitumen across the PAD which may suggest fill from the extensive historical development, demolition then re-developments in the mdi 20th century. However, it is consistent with the description of topsoil unit (tg1) soil unit and may also be remnant botany sands. Further investigation is required to determine if Aboriginal archaeological objects are present within the PAD.



artefact

Artefact Heritage and Environment

ABN 73 144 973 526

Suite 56, Jones Bay Wharf

26-32 Pirrama Road

Pymont NSW 2009 Australia

+61 2 9518 8411

office@artefact.net.au

www.artefact.net.au