Blackwattle Bay

State Significant Precinct

Attachment 27:

Aboriginal Cultural Heritage Assessment Report

June 2021

NSW GOVERNMENT

Blackwattle Bay State Significant Precinct Study

Aboriginal Cultural Heritage Assessment Report (ACHAR)

22 January 2021

Report to Infrastructure NSW

Redacted version for public issue

artefact

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EXECUTIVE SUMMARY

Updated copy, January 2021

This document was originally issued in September 2019. At that time, planning was at too early a stage to inform drafting of Development Control Provisions (DCP) relating to Aboriginal Heritage as required by the Minister's Study Requirements item 12.4. This document version, dated 22 January 2021, includes a new section (Section 6) which fulfills this requirement.

Objectives

In 2015 the NSW Government recognised The Bays Precinct as one of the highest potential urban transformation sites in Australia with the release of The Bays Precinct, Sydney Transformation Plan. Following this, the Minister for Planning identified the renewal of Blackwattle Bay and the broader Bays Precinct as a matter of State planning significance and to be investigated for rezoning through the State Significant Precinct (SSP) process. Study Requirements for the Blackwattle Bay (formerly known as 'Bays Market District') investigation area were issued by the Minister on 28 April 2017.

A critical part of Blackwattle Bay's revitalisation and vision has been the NSW Government's decision to relocate the Sydney Fish Market (SFM) from its existing location on Bank Street to the head of Blackwattle Bay. This was sought through a State Significant Development Application (SSDA) process and approved in June 2020. The new SFM was designed alongside the baseline Blackwattle Bay studies to ensure that key aspects of the project are consistent with the vision and principles for Blackwattle Bay.

This Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Artefact Heritage on behalf of Infrastructure NSW, to form part of the Blackwattle Bay State Significant Precinct Study (SSP Study). The SSP Study seeks a rezoning for new planning controls for Blackwattle Bay, located on the south-western side of Pyrmont.

Methodology

This ACHAR has been carried out in accordance with the OEH Guide to Investigating and Reporting on Aboriginal Cultural Heritage in NSW 2010 (Guide) and the OEH Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice).

- Background information relating to known and modelled Aboriginal heritage sensitivities for Blackwattle Bay has been analysed to provide an understanding of the Aboriginal archaeological potential of the location.
- The ACHAR findings include the results of limited examination of geotechnical testing in the investigation area. Extensive examination of geotechnical results was not within the scope of this study.
- This report incorporates feedback by Registered Aboriginal Stakeholders (RAPs) who were provided with a draft copy for comment. Consultation with Registered Aboriginal Parties has followed the Office of Environment and Heritage Aboriginal Cultural Heritage Consultations Requirements for Proponents 2010 (Consultation).
- The results and recommendations of this investigation and consultations are provided in this report.

Findings

- The proposed activity of rezoning would not result in direct impacts to Aboriginal cultural heritage values.
- A survey of previous Aboriginal archaeological reporting related to the investigation area found that few studies had been undertaken in the locality and that no archaeological excavations had been carried out in the surrounds of the investigation area. This was primarily due to the significantly disturbed nature of the locality and the limited number of modern development activities that would have triggered archaeological investigation.
- No registered Aboriginal objects have been identified within the investigation area.
- The investigation area has been subject to significant levels of disturbance. This has included the formation of much of the investigation area through land reclamation, considerable alterations to the natural coastline, and the ongoing development of the investigation area as a combined industrial, transport, commercial and high-density residential area. Such locations are of nil to low Aboriginal archaeological potential however they maintain Aboriginal cultural value as part of a wider cultural landscape.
- Two locations of Potential Archaeological Deposit (PAD) have been identified within the investigation area. These are The Bays Precinct PAD01 45-6-3339 & The Bays Precinct PAD02 45-6-3338.
- One area of previously registered Potential Archaeological Deposit (PAD)[redacted] has been identified outside of [redacted]f the investigation area.

Conclusions

The study has identified that the majority of the Blackwattle Bay investigation area is of nil to low Aboriginal archaeological potential due to historical processes within it of land reclamation and disturbance. Two locations of PAD have been defined within the Blackwattle Bay investigation area. One location of previously registered PAD has been identified near to and with viewsheds across the Blackwattle Bay investigation area.

Registered Aboriginal Parties provided comment that despite historical soil disturbances, the entirety of the Blackwattle Bay investigation area is in a foreshore location once long and highly utilised by local Aboriginal people and that its associated cultural values are therefore high and are not limited to archaeological potential.

Recommendations

The following recommendations are based on consideration of:

- Legislative, policy and procedural requirements for the assessment of Aboriginal cultural heritage
- The recommendations of a constraints analysis (Artefact 2014)
- The views and information provided by registered Aboriginal stakeholder groups
- The likely varying heritage sensitivities of different parts of the investigation area

It is recommended that:

Blackwattle Bay as a whole

- A Heritage Interpretation Plan should be prepared that will include Aboriginal heritage for the whole investigation area. This would make recommendations for interpretation of heritage values including those associated with the investigation area itself, and those associated with PAD [redacted] 5-6-2960 nearby.
- The PAD [redacted] 45-6-2960 is not within the investigation area. Nevertheless, it is likely a singularly preserved piece of evidence of Aboriginal presence on the shores of Port Jackson. Future planning and development should consider preserving view-sheds between PAD [redacted] 45-6-2960 and Port Jackson.
- Any interpretation incorporating PAD [redacted] 45-6-2960 should be sensitive to not directing potentially damaging public attention to the shelter itself.
- Provisions should be made for revision to the Heritage Interpretation Plan if Aboriginal cultural heritage values are newly identified within or near the investigation area.
- The Heritage Interpretation Plan should be prepared sufficiently in advance of proposed development and made appropriately available, to allow sympathetic incorporation with design and planning of Blackwattle Bay.
- An unexpected finds policy should be put in place for any ground-breaking activities within the Blackwattle Bay investigation area. This policy would include recommendation that if Aboriginal objects are identified during works, work should stop immediately and RAPs, OEH and an archaeologist contacted to identify and record the objects.
- If suspected human remains are located during any stage of the proposed works, work should stop immediately and the NSW Police and the Coroner's Office should be notified. RAPs, OEH and an archaeologist should be contacted if the remains are found to be Aboriginal.
- Details of unexpected finds and human remains protocols are provided in Section 5.12

The Bays Precinct PAD01 45-6-3339 & The Bays Precinct PAD02 45-6-3338

- Prior to construction and once the scale of potential impact to soils in The Bays Precinct PAD01 45-6-3339 & The Bays Precinct PAD02 45-6-3338 is identified, further study of these areas should be carried out to better assess their archaeological potential and the risks of impacts resulting from development. This study would include:
  - Direct inspection of ground surfaces that were previously not accessible for survey, particularly in [redacted]
  - Greater analysis of evidence from geotechnical reports
  - Non-invasive remote sensing techniques such as Ground Penetrating Radar (GPR). GPR may assist in detecting areas of potential preservation or disturbance. Even if only at a broad scale, GPR is suited to detecting variations in underlying soil strata, large scale soil disturbance, built objects, and water table levels.
  - If further analysis of available geotechnical information and possible GPR testing indicates that it is highly unlikely for preserved soils to be present, then the status of these areas as PADs

should be revised and these areas should be treated in common with the remainder of the investigation area

- If locations of potential buried preserved natural soils are identified within these PADs and would be impacted by the proposed works, archaeological management would be required. An Aboriginal Archaeological Management Plan should be prepared that will provide management measures including archaeological testing and potentially salvage of identified Aboriginal archaeological values. Results of this testing would be provided as an Aboriginal Test Excavation Report (ATER).

Investigation area outside The Bays Precinct PAD01 45-6-3339 & The Bays Precinct PAD02 45-6-3338

- No further archaeological testing or archaeological assessment of these locations is required for this project. If the boundary for proposed works changes to include the location of AHIMS ID 45-6-3339 and AHIMS ID 45-6-3338, further archaeological investigation and consultation with registered Aboriginal parties must be conducted.

Design Provisions

Development in currently identified locations of Aboriginal cultural heritage values in the Bays Precinct.

- The full extent of current and future cadastral lots that contain all or any parts of PAD 45-6-3338 and PAD 45-6-3339 should be shaded on planning maps and documents as an area of high Aboriginal heritage sensitivity. This shading must not identify the precise location or AHIMS ID of these PADs.
- Any proposed development or any ground disturbing works located within the extent of PAD 45-6-3339 must carry out and complete subsurface archaeological investigations in accordance with the NPW Act (1974) including Aboriginal community consultation, and provision of reporting prior to commencement of any works.
- Any proposed development or any ground disturbing works located within the extent of PAD 45-6-3338 must carry out and complete subsurface archaeological investigations in accordance with the NPW Act (1974) including Aboriginal community consultation, and provision of reporting prior to commencement of any works.
- PAD 45-6-2960 is marginally outside the Bays Precinct. It is a rare preserved example [redacted] that once predominated the Pyrmont peninsula. View lines between Blackwattle Bay and PAD 45-6-2960 must be retained where possible.
- Aboriginal sites identified through such subsurface archaeological investigations or otherwise, must not be impacted without an AHIP issued by OEH under Section 90 of the NPW Act prior to impact occurring, or through relevant approvals from the Department of Planning Industry and Environment (DPIE) for State Significant Development / Infrastructure projects.
- All Development Applications within all parts of Blackwattle Bay must be accompanied by an Aboriginal heritage due diligence assessment that has been carried out by a suitably qualified

archaeologist. This assessment must be carried out in accordance with the OEH 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales'. The due diligence assessment must identify the potential for Aboriginal archaeological remains in the proposed development and whether further archaeological investigation is required prior to development progressing.

- Any Aboriginal archaeological potential identified through due diligence assessments must be subject to further archaeological investigation and Aboriginal stakeholder consultation. Where required, development must obtain an AHIP issued by OEH under Section 90 of the NPW Act or relevant approvals from DPIE for State Significant Development / Infrastructure projects prior to any proposed impacts occurring.

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1.0 INTRODUCTION

Blackwattle Bay offers an extraordinary opportunity to reconnect the harbour, its surrounding neighbourhoods and the city; to showcase Sydney's living culture and stories of Country; to build an inclusive and iconic waterfront destination that celebrates innovation, diversity and community.

This Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Artefact Heritage on behalf of Infrastructure NSW, to form part of the Blackwattle Bay State Significant Precinct Study (SSP Study). The SSP Study seeks a rezoning for new planning controls for Blackwattle Bay, located on the south-western side of Pyrmont.

Blackwattle Bay presents a significant opportunity for urban renewal across 10.4 hectares of predominantly government owned land located approximately 1km from the Sydney CBD. NSW Government is also investigating the delivery of a Metro Station in Pyrmont and has recognised the potential to transform the Pyrmont Peninsula with a new 20-year vision and planning framework through the Pyrmont Peninsula Place Strategy.

In 2015 the NSW Government recognised The Bays Precinct as one of the highest potential urban transformation sites in Australia with the release of The Bays Precinct, Sydney Transformation Plan. Following this, the Minister for Planning identified the renewal of Blackwattle Bay and the broader Bays Precinct as a matter of State planning significance and to be investigated for rezoning through the State Significant Precinct (SSP) process. Study Requirements for the Blackwattle Bay (formerly known as 'Bays Market District') investigation area were issued by the Minister on 28 April 2017.

A critical part of Blackwattle Bay's revitalisation and vision has been the NSW Government's decision to relocate the Sydney Fish Market (SFM) from its existing location on Bank Street to the head of Blackwattle Bay. This was sought through a State Significant Development Application (SSDA) process and approved in June 2020. The new SFM was designed alongside the baseline Blackwattle Bay studies to ensure that key aspects of the project are consistent with the vision and principles for Blackwattle Bay.

The outcome of the Blackwattle Bay State Significant Precinct process will be a new planning framework that will enable further development applications for the renewal of the Precinct, connected to the harbour and centred around a rejuvenated SFM. The framework will also provide for new public open spaces including a continuous waterfront promenade, community facilities, and other compatible uses.

This ACHAR of the Blackwattle Bay SSP Investigation Area (Study Area) addresses a part of the Study Requirements and supports the development of a new planning framework for Blackwattle Bay.

1.1 Objectives

The objectives of this ACHAR are to:

- Assess the Aboriginal cultural heritage values of the investigation area, including archaeological and community cultural values, and the significance of identified values.
- Identify Aboriginal cultural heritage values that may be impacted by the proposed works, including consideration of cumulative impacts, and measures to avoid significant impacts.
- Ensure appropriate Aboriginal community consultation in the assessment process.
- Identify any recommended further investigations, mitigation and management measures required.
- This report will make recommendations for management of Aboriginal cultural and archaeological potential in the investigation area based on consultation with RAPs

This report includes:

- A description of the scope of the project and the extent of the investigation area
- A description of Aboriginal community involvement and Aboriginal consultation
- A significance assessment of the investigation area including cultural and archaeological values
- A description of the statutory requirements for the protection of Aboriginal heritage
- An impact assessment for recorded Aboriginal sites and areas of archaeological potential
- Provision of measures to avoid, minimise, and if necessary, offset the predicted impacts on Aboriginal heritage values

1.2 Authorship

This report has been prepared by Michael Lever (Senior Heritage Consultant, Artefact Heritage) and reviewed by Josh Symons (Principal, Artefact Heritage).

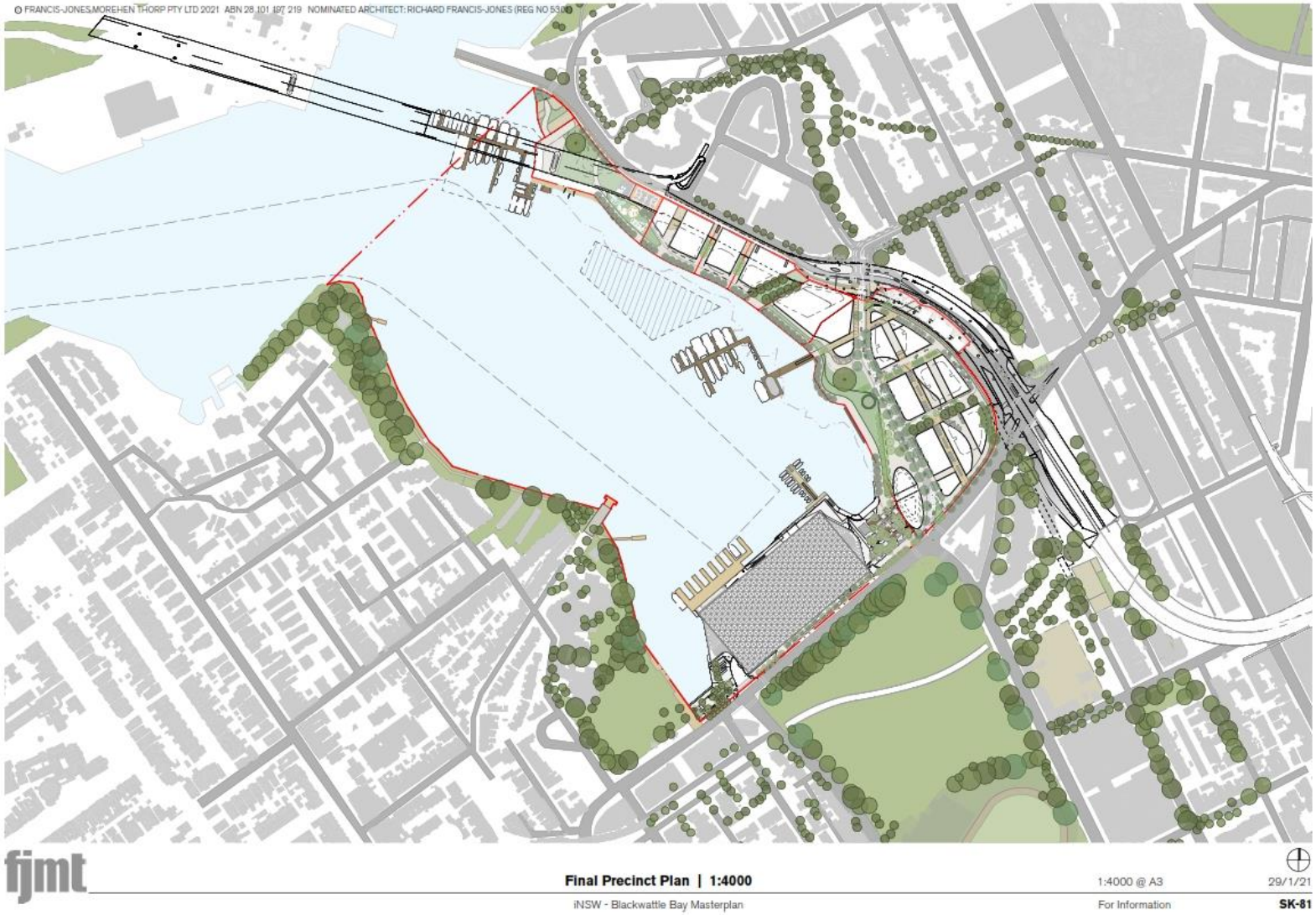
1.3 Blackwattle Bay State Significant Precinct

The Blackwattle Bay SSP Investigation Area (Study Area) encompasses the land and water area, known as Blackwattle Bay, between Bank Street and the Glebe foreshore shown in Figure 1. The land is located within the City of Sydney local government area (LGA).

The land within the Study Area is approximately 10.4 hectares (ha) in size. It is largely government owned land containing the SFM (wholesale and retail), recreation and boating operations and facilities. There are three privately owned sites including a concrete batching plant operated by Hymix, seafood wholesaler Poulos Brothers and private developer Celestino which owns further wholesaling facilities. The Blackwattle Bay land area wraps around the southern and eastern edges of Blackwattle Bay and is bounded by Bridge Road to the south and Bank Street to the east. The Western Distributor motorway / Anzac Bridge viaduct is located adjacent to the eastern boundary before traversing over the northern section of the site. The water area of Blackwattle Bay is approximately 21 hectares.

The extent of land area and water area within Blackwattle Bay will change with the construction of the new Sydney Fish Market. Previously, the total land area was 8.4 hectares and water area was 23 hectares. However, part of the new Sydney Fish Market is being developed below the mean high water mark, increasing the overall land area of the Study Area to 10.4 hectares and reducing the water area to 21 hectares.

Figure 1: Location plan of the Precinct. Source: FJMT



1.4 Principles and vision for Blackwattle Bay

Principles for a future Blackwattle Bay were formed through extensive community consultation in August 2017. These were further developed in 2019, together with a vision for the precinct. Both are provided below (Infrastructure NSW, May 2020. Revitalising Blackwattle Bay). These have guided the development of the Precinct Plan and will continue to guide future development proposals within the Study Area.

Principles:

1. Improve access to Blackwattle Bay, the foreshore and water activities for all users
2. Minimise additional shadowing to Wentworth Park and Glebe Foreshore (in mid-winter) and create new places with comfortable conditions for people to enjoy.
3. Pursue leading edge sustainability outcomes including climate change resilience, improved water quality and restoration of natural ecosystems.
4. Prioritise movement by walking, cycling and public transport.
5. Balance diverse traffic movement and parking needs for all users.
6. Link the Blackwattle Bay precinct to the City, Glebe Island and White Bay and other surrounding communities and attractors.
7. Mandate Design Excellence in the public and private domain.
8. Integrate housing, employment and mixed uses to create a vibrant, walkable, mixed use precinct on the city's edge.
9. Maintain and enhance water uses and activities.
10. Allow for co-existence and evolution of land uses over time.
11. A place for everyone that is inviting, unique in character, socially inclusive and affordable.
12. Expand the range of recreational, community and cultural facilities.
13. Plan for the future community's education, health, social and cultural needs.
14. Deliver development that is economically, socially, culturally and environmentally viable.
15. Embed and interpret the morphology, heritage and culture of the site to create an authentic and site responsive place.
16. Foster social and cultural understanding and respect to heal and grow relationships.

Vision:

> *Blackwattle Bay offers an extraordinary opportunity to reconnect the harbour, its surrounding neighbourhoods and the city; to showcase Sydney's living culture and stories of Country; to build an inclusive and iconic waterfront destination that celebrates innovation, diversity and community.*

1.5 Study Requirements

On 28 April 2017 the Minister issued Study Requirements for the Study Area. Of relevance to this report are the following requirements:

12. Aboriginal Cultural Heritage

- 12.1. Prepare an Aboriginal cultural heritage study to identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in the study. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011).
- 12.2. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the study.
- 12.3. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the study. The study must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the study must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
- 12.4. Prepare the required design provisions, in collaboration with CoS and DPE, which are able to be integrated into Sydney DCP 2012 if required.

Table 1 below itemises where each of these Study Requirements has been met in this report.

Table 1: Compliance with Study Requirements

Requirement		Where addressed in this report
12.1	Prepare an Aboriginal cultural heritage study to identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in the study. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011).	This report, and specifically see Section 5 - Aboriginal cultural values are identified and assessed through background research and surface survey

Requirement		Where addressed in this report
12.2	Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the study.	See Section 3.0 and Appendices document: Consultation with Aboriginal stakeholders See Section 5.7, Section 5.8 - Aboriginal stakeholder consultation has been incorporated to the assessment of cultural heritage values and has been documented in this report.
12.3	Impacts on Aboriginal cultural heritage values are to be assessed and documented in the study. The study must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the study must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.	See Section 5.9; Section 5.9.2 - provides management measures for identified areas of Aboriginal archaeological potential.
12.4	Prepare the required design provisions, in collaboration with CoS and DPE, which are able to be integrated into Sydney DCP 2012 if required.	See Section 6 - provides design provisions for Aboriginal cultural heritage values

2.0 LEGISLATIVE CONTEXT

2.1 National Parks and Wildlife Act (1974) (NPW Act)

The NPW Act, administered by the Office of Environment and Heritage (OEH) provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84. 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.

The NPW Act was amended in 2010 and as a result the legislative structure for seeking permission to impact on heritage items has changed. A Section 90 permit is now the only form of AHIP available and is granted by the OEH. Various factors are considered by OEH in the AHIP application process, such as site significance, Aboriginal consultation requirements, Ecologically Sustainable Development (ESD) principles, project justification and consideration of alternatives. The penalties and fines for damaging or defacing an Aboriginal object have also increased.

As part of the administration of Part 6 of the Act, OEH regulatory guidelines on Aboriginal consultation are in place, which are outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010). Guidelines are also in place for the processes of due diligence as outlined in the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (2010) in accordance with the 2010 amendment to the Act.

A search of the OEH Aboriginal Heritage Information Management System (AHIMS) was carried out in 2014 for the Bays Precinct in the course of reporting for Artefact 2014 for the spatial area defined below with a buffer of 50 meters.

Table 2: Parameters of AHIMS search

From Latitude	To Latitude	From Longitude	To Longitude
-33.8871	-33.8677	151.182	151.1969

AHIMS data searches should be updated at least every 12 months and preferably during any new reporting phase. Therefore, on commencing the current phase of reporting, a further AHIMS search was carried out by Artefact for on 18 July 2019 for the same coordinates as above (Client ID 435959). This most recent search did not identify any Aboriginal sites in the investigation area other than those already identified and assessed in this report (The Bays Precinct PAD01 45-6-3339 & The Bays Precinct PAD02 45-6-3338). All Aboriginal objects, whether recorded or not are protected under the Act.

2.2 Native Title Act (1994)

The NSW Native Title Act 1994 was introduced to work in conjunction with the Commonwealth Native Title Act 1993. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act. Native Title registers should be checked in the course of any new reporting phases. Searches of the National Native Tribunal applications register were conducted on 20 May 2015, 1 May 2017, 31 July 2018 and 29 July 2019. There are no Native Title claims or approved determinations registered within the investigation area.

3.0 Aboriginal Community Consultation

Consultation with Aboriginal stakeholders has been conducted in accordance with the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Consultation Requirements). The consultation log is provided in Appendices 1 to 3.

In accordance with Step 4.1.2 of the consultation requirements, a series of advertisements were placed in several newspapers. An advertisement was placed in the City Hub newspaper on 9 March 2017 and repeated on the 16 March 2016. A second advertisement was placed in the Koori Mail on the 22 March 2017 and repeated on the 29 March 2017. A third advertisement was placed in the Inner West Courier on the 18 April 2017 and repeated on the 25 April 2017 (Appendix 1). These advertisements invited all Aboriginal persons and organisations who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places in the subject land to register their interest. Also in accordance with step 4.1.2 of the Consultation Requirements, Artefact Heritage corresponded with the following organisations by letter requesting the details of Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the local area:

- Office of Environment and Heritage (OEH)
- Metropolitan Local Aboriginal Land Council
- La Perouse Local Aboriginal Land Council
- Eric Keidge
- Tocomwal
- Gunyuu
- Walbunja
- Badu
- Goobah Developments
- Wullung
- Yerramurra
- Nundagurri
- Murrumbul
- Jerrigong
- Pemulwuy CHTS
- Bilinga
- Munyunga
- Wingikara
- Minnamunnung
- Gundungarra
- Walgalu
- Thauaira
- Dharug
- Bilinga Cultural Heritage Technical Services
- Gunyuu Cultural Heritage Technical Services
- Munyunga Cultural Heritage Technical Services

- Murrumbul Cultural Heritage Technical Services
- Wingikara Cultural Heritage Technical Services
- Gulaga
- Biamanga
- Callendulla
- Murramang
- DJMD Consultancy
- Butucarbin Aboriginal Corporation
- Didge Ngunawal Clan
- Ginninderra Aboriginal Corporation
- Nerringgundah

In accordance with Step 4.1.3 of the consultation requirements, letters were sent to all Aboriginal persons or organisations identified through responses from agencies contacted as part of Step 4.1.2. In accordance with Step 4.2 the letters provided details about the location and nature of the proposal, as well as an invitation to register as an Aboriginal stakeholder.

Following the completion of steps 4.1.2 and 4.1.3, a total of 17 Aboriginal stakeholders registered as persons or organisations that may hold cultural knowledge relevant to determining the Aboriginal cultural values of the investigation area. The Registered Aboriginal Parties for this ACHAR are summarised in Table 3 below.

Table 3: Registered Aboriginal Parties.

Organisation	Organisation
Tocomwal	Didge Ngunawal Clan
Murra Bidges Mullangari	Darug Aboriginal Cultural Heritage Assessments
Kamilarol-Yankuntjatjara Working Group	Murramarang
Bilinga	Biamanga
Gunyuu	Cullendulla
Murrumbul	Gulaga
Mungunyu	Goobah
Wingikara	Trevor Close
Mirramajah	

On 18 May 2017, after the close of the period for response to advertised notices of invitation a Draft ACHAR was sent to the respondents listed in Table 3, with an invitation to attend an onsite meeting and inspection. On 26 May 2017, Mrs Celestine Everingham of Darug Aboriginal Cultural Heritage Assessments called Michael Lever of Artefact to request that this report should include a description of the local climatic and shoreline changes through which Aboriginal people have lived. These comments have been incorporated to Section 2 of this report. On 5 June 2017, Mrs Celestine Everingham of Darug Aboriginal Cultural Heritage Assessments called Michael Lever of Artefact to advise her organisation could not attend the site inspection, to reinforce her previous statements

regarding the extremely long-term presence of Aboriginal people in the area, and to request copy of the final report or a summary of it. A period of 18 days was allowed between receipt of the draft report and the site inspection. The following representatives attended the site meeting which was held at Blackwattle Bay on 5 June 2017.

Table 4: RAP attendees at site inspection.

Name	Organisation
Philip Khan	Kamilarol-Yankuntjatjara Working Group
Jennifer Norfolk	Tocomwall Pty Ltd

Following the site inspection an updated draft of this report was sent to all Registered Aboriginal Parties for review and comments on. Comments were received from the Kamilarol-Yankuntjatjara Working Group and Tocomwall Pty Ltd. These comments have been inserted into this report. They have been individually addressed in Section 5 below. They are reflected in this report's recommendations, and are included in full in Appendix C.

Table 5: RAPs who provided written comment on the report

Name	Organisation
Philip Khan	Kamilarol-Yankuntjatjara Working Group
Jennifer Norfolk	Tocomwall Pty Ltd

4.0 EXISTING ENVIRONMENT

4.1 Natural setting

4.1.1 Geomorphology

The underlying geology of the investigation area consists of Hawkesbury Sandstone, with ridges capped by Ashfield Shale of the Wianamatta group. The Wianamatta Shales cover a large section of the inner western and southern suburbs of Sydney (Benson & Howell, 1995). Local erosion patterns have created an irregular series of small coves and rocky points. Within and around the investigation area, steep angular faults in the sandstone have produced a system of flat ridge tops, steep slopes incised by streams, and a shoreline comprising rocky cliffs, small sandy beaches and marshes. This has resulted in a shoreline in Port Jackson generally, which is characterised by low rocky cliffs, small sandy beaches, and estuarine marshland where tidal waters were met by creeks (AASC, 1995, p. 14).

The pre-European landscape of the western and northern eastern edges of the investigation area would have comprised a series of low ridge lines with relatively open sandstone valleys draining into the upper reaches of Sydney Harbour (Port Jackson). The landscape of the south and south-eastern side of the investigation area, bordering Blackwattle Bay, was an estuarine marshland known as Blackwattle Cove or Blackwattle Swamp fed by Blackwattle Creek which flowed from the north.

4.1.2 Waterways

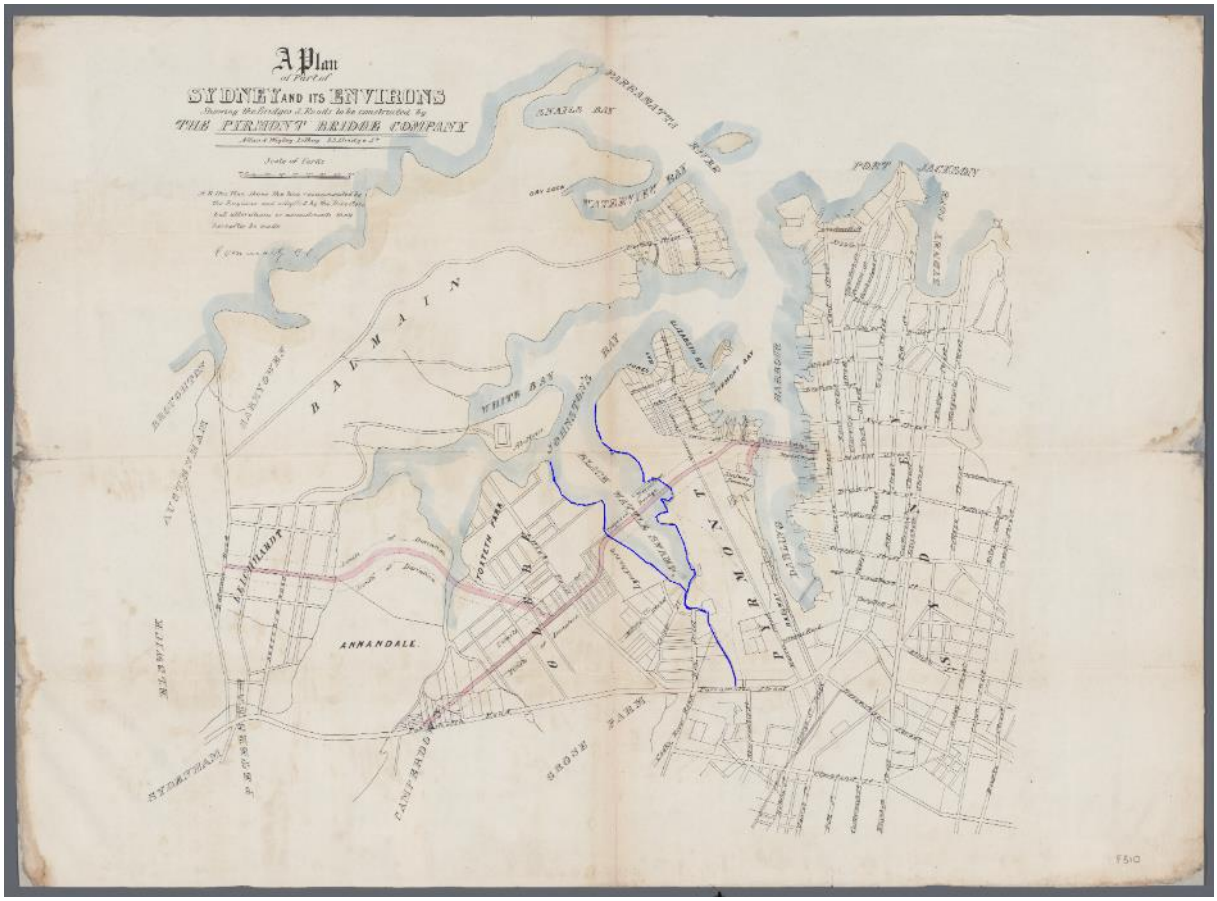
Several creeks originally ran through or near the investigation area, including Blackwattle Creek. During the early years of colonisation in Sydney, Blackwattle Bay was known as Blackwattle Swamp. Blackwattle Creek ran to Blackwattle Swamp from the north. Blackwattle Creek commenced in the north at the current location of Blackwattle Lane near Parramatta Road, between Wattle Street and Mountain Street in Ultimo.

The course of Blackwattle Creek and the natural extent of Blackwattle Swamp is shown in Figure 2 below. In this image, the proposed site of a bridge across Blackwattle Swamp is shown in pink. This bridge was never constructed. However, its indicated location on this map is the location of the current southern shore of Blackwattle Bay. Numerous small creeks would have drained off the ridges across Glebe, Pyrmont and Ultimo.

4.1.3 Vegetation

The vegetation of the investigation area at the time of European colonisation would have ranged from estuarine mangroves to open forests (Parkland Environmental Planners, 2006). Blackwattle Bay would have supported a diverse range of mammals, reptiles, insects and birdlife, which would have been utilised by Aboriginal people. Plants were also an important resource, being used for food or as sources of raw material for manufacture (Attenbrow, 2010). The presence of a nearby fresh water source (Blackwattle Creek) would have attracted Aboriginal people to the area.

Figure 2: Allan and Wigley 1857 map showing Blackwattle Swamp and Blackwattle Creek (outlined in blue). Source: National Library of Australia



5.0 ABORIGINAL ARCHAEOLOGY

5.1 Aboriginal histories of the locality

Aboriginal people have occupied Australia through numerous climatic changes. These changes included the rise and fall of sea levels. Areas once occupied by Aboriginal people near ancient shore lines of the Sydney area may now be inundated and form sea and ocean bed (Attenbrow, 2010; C. Everingham pers com 26.05.2017). The archaeological evidence of such potentially old presence is not available. The oldest available indicative dating for Aboriginal occupation in the coastal regions of Sydney is 30,735 years ago at Parramatta (Attenbrow, 2010, p. 18). The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

The Pyrmont area, known as Pirrama to its first inhabitants, was a location of rich resources. It was adjacent to the swamp and wetlands of Blackwattle Swamp, the marine resources of Blackwattle Bay, and contained rocky shores covered in outcrops which included rock shelters. The eastern shore of Blackwattle Bay also contained freshwater springs and wells, including the named Tinkers Well that remained until destroyed through quarrying. The location maintained a distinct Aboriginal presence up to1836 (Ross, 1988), with visits by Aboriginal people noted up to the 1870's (Matthews 1982, Smith 2004). The largely natural form of the eastern shore of Blackwattle Bay is shown in Figure 3.

Aboriginal people observed in the investigation area at the time of colonisation were seen to traditionally live in small family or clan groups that were associated with particular territories or places. The investigation area is located within the coastal Darug language group area. Attenbrow (2010: 34) describes this area as covering:

> *…the Sydney Peninsula (north of Botany Bay, south of Port Jackson, west to Parramatta), as well as the country to the north of Port Jackson, possibly as far as Broken Bay.*

There is some uncertainty as to whether the investigation area lies within the clan lands of the Cadigal or the Wangal. This is due to conflicting information provided in two historical quotes made by early colonists. Attenbrow (2010: 22) quotes the relevant descriptions: In summary, Governor Phillip stated that the Cadigal lands extend from the entrance of Sydney Harbour, eastwards along the south harbour shore, to Sydney Cove, which is 2.5 km east of the investigation area. Phillip stated that the Wangal lands extend along the south side of the harbour shore from Sydney Cove to Parramatta. This would see the investigation area located in Wangal country.

Alternatively, Attenbrow (2010: 22) also quotes Philip Gidley King who stated that the Cadigal lands cover the south side of Port Jackson, extending eastwards from South Head to Long Cove (Iron Cove) which is 2.5 km west of the investigation area. King stated that the district of the Wangal extend from Long Cove to Parramatta. This would see the investigation area in Cadigal country.

With the establishment of European settlement at Sydney Cove, Aboriginal people rapidly became alienated from their land and resources. Killings of Aboriginal people, both endorsed by the government and extra-judicial, took their toll along with a major epidemic of an introduced disease which broke out in 1789, probably smallpox. This had a devastating effect on the Aboriginal population. Historical records indicate that in just over one year the Aboriginal population of Sydney had decreased by more than a half (Attenbrow 2010: 22). The activities of European colonists including violent attacks on Aboriginal people compounded the dislocation and destruction of the traditional life ways and homelands of Aboriginal people.

Figure 3: Glebe Bridge - view south-east to Pyrmont over Blackwattle Bay. Source: Daily Telegraph 16/10/1875

5.2 Registered Aboriginal Sites

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

A search of the Aboriginal Heritage Information Management System (AHIMS) was carried out for the investigation area with a buffer of 50 metres on 18 June 2019 (Client ID 435959). There are two registered Aboriginal sites within the investigation area. These are The Bays Precinct PAD01 45-6-3338 and The Bays Precinct PAD02 45-6-3339. One additional site is located approximately 30 metres east of the investigation area. This is [redacted] PAD 45-6-2960, [redacted]

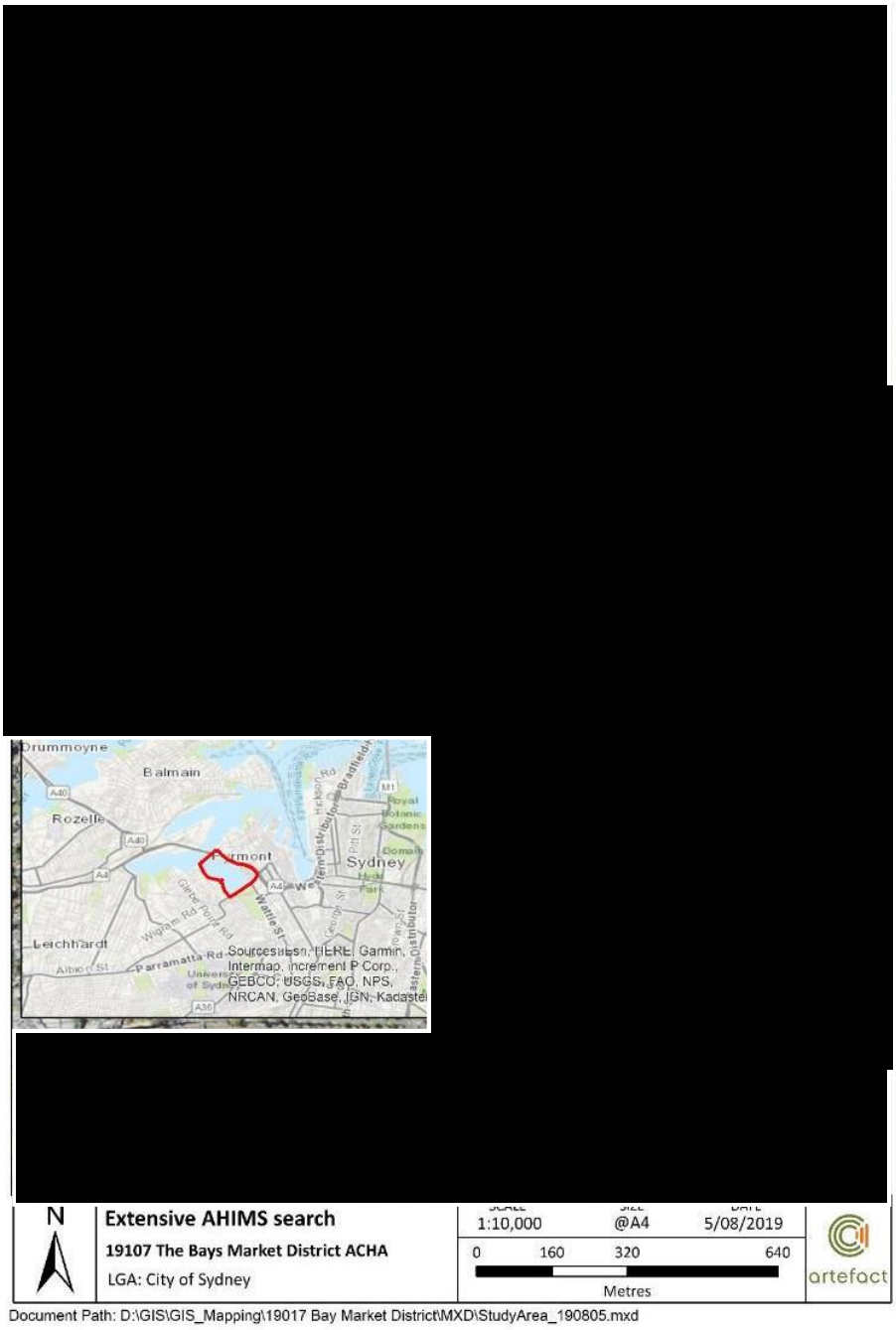
A total of 10 sites were identified within the vicinity of the investigation area. These are presented in Table 6, and are shown in Figure 4. They reflect the small amount of archaeological excavation that has occurred in the area. Eight (80%) of the sites are PADS, one (10%) is an artefact site located through excavation and one (10%) is a historical location.

Table 6: Registered Aboriginal sites identified in the wider surrounds of the investigation area (800m buffer)

Site ID	Site Name	Site Type	Longitude (GDA94)	Latitude (GDA94)
45-6-2629	[redacted]	Artefact	[redacted]	
45-6-2666	[redacted]	PAD	[redacted]	
45-6-2680	[redacted]	PAD	[redacted]	
45-6-2745	[redacted]	PAD	[redacted]	

Site ID	Site Name	Site Type	Longitude (GDA94)	Latitude (GDA94)
45-6-2767	[redacted]	Historic	[redacted]	
45-6-2960	[redacted]	PAD	[redacted]	
45-6-3071	[redacted]	PAD	[redacted]	
45-6-3064	[redacted]	PAD	[redacted]	
45-6-3338	[redacted]	PAD	[redacted]	
45-6-3339	[redacted]	PAD	[redacted]	

Figure 4: AHIMS sites in and near the investigation area.



5.3 Previous archaeological investigations

There have been only a small number of Aboriginal archaeological investigations undertaken in the immediate vicinity of the investigation area. Only a small number of Aboriginal sites have been identified in urban Sydney contexts in general. There are two underlying reasons for this. The first reason is the intensive development that has taken place in inner Sydney since European settlement and the resultant disturbance of the archaeological record. The second reason is the focus of previous archaeological investigations, which have been primarily conducted prior to re-development projects in already disturbed locations. Aboriginal sites that have been identified in urban Sydney contexts are typically located in pockets of remnant topsoil either beneath or between historical archaeological contexts. The following reports have been chosen and summarised to illustrate investigations in similar surrounds to the investigation area.

Artefact (2014) is a Preliminary Aboriginal Heritage Assessment that studied the entire Bays Precinct. Including the investigation area of this report. Artefact (2014) identified that the Bays Precinct as a whole had been subject to extensive modification and disturbance, including large-scale land reclamation and alteration. No previously recorded Aboriginal sites were identified within the Bays Precinct. An AHIMS search was carried out which identified a total of 16 registered Aboriginal sites in the surrounds of the Bays Precinct. They reflect the coastal nature of the location and the small amount of archaeological excavation that has occurred in the area. Eight (50%) of the sites were Midden site types, while six sites (37.5%) are PADs – unexcavated areas of potential. Artefact (2014) undertook sample survey of the investigation area. Ground surface visibility was low due to the urban nature of the surrounds. Artefact (2014) determined that most of the Bays Precinct was of nil to low Aboriginal archaeological potential. Artefact (2014) found that two areas in the Blackwattle Bay Precinct were potentially outside of margins of known major historical land disturbance and were within the alignment of potentially preserved natural landforms. These two areas were determined as of moderate Aboriginal archaeological potential. These areas of moderate potential include the locations of The Bays Precinct PAD01 45-6-3338 and The Bays Precinct PAD02 45-6-3339.

Biosis (2012) completed an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the Urbanest redevelopment on Wattle St, Ultimo. The ACHAR investigation was based on background research, ethno-historic data and geotechnical investigation. Biosis (2012) determined that despite significant impact to the soils of the area since European occupation it was likely that substantial and deep sections of alluvial soils would be present across the investigation area beneath European deposits (Biosis 2012). Historical archaeological layers were identified to a depth of at least 2.5 metres and assessed as having low Aboriginal archaeological potential. However, alluvial soils located underneath these historical deposits extended to a depth of at least 7 metres below the surface. These buried soils were considered to have moderate to high Aboriginal archaeological potential (Biosis 2012). This potential was considered to be heightened by the proximity of the site to Blackwattle Creek. The project area was registered with AHIMS as a PAD (AHIMS site # 45-6-3064). Urbis recommended test excavations and avoidance of alluvial soils where possible (Biosis 2012).

Biosis (2012a) also undertook test excavations of possible remnant original topsoil deposits located beneath historical archaeological deposits at Quay Street, Haymarket. The site is located approximately 600 meters southwest of the Blackwattle Bay Precinct of the investigation area. The area may have been favoured by Aboriginal people due to the close proximity to food and other resources, and to topography which may have provided good camping conditions. The excavated deposits were very shallow and contained European artefacts. No Aboriginal objects were recovered and it could not be determined whether the deposit was original topsoil that pre-dated European settlement, or whether soils had been historically introduced. After the Aboriginal test excavation program was completed, a lithic artefact was detected during non-Aboriginal archaeological excavations at the site. This artefact came from a highly-disturbed context and was likely to have been moved from the original point of discard. Due to the high disturbance levels of soils detected in the location it was determined that the project area and artefact had low archaeological significance.

Steele (2001) carried out Aboriginal archaeological test excavation and monitoring at the Quadrant site situated between Broadway and Mountain Streets in Ultimo, approximately 1 kilometre south of the investigation area. Subsurface testing in 1 x 1 metre squares was undertaken along the historical banks of the now buried Blackwattle Creek and also upslope of the creek's location. A 5 x 15 metre area of a remnant patch of original topsoil was tested. Fourteen Aboriginal flaked stone artefacts were recovered from this.

Steel and Czastka (2003) provided final reporting on excavations at the Quadrant Site mentioned above. Steel and Czastka (2003) suggested that the lack of more substantial Aboriginal archaeological material identified on the Quadrant site may relate to the low-lying and poorly-drained nature of the Blackwattle Creek landscape. The authors proposed that Aboriginal people were unlikely to have established long-term occupation sites on land that was low-lying and poorly drained. Steel and Czastka (2003) proposed that more elevated points overlooking Blackwattle Creek and swamp are more likely to contain more substantial evidence for past Aboriginal visitation and use.

Tanner Architects (2011) summarised local recorded Aboriginal sites for the Callan Park Conservation Management Plan. Several middens have been recorded near the shoreline on the north-eastern side of Callan Point, and along the cliff tops overlooking Iron Cove. These sites include a shell midden beneath a low rock shelter (AHIMS site # 45-6-0283) and an open midden site with rock engravings above the cliff line on the pinnacle of Callan Point (AHIMS site # 45-6-0618). These sites are in lands that have been preferentially preserved and largely undeveloped. Although located approximately three kilometres west of the investigation area, the landform at Callan Park is of sufficient similarity and nearness to the investigation area that sites located there likely reflect the sorts of Aboriginal sites once present in the far more disturbed investigation area.

5.4 Historical land use and disturbance

5.4.1 Land reclamation

Blackwattle Bay and its surrounds have been subject to large scale alteration including land reclamation to form bays and wharves. In effect the southwest and southeast shorelines of Blackwattle Bay are wholly artificial landforms for up to several hundred meters inland. This is clearly visible on images below. In Figure 5 the coastline of Blackwattle Bay is seen as naturally undulating, with a dashed line indicating the limits of Blackwattle Swamp that was infilled to become Wentworth Park. In Figure 6, the coastline is unnaturally straight and angular having been created through infill and dredging and Wentworth Park has replaced the former swamp. The location of the investigation area relative to historical shorelines, particularly along the south west of Blackwattle Bay, is shown in Figure 7.

Figure 5: Natural foreshore of Blackwattle Bay. Sands Directory Map 1887. Source: Historical Atlas of Sydney

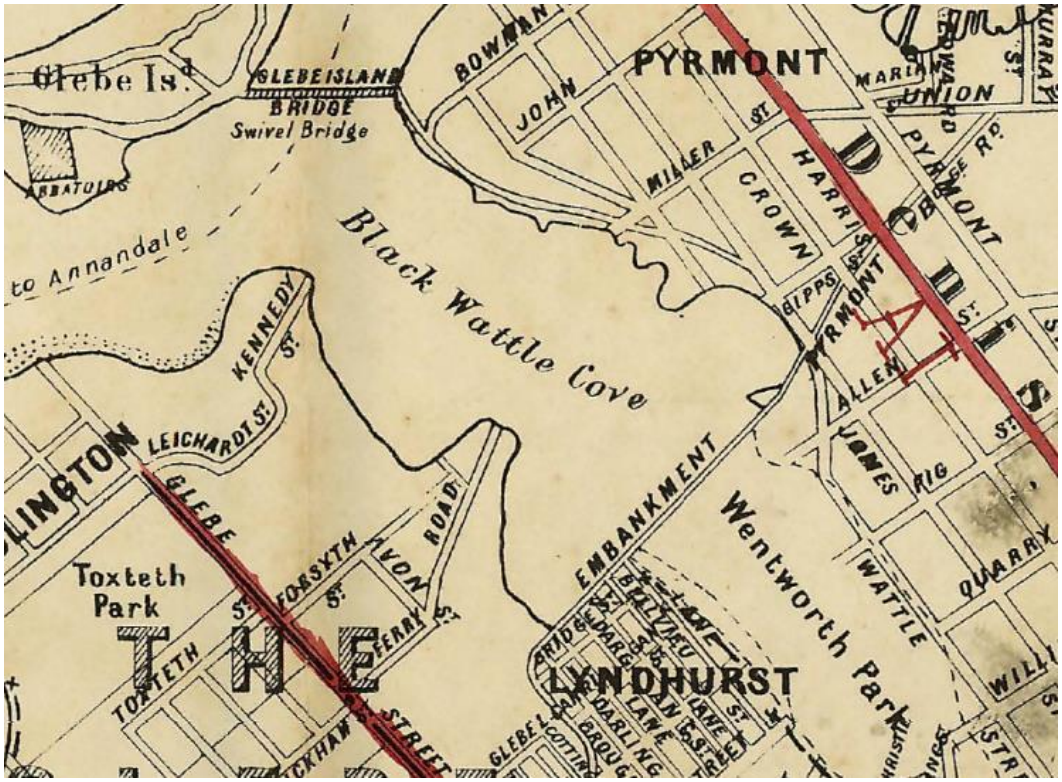
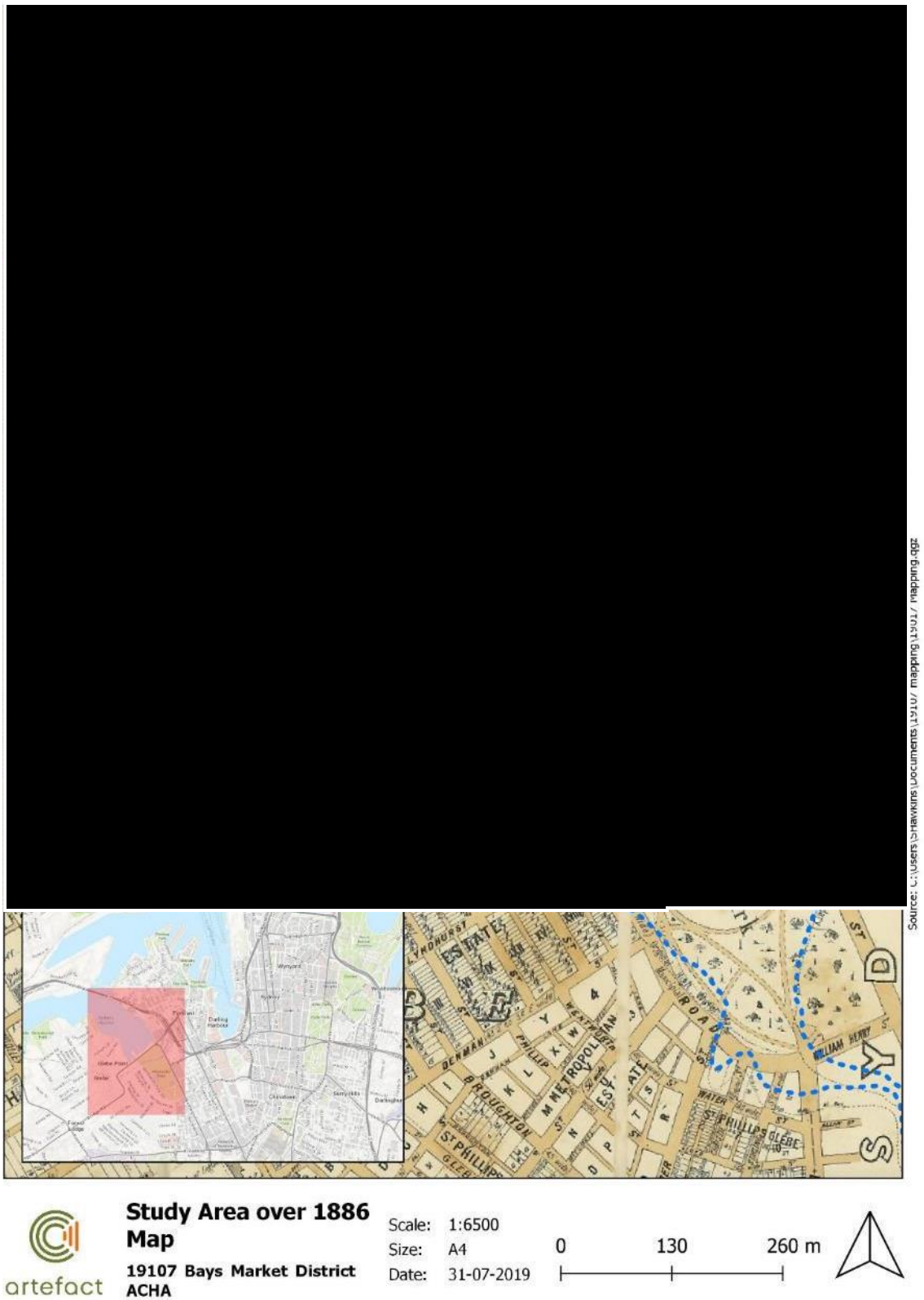


Figure 6: Land reclamation at Blackwattle Bay. Higginbotham and Robinson 1886. Source: National Library of Australia/Trove

Figure 7: Investigation area relative to natural foreshore and identified Aboriginal listed sites – after Allan and Wigley 1857 and Higginbotham and Robinson 1886. Source: National Library of Australia/Trove.



5.4.2 Colonisation

The investigation area falls within Pyrmont to the east and Ultimo to the south. Lands within it located on the Pyrmont peninsula formed part of early land grants and later the acquisitions of Surgeon John Harris. A small number of Aboriginal people survived on the peninsula at Pyrmont after colonisation until 1836 when they were driven into Ultimo and further south (Ross, 1988).

Early subdivisions of the Pyrmont Peninsula were relatively unsuccessful due to the isolation of the peninsula from the city. By 1839 a small number of ship building and shipping businesses were established, taking advantage of the deep anchorage afforded at the Peninsula. However, sandstone quarries were the dominant industry of the time (Irving, 2006). The largest sandstone quarries in Pyrmont were operated by Charles Saunders, publican of the Quarryman's Hotel in Pyrmont. Sandstone quarrying has removed much of the natural landform of the Blackwattle Bay eastern shoreline and immediate hinterland.

Most of the early 19th Century development and subdivision of the Pyrmont peninsula occurred on the eastern shores of the peninsula, away from the investigation area, facing the swiftly developing Darling Harbour. The construction of the Pyrmont Bridge across Darling Harbour in the 1850's linked the Peninsula to the city. Several large businesses moved to Pyrmont after this time, notably Colonial Sugar Refining Co Ltd (CSR), who by 1877 operated a refinery, distillery and caneite factory on the end of the peninsula – caneite was a construction material formed from pressed sugar cane waste (Dictionary of Sydney).

Industrial uses of the Pyrmont peninsula declined in the later part of the 20th Century as factories moved further away from central Sydney. The Anzac Bridge was constructed in the mid-1990's involving reclamation around the eastern pylon on the Pyrmont Peninsula. Small scale land reclamation has occurred in numerous stages on the Pyrmont Peninsula, driven by both private industry and government. The southern end of Blackwattle Bay was formed by Blackwattle Swamp. The surrounds of the swamp was home to abattoirs, tanneries, distilleries and boiling down works during the early to mid-19th Century (Birch 2007). The extreme pollution discharged by these factories led to the enactment of the Blackwattle Bay Land Reclamation Bay Land Reclamation Act of 1878 s2 which decreed the cove was to be infilled and:

> *…to be set apart and dedicated in perpetuity as a park or place of public recreation. And this enactment shall be construed to extend all the provisions (so far as they can be applied) of the Public Parks Act 1854 to the area reclaimed.*

5.4.3 Indications from geotechnical testing

Several stages of geotechnical testing have taken place using a variety of excavation and analytic methods. These are available in the appendices to the Site Wide Remedial Concept Plan (JBS&G, 2015) (available online). It is not within the scope of this report to carry out a detailed analysis of the many geotechnical results available. It is noted here that geotechnical testing indicates a high level of fill across the vast majority of the Bays Precinct. Geotechnical testing also indicates that localised areas of natural soils do appear to have been preserved within the Precinct. An example of this is provided in results presented below for geotechnical testing within two adjacent small properties, 1A and 1-3 Bank St Pyrmont (Figure 8 and Table 7). Test pits BH02, and BH06 contain natural soils located above the current water table. Test pits BH03, BH04 & BH05 contain natural silts below the current water table. There appears to be considerable variation in terminology and reporting between geotechnical reports – BH02 is given as containing 3.8m of natural soils beneath 2.5m of fill, while MW02, undertaken in the same location reported only fill over basal clay. Despite inconsistencies, these results do indicate that the possibility exists for natural soils to persist beneath developed areas.

Figure 8: Geotechnical test locations within 1A & 1-3 Bank St Pyrmont (after JBS&G 2015).

Table 7: Geotechnical test results at 1A and 1-3 Bank Street.

Test Pit	Max soil depth (metres)	Water Table (metres)	Findings
BH01	3.2	Not reached	Fill over basal clay
MW01	4.6	Not reached	Fill over basal clay
BH02	6.3	3	Natural silt from 2.5m to base
MW02	4	Not reached	Fill over basal clay
BH03	6.1	3	Natural silts 4.5m -base
BH04	6.3	3	Natural silts 3.5m -base
BH05	6.5	2.5	Natural silts 5.5m -base
MW05	N/A	Not reached	N/A
BH06	3	Not reached	Fill to .5, natural soils & sands to base
BH07	.4	Not reached	Topsoil, terminates on concrete

5.5 Predictive model

The predictive model is based on the indications of ethnohistory and archaeological investigations in the area and takes into account the effects of historical land use on the likely previous environment, landform and archaeological record.

Predictive statements are as follows:

- The investigation area has been highly disturbed and the likelihood of surviving Aboriginal archaeological deposits is generally low. However, geotechnical testing indicates that the possibility does exist for natural soils being preserved in localised parts of the investigation area, and the presence of Aboriginal archaeological deposits can therefore not be dismissed.
- Shelters and midden deposits will be the most likely Aboriginal site type.
- Low density artefact scatters, isolated finds and rock engravings may also occur.
- Aboriginal sites will be located in areas of least ground disturbance (i.e. on intact sections of outcropping sandstone, or beneath fill deposits and beneath surfaces or buildings that were constructed on fill and/or with shallow foundations).
- There is some potential for burials to exist where intact midden and sandy deposits are present. The potential locations of such features are best identified through a combination of landform assessment and geotechnical testing results. This is the approach adopted in this study.
- The investigation area may potentially contain evidence of early European contact with Aboriginal populations. Evidence might include flaked glass and metal objects such as axes and knives, but this material can be difficult to discern from European artefacts.

5.6 Site survey

Two phases of site survey were carried out. An initial sample survey of the investigation area was carried out in 2014 and a second targeted site survey was carried out with RAP participation in 2017.

5.6.1 Survey 2014

5.6.1.1 Survey methods

A sample survey of the investigation area was conducted on the 3 June 2014 by Alyce Howard and Jenny Winnett (Artefact Heritage) and on the 13 June 2014 by Alyce Howard and Josh Symons (Artefact Heritage). Concrete and asphalt surfaces covered a great deal of the investigation area and areas of parkland generally exhibited evidence of modification and disturbance, at least on the surface. As such, there was little to no visibility throughout the investigation area. However, the site survey was useful in clarifying landform features and confirming information acquired through archival research.

5.6.1.2 Survey general observations

The investigation area has been cleared of its original vegetation and extensive modification of the natural landforms has occurred. The investigation area has been subject to ongoing considerable development including the formation of roads, elevated roads, a suspended bridge, industrial and commercial properties, and high density residential development. However, some potentially relatively intact pockets remain.

5.6.1.3 Survey observations of Blackwattle Bay

This was characterised by areas of reclaimed land, interspersed with some original landforms that have characteristically been heavily developed and impacted. Blackwattle Bay Precinct features the Sydney Fish Markets site and the Hymix Concrete facility. This area is also bordered by residential apartments to the north and east. The wharves of Blackwattle Bay are visibly the product of land reclamation. Other areas of reclaimed land are evident along the western border of the Pyrmont Peninsula, and are interspersed with sections of sandstone outcrop which may correspond to the original landform. Cuttings into the original sandstone were identified on the eastern section of the Precinct (on the western border of the Pyrmont Peninsula). These sandstone exposures were inspected for traces of Aboriginal cultural features. No such features were identified. AHIMS site # 45-6-2960 was identified as a PAD, located approximately 30 metres east of the northeast corner of the Blackwattle Bay Precinct.

5.6.1.4 Summary of survey

No previously recorded Aboriginal sites were located within the investigation area. No previously unrecorded Aboriginal sites were identified during the field surveys. The investigation area has been subject to high levels of development. Most of the investigation area was assessed as of no archaeological potential. Two sections of investigation area were identified as being within the alignment of original landforms as well as being outside of margins of disturbance associated with quarrying and other deep subsurface impacts. These two locations were identified as areas of moderate archaeological potential and are illustrated in below in Figure 9 in which the land elements of the investigation area are marked in red.

5.6.2 Survey 2017

5.6.2.1 Survey methods

A second survey of the investigation area was undertaken on 5 June 2017 together with RAP representatives. RAPs in attendance were Mr Philip Khan (Kamilaroi-Yankuntjatjara Working Group), and Ms Jennifer Norfolk (Tocomwall Pty Ltd). Representatives of the NSW government included Stephanie Ballango (Assistant Development Director) Tracy Duhon (Project Administration Assistant) and Anh Dang (Communications and Engagement Manager). Artefact Heritage was represented by Michael Lever (Senior Heritage Consultant) and Veronica Norman (Heritage Consultant).

This survey covered the entirety of the investigation area, but focused attention on the locations that had been identified in the 2014 survey as of moderate archaeological potential. Large built structures occupied much of the investigation area including the Sydney Fish Market and the footings and surrounds of the Anzac Bridge. Currently undeveloped areas displayed clear evidence of large-scale previous development, demolition and restitution of ground surfaces. Concrete, asphalt and compacted fill surfaces cover the effective entirety of the investigation area. Ground surface visibility was effectively nil.

Nevertheless, the survey was of use in allowing for estimation of areas of potentially preserved natural landform beneath current developed surfaces.

Three survey units were identified based on the nature of likely disturbance to any underlying natural soils. These survey units are shown on Figure 10 below.

- **Survey Unit One** comprised all parts of the investigation area that had been previously assessed as of low archaeological potential. This is a discontinuous unit, predominantly comprised of land on which substantial built structure is located, and which is frequently comprised of reclaimed land.
- **Survey Unit Two** is the surrounds of the Sydney Fish Market including the asphalt car park of the Sydney Fish Market. Part of this area had been identified as of moderate archaeological potential

during survey in 2014. The overall landform and potential for preservation of underlying soils was assessed.

- **Survey Unit Three** is the small apex of land at the north of the Bays Market Precinct within properties 1A and 1-3 Bank Street Pyrmont. this area had been identified as of moderate archaeological potential during survey in 2014. Subsequent examination of aerial imaging and information from geotechnical testing (Figure 8) has indicated that this location may have been subject to only limited soil disturbance associated with construction of small 1-2 story brick structures and concreted land surface in numbers 1-3 Bank Street. No disturbance to number 1A Bank Street was detected from available aerial imaging.

Figure 9: Areas of potential sensitivity within the investigation area and surrounds after Artefact Heritage (2014). Land elements of investigation area in red

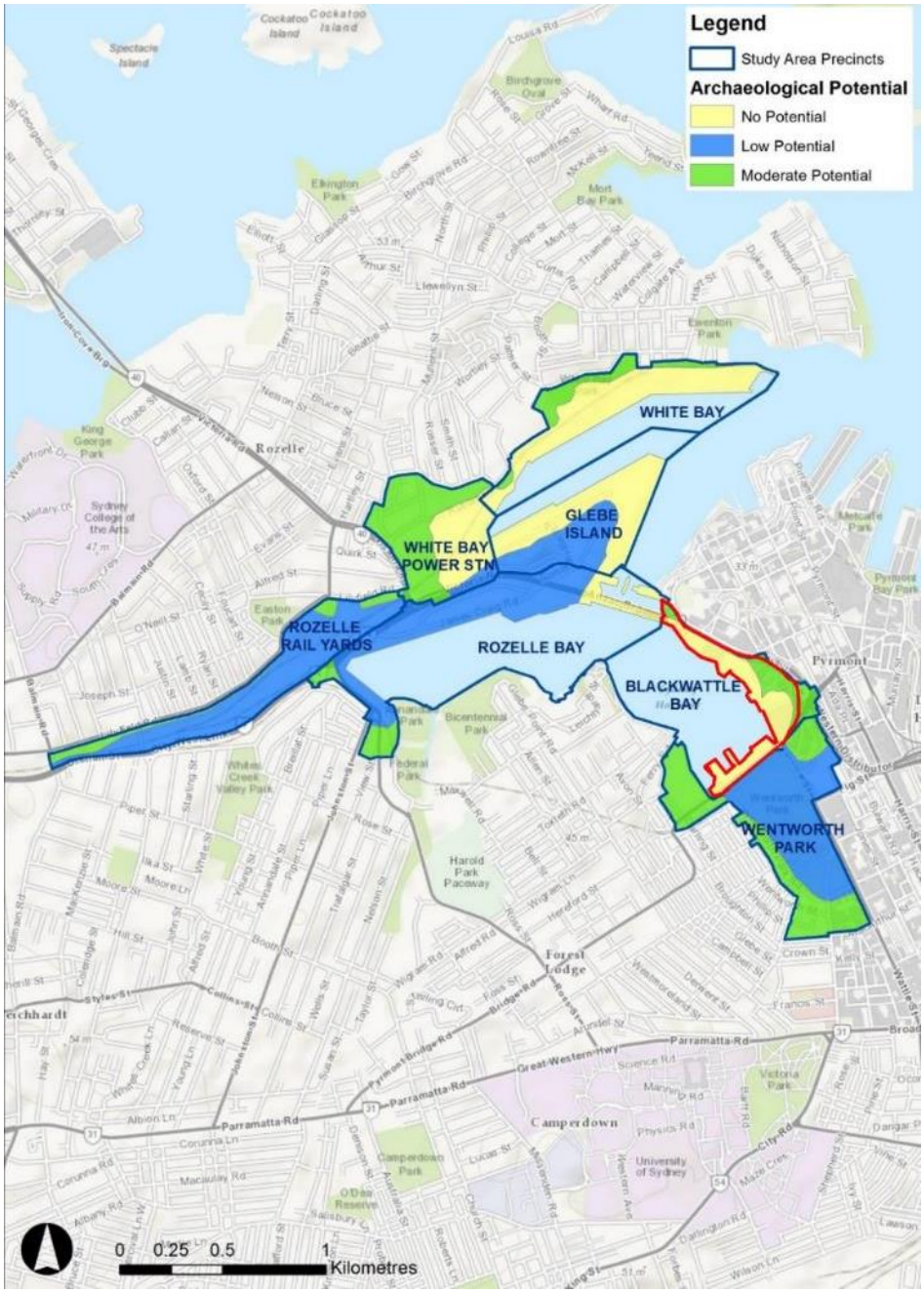


Figure 10: Survey Units of Survey # 2 (5 June 2017).

Document Path: C:\Users\GIS\Desktop\GIS\GIS_Mapping\170119_Bays_Precinct\MXD\Survey_units.mxd

5.6.3 Survey results - Survey Unit 1

Survey Unit 1 comprises two parts. The first is the surrounds and roadway adjoining Blackwattle Bay, the Sydney Fish Market, road beneath the Anzac Bridge and beneath connecting elevated roadways. The extent and degree of land reformation in this survey unit is large. The Sydney Fish Market is a large tilt-slab construction with below-surface ancillary areas, basements and loading facilities. The elevated roadways in the area rest on considerable numbers of large concrete piers (Figure 11, Figure 12) which will almost certainly have been positioned on underlying bedrock. It is highly likely that the wider surrounds of these piers will have been excavated both during construction and demolition of previous infrastructure, and towards construction of the current elevated and surface roadways. Landforms here are artificially level and sculpted. Given this consideration of likely construction impacts, areas within this part of the survey unit that were previously considered of moderate archaeological potential are downgraded here to nil to low potential.

The second part of this survey unit is beneath and to the immediate sides of the Anzac Bridge. The footings for the piers of the Anzac Bridge that are located in this survey unit are massive and their wider surrounds to at least 30 m to 50 m appear to have been considerably land formed to allow their construction, and likely that of other components of the bridge. The weight and scale of construction, machinery and plant entailed in such construction, would likely require that unstable local soils in the construction zone be removed. Substantial buildings and infrastructure are also present in this survey unit, to the west of the Anzac Bridge. Ground preparation and excavation for these structures is also most likely to have reduced archaeological potential here to nil or low. No natural soil surfaces were viewed in either part of Survey Unit 1, and the location is considered to be of nil to low archaeological potential.

Figure 11: Land immediately east of Sydney Fish Market. View to south east.

Figure 12: Land immediately east of Sydney Fish Market. View to north west.

Figure 13: Cleared and filled land beneath the Anzac Bridge. View to north west.

Figure 14: Footings & surrounds of Anzac Bridge.

5.6.4 Survey results - Survey Unit 2

This comprises the car park of the Sydney Fish Markets and adjacent roadway and pavement. Much of these adjacent road and pavement areas are beneath the elevated M4 / Western Distributor, and access ramps to and from the Anzac Bridge. These locations around and beneath ramps and elevated roadway appear to have been considerably disturbed in construction of roadways and footings for piers such as shown in Figure 11 and Figure 12 for survey unit 1.

It is most likely that construction of these major elevated and surface roads and their surrounds would have entailed removal of unstable natural sand deposits. Areas within and beneath major roadways that were previously considered of moderate archaeological potential are downgraded here to nil to low archaeological potential. The car park of the Sydney Fish Market was also inspected. Areas that have been visibly excavated or modified to depth, such as in below-ground loading aprons, on retaining sea walls and beneath substantial structures were considered of low archaeological potential.

All ground surface in the Sydney Fish Market car park is beneath concrete or asphalt. Despite the presence of large numbers of parked vehicles, it was possible to form an impression of the landform and likely morphology of underlying ground. The car park surface undulates mildly while sloping gently to Blackwattle Bay to the west. This undulation is not easily captured in photos. It is possible that the car park has only been subject to relatively minor ground disturbance, possibly comprising grading and deposition of asphalt over a largely natural soil surface. The asphalt in the car park is also subject to localised subsidence. This may further indicate the presence of underlying natural soils rather than a substrate of bedrock or compressed fill.

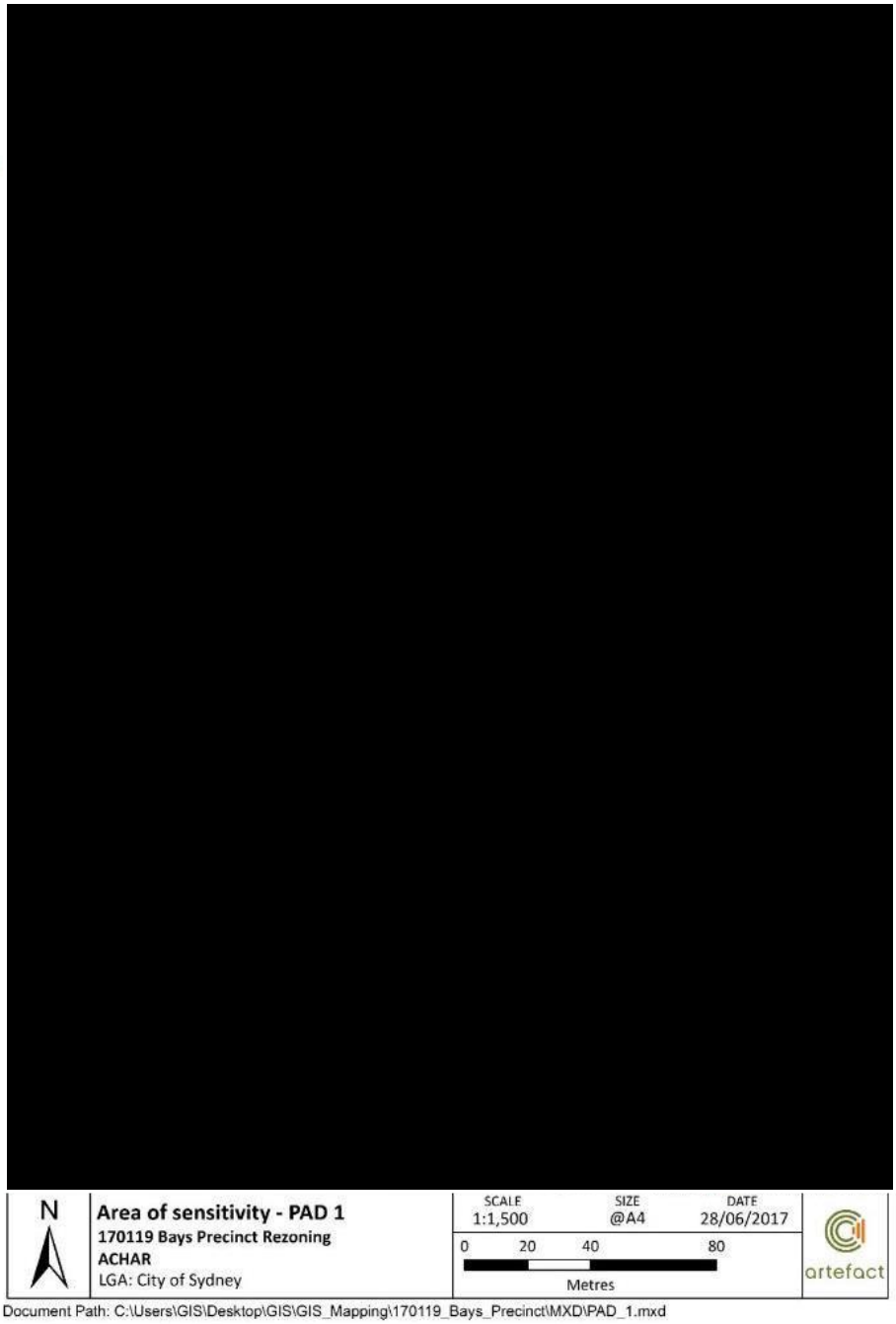
[redacted] has been listed as a Potential Archaeological Deposit (The Bays Precinct PAD01 45-6-3339) and is shown on Figure 18 below. Historical map overlay (Figure 7) indicates that only part of The Bays Precinct PAD01 45-6-3339 was likely natural land. This may be the case; however historical mapping overlay often incorporates inaccuracy. It was also not possible to detect any relationship between this mapped natural landform with ground surface [redacted]

Figure 15: Fish Market car park view to east showing shallow undulating decline to Blackwattle Bay.

Figure 16: Fish Market car park view to south showing gently undulating landform.

Figure 17: Fish Market car park view to east showing subsidence and undulation.

Figure 18: Location of The Bays Precinct PAD01 45-6-3339.



5.6.5 Survey results - Survey Unit 3

This survey unit consists of [redacted] and adjoining land to the south. Open lands in the south of this survey area appear to have been impacted through prior construction and demolition of structures as well as through construction of the Anzac Bridge. Based on information available at the time of the survey it seems most likely that this southerly portion of survey unit 3 is of low archaeological potential.

In the north of survey unit 3, land [redacted]t is occupied by brick warehouses that likely date from between the late 19th century to early 20th century (Figure 19).These warehouses appear to match rooflines visible in aerial photography dating to the 1930's. Mechanical excavation methods were not generally employed for such small-scale construction in Australia until after the Second World War, when repurposed military tracked vehicles were first put into use (Annear, 2005). Ground preparation for these buildings is therefore likely to have been manually undertaken and would have entailed localised excavation for footings, rather than mechanical site-wide disturbance as is often currently the case. These buildings could not be entered during the survey; however, they were inspected from several angles including through their barred gateway (Figure 20). These buildings surround a concreted yard which has potential to overlie preserved natural soils. Sufficient impression was gained of the nature of construction[redacted] to support designating the properties as a part of a PAD (The Bays Precinct PAD02 45-6-3338).

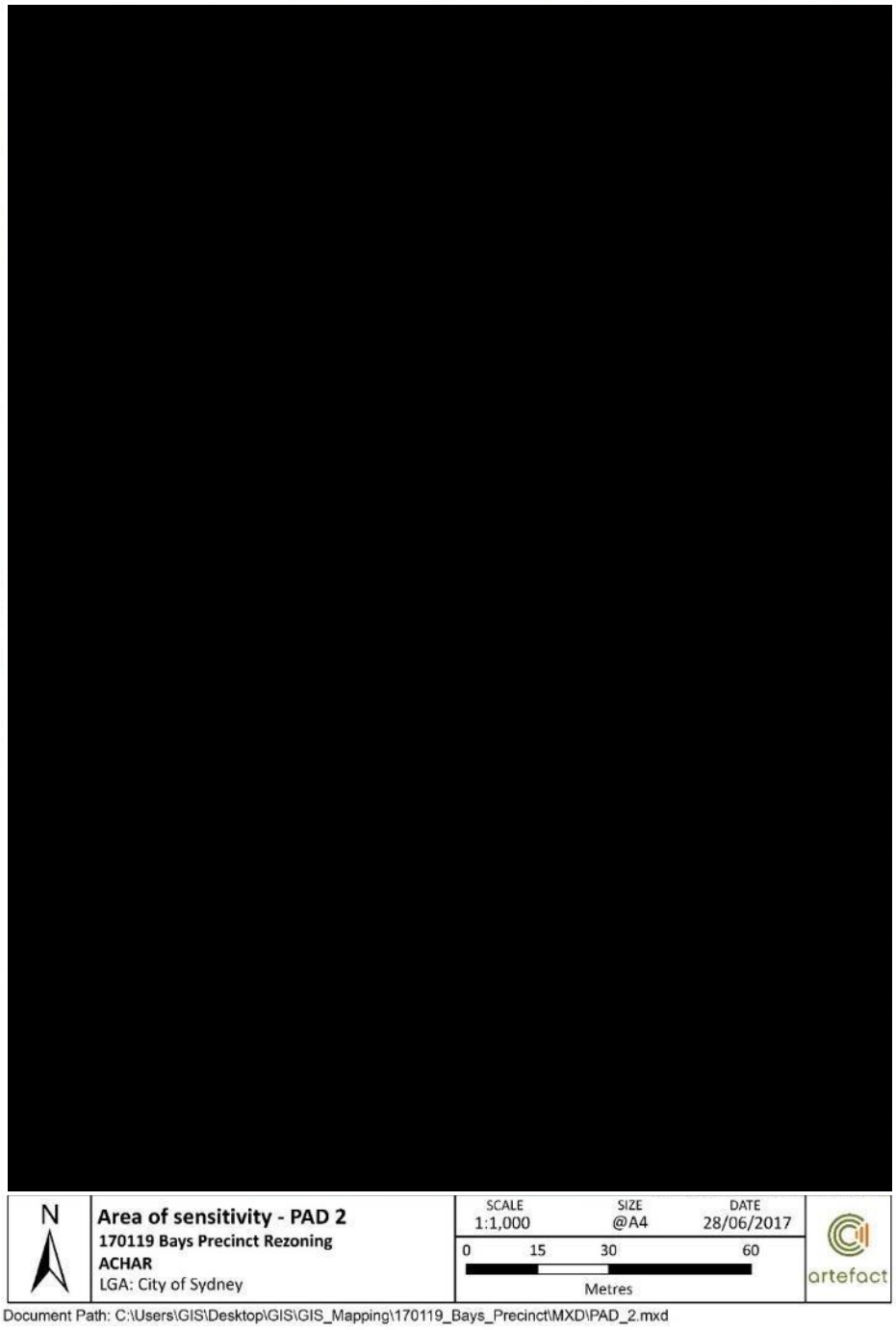
[redacted]t is in the northernmost point of survey unit 3. It could not be accessed directly during survey however it could be viewed from several angles through wire fencing (Figure 21). No evidence for significant ground disturbance was observed in this area in historical aerials or photographs. The property is overgrown with young trees, grass and shrubs and no evidence of development within it could be identified. This property is part of The Bays Precinct PAD02 45-6-3338, this PAD is shown on Figure 22.

Figure 19: [redacted]. View to west.

Figure 20: [redacted]t. View over yard to west, taken through property gate.

Figure 21: [redacted]View to north west, taken through fencing.

Figure 22: Location of The Bays Precinct PAD02 45-6-3338.



5.6.6 Survey coverage and results

Under conventional methods of evaluation of survey coverage, primary emphasis would be placed on the level of ground surface visibility available for each survey unit. Such a method is not likely useful in the current study, as ground surface visibility has been effectively nil for all survey units. The survey has nevertheless proved suitable to the aims of this study through the identification of areas of potential preserved natural land beneath current structures and artificial surfaces. No Aboriginal artefacts or sites were identified during the survey. Two areas of Potential Archaeological Deposit were identified.

Table 8: Results of site survey.

Survey Unit	Size (m^2)	Sensitivity	PAD	PAD Size (m^2)
1	60,000	Nil - low	No	
2	26,000	Generally nil-low	The Bays Precinct PAD01 45-6-3339	[redacted]
3	4,000	Generally nil-low	The Bays Precinct PAD02 45-6-3338	[redacted]

5.7 Aboriginal cultural values – Blackwattle Bay

One registered Aboriginal PAD [redacted]PAD 45-6-2960) is located near to and overlooking the investigation area. The implications of the proximity of the investigation area to [redacted] AD 45-6-2960 were a subject of consultation with Aboriginal stakeholders during the site visit and their verbally expressed concerns for protection of [redacted] PAD 45-6-2960 have been incorporated into the recommendations of this report.

Written feedback regarding the cultural and archaeological potential of the investigation area was received from Pollowan Philip Khan (Khan, 13 June 2017), who also expressed a desire to be involved in any further assessments of Aboriginal heritage in the investigation area. His written remarks read:

> *Under All the backfill that has been used for the artificial landforms, that would off protected Aboriginal Heritage such as Over Hangs, Engravings and Grinding Grooves on Sandstone platforms and Potential for Burials sites as well, they all needs to be recorded as you know it is a Crime to destroy Aboriginal heritage Knowingly and Unknowingly. I would like to Recommend further investigation on all the land that has artificial landforms as this areas that have been back filled and they will protect sites if there anything there, then there's the geotechnical test which me must look at, BH02,BH03,BH04,BH05 and BH06 THESE ARE A MUST to Excavate and under the old building and the car parks they need investigation as well. As The old Blackfella would says if we do not look now-then Weill never get the chants again its gone forever to late to protect and record our Cultural Heritage at Blackwattle Bays Market Precinct.*

Pollowan Phil Khan also provided comments relating to the cultural values of the Blackwattle Bay area:

> *This whole area is highly significant to the Aboriginal People of the past and present, it has been lived on for over Thousands and Thousands of years by the First People, Aboriginal People and the Spirituality of the land is so overpowering it gives me Goosebumps just thinking about what those old people think of how we disrespect their ways of life and Spirituality given to them by the Great Creator, we have let them down. Also it is part of the first contact area of Europeans and Aboriginal People.*

Written feedback was also received from Jennifer Norfolk of Tocomwall Pty Ltd (Norfolk 12 July, 2017):

Comments Re: The rezoning of the Bays Precinct Pyrmont

> *From Historical research done on the site and its surrounding area, Blackwattle Bay has experienced significant changes since Aboriginal occupation.*
>
> *In the investigation area at 1A and 1-3 Bank St Tocomwall recommends further subsurface testing to be done to investigate the potential of intact Aboriginal objects or sites. The proximity to the registered rock shelter is indicative of Aboriginal occupation and utilisation of the Sandstone shoreline around Pyrmont. The geotechnical investigations show that there is potential for intact preserved natural soil profiles and therefore potential for intact Aboriginal objects or places.*
>
> *There is very little left of the original shoreline in and around the investigation area and Sydney, if there is to be any impact to this site in the investigation area then further subsurface investigations need to be undertaken.*

These comments have been considered and incorporated into this report in recommendations for greater analysis of geotechnical test results and the archaeological testing of The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338.

5.8 Significance assessment criteria for Blackwattle Bay

5.8.1 Overall values

Archaeological significance refers to the archaeological or scientific importance of a landscape or area. This is established by using archaeological criteria such as archaeological research potential, representativeness and rarity of the archaeological resource and potential for educational values. It is important to note that heritage significance is a dynamic value and that new information or changes in community perception of a heritage resource may require its revaluation.

The criteria applied to the Blackwattle Bay investigation area are outlined below and are applied in Table 9, below with an overall rating of moderate / moderate-high significance:

- Historic values – is the area important to the cultural or natural history of the local area and/or region and/or state?
- Scientific values - does the area have the potential to yield information that will contribute to an understanding of the cultural and natural history of the local area and/or region and/or state?
- Aesthetic values – is the area important in demonstrating aesthetic characteristics in the local and/or region and/or state?

The assessment of scientific values should incorporate consideration of the following criteria:

- 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?

Table 9: Significance assessment for the Blackwattle Bay investigation area as a whole

Value	Description	Research Potential	Represent -ativeness	Rarity	Education Potential	Overall Rating
Historic	Aboriginal activities in the Blackwattle Bay and the Pyrmont peninsula were described at first contact and an ongoing Aboriginal presence was documented there to the 1840's. The investigation area is one of the nearest points of harbour access to Redfern, in which a longstanding Aboriginal community has existed and historical connections may be revealed by further research.	High	Moderate	High	High	Moderate-High
Scientific	The investigation area has potential to contain preserved foreshore soils. The archaeological and ecological significance of any such deposits could be highly significant as very few such deposits have been examined to date.	High	Moderate	High	High	Moderate-High
Aesthetic	The investigation area has been largely modified. It partially preserves viewsheds between Blackwattle Bay and Jackson Landing Shelter PAD (45-6-2960).	Low	Low	High	Moderate	Low-Moderate

5.8.2 Areas of differing archaeological potential within Blackwattle Bay

The results of previous archaeological investigations and the work undertaken for the present study have identified two areas of Potential Archaeological Deposit in the investigation area. These are The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338. The evidence suggests that these PADS may contain remnant natural soils. These PADs have the potential to contain archaeological evidence associated with the likely heightened utilisation of the local foreshore by Aboriginal people in the past. Significance assessment is provided for the potential archaeological content of these PADs and the balance of the investigation area. These are rated in Table 10, and summarised in Table 11.

Table 10: Archaeological significance rating

PAD	Research potential	Representativeness	Rarity	Education potential
The Bays Precinct PAD01 45-6-3339	Moderate-High	Moderate-High	High	Moderate-High
The Bays Precinct PAD01 45-6-3339	Moderate-High	Moderate-High	High	Moderate-High
Balance of investigation area	Nil-Low	Nil-Low	Nil-Low	Nil-Low

Table 11: Summary of significance

PAD	
The Bays Precinct PAD01 45-6-3339	This PAD is mapped as potentially containing remnant natural landforms. Site survey has identified that a possibly natural undulating foreshore landform may be preserved beneath the Sydney Fish Markets car park.
The Bays Precinct PAD01 45-6-3339	This PAD is mapped as potentially containing remnant natural landforms. Site survey has identified that the PAD appears likely to have undergone a lower level of disturbance than is characteristic of other parts of the study area. Geotechnical testing has supported the possibility of preserved soils in this PAD.
Balance of investigation area	This area has been subject to large scale construction and landform change including extensive land reclamation. It is considered of nil-low archaeological significance.

5.9 Findings and Conclusions

The proposed activity of rezoning would not result in direct impacts to Aboriginal cultural heritage values.

Registered Aboriginal Parties have provided comment that the wider landscape of the investigation area is a culturally important one, and that as a foreshore location it would likely have been preferentially utilised by Aboriginal people potentially over many thousands of years. The investigation area is a location historically documented as having been preferentially utilised by Aboriginal people in the past.

There are no known Aboriginal objects located within the Study Area. Two areas of Potential Archaeological Deposit (PAD) have been identified in the Study Area. These are The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338. The eventual nature of development and impact to these areas is not yet known. It is possible that future development in the investigation area will impact on these PADs.

The following conclusions therefore make provisions for the management and archaeological investigation of The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338 prior to any potential impacts to them associated with proposed developments.

5.9.1 Proposed Management Policy for Aboriginal objects

There are no known Aboriginal objects located within the Study Area.

5.9.2 Proposed Management of areas of Aboriginal Archaeological Potential

It is recommended that prior to construction, and once the extent of subsurface impacts are identified, a detailed study should be undertaken to further clarify the potential presence of buried natural soils in The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338. This study would include visual survey of areas that were inaccessible during previous survey, detailed study of geotechnical testing results, and non-invasive investigatory methods such as ground penetrating radar. The need for further archaeological management of Aboriginal archaeological potential in these PAD locations would be guided by the findings of this detailed investigatory study which would be produced as an addendum to this ACHAR.

Subject to the results of this investigatory study and if impacts to The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338 are indicated, then an Aboriginal Archaeological Management Plan should be created prior to the commencement of ground disturbing works in the location of these PADs, to provide guidelines for the archaeological management of these PADs. This Aboriginal Archaeological Management Plan would incorporate methods for testing of PADs to establish the presence and archaeological integrity of preserved soils. The Aboriginal Archaeological Management Plan would also stipulate measures for the management of any Aboriginal archaeological values identified as a result of such testing. These measures may include expanded archaeological testing and salvage excavations. If archaeological testing and management is required by the investigatory study, such testing must take place prior to ground disturbance to The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338.

5.9.3 Management of Unexpected Finds of Aboriginal Archaeological Material

This section provides procedures that should be followed if unanticipated Aboriginal objects are discovered at any time throughout the life of the project.

Aboriginal objects are protected from harm by Section 86 of the NPW Act. Harm refers to any act or omission that:

- Destroys, deface or damages the object;
- Moves the object from the land on which it is situated;
- Causes or permits the object to be harmed (DECCW 2010 DD:16).

Individuals and/or companies who contravene the Act can incur both monetary fines ranging from $55,000 to $1.1 million and 1 to 2 years' jail time.

Examples of Aboriginal objects as defined under the NPW Act include, but are not limited to:

- Aboriginal culturally modified trees
- Middens
- Rock art
- Stone artefacts
- Raised earth rings
- Grinding grooves
- Rock shelters
- Earth mounds
- Hearths
- Stone arrangements

If unanticipated Aboriginal objects are uncovered at any time throughout the life of the project the following actions should be followed:

- Cease all activity in the vicinity
- Leave the material in place and protect it from harm
- Take note of the details of the material and its location
- Inform the site manager

The site manager should:

- Employ a qualified archaeologist to confirm the identification
- Notify OEH
- Notify the registered Aboriginal stakeholders
- Await further advice before proceeding with work in the area

Discovery of human remains

If suspected human skeletal remains are uncovered at any time throughout the life of the project the following actions should be followed:

Cease all activity in the vicinity

- Leave the material in place and protect it from harm
- Take note of the details of the material and its location
- Inform the site manager

The site manager should:

- Immediately notify the Coroner's Office and local NSW Police
- Await further advice before proceeding with work in the area

If the skeletal remains are found to be older than 100 years but non-Aboriginal:

- Notify the Heritage Council of NSW
- Await further advice before proceeding with work in the area

Procedures in the event skeletal remains are Aboriginal ancestral remains

If skeletal remain are determined to be Aboriginal ancestral remains, the following actions should be followed:

- Notify OEH
- Await further advice before proceeding with work in the area

5.9.4 Changes to the proposed works

This CHAR is based upon the most recent information made available to Artefact Heritage as of the date of preparation of this report. Any changes made to the proposal should be assessed by an archaeologist in consultation with the registered Aboriginal stakeholder groups. Any changes that may

impact on Aboriginal sites not assessed during the current study may warrant further investigation and result in changes to the recommended management and mitigation measures.

5.9.5 Ongoing consultation with Aboriginal Stakeholders

Consultation with registered Aboriginal stakeholders should continue throughout the life of the project. RAPs should be informed of major changes to project scope and of commencement of major project stages.

5.9.6 Management of Aboriginal objects

Further consultation with registered Aboriginal stakeholders will take place regarding the appropriate strategy for future long-term management of any found or retrieved artefact assemblage including from any test excavation and salvage. Suitable long-term management of the retrieved artefact assemblage may include reburial at an agreed location within the Study Area.

6.0 DESIGN PROVISIONS

6.1 Overview

Point 12.4 of the Minister's Study Requirements for the Bays Precinct stipulated the need to:

> *Prepare the required design provisions, in collaboration with CoS and DPE, which are able to be integrated into Sydney DCP 2012 if required.*

Since the issue of Minister's Study Requirements in 2017, the Bays Precinct has been proposed to form an independent precinct of City West, as created by Sydney Regional Environmental Plan No 26 – City West (Amendment No 7 – Bays Precinct) (City West DCP) (Legislation NSW 2020). This section provides recommendations relating to Aboriginal Heritage for integration to the Blackwattle Bay DCP.

The ACHAR as originally provided did not include assessment of design controls. Design of Blackwattle Bay is currently at a strategic rezoning stage. This section therefore provides Aboriginal cultural heritage design provisions in the form of principles that can be applied to a broad range of potential design and zoning developments. Current working design for the Bays Precinct is shown in Figure 23 and Figure 24 with the location of PADs indicated.

6.2 Aboriginal cultural heritage and archaeological values

Aboriginal cultural heritage is a part of ongoing and living Aboriginal culture. It is not limited to the pre-colonisation period, it is not static, and it is only to a very small extent reflected in the archaeological record. As a matter of principle, the investigation into, protection, conservation and celebration of both local Aboriginal cultural and archaeological heritage must take place in a like manner to that which is provided for other forms of heritage in the Precinct. There are enduring Aboriginal cultural attachments to the landscape and seascape of Blackwattle Bay. These are not diminished through development.

The following recommendations should be included in the Blackwattle Bay DCP in order to provide protection of Aboriginal cultural heritage and archaeological values within the Bays Precinct, and also to ensure that these values within the Bays Precinct are evaluated in a consistent manner through time.

6.3 General objectives

Planning around Aboriginal cultural heritage and archaeological values shall aim to ensure that significant elements of the past are appropriately managed and respected by new development. Such planning does not preclude change but rather responds to different constraints and opportunities. This DCP shall be implemented in consistent manner with the Charter for Conservation of Places of Cultural Significance (The Burra Charter).

These provisions are based on the underlying principles that:

- Change should be based on an understanding of heritage significance
- The level of change should respect the heritage significance of the item or area
- Heritage significance must be considered for development affecting places of Aboriginal cultural heritage significance and Aboriginal archaeological sites

- Planning should aim to enhance the character and heritage significance of places of Aboriginal cultural heritage significance
- In particular, enhancing the past and current importance to Aboriginal people of the local landscape and seascape should be considered in planning and design

A list of heritage practitioners accredited to assess Aboriginal cultural heritage and archaeological values can be found at the Australian Association of Consulting Archaeologists Inc (https://www.aacai.com.au/)

6.4 Development in currently identified locations of Aboriginal cultural heritage values in the Bays Precinct.

- The full extent of current and future cadastral lots that contain all or any parts of PAD 45-6-3338 and PAD 45-6-3339 should be shaded on planning maps and documents as an area of high Aboriginal heritage sensitivity. This shading must not identify the precise location or AHIMS ID of these PADs.
- Any proposed development or any ground disturbing works located within the extent of PAD 45-6-3339 must carry out and complete subsurface archaeological investigations in accordance with the NPW Act (1974) including Aboriginal community consultation, and provision of reporting prior to commencement of any works.
- Any proposed development or any ground disturbing works located within the extent of PAD 45-6-3338 must carry out and complete subsurface archaeological investigations in accordance with the NPW Act (1974) including Aboriginal community consultation, and provision of reporting prior to commencement of any works.
- PAD 45-6-2960 is marginally outside the Bays Precinct. It is a rare preserved example [redacted]. View lines between Blackwattle Bay and PAD 45-6-2960 must be retained where possible.
- Aboriginal sites identified through such subsurface archaeological investigations or otherwise, must not be impacted without an AHIP issued by OEH under Section 90 of the NPW Act prior to impact occurring, or through relevant approvals from the Department of Planning Industry and Environment (DPIE) for State Significant Development / Infrastructure projects.
- All Development Applications within all parts of the Bays Precinct must be accompanied by an Aboriginal heritage due diligence assessment that has been carried out by a suitably qualified archaeologist. This assessment must be carried out in accordance with the OEH 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales'. The due diligence assessment must identify the potential for Aboriginal archaeological remains in the proposed development and whether further archaeological investigation is required prior to development progressing.
- Any Aboriginal archaeological potential identified through due diligence assessments must be subject to further archaeological investigation and Aboriginal stakeholder consultation. Where required, development must obtain an AHIP issued by OEH under Section 90 of the NPW Act or relevant approvals from DPIE for State Significant Development / Infrastructure projects prior to any proposed impacts occurring.

Figure 23: Precinct plan showing location of identified Aboriginal PAD. Base plan: FJMT

Figure 24: 3D model of working design plans showing locations of identified Aboriginal PAD. Base plan: FJMT

7.0 RECOMMENDATIONS

The following recommendations are based on consideration of:

- Legislative, policy and procedural requirements for the assessment of Aboriginal cultural heritage
- The recommendations of the constraints analysis (Artefact 2014)
- The views and information provided by registered Aboriginal stakeholder groups
- The likely varying heritage sensitivities of different parts of the Study Area
- The findings of the present report

It is recommended that:

7.1 Blackwattle Bay as a whole

- A Heritage Interpretation Plan should be prepared that will include Aboriginal heritage for the whole investigation area. This would make recommendations for interpretation of heritage values including those associated with the investigation area itself, and those associated with PAD [redacted] 5-6-2960 nearby.
- The PAD [redacted] 45-6-2960 is not within the Study Area. Nevertheless, it is likely a singularly preserved piece of evidence of Aboriginal presence on the shores of Port Jackson. Future planning and development should consider preserving view-sheds between PAD [redacted] 5-6-2960 and Port Jackson.
- Any interpretation incorporating PAD [redacted]r 45-6-2960 should be sensitive to not directing potentially damaging public attention to the shelter itself.
- Provisions should be made for revision to the Heritage Interpretation Plan if Aboriginal cultural heritage values are newly identified within or near the Study Area.
- This Heritage Interpretation Plan should be prepared sufficiently in advance of proposed development and made appropriately available, to allow sympathetic incorporation with design and planning of Blackwattle Bay.
- An unexpected finds policy should be put in place for any ground-breaking activities within the Blackwattle Bay project. This policy would include recommendation that if Aboriginal objects are identified during works, work should stop immediately and RAPs, OEH and an archaeologist contacted to identify and record the objects.
- If suspected human remains are located during any stage of the proposed works, work should stop immediately and the NSW Police and the Coroner's Office should be notified. RAPs, OEH and an archaeologist should be contacted if the remains are found to be Aboriginal.
- Details of unexpected finds and human remains protocols are provided in Section 5.12

7.2 The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338

- Prior to development and once the scale of potential impact to soils in The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338 is identified, further study of these areas

should be carried out to better assess their archaeological potential and the risks of impacts resulting from development. This study would include:

a. Direct inspection of ground surfaces that were previously not accessible for survey, particularly in [redacted]
b. Greater analysis of evidence from geotechnical reports
c. Non-invasive remote sensing techniques such as Ground Penetrating Radar (GPR). GPR may assist in detecting areas of potential preservation or disturbance. Even if only at a broad scale, GPR is suited to detecting variations in underlying soil strata, large scale soil disturbance, built objects, and water table levels.

- If further analysis of available geotechnical information and possible GPR testing indicates that it is highly unlikely for preserved soils to be present, then the status of these areas as PADs should be revised and these areas should be treated in common with the remainder of the investigation area (section below).
- If locations of potential buried preserved natural soils are identified within these PADs and would be impacted by the proposed works, archaeological management would be required. An Aboriginal Archaeological Management Plan should be prepared that will provide management measures including archaeological testing and potentially salvage of identified Aboriginal archaeological values. Results of this testing would be provided as an Aboriginal Test Excavation Report (ATER).

7.3 Study Area Outside The Bays Precinct PAD01 45-6-3339 and The Bays Precinct PAD02 45-6-3338

- No further archaeological testing or archaeological assessment of these locations is required for this project. If the boundary for proposed works changes to include the location of AHIMS ID 45-6-3339 and AHIMS ID 45-6-3338, further archaeological investigation and consultation with registered Aboriginal parties must be conducted.

7.4 Design provisions recommendations

- The Design provision recommendations outlined in Section 6 should be included in Blackwattle Bay DCP in order to provide protection of Aboriginal cultural heritage and archaeological values within the Bays Precinct, and also to ensure that these values within the Bays Precinct are evaluated in a consistent manner through time.

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9.0 APPENDICES

APPENDIX 1- NEWSPAPER NOTICES

City Hub – 9th & 16th March

PUBLIC NOTICE

The Bays Market District, Aboriginal Cultural Heritage Assessment – Invitation to Register an Interest

On behalf of Urban Growth, Artefact Heritage is undertaking an Aboriginal cultural heritage assessment of The Bays Market District (Pyrmont and Glebe), in advance of a proposed redevelopment. The proponent's contact details are: **Tim Hutchinson, UrbanGrowth NSW, Level 12, MLC Centre/19 Martin Place, Sydney NSW 2000.**

We are inviting registrations of interest in the project from Aboriginal groups and individuals who hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places in the locality. The purpose of the community consultation is to assist the proponent in the preparation of an AHIP application for the proposed development of the property, and to assist OEH in determination of the application.

PLEASE REGISTER YOUR INTEREST IN THE PROJECT by **23 March 2017** by contacting: **Ryan Taddeucci, Artefact Heritage**

Level 4, Building B, 35 Saunders Street, PYRMONT NSW 2009

02 9518 8411

ryan.taddeucci@artefact.net.au

Koori Mail -22 & 29 March 2017

Invitation to Register an Interest

The Bays Market District, Aboriginal Cultural Heritage Assessment

On behalf of Urban Growth, Artefact Heritage is undertaking an Aboriginal cultural heritage assessment of The Bays Market District (Pyrmont and Glebe), in advance of a proposed redevelopment. The proponent's contact details are: Greg Lin, UrbanGrowth NSW, Level 12, MLC Centre/19 Martin Place, Sydney NSW 2000.

We are inviting registrations of interest in the project from Aboriginal groups and individuals who hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places in the locality. The purpose of the community consultation is to assist the proponent in the preparation of an AHIP application for the proposed development of the property, and to assist OEH in determination of the application.

Please register your interest in the project by 23 March 2017 by contacting:

Ryan Taddeucci, Artefact Heritage
Level 4, Building B, 35 Saunders Street, Pyrmont NSW 2009
02 9518 8411
ryan.taddeucci@artefact.net.au

Inner West Courier – 11 & 18 April 2018

Invitation to Register an Interest The Bays Market District, Aboriginal Cultural Heritage Assessment

On behalf of **UrbanGrowth NSW**, Artefact Heritage is undertaking an Aboriginal cultural heritage assessment of The Bays Market District (Pyrmont and Glebe), in advance of a proposed redevelopment. The proponent's contact details are:

Greg Lin, **UrbanGrowth NSW**, Level 12, MLC Centre/19 Martin Place, Sydney NSW 2000.

We are inviting registrations of interest in the project from Aboriginal groups and individuals who hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places in the locality. The purpose of the community consultation is to assist the proponent in the preparation of an Aboriginal Cultural Heritage Assessment Report, as it may be necessary to prepare an AHIP application for the proposed rezoning of the property. In such case this ACHAR will assist OEH in determination of the application.

Please register your interest in the project by 1 May 2017 by contacting:

Ryan Taddeucci, Artefact Heritage
Level 4, Building B, 35 Saunders Street, Pyrmont NSW
2009 02 9518 8411 ryan.taddeucci@artefact.net.au

UrbanGrowth NSW

APPENDIX 2- CONSULTATION LOG

Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

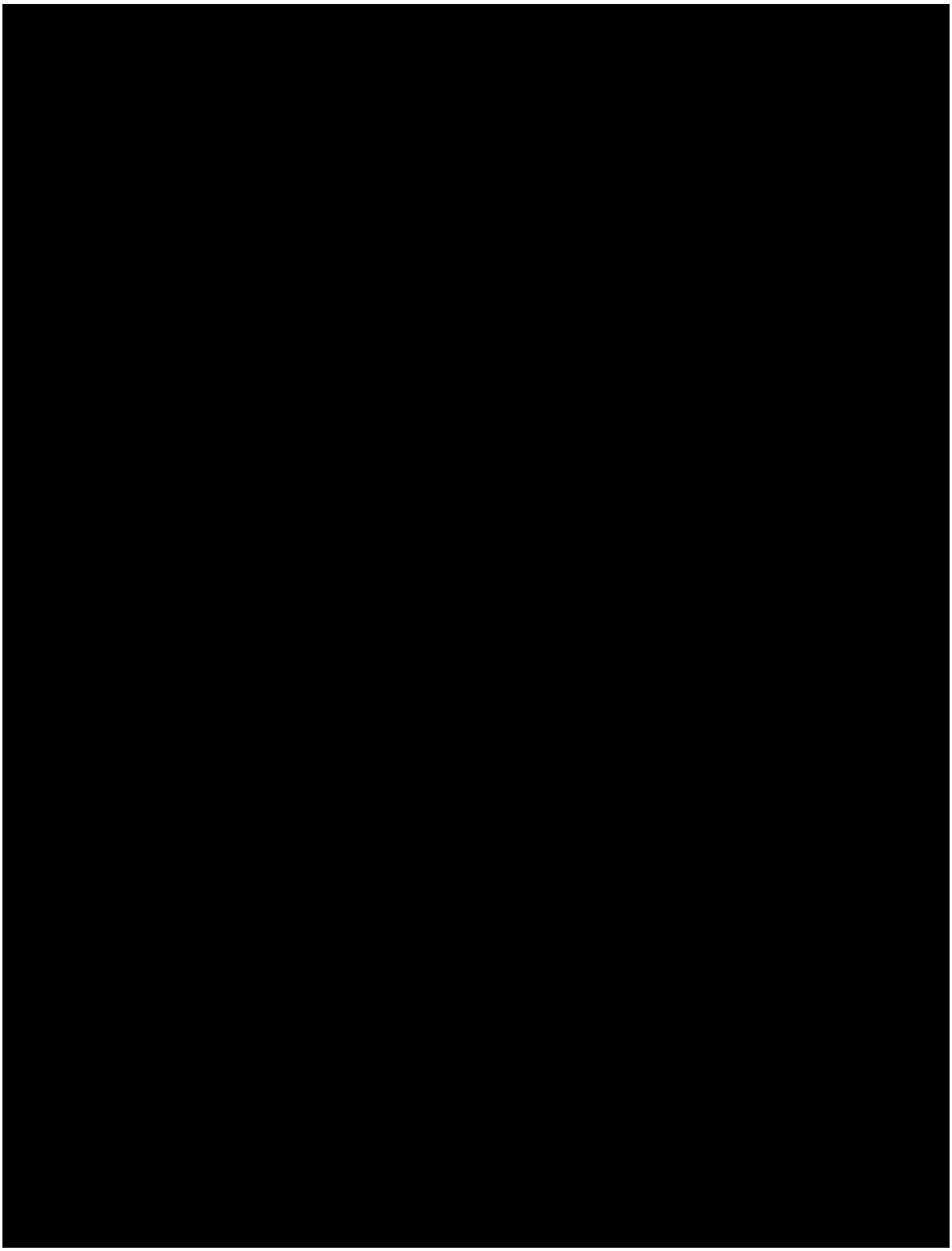
Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

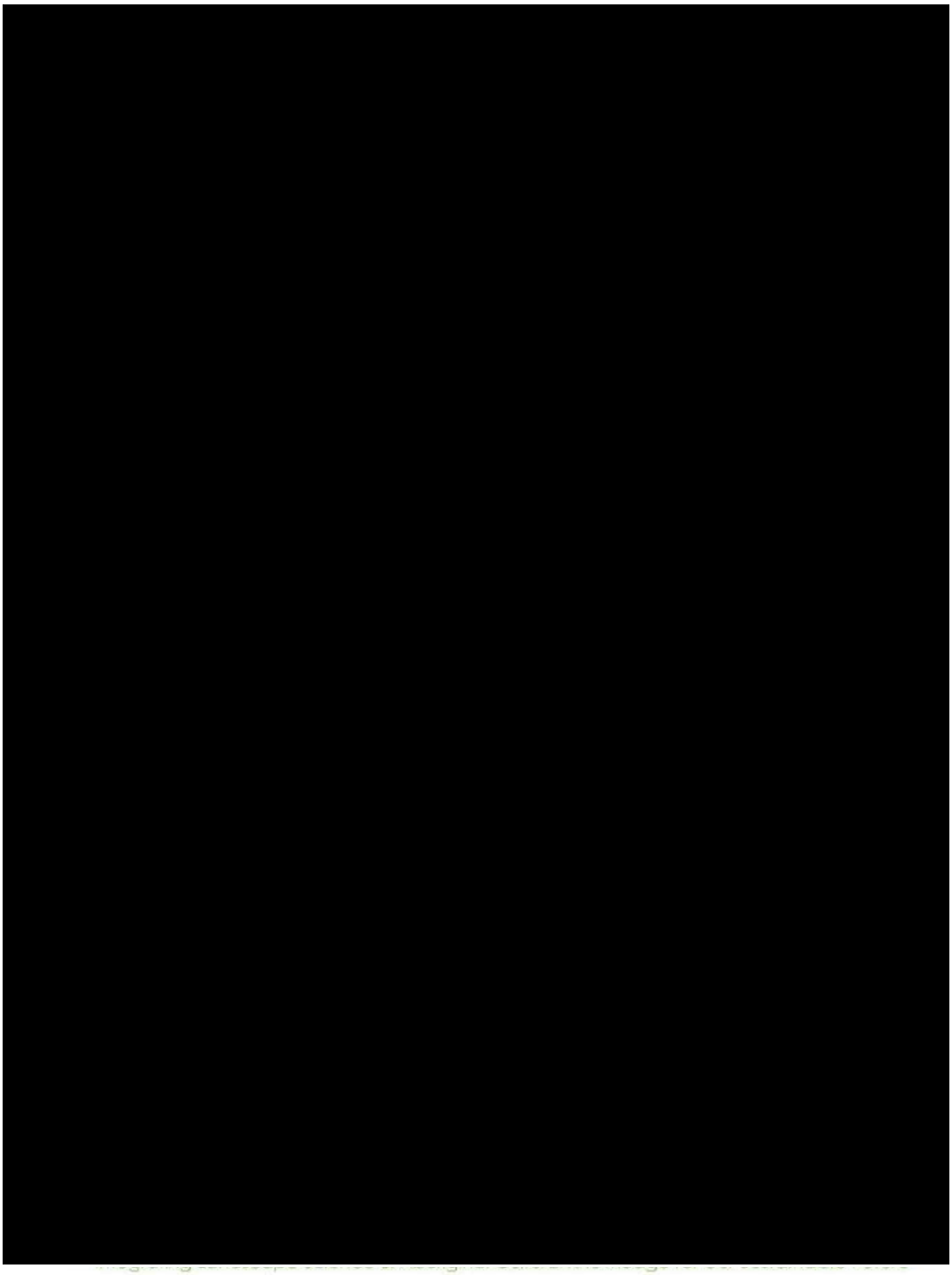
Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

Contact/ organisation	Contacted by/ organisation	Method	Date/time	Comments
[redacted]				

APPENDIX 3 - CONSULTATION DOCUMENTATION





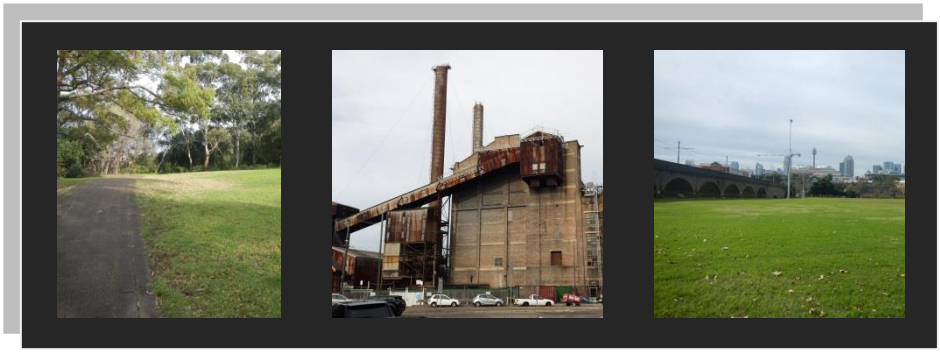
APPENDIX 4: PRELIMINARY ABORIGINAL HERITAGE ASSESSMENT (ARTEFACT 2014)

Bays Precinct

Preliminary Aboriginal Heritage Assessment

Report to Urban Growth NSW

August 2014



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Executive Summary

Urban Growth NSW has engaged Artefact Heritage to prepare a Preliminary Aboriginal Heritage Assessment for the Bays Precinct. The study area includes the Rozelle Rail Yards, Glebe Island and land bordering White Bay, Rozelle Bay and Blackwattle Bay. The aims of this report are to identify any Aboriginal sites which may be present within the study area and to assess the potential for as yet unidentified Aboriginal archaeology to be present within the study area. As such, this report provides a high level constraints analysis of the Aboriginal heritage of the Bays Precinct study area.

The study area is located across the Leichhardt and Sydney Local Government Areas (LGA's).

The study area has been subject to extensive modification and disturbance since the arrival of Europeans. Development in the study area has greatly impacted the potential for Aboriginal archaeological material to have survived intact in subsurface deposits. However, intact Aboriginal archaeological material has been discovered where pockets of relatively undisturbed subsoils remain in the nearby Sydney CBD and may also be located in buried deposits in similar locations within the study area. Furthermore, remnant outcrops of sandstone are located within the study area and have the potential to contain surviving shelters and art sites as well as associated subsurface deposits.

No previously recorded Aboriginal sites were located within the study area. This site was relocated during the field survey, but could not be directly accessed.

The second is a potential archaeological deposit (PAD), AHIMS site # 45-6-2960, outside the study area. This site was relocated during site survey but appears to be within an area of disturbance associated with an apartment complex and associated footpaths.

The third is also a PAD (AHIMS site # 45-6-2666) located outside the study area. This site has had a permit issued by OEH in the past. Further investigation through OEH indicated that the status of the permit is 'lapsed, pending'.

No previously unrecorded Aboriginal sites were identified within the study area during the field surveys.

Archaeological potential been assessed for each of the Precincts individually. Large portions of the study area were able to be designated as having no archaeological potential. These sections are artificial landforms, constructed as part of land reclamation activities that have been undertaken throughout the

study area. Large portions of the study area were assessed as having low archaeological potential. These areas may retain some subsurface deposits, but such deposits are unlikely to be intact and/or the landform context indicates that these areas would have been unsuitable for Aboriginal occupation. Several smaller sections of the study area were identified as having moderate archaeological potential. In these sections, the existence of intact subsurface deposits is unable to be proven without further investigation. However, archival research indicates that relatively little subsurface impacts have taken place and landform context indicates that these areas would have been suitable for Aboriginal occupation. No areas of high archaeological potential were identified in this study.

The majority of Rozelle Rail Yards has been assessed as exhibiting low archaeological potential. Three sections, along the northern margin and in the north-western corner have been assessed as having moderate archaeological potential.

Blackwattle Bay Precinct has predominately been assessed as having no archaeological potential. Two sections, in the northern corner and along the eastern margin, were assessed as having moderate archaeological potential.

The majority of the White Bay Power Station Precinct has been assessed as having moderate archaeological potential. The southeast third of the White Bay Power Station Precinct has been assessed as having no archaeological potential.

The majority of the Rozelle Bay Precinct has been assessed as having low archaeological potential. Two sections, in the northwest and southwest corners, were assessed as having moderate archaeological potential.

The northern and eastern margins of the Glebe Island Precinct have been assessed as having no archaeological potential. The central portion of the Glebe Island Precinct has been assessed as having low archaeological potential.

The majority of the White Bay Precinct has been assessed as having no archaeological potential. Three sections, near the northwest corner and along the northern margins, have been assessed as having moderate archaeological potential.

The centre of the Wentworth Park Precinct has been assessed as having low archaeological potential. Three sections, in the northeast corner, the southwest corner and the western corner, have been assessed as having moderate archaeological potential.

This preliminary Aboriginal heritage assessment recommends that the following management and mitigation measures should be implemented:

- Aboriginal consultation with the local Aboriginal community should be undertaken as part of the Master Planning process. The Aboriginal community would advise on the cultural significance of the study area. This advice should be taken into account during all stages of the planning process.
- Aboriginal heritage should be included in the Interpretation Strategy for the Master Plan and the Aboriginal community should be consulted during its development.
- Recorded Aboriginal sites in the vicinity of the study area as identified in this report should not be directly impacted and any indirect impacts to these sites should be avoided.

In addition, the following management and mitigation measures should be implemented for areas designated under the three levels of archaeological potential.

- **No archaeological potential** – There are no Aboriginal heritage constraints on areas designated as having no Aboriginal archaeological potential. No further Aboriginal heritage investigation would be required within these areas prior to development.
- **Low archaeological potential** – There are no Aboriginal heritage constraints on areas designated as having low Aboriginal archaeological potential. No further Aboriginal heritage investigation would be required within these areas. If unforseen Aboriginal objects are uncovered during development, work must cease and an archaeologist, the OEH, and the LALC should be informed. If suspected human remains are found, work should cease, the site should be secured and the NSW Police and the OEH should be notified. It is an offence under the *National Parks and Wildlife Act 1974* (as amended 2010) to disturb or destroy an Aboriginal object.
- **Moderate archaeological potential** – If impacts are proposed within areas of moderate archaeological potential further investigation would be required. In accordance with the OEH Code of Practice, an Archaeological Impact Assessment should be prepared which would include a detailed assessment of archaeological potential, an impact assessment and consultation with the LALC. The Archaeological Impact Assessment would make recommendations on whether further investigation such as subsurface archaeological testing, clearing and monitoring of sandstone platforms, or geotechnical testing were required to assess levels of archaeological significance. If these further investigations located Aboriginal objects an Aboriginal Heritage Impact Permit (AHIP) would be required prior to impacts occurring.

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1.0 Introduction and Background

1.1 Introduction

Urban Growth NSW has engaged Artefact Heritage to prepare an Aboriginal Heritage Assessment for the Bays Precinct (the study area) located across Rozelle Rail Yards, Glebe Island and land bordering White Bay, Rozelle Bay and Blackwattle Bay in NSW (Figure 1). The aims of this report are to identify any Aboriginal sites which may be present within the study area and to assess the potential for as yet unidentified Aboriginal archaeology to be present within the study area. As such, this report provides a high level constraints analysis of the Aboriginal heritage of the Bays Precinct study area.

1.2 The study area

The Bays Precinct study area includes the suburbs of Balmain, Rozelle, Lilyfield, Annandale, Glebe Ultimo and Pyrmont in NSW (Figure 1). The study area includes land bordering the respective shorelines of White Bay, Rozelle Bay and Blackwattle Bay. The major departures from the shoreline are Wentworth Park in Ultimo and the Rozelle Rail Yards, which extends into Rozelle and Lilyfield. The study area is located across the Leichhardt and Sydney Local Government Areas (LGA).

Figure 1 details the Precincts designated by Urban Growth NSW. This report will assess the Aboriginal heritage of the individual Precincts and of the study area as a whole.

1.3 Objectives of the assessment

This study has been undertaken within the context of the Office of Environment and Heritage (OEH) Due Diligence Code of Practice (2010). The main objectives of this study include providing:

- A description of the extent of the study area.
- Discussion of the environmental context of the study area.
- Discussion of the Aboriginal historical context of the study area.
- A summary of the archaeological context of the study area including a discussion of previous archaeological work in the area.
- Development of an archaeological predictive model.
- Description and analysis of Aboriginal sites located within the study area.
- Development of a high level constraints analysis of the individual Precincts and of the study area as a whole

Figure 1: Bays Precincts as designated by Urban Growth NSW

1.4 Investigator and contributions

Aboriginal consultation was not undertaken during this study as it is a high level assessment of archaeological potential. This report recommends that Aboriginal consultation should be undertaken during the Master Planning process. Formal Aboriginal consultation in accordance with OEH guidelines may be required prior to development.

1.5 Investigator and contributions

Archaeologist Alyce Howard prepared this report with management input and revision from Principal Archaeologist Dr Sandra Wallace.

2.0 Legislative Context

This study has been undertaken in the context of several pieces of legislation that relate to Aboriginal heritage and its protection in New South Wales.

National Parks and Wildlife Act (1974)

The *National Parks & Wildlife Act 1974*, administered by the OEH provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84.

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.

The Act was recently amended (2010) and as a result the legislative structure for seeking permission to impact on heritage items has changed. An s.90 permit is now the only AHIP available and is granted by the OEH. Various factors are considered by OEH in the AHIP application process, such as site significance, Aboriginal consultation requirements, ESD principles, project justification and consideration of alternatives. The penalties and fines for damaging or defacing an Aboriginal object have also increased.

As part of the administration of Part 6 of the Act OEH has developed regulatory guidelines on Aboriginal consultation, which are outlined in *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010). Guidelines have also been developed for the processes of due diligence - *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (2010), and for investigation of Aboriginal objects - *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010) in accordance with the 2010 amendment to the Act.

Environmental Planning & Assessment Act (1979)

The EP&A Act is administered by the Department of the Premier and Cabinet and provides planning controls and requirements for environmental assessment in the development approval process. This Act has three main parts of direct relevance to Aboriginal cultural heritage. Namely, Part 3 which governs the preparation of planning instruments, Part 4 which relates to development assessment process for local government (consent) authorities and Part 5 which relates to activity approvals by governing (determining) authorities.

Planning decisions within Local Government Areas (LGAs) are guided by Local Environmental Plans (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 1979 and the Heritage Act 1977.

The study area is within the Leichardt and City of Sydney LGAs.

The Leichhardt LEP 2000 (Part 3, Clause 15) and the Draft Leichhardt LEP 2012 (Part 5.10) make standard provision for the protection of Aboriginal heritage items that applies to the current study area. There are no Aboriginal items within the study area that are listed in the Leichhardt LEP 2000 (Schedule 2) or the Draft Leichhardt LEP 2012 (Schedule 5).

Development Control Plans (DCPs) provide specific and more detailed guidelines for certain types of development, or small sections within an LGA. These guidelines are in addition to the provisions of the LEP. The Leichhardt DCP 35 lists general controls regarding exempt and complying development in relation to Aboriginal heritage within the Leichhardt LGA that are relevant to this study.

Aboriginal Land Rights Act (1983)

The *Aboriginal Land Rights Act 1983* is administered by the NSW Department of Human Services - Aboriginal Affairs. This Act established Aboriginal Land Councils (at State and Local levels). These bodies have a statutory obligation under the 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.

Native Title Act (1994)

The *Native Title Act 1994* was introduced to work in conjunction with the Commonwealth Native Title Act. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.

3.0 Landscape Context

3.1 Landforms and geology

The pre-European landscape of the western and northern edges of study area would have comprised a series of low ridge lines with relatively open sandstone valleys draining into the upper reaches of Sydney Harbour (Port Jackson). The landscape of the southeastern side of the study area, bordering Blackwattle Bay, was an estuarine marshland that met Blackwattle Creek. The underlying geology of the study area consists of Hawkesbury Sandstone, with ridges capped by Ashfield Shale of the Wianamatta group (JMcD CHM 2007: 7). The Wianamatta Shales cover a large section of the inner western and southern suburbs of Sydney (Benson and Howell 1995: 8).

Within and around the study area, steep angular faults in the sandstone produced a system of flat ridge tops, steep slopes incised by streams, and a shoreline comprising rocky cliffs, small sandy beaches and marshes. Localised dendritic erosion patterns have created an irregular series of small coves and rocky points. This resulted in a shoreline characterised by low rocky cliffs, small sandy beaches, and estuarine marshland where the tidal waters were met by creeks (AASC 1995: 14).

Much of the original shoreline surrounding White Bay, Rozelle Bay and Blackwattle Bay has been infilled as part of numerous phases of land reclamation. The shoreline of the 1830's is compared to the shoreline of the 1930's in Figures 2 and 3. Note that most of the land reclamation had already occurred by 1930. The study area has also been subject to extensive modification since development began. The impacts of modification, disturbance and land reclamation upon the study area are discussed in section 7.2.

3.2 Hydrology

Several creeks originally ran through the study area, including Blackwattle Creek, Johnstons Creek and Whites Creek. Whites Creek in its present form is located 50 metres to the south of the eastern end of the Rozelle Rail Yards Precinct. Whites Creek discharges into Rozelle Bay and is one of a number of drainage channels running into Port Jackson that has its headwaters on the watershed ridge between Botany Bay and Port Jackson (JMcD CHM 2007: 7). Nearby Johnstons Creek also discharges into Rozelle Bay at around 500 metres to the southeast of the Rozelle Rail Yards.

Blackwattle Creek originally ran through the area currently occupied by Wentworth Park. Blackwattle Creek adjoined a tidal wetland which during the 1830's was known as Blackwattle Cove or Swamp. Numerous small creeks would have drained off the ridges across Glebe, Pyrmont and Ultimo.

Land reclamation has resulted in substantial modifications to the natural shoreline and creeks throughout the study area. This is detailed in Figure 2 and discussed in detail in section 7.2.

Figure 2: Map of the shoreline circa 1830 with modern shoreline detailed in red. (base map source: Project Gutenberg Australia)

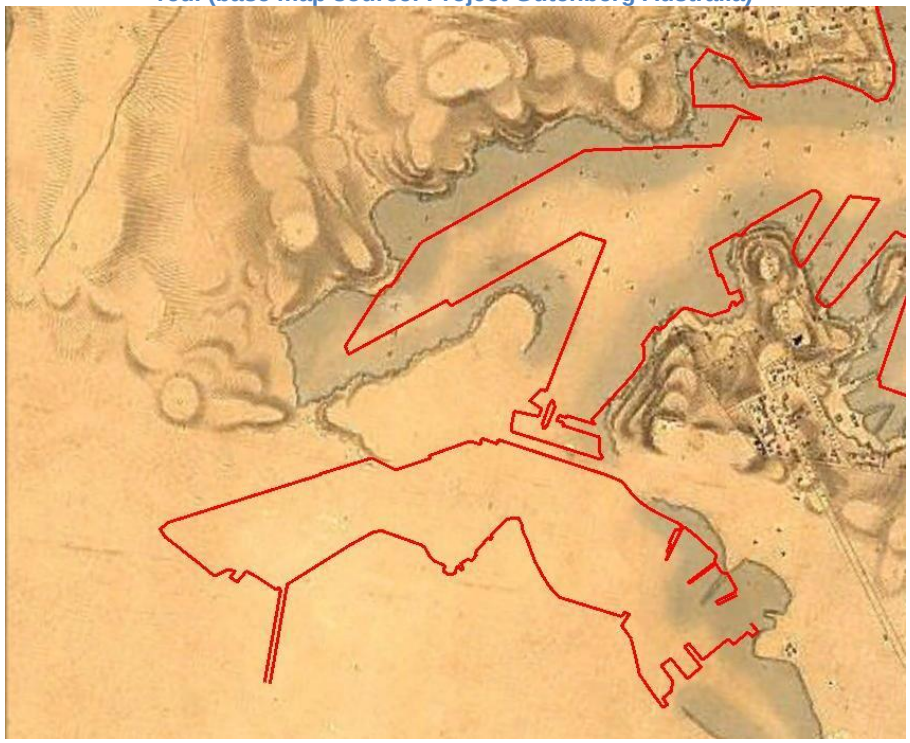


Figure 3: 1930's aerial photograph with modern shoreline detailed in red. (Source: LPI NSW)

3.3 Vegetation and resources

Almost all of the original natural vegetation has been cleared from the study area. The original vegetation and resources of the study area can be divided into two distinct areas

Rozelle Rail Yards, White Bay Power Station, Rozelle Bay, Glebe Island and White Bay Precincts

From early descriptions, photographs and etchings, the original vegetation in the area of would have been dominated by open forests and woodland, with an understorey of shrubs. The main tree species would have included Scribbly Gum (*Eucalyptus haemastoma*), Red Bloodwood (*E. gumnifera*) and Sydney Red Gum (*Angophora costata*). Stands of Blackbutt (*E. pilularis*) could be found on the deeper soils formed in the gullies (AASC 1995: 13).

The rocky water front along Rozelle Bay and the swamp associated with the estuary of Whites Creek would have featured vegetation that was characteristic of similar environments elsewhere around Sydney Harbour. At Cockle Bay, the swamps at the head of the bay were originally fringed with mangroves (*Avicenna* and/or *Aegicerus sp*.), ti-tree (*Melaleuca sp*.), Swamp Oak (*Casuarina glauca*) and Swamp Mahongany (*E. roubusta*) (CRM 2008: 14). Such vegetation is likely to have been present in the eastern half of the study area prior to land reclamation works being undertaken in the area from 1895-1905.

The original vegetation of the study area would have supported a diverse range of mammals, reptiles, insects and birdlife, all of which would have been utilised by Aboriginal hunter-gatherers. Plants were also an important resource, being used for food or as sources of raw material for manufacture (Attenbrow 2010: 41). The presence of a nearby fresh water source (Whites Creek) would have attracted Aboriginal people to the area. Rozelle Bay, also located in very close proximity, would have provided Aboriginal people with abundant fish and shellfish resources.

Blackwattle Bay and Wentworth Park Precincts

The Pyrmont peninsula would have consisted of a rocky sandstone ridge forming a spine along the length of the peninsula with numerous freshwater streams running down off the ridge (Casey & Lowe 2000).

The original vegetation would have ranged from estuarine mangroves to open forests (Parklands Environmental Planners 2006). Blackwattle Bay would have supported a diverse range of mammals, reptiles, insects and birdlife, all of which would have been utilised by Aboriginal hunter-gatherers. Plants were also an important resource, being used for food or as sources of raw material for manufacture (Attenbrow 2010: 41). The presence of a nearby fresh water source (Blackwattle Creek) would have attracted Aboriginal people to the area. Blackwattle Bay would have provided Aboriginal people with abundant fish and shellfish resources.

3.4 Land use history

Settlement and early development in the vicinity of the study area spread outwards from Darling Harbour and the present day Sydney CBD. Clearing of vegetation and extensive modification of the natural landscape transformed Sydney in a relatively short time. Impacts of European development upon the evidence of Aboriginal material culture range from alteration of the natural shoreline to the extensive and concerted mining of shell middens for lime for use in mortar (Fitzgerald & Golder 2009).

Rozelle Rail Yards Precinct

The majority of the Rozelle Rail Yards Precinct falls within the present-day suburb of Lilyfield, with a small portion located within Rozelle. The area of present-day Lilyfield was first developed as rural estates, the largest of which was the Garry Owen estate. By the early 1880's the estate was the site of a hospital covering 4.5 hectares with 33 separate buildings and a chapel. Numerous heritage items remain on the Hospital site, including Aboriginal sites, natural and cultural landscapes, and a number of heritage buildings (Leichhardt DCP 2000).

Subdivision of the land to the south of Lilyfield Road (south of the Rozelle Rail Yards Precinct) occurred following the suburban expansion of Leichhardt during the early twentieth century. The cut for the Rozelle Goods Line was excavated during this same period, thereby dividing the Lilyfield area. This division was further increased with the construction of the City West Link Road (Leichhardt DCP 2000).

Rozelle originally formed part of the 550 acres of land granted by Governor John Hunter to the colony's principal surgeon, William Balmain, in 1800. The Balmain grant was initially subdivided in 1836. Legal proceedings by relatives over the will of William Balmain meant that the bulk of the grant was not subdivided until 1852, and the eastern end of the peninsula was released before the western end. The suburb of Balmain West, extending to the estate of Callan Park, was formed and separated from Balmain in 1861. This was renamed Rozelle in 1892 (AHMS 2008: 6).

The Rozelle Rail Yards Precinct lies on land that has been described as rough and rocky (Dictionary of Sydney entry for 'Lilyfield'). Collectively, these works have substantially modified the landforms that would have originally been present within the Rozelle Rail Yards Precinct. The eastern half of the Rozelle Rail Yards Precinct lies largely on land that was reclaimed by infilling from 1895 to 1905 (Tanner Architects 2011: Fig. 2-27).

The Rozelle Rail Yards were once associated with the freight line that ran from Dulwich Hill on the Bankstown line to Rozelle and Darling Harbour Yards, finishing at Sydney Yard (Central). This line opened on 23 January 1922. When Darling Harbour Yard was redeveloped into the Darling Harbour tourist area, the section from Balmain Road to Sydney Yard was closed.

Blackwattle Bay Precinct

The Blackwattle Bay Precinct falls within the modern suburb of Pyrmont to the east and Ultimo to the south. The section of the Blackwattle Bay Precinct located on the Pyrmont peninsula is part of the early land grants and later acquisitions of Surgeon John Harris. A small number of Aboriginal people survived on the peninsula at Pyrmont until 1836 when they were driven into Ultimo and further south as Edward Macarthur began to subdivide and clear the area (Ross 1988).

Early subdivisions of the Pyrmont Peninsula were relatively unsuccessful, due to the isolation of the peninsula from the city. By 1839, a small number of ship building and shipping businesses were established, taking advantage of the deep anchorage afforded at the Peninsula. However, sandstone quarries were the dominant industry of the time (Irving 2006). The largest sandstone quarries were operated by Charles Saunders and nicknamed Paradise, Purgatory and Hellhole (Irving 2006). Paradise was located on the northern end of the Pyrmont Peninsula. Purgatory was located adjacent to the Blackwattle Bay Precinct, on the eastern side of the Western Distributor Freeway. Hellhole was located within the Wentworth Park Precinct, and is discussed below.

Most of the early 19th Century development and subdivision of the Pyrmont peninsula occurred on the eastern side, away from the study area, facing the swiftly developing Darling Harbour (GML 2004). The construction of the Pyrmont Bridge across Darling Harbour in the 1850's linked the Peninsula to the city. Several large businesses moved to Pyrmont after this time, notably Colonial Sugar Refining Co Ltd (CSR), who by 1877 operated a refinery, distillery and caneite factory on the end of the peninsula (Dictionary of Sydney).

Industrial uses of the Pyrmont peninsula declined in the later part of the 20th Century as factories moved further away from central Sydney (GML 2004). Anzac Bridge was constructed in mid-1990's involving reclamation around the eastern pylon on the Pyrmont Peninsula (GML 2004). Small scale land reclamation has occurred in numerous stages on the Pyrmont Peninsula, driven by both private industry and government (GML 2004 Casey & Lowe 2013). The natural landform of the western edge of the peninsula, however, has been altered relatively little from its original shape (Figure 2 Figure 3).

White Bay Power Station Precinct

White Bay Power Station Precinct falls within the modern suburb of Rozelle. The Precinct was originally part of 550 acres granted to William Balmain in 1800 (CPH 2013). The land around White Bay and Glebe Island was originally mudflats. A dyke from Balmain to Glebe Island was built in 1890 and the process of land reclamation around the island and White Bay intensified (and is discussed further in the Glebe Island section below) (GML 2008).

The site of the White Bay Power Station was subdivided and remained residential housing until the NSW Rail Commissioners commissioned the White Bay Power Station. The first stage of construction of the power station took place between 1912 and 1917, with sections added and replaced following the Second World War (GML 2008). White Bay Power Station was shut down on Christmas Day, 1983. Residential dwellings have remained to the north of the White Bay Power Station Precinct.

The southeast third of the White Bay Power Station Precinct has been subject to extensive land reclamation activities (Figure 2 Figure 3) (Glebe Island and White Bay Master Plan 2000 Birch 2007). As the original shoreline was located approximately 150 metres inland of the modern shoreline, the southeast third of the White Bay Power Station Precinct is an artificially constructed landform.

The White Bay Power Station Precinct is bordered by Victoria Road to the west. Victoria Road (and the present day Western Distributor Freeway) represents a major landmark in connecting Balmain, Rozelle and Drummoyne to Sydney. Construction and maintenance of Victoria Road has had a significant impact on the western edge of the White Bay Power Station Precinct. In 1930 the Main Roads Board sought to regularise the road surface through the introduction of concrete surfacing and widening of stretches. These works continued over the next 20 years and required considerable acquisition of adjacent land, including demolition of existing structures such as the Rozelle Post Office. It was recognised in the 1930s that this major thoroughfare was named differently in each municipality and in some cases within the same municipality. What was Barnes Road/Weston Road/Commercial Road in Rozelle and Balmain was Birkenhead Road/Bridge Street in Drummoyne. To eliminate confusion, the entire length was named Victoria Road, although as of 1934 Balmain still retained a stretch as Weston Road (AHMS 2008: 8).

Rozelle Bay Precinct

Rozelle Bay Precinct spans the modern suburbs Rozelle to the north and east, Annandale to the west and Glebe to the south. The Rozelle Bay Precinct predominately features wharfage for Rozelle Bay. In the western section of the Rozelle Bay Precinct, a small section of undeveloped land is occupied by Bicentennial Park.

The City West link adjoins Victoria Road and runs through the northwest border of the Rozelle Bay Precinct. The City West Link was mostly a purpose built road linking Parramatta Road with the Anzac Bridge, with an aim to providing better access to the CBD from the west. Sections of the road utilise former residential streets. In 1965 Lilyfield Road and Dobroyd Parade were linked by the opening of the bridge over Hawthorne Canal. This provided an alternative access to the city for Parramatta Road traffic via the old Glebe Island Bridge. Capacity increased following the opening of the Western Freeway, which fed more traffic onto Parramatta Road and on through Lilyfield. This was magnified by the new Glebe Island Bridge (now Anzac Bridge), which started being constructed in 1988. To address the congestion issues, a controlled access road was to be constructed through Lilyfield to bypass Lilyfield Road. The first stage involved a city bound underpass beneath Victoria Road, which opened in December 1991. The

second stage, from the Crescent at Rozelle to Catherine Street at Lilyfield, utilising Brennan Street, was completed in February 1993. Reconstruction of Dobroyd Parade and Wattle Street was completed in May 1995, providing four lanes between Parramatta Road and Hawthorne Canal. Finally, the four lane limited access road from Catherine Street to Dobroyd Point was completed in 2000, including a new bridge over the Hawthorne Canal. Lilyfield Road was relegated back to a minor residential street (Ozroads entry for 'City West Link').

To the south of the later goods railway, noxious and offensive industry flourished along the banks of Whites Creek. Such businesses were forced to move from Sydney Town in the 1830's and more again moved from Blackwattle Bay in the 1870's due to the pollution and resulting public outcry (GML 2008). This included 'boiling-downs', supported by the Glebe Island Abattoirs (closed in approximately 1916), where bones were rendered to produce tallow for candle-making. John Young, the Leichhardt mayor and eminent Sydney building contractor, succeeded in abolishing bone boiling in a campaign that began in 1879. Real estate development throughout Leichhardt expanded during the 1880s as a result (Dictionary of Sydney entry for 'Lilyfield').

Glebe Island Precinct

Glebe Island was originally only accessible at low tide via the surrounding mudflats. A dyke from Balmain to Glebe Island was built in 1890 and the process of land reclamation around the island and White Bay intensified (GML 2008). As with Rozelle Bay Precinct, noxious industries which were forced out of Sydney Town in the mid to late 19th Century took up residence on Glebe Island. Most notably, Glebe Island Abattoir, which operated from the 1830's to 1915 (Dictionary of Sydney).

In 1915 Robert Saunders, the Pyrmont quarry master, was commissioned to level the island to make it suitable for wharves (Irving 2006 Golder and Fitzgerald 2009). Many cubic feet of quality dimension stone were cut away for use in construction, levelling the island. Wharves were built on three sides of the levelled rocky outcrop. The reconstructed fourth side was attached to the Rozelle shoreline as part of the extensive reclamation of Rozelle Bay and White Bay which had begun in the 1890s (Irving 2006 GML 2008).

Glebe Island became the site of a grain elevator and tall concrete silos, operated from 1921 by the Grain Elevators Board of NSW. During World War II much of the island was commandeered for the main United States army depot in Sydney (Glebe Island and White Bay Master Plan). In the 1990s the modern ANZAC Bridge was constructed above the older Glebe Island Bridge. Until November 2008, the island was the Australian Amalgamated Terminals (AAT) facility for imported motor vehicles (Glebe Island and White Bay Master Plan)

White Bay Precinct

The White Bay Precinct is located on the southern border of the modern suburb of Balmain. The bulk of the Balmain peninsula formed the 550 acre grant which was given to William Balmain in 1800 (CPH 2013). The land around White Bay and Glebe Island was originally mudflats. A dyke from Balmain to Glebe Island was built in 1890 and the process of land reclamation around the island and White Bay intensified. The 550 acres was sold to John Gilchrist and between 1836 and 1882 was subdivided and sold. Residential houses were built, however, the suburb became heavily industrialised (CPH 2013). Balmain was home to a boiling down works, timber mill and soap and candle factories throughout the 19th Century, as well as accommodating workers from the nearby Glebe Island Abattoir (CPH 2013).

White Bay has been used as dockyards since the late 1800's and has remained important wharfage for Sydney's shipping industry until modern times (CPH 2013). Reclamation works continued in 1911 for the purposes of constructing the White Bay Power Station (discussed above) (CPH 2013).

Wentworth Park Precinct

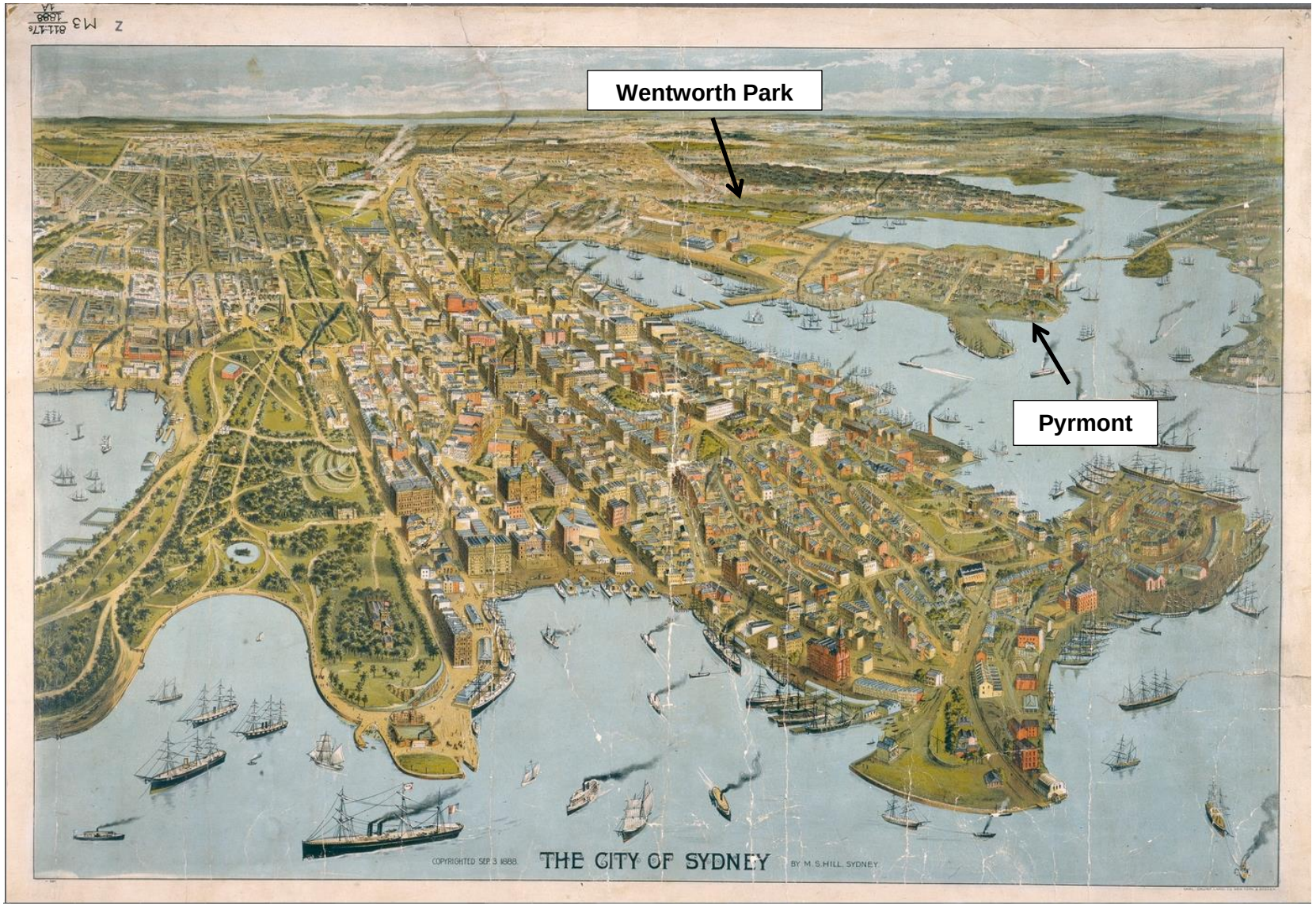
The area occupied by the current Wentworth Park would have been harbour cove swamps into which the various creeks form Glebe, Pyrmont and Ultimo Ridges would have drained. Most prominent of these is Blackwattle Creek, which would have run approximately south from the Bay towards modern day Ultimo and Broadway. The area has alternatively been known as Blackwattle Cove and Blackwattle Swamp and was home to abattoirs, tanneries, distilleries and boiling down works during the early to mid-19th Century (Birch 2007).

The extreme pollution discharged by these factories led to the enactment of the Blackwattle Bay Land Reclamation Bay Land Reclamation Act of 1878 s2 which decreed the cove was to be infilled and:

> "…to be set apart and dedicated in perpetuity as a park or place of public recreation. And this enactment shall be construed to extend all the provisions (so far as they can be applied) of the Public Parks Act 1854 to the area reclaimed".

Numerous sea walls and dykes were constructed and the Wentworth Park area was infilled with silt dredged from the Harbour (Birch 2007) (Figure 4). Throughout the late 19th and early 20th Centuries Wentworth Park has alternately been the centre for the districts cricket, rugby league and soccer competitions. In 1914, when port activity was rejuvenated at both Blackwattle and Rozelle Bays, a railway line was built over the park on a viaduct. During First World War Wentworth Park had sheds erected in which to store wool. The Second World War saw the park being used as a camp for American soldiers (from the Wentworth Park Games History website). Wentworth Park today supports 4 multipurpose sporting fields, a greyhound race track and numerous footpaths and fitness stations.

Figure 4: Depiction of Sydney circa 1888 with Pyrmont and Wentworth Park labelled for context. Note that Wentworth Park already appears to have undergone land reclamation (Hill 1888)



4.0 Aboriginal Historical and Archaeological Context

4.1 Aboriginal material culture

The oldest dated sites for Aboriginal occupation in the Sydney Basin are from the late Pleistocene period, with a securely dated site at the base of the Blue Mountains of 14,700 years before present (yBP), and two coastal sites south of Wollongong at Bass Point and Burrill Lake in the Shoalhaven both dated to around 20,000 yBP (Lampert 1971; Nanson *et al* 1987). Evidence of Aboriginal occupation has been found dated to 50-60,000 yBP at Lake Mungo in NSW, so it would be likely that Aboriginal people have lived in the Sydney region for even longer than indicated by the oldest recorded dates available at present. The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

The existing archaeological record is limited to certain materials and objects that were able to withstand degradation and decay. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analyses of these artefacts in their contexts have provided the basis for the interpretation of change in material culture over time. Technologies used for making tools changed, along with preference of raw material. Different types of tools appeared at certain times, for example ground stone hatchets are first observed in the archaeological record around 4,000 yBP in the Sydney region (Attenbrow 2010: 102). It is argued that these changes in material culture were an indication of changes in social organisation and behaviour.

The Eastern Regional Sequence was first developed by McCarthy in 1948 to explain the typological differences he was seeing in stone tool technology in different stratigraphic levels during excavations such as Lapstone Creek near the foot of the Blue Mountains (McCarthy *et al* 1948). The sequence had three phases that corresponded to different technologies and tool types (the Capertian, Bondaian and Eloueran). The categories have been refined through the interpretation of further excavation data and radiocarbon dates (Hiscock & Attenbrow 2005; JMcD CHM 2005). It is now thought that prior to 8,500 yBP tool technology remained fairly static with a preference for silicified tuff, quartz and some unheated silcrete. Bipolar flaking was rare with unifacial flaking predominant. No backed artefacts have been found of this antiquity. After 8,500 yBP silcrete was more dominant as a raw material, and bifacial flaking became the most common technique for tool manufacture. From about 4,000 yBP to 1,000 yBP backed artefacts appear more frequently. Tool manufacture techniques become more complex and bipolar flaking increases (JMcD CHM 2006). It has been argued that from 1,400 to 1,000 years before contact there is evidence of a decline in tool manufacture. This reduction may be the result of decreased tool making, an increase in the use of organic materials, changes in the way tools were made, or changes in what types

of tools were preferred (Attenbrow 2010: 102). The reduction in evidence coincides with the reduction in frequency of backed blades as a percentage of the assemblage.

4.2 Aboriginal histories of the locality

Aboriginal people traditionally lived in small family or clan groups that were associated with particular territories or places. The study area is located within the coastal Darug language group area. Attenbrow (2010: 34) describes this area as covering:

> *…the Sydney Peninsula (north of Botany Bay, south of Port Jackson, west to Parramatta), as well as the country to the north of Port Jackson, possibly as far as Broken Bay.*

There is some uncertainty as to whether the study area lies within the clan lands of the Cadigal or the Wangal. This is due to conflicting information provided in two historical quotes made by early colonists. Attenbrow (2010: 22) quotes the relevant descriptions. In summary, Governor Phillip states that the Cadigal lands extend from the entrance of the harbour, along the south shore, to Sydney Cove. The Wangal lands extend along the south side of the harbour from Sydney Cove to Parramatta. Alternatively, Philip Gidley King states that the Cadigal lands cover the south side of Port Jackson, extending from South Head to Long Cove (Iron Cove). The district of the Wangal extends from Long Cove to Parramatta. It is therefore not possible to identify the clan that would have been associated with the study area because the clan boundaries were not clear to the early Europeans.

With the establishment of European settlement at Sydney Cove, Aboriginal people rapidly became alienated from their land and resources. A major epidemic of an introduced disease, probably smallpox, which broke out in 1789, had a devastating effect on the Aboriginal population. Historical records indicate that in just over one year the Aboriginal population of Sydney had decreased by more than a half (Attenbrow 2010: 22). The activities of European colonists compounded the dislocation and destruction of the traditional life ways of Aboriginal people. In spite of this, many parts of the Sydney region, such as the Mulgoa Valley, Emu Plains, Plumpton, Manly, La Perouse, Salt Pan Creek and Campbelltown continued to be occupied by Aboriginal people until at least the mid-1800s (Attenbrow 2010: 23).

4.3 Registered Aboriginal sites in the local area – AHIMS search results

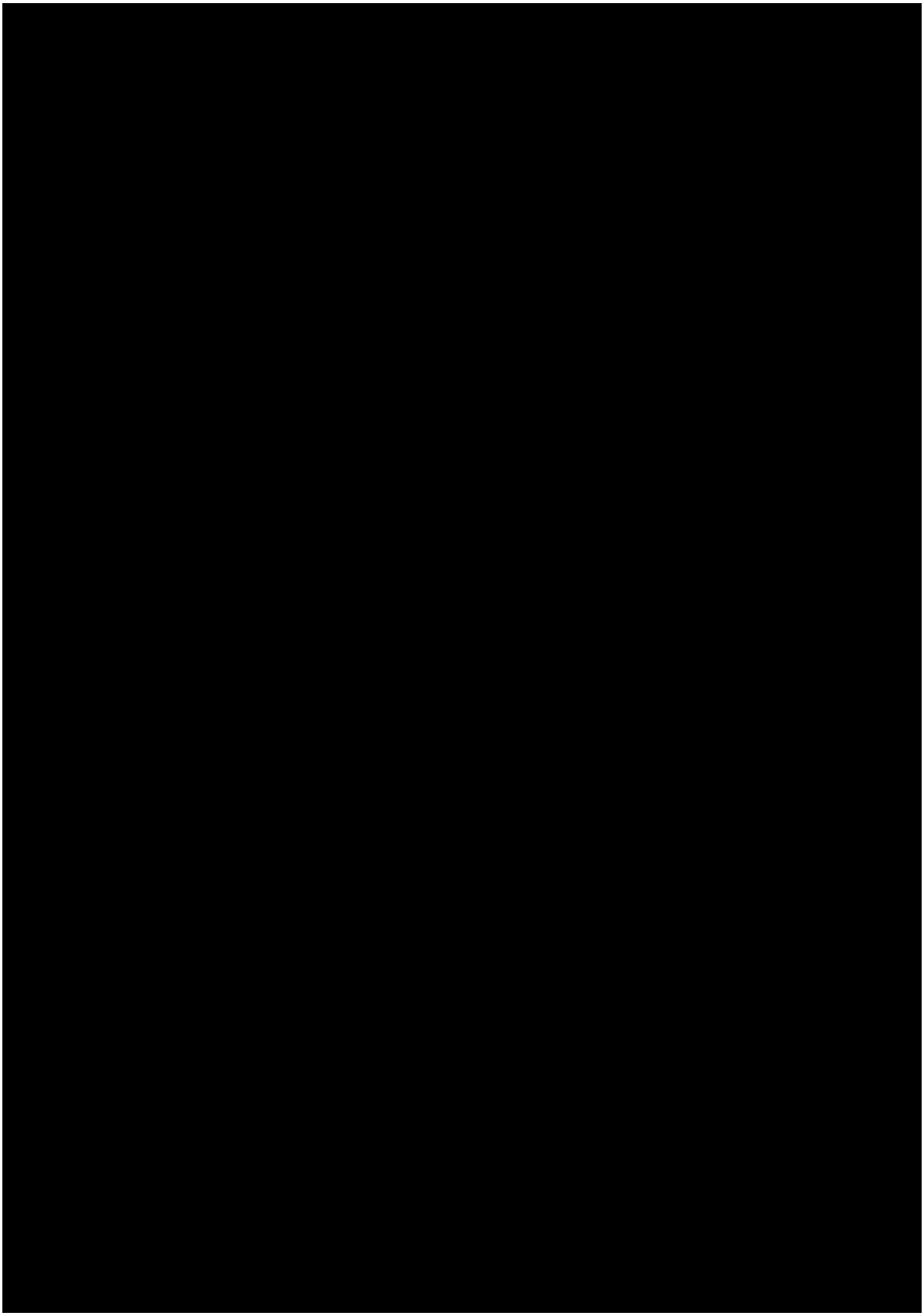
An extensive search of the Aboriginal Heritage Information System (AHIMS) database was conducted on 29 May 2014 for sites registered within the following coordinates:

Eastings	329830 - 333490
Northings	6249460 - 6252210
Buffer	200 m
Number of sites	16
AHIMS Search ID	136566

The AHIMS search encompasses an area approximately 500 metres from the maximum extents of the study area in all four cardinal directions. The AHIMS search was also given a 200 metre buffer to account for GPS error and known errors in the AHIMS database. The distribution of recorded sites within the AHIMS search area is shown in Figure 5.

The location of Aboriginal sites is considered culturally sensitive information. It is advised that this information, including the AHIMS data appearing on the map in Figure 5 be removed from this report if it is to enter the public domain.

Figure 5: AHIMS search results for the Bays Precinct study area



The frequency of recorded site types is summarised in Table 1. Of the 16 sites previously recorded in the approximately 4 x 3 kilometre search area, sites categorised as Shelters with Middens and Artefacts are of equal frequency with Potential Archaeological Deposit (PAD) sites (n=5 respectively). Single instances of sites categorised as Art with Artefact, Artefact, Midden, Midden with Artefact, Midden with Artefact and Art and PAD with Artefact were also identified (n=1 respectively). It can be seen in Figure 5 that the majority of sites are located within 200 m of the shoreline.

The distribution of sites across the study area is a reflection of numerous factors, including the occupation preferences of Aboriginal populations, the pattern of archaeological assessments which have previously been conducted and the impacts of post-European development and modification of the natural landscape.

Table 1: Frequency of site types from AHIMS data

Site Type/Feature	Frequency	Percentage
Art (pigment or engraving), Artefact	1	6.25
Artefact	1	6.25
Midden	1	6.25
Midden, Artefact	1	6.25
Midden, Artefact, Art (pigment or engraving)	1	6.25
PAD	5	31.25
PAD, Artefact	1	6.25
Shelter, Midden, Artefact	5	31.25
Total	16	100

No previously recorded sites are located within the study area. However, three previously recorded sites are located approximately within 200 metres of sections of the study area. Previously recorded Aboriginal sites are detailed for each of the Precincts below.

Rozelle Rail Yards

There is one previously recorded Aboriginal site within 200 metres of the Rozelle Rail Yards Precinct. AHIMS site # 45-6-2278 is a rock shelter with midden deposit [redacted] The shelter is described as facing southwest, with a bare sandstone floor and slight midden deposit of very fragmented shells. The condition of the site is stated to be very poor. The recorder noted the presence of

a second shelter in the same ridgeline that did not appear to have any associated deposit. It is further noted that extensive quarrying of the sandstone has been undertaken in the area.

Blackwattle Bay Precinct

AHIMS site # 45-6-2960 is located [redacted] The site is registered as a PAD and appears to have never been subject to test excavations or further investigation. AHIMS site # 45-6-2960 is outside of the study area [redacted] Further investigation is not necessary as AHIMS site # 45-6-2960 is outside the study area.

White Bay Power Station Precinct

There are no previously recorded Aboriginal sites within 200 metres of the White Bay Power Station Precinct (Figure 8).

Rozelle Bay Precinct

AHIMS site # 45-6-2960 is located [redacted] outside of the study area [redacted] Further investigation is not necessary as AHIMS site # 45-6-2960 is outside the study area.

Glebe Island Precinct

There are no previously recorded Aboriginal sites within 200 metres of the Glebe Island Precinct (Figure 10).

White Bay Precinct

There are no previously recorded Aboriginal sites within 200 metres of the White Bay Power Station Precinct (Figure 11)

Wentworth Park Precinct

AHIMS site # 45-6-2666 is located [redacted]. This site is registered as a PAD and has had a permit issued by OEH. Further investigation with OEH detailed the status of the permit as ‘lapsed, pending’.

There are several previously recorded Aboriginal sites in the wider region of the Wentworth Park Precinct, to the south towards Ultimo and to the east towards Darling Harbour. These sites are over 200 metres from the study area and registered as PADs and artefact sites. These sites are unlikely to impact upon the Aboriginal heritage constraints of the current study area.

Figure 6: Rozelle Rail Yards Precinct with AHIMS registered sites detailed

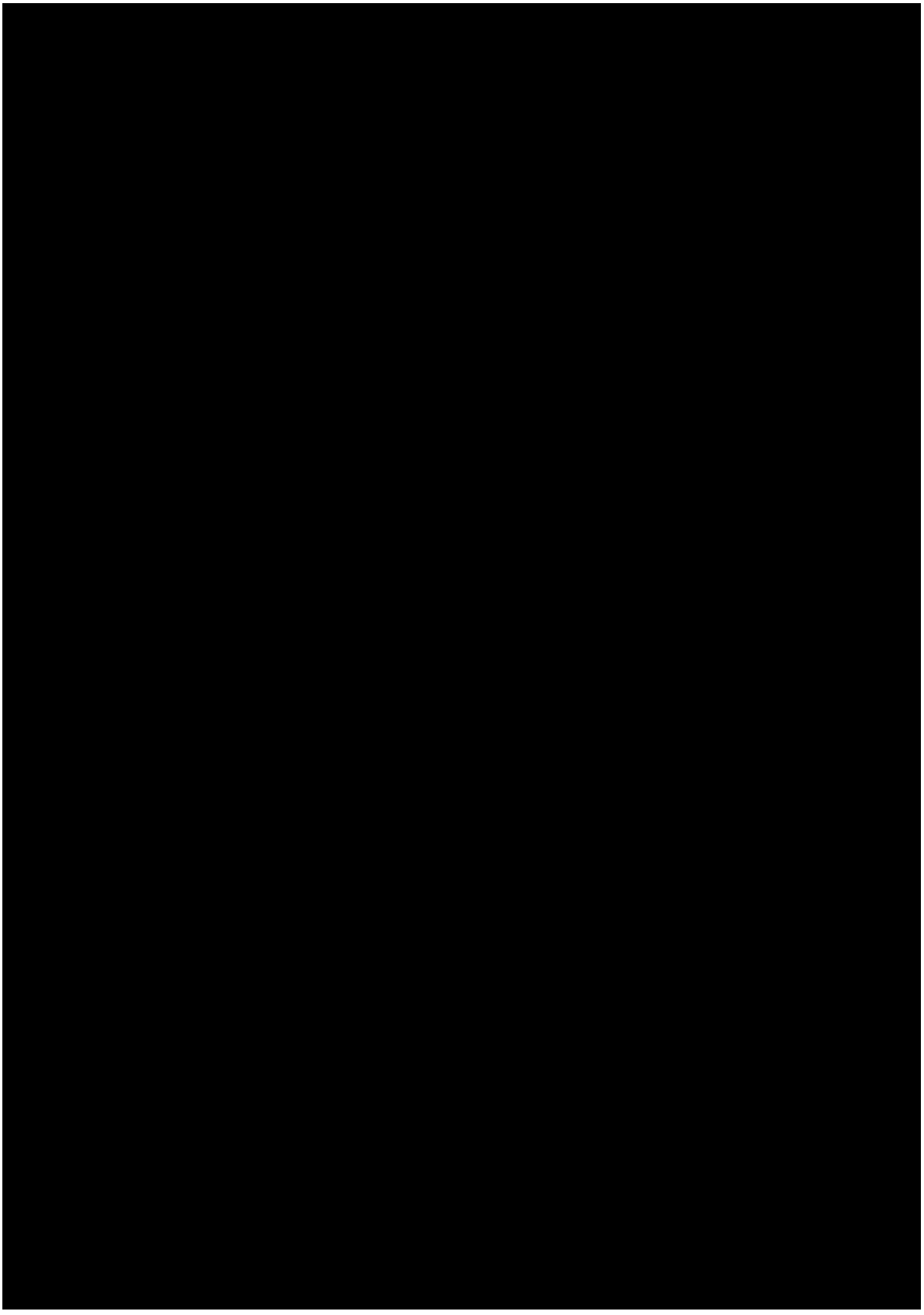


Figure 7: Blackwattle Bay Precinct with AHIMS registered sites detailed

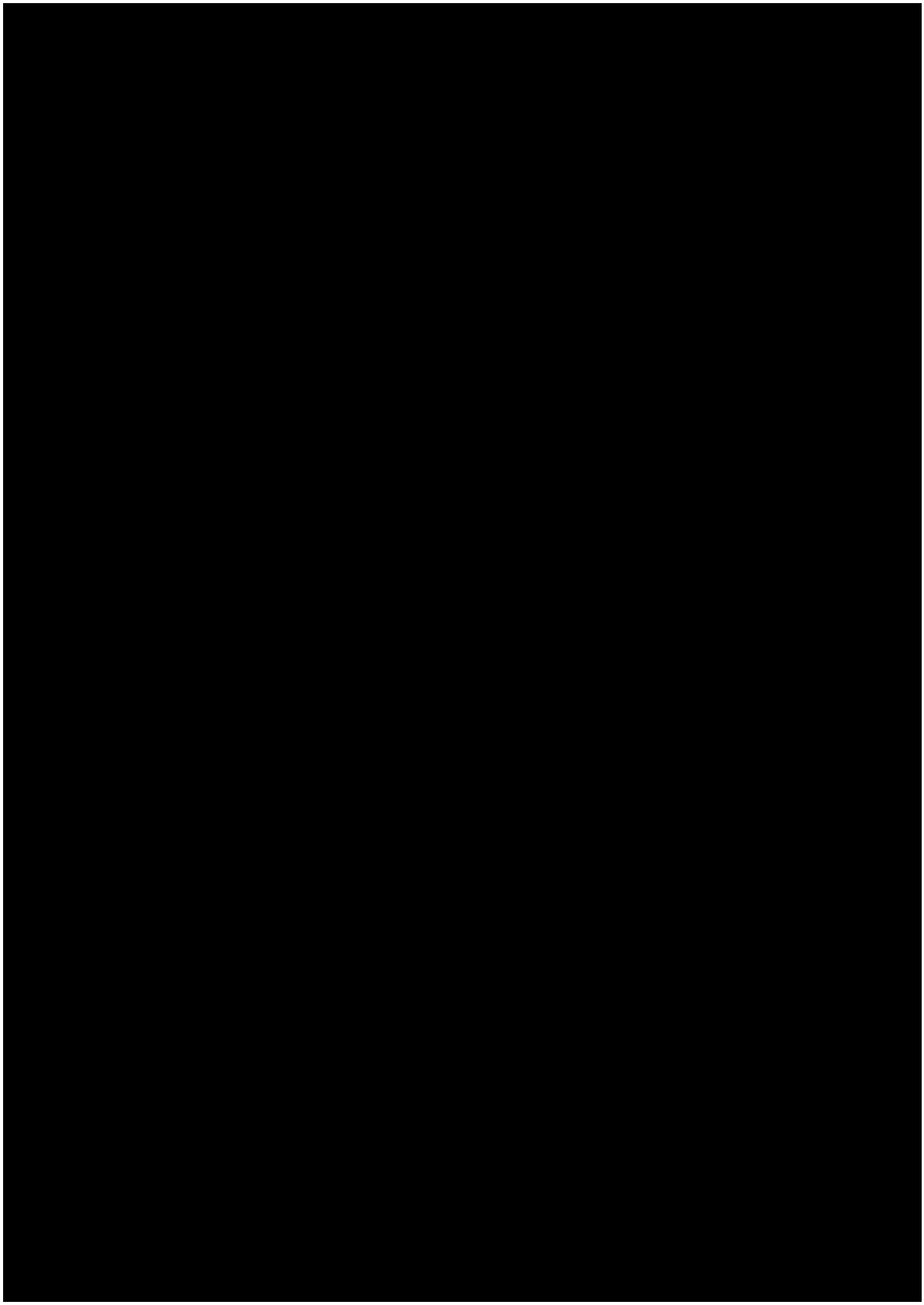


Figure 8: White Bay Power Station Precinct with AHIMS registered sites detailed

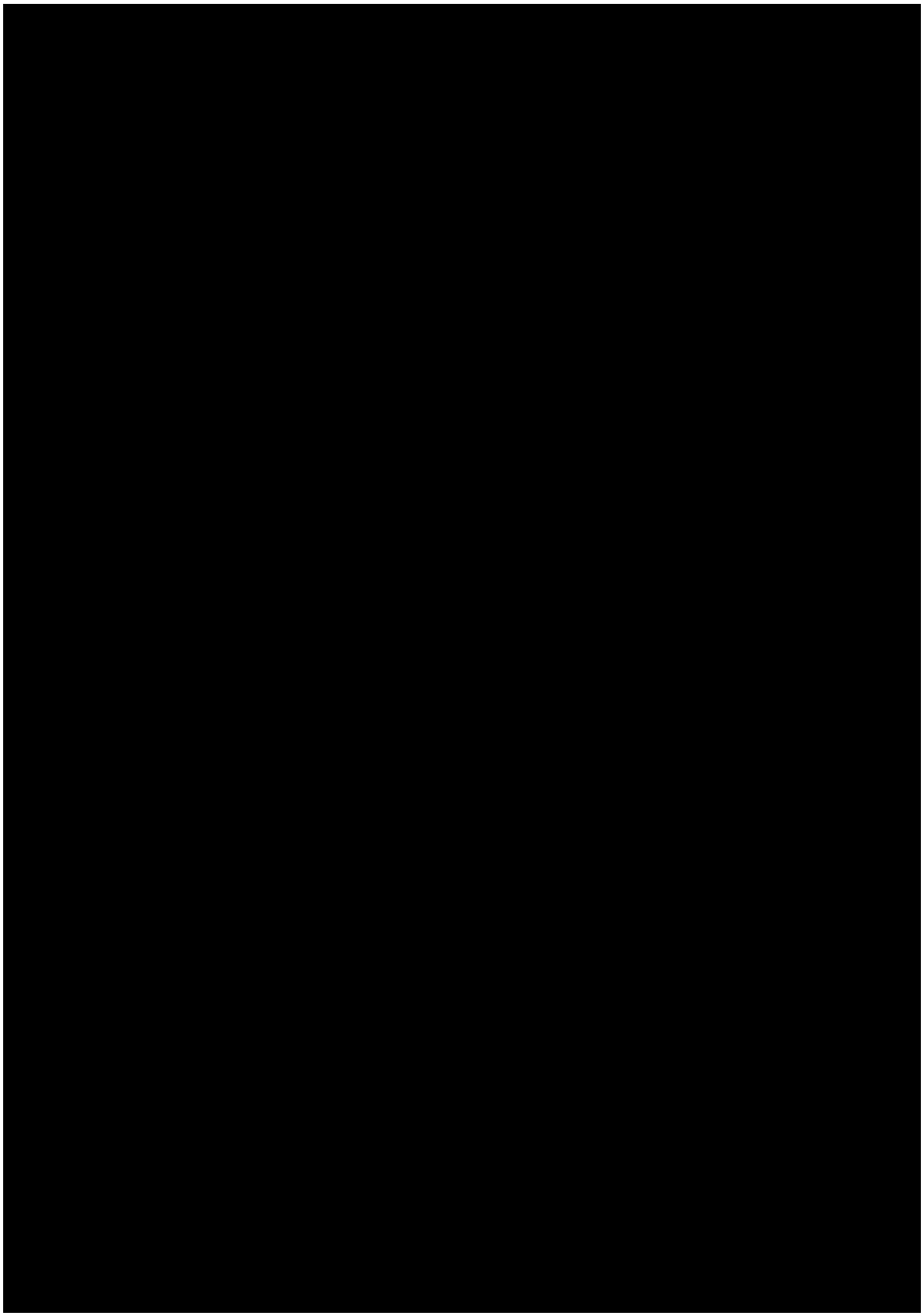


Figure 9: Rozelle Bay Precinct with AHIMS registered sites detailed

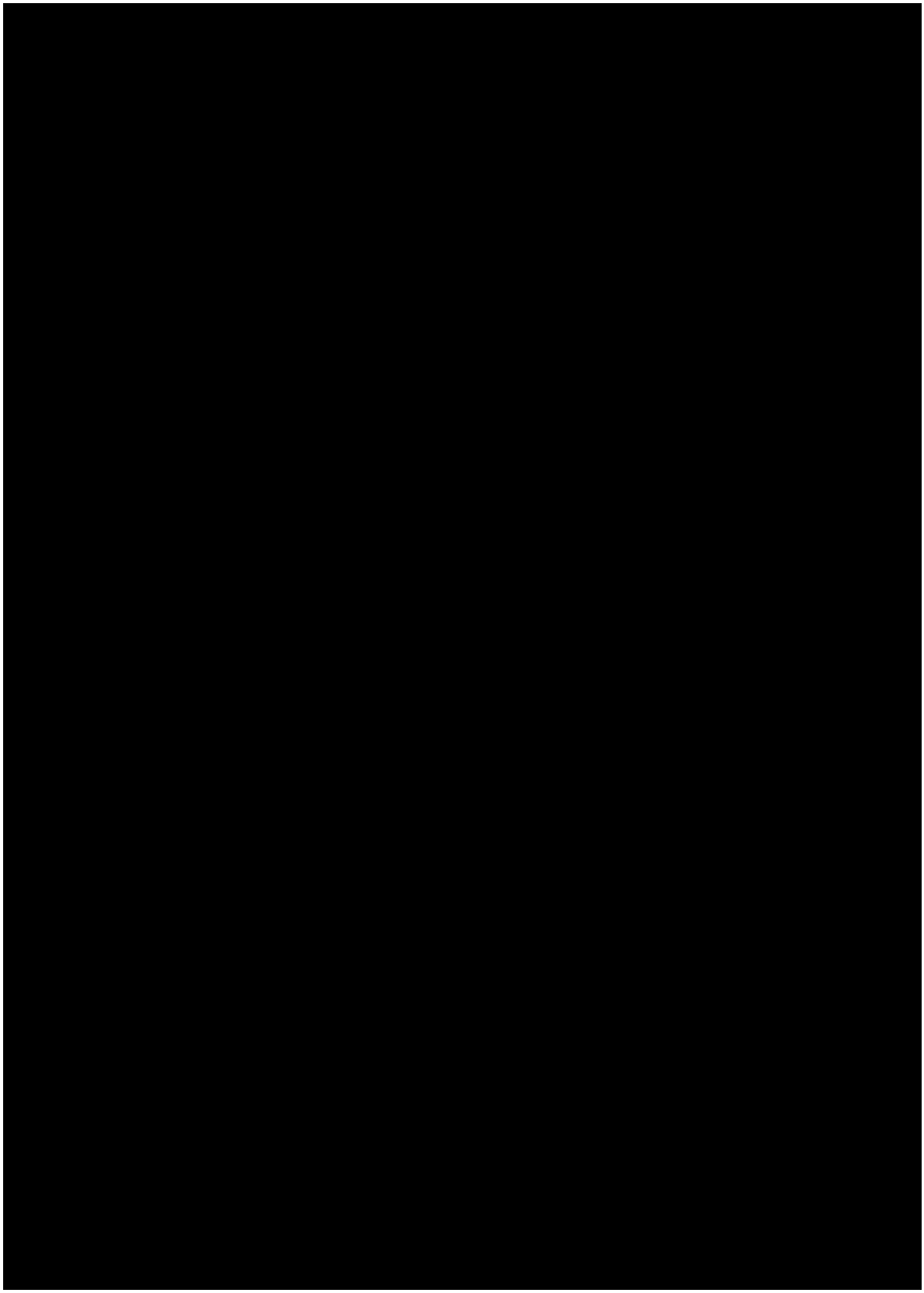


Figure 10: Glebe Island Precinct with AHIMS registered sites detailed

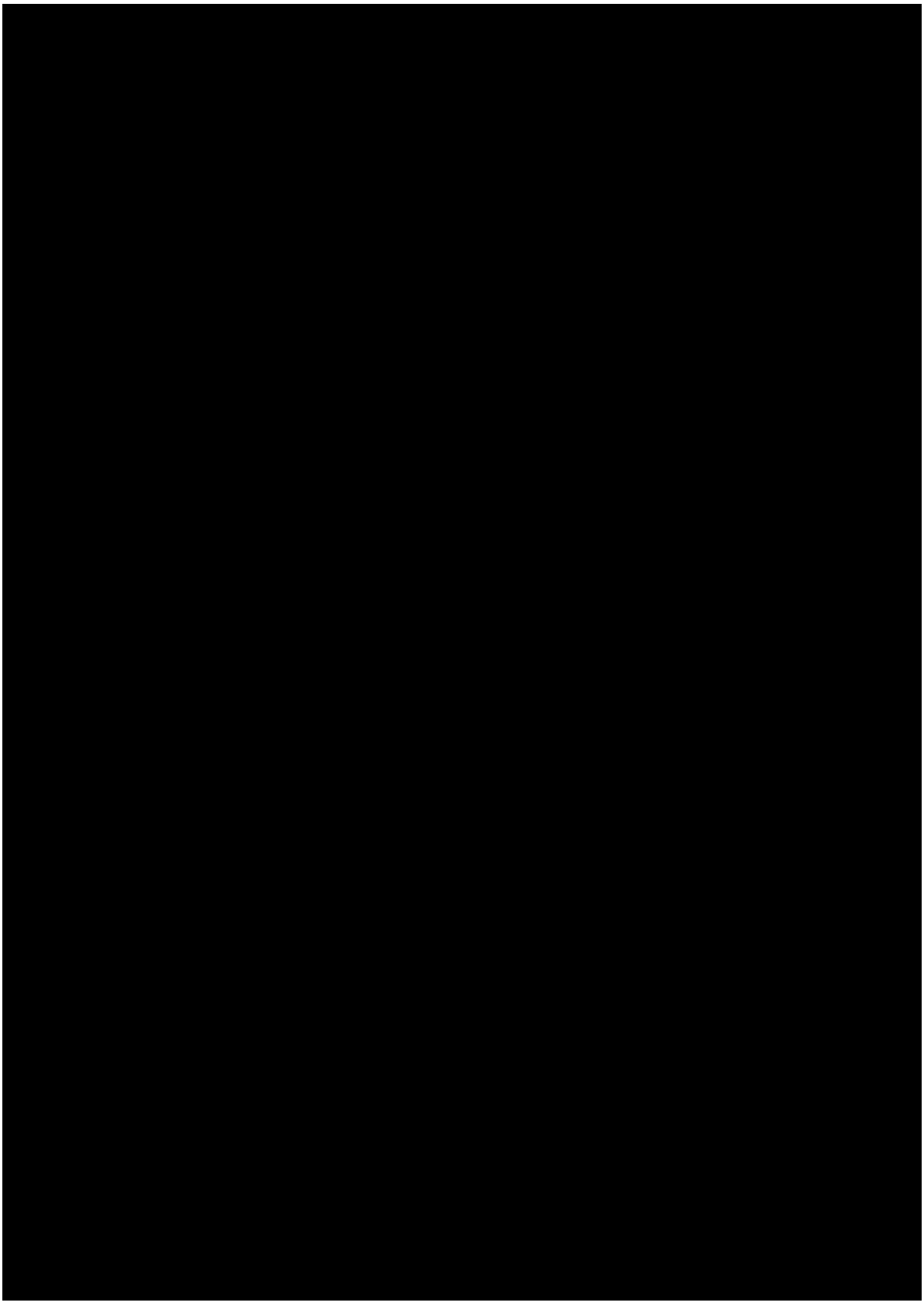


Figure 11: White Bay Precinct with AHIMS registered sites detailed

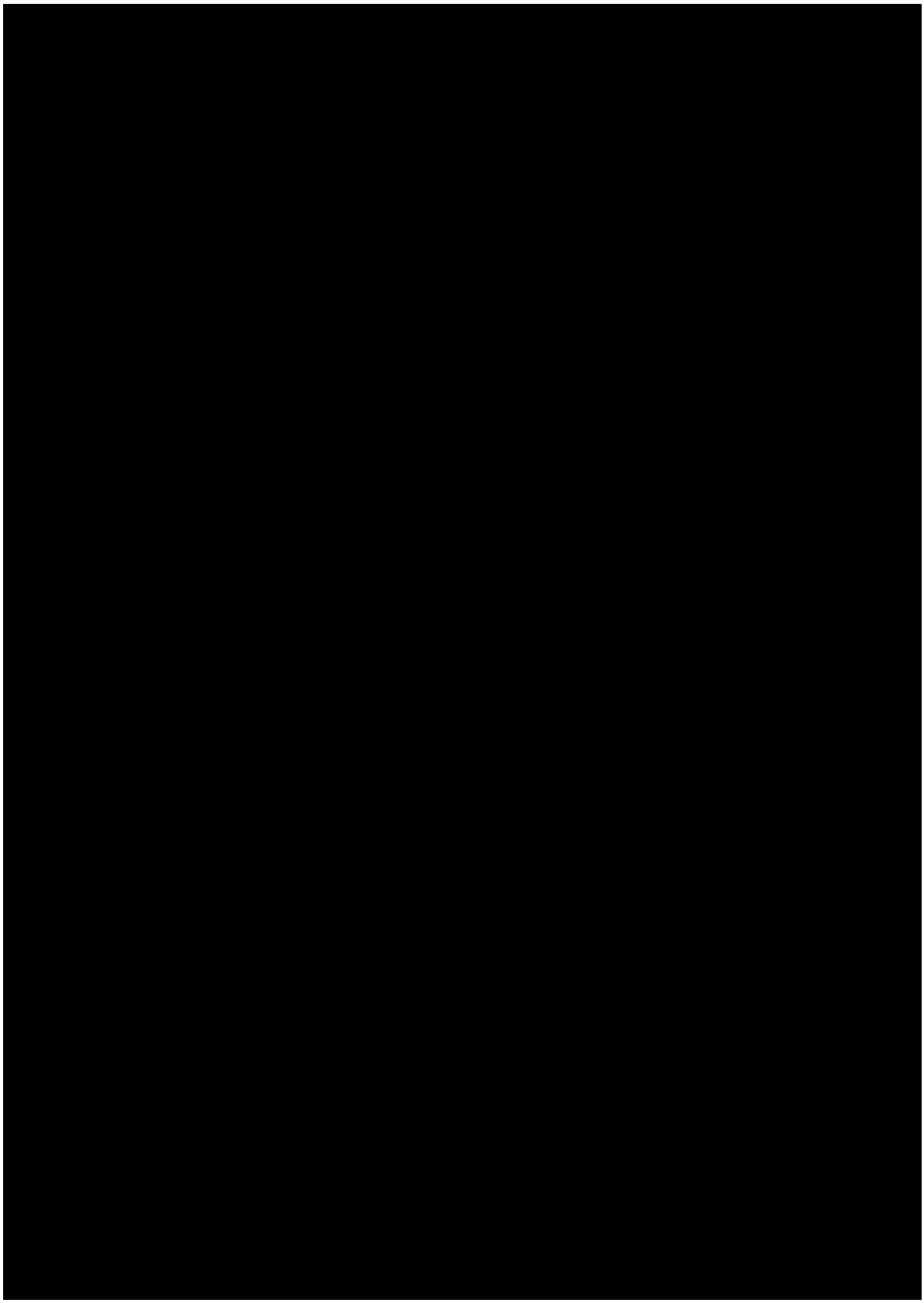
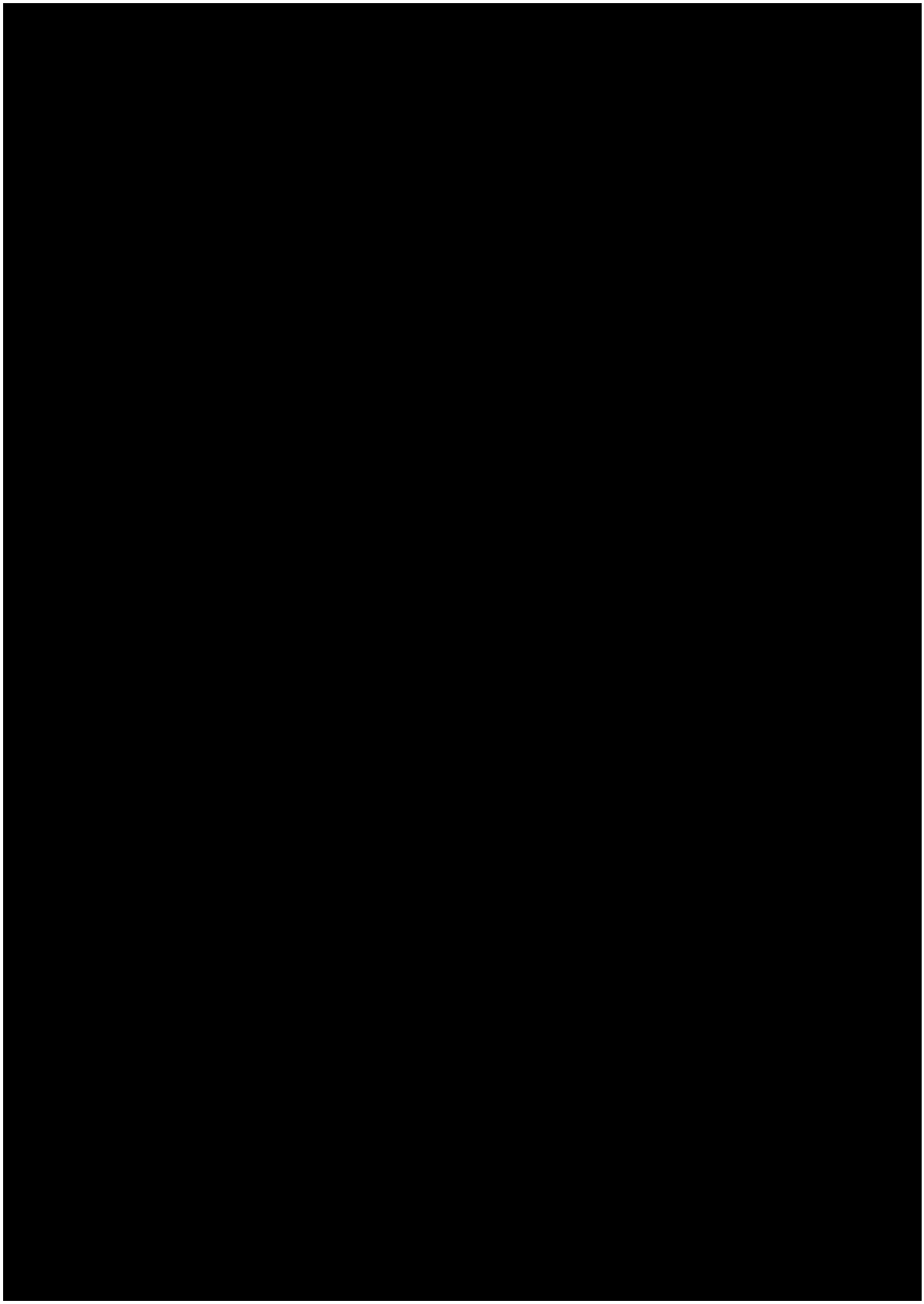


Figure 12: Wentworth Park Precinct with AHIMS registered sites detailed



4.4 Previous archaeological investigations

There have been limited Aboriginal archaeological investigations undertaken within the immediate vicinity of the study area. Indeed, a limited number of Aboriginal sites have been identified in urban Sydney contexts in general. The reason for this is twofold; the first, due to the intensive development that has taken place since European settlement and subsequent modification of the natural landscape. The second is a result of the focus of previous investigations, which are primarily conducted in conjunction with development projects. Aboriginal sites in urban Sydney contexts are typically located in pockets of remnant topsoil either beneath or between historical archaeological contexts (AHMS 2007).

Biosis (2012a) completed an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the Urbanest redevelopment on Wattle St, Ultimo. The ACHAR investigation was based on background research, ethno-historic data and geotechnical investigation. Biosis (2012a) determined that, despite significant impact to the area since European occupation, it was likely that substantial and deep portions of alluvial soils would be present across the study area beneath European deposits (Biosis 2012a). Historical layers were identified to a depth of at least 2.5 metres and assessed as having low Aboriginal archaeological potential. However, alluvial soils located underneath extended to a depth of at least 7 metres below the surface and were considered to have moderate to high Aboriginal archaeological potential (Biosis 2012a). The potential was considered to be heightened by the proximity of the site to Blackwattle Creek. The project area was registered with AHIMS as a PAD (AHIMS site # 45-6-3064). Urbis recommended test excavations and avoidance of alluvial soils where possible (Biosis 2012a). Test excavations reports from this project may still be in publication as none were available from OEH at the time of this study

Biosis also undertook test excavations of possible remnant original topsoil deposits located beneath historical archaeological deposits in 2012 at a site in Quay Street, Haymarket (Biosis 2012b). The site is located approximately 600 meters southwest of the Blackwattle Bay Precinct of the study area. The area would have been favoured by Aboriginal people due to the close proximity to food and other resources, and to the topography that would have provided good camping conditions. The excavated deposits were very shallow and contained European artefacts. No Aboriginal objects were recovered and it could not be determined whether the deposit was original topsoil that pre-dated European settlement, or introduced. After the Aboriginal test excavation program was completed, a lithic artefact was detected during continued non-Aboriginal archaeological excavations at the site. This came from a highly disturbed context and was likely to have been moved from the original point of discard. Due to the high disturbance levels it was determined that the project area and artefact had low archaeological significance.

Aboriginal archaeological test excavation and monitoring was undertaken by Steele (2001) at a block (‘the Quadrant site’) positioned between Broadway and Mountain Streets in Ultimo, approximately 500 metres south of the Wentworth Park Precinct. The Quadrant site is located around 2.5 kilometres to the southeast of the current study area. Blackwattle Creek traverses the site, and testing in 1 x 1 metre

squares was undertaken along the creek bank and upslope of the creek. A 5 x 15 metre area of a remnant patch of original topsoil was tested. Fourteen Aboriginal flaked stone artefacts were recovered from this, all of which were less than 10 mm in maximum dimension, and most of which were non-diagnostic.

In the final report, Steel and Czastka (2003) suggest that the lack of more substantial Aboriginal archaeological material identified on the Quadrant site may relate to the poorly-drained nature of the Blackwattle Creek landscape. The food and raw material resources of the creekline/swamp environments within and immediately adjacent to the Quadrant site are likely to have been exploited by Aboriginal people. However, they are unlikely to have established long-term occupation sites on land that was low-lying and poorly drained. Rather, the higher site elevations overlooking Blackwattle Creek are more likely to contain more substantial evidence for past Aboriginal visitation and use.

A number of sites have been recorded along Callan Point, approximately 1.2 kilometres to the north of the Rozelle Rail Yards Precinct. As summarised in the Callan Park Conservation Management Plan prepared by Tanner Architects (2011: 115), several middens have been recorded [redacted]. The sites are described in some detail by Dallas (2000: 4-5).

A variety of combined historical and Aboriginal archaeological investigations related to redevelopment programs have been undertaken within the City of Sydney. A number of Aboriginal sites have been recorded in the area as a result, several in similar environments to the current study area. These studies provide an archaeological context for the study area and those most relevant are summarised below.

Lampert and Truscott excavated beneath the rubble floor of the Bond Store at Moore's Wharf, Millers Point in 1984 after Aboriginal midden material was identified at the site. Lampert and Truscott (1984). The site is located approximately 1.5 kilometres to the northeast of the current study area. Ten centimetres of shell midden overlay approximately 30 centimetres of compact grey sand with stone artefacts. The shells recovered included Rock and Mud Oyster (*Saccostrea* and *Ostrea*), cockle (*Anadara trapezia*), whelk (*Pyrazus ebininus*) and mussel (*Trichomya*). Approximately 392 stone artefacts were recovered. The assemblage included cores, used flakes and fabricators. There was also evidence for the use of unusually small pebbles and bi-polar flaking. Raw materials included silcrete, quartz, quartzite and chert. It was concluded that the artefacts were typical of the post-Bondaian (most recent) phase of Aboriginal culture in the area. Evidence for continued Aboriginal use of the site into the historic period was found in the small number of European ceramic fragments recovered from the grey sand.

Salvage excavation of a midden in The Rocks was reported by Attenbrow in 1992. The site is located at Lilyvale Cottage, Cumberland Street and comprised shell and fish bone material (Attenbrow 1992). The

site is approximately three kilometres to the northeast of the current study area. The midden assemblage was carbon dated to around 340 years prior to the European settlement of Sydney Cove. The assemblage included bones of Snapper (*Pagrus auratus*) and Bream (*Acanthopagrus australis*), and shells of Rock Oyster (*Saccostrea cucullata*) and Hairy Mussel (*Trichomya hirsuta*) (Attenbrow 1992).

Salvage excavations of AHIMS site # 45-6-2581, next to Wynyard Station were conducted by Godden Mackay Heritage Consultants (GMHC) (1998). The site is located approximately three kilometres to the east of the current study area and is contained by the city block bounded by Ash Street, Pitt Street and Angel Place in the Sydney CBD. The site crosses the former alignment of the Tank Stream. Fifty-four flaked stone artefacts were recovered during the excavations. Analysis of the artefacts revealed that on-site reduction of a variety of materials, including silicified tuff, indurated mudstone, silcrete and quartz, had taken place. The artefact distribution indicated a contiguous spread of lithics along the banks of the Tank Stream, likely to be the result of repetitive or continuous Aboriginal occupation.

The KENS site block is defined by Kent, Erskine, Napoleon and Sussex Streets (KENS) in the northwest of the Sydney CBD. It is located around 2.5 kilometres to the east of the current study area. Test and salvage excavations for Aboriginal archaeology were undertaken at the site by Dominic Steele Consulting Archaeology (2006). Three areas were subject to salvage excavation, each revealing the remains of past Aboriginal knapping, including flaked glass. It was tentatively suggested that the assemblage indicates a Late Bondaian through to early post-Contact date, possibly including a Middle Bondaian element (*c*. 2800 BP to 1788). The excavators concluded that the KENS site is an example of evidence of Aboriginal settlement surviving despite impacts during the historical period.

5.0 Predictions

Predictive modelling informs an assessment of the archaeological potential of an area by drawing on the results of previous archaeological investigations from geographically and temporally comparable sites. This section will outline aboriginal land use and the site types generally encountered before detailing previous predictive models and forming a predictive model for the study area.

5.1 Aboriginal land use

Assumptions about Aboriginal land use patterns are made on the basis of archaeological information gained from the local area, from observations made by Europeans after settlement of the area, and from information known about available natural resources.

The ethno-historical information indicates that the Cadigal and possibly the Wangal clans were associated with the study area at the time of European settlement. Numerous freshwater sources and estuarine environments are within the study area and would have provided an abundance of resources for the local Aboriginal population to exploit. Rock shelter and shell midden assemblages have been previously recorded in the local region, providing evidence for Aboriginal occupation. The results of archaeological work undertaken across the City of Sydney indicate that intact Aboriginal cultural heritage may be present beneath the extensive development that has taken place since European settlement.

Archaeological data gathered in the locality suggests that artefacts would be found across the landscape in varying densities, with higher densities expected in close proximity to water sources. The main limitations to the survivability of archaeological material in the study area include the impacts of flooding within an estuarine environment, and extensive excavation and levelling activities associated with the urban development.

5.2 Site types

Material traces of Aboriginal occupation exist throughout the landscape and are known as Aboriginal sites. The primary site types that are found in the region are as follows:

- Stone artefacts – Flaked and ground stone artefacts are the most common trace of Aboriginal occupation in the Sydney region. Aboriginal people used particular techniques to flake stone and these changed over time. The approximate age of a tool can often be diagnosed by the way that it was made. Stone artefacts are most often found in scatters that may indicate an Aboriginal campsite was once present. Stone artefacts may also be found as isolated finds. Stone tools in the Sydney region are most often made from raw materials known as silcrete, tuff and quartz. These are all easily flaked and form sharp edges, which can be used for cutting or barbing

spears. It is possible that stone artefacts, either on the surface, or buried, exist within the study area.

- Rock shelters (and associated deposits) – Rock shelters were used by Aboriginal people for habitation, rest places and as art or ceremonial sites. Deposits can build up on the floor of these shelters over time and bury traces of Aboriginal occupation. If these deposits are not disturbed, rock shelters can provide an intact stratigraphy that can tell us about the way Aboriginal occupation changed through time. It is possible that rock shelters are present within the study area where sandstone outcropping remains.
- Shell middens – Shell middens are remains of campsites in which the primary traces are shell and/or bones of fish. Shell middens are often found close to rivers or streams and are either along banks or within enclosed shelters. Given the close proximity to Rozelle Bay and Whites Creek, it is possible that shell midden is present within the study area.
- Rock engravings/Rock art – Rock engravings are often found in Hawkesbury geologies on flat sandstone platforms. Shapes of animals, ancestor figures or other symbols were carved into the sandstone. Weathering has affected the visibility of many rock engravings. Other rock art of various forms has also been recorded in the Sydney basin. Stencils, charcoal drawings and paintings are examples of the techniques used by Aboriginal people. Rock art is relatively rare, but is more common on sandstone geologies than on the plains of western Sydney. It is possible that engravings are present within the study area where suitable sandstone outcropping remains.
- Axe grinding grooves – Axe grinding grooves are created when axe blanks (often basalt cobbles) are shaped by rubbing the stone across an abrasive rock such as sandstone, often using water. Sharpening axes and other tools also forms them. Axe grinding grooves are often found on the banks of streams or rock pools. It is possible that axe grinding grooves are present within the study area where suitable sandstone outcropping remains.
- Scarred trees – Aboriginal people practiced tree marking or scarring for a variety of reasons. Large scars are often the result of a tree being debarked for a canoe blank and smaller scars may have been the result of making shields or coolamons (storage vessels). Tree marking may have been the result of ritual practices, or associated with burial. Scarred trees that remain today would be over 150 years old and the scar would retain certain characteristics that enable its identification as cultural. Given that all original native vegetation has been cleared from the study area, it is unlikely that scarred trees are present.
- Post-contact sites – Sites with evidence of early interaction between Aboriginal people and Europeans. Artefacts found may include flaked glass or ceramic. This site type is usually known from historical records or knowledge within the local community. It is possible that a post-contact site is present within the study area.
- Quarries – Quarries are areas where people procured resources for the manufacture of stone artefacts (Hiscock and Mitchell 1993). Raw materials often occurred in the form of cobbles.

Cobbles were reduced on site and made into smaller cores, which could be transported. Tool manufacture may also occur at quarry sites (JMcD CHM 2006). It is considered unlikely that quarries are present within the study area.

- PAD – Areas are classified as PADs if there is a likelihood of archaeological material existing below the ground surface, or on the ground surface but obscured from view. An Aboriginal object does not need to be recorded for an area of PAD to be specified. It is possible that PADs are present within the study area.
- Aboriginal ceremony and dreaming – One Aboriginal ceremony and dreaming site has been recorded in the local landscape, not within the study area. Such sites are important and many were recorded in the early years of the NSW Aboriginal Site Register. As more recent recordings are relatively rare, it is unlikely that additional unrecorded Aboriginal ceremony and dreaming sites are present in the local area.
- Burial sites – Aboriginal burials are found in a variety of landscape types throughout NSW, although most frequently they are found in middens, sand dunes, lunettes and other sandy/soft sedimentary soils. It is possible that Aboriginal burials are present within the study area where midden deposits remain.

5.3 Previous predictive models

McDonald (1997 2000) developed a predictive Aboriginal site location model based on previous archaeological studies across the Cumberland Plain and on the archaeological survey and excavation results at the Australian Defence Industries (ADI) site. The basic premise of the model is that site size (density and complexity) on the Cumberland Plain will vary according to permanence of water (stream order), landscape unit and proximity to stone raw materials.

During the last twenty years, Cumberland Plain predictive modelling has been developed and refined as new data becomes available. Beth White and Jo McDonald have recently contributed to the debate over site prediction by discussing the nature of Aboriginal site distribution, interpreted through lithic analysis of excavated sites in the Rouse Hill Development Area (White & McDonald 2010). The paper provides a spatial and distributive analysis of Aboriginal objects in relation to freshwater resources and along varying landform units. The findings of this study highlighted the relationship between proximity to freshwater and landscape with Aboriginal occupation. The following predictive statements were asserted (White & McDonald 2010:36):

- archaeological evidence of past Aboriginal peoples will be limited and be representative of background scatter within proximity to first order creek lines;

- within the reaches of second order creek lines, archaeological evidence will again be representative of background scatter and will likely consist of one-off camp locations and / or isolated events;
- within the reaches of third order creeks, archaeological evidence will consist of repeated occupation by small groups of people. Archaeological expressions will likely consist of knapping floors and evidence of repeated use over time; and
- along major fourth order creek lines- archaeological expressions will consist of continued and repeated use by past Aboriginal peoples and may include stratified deposits.

The study also found that artefact densities were most likely to be greatest on terraces and lower slopes within 100 metres of freshwater resources (White & McDonald 2010). The predictive model identified that ridgelines and crests located between drainage lines will contain archaeological evidence though usually representative of background scatter similar to that identified for first and/or second order creek lines (White & McDonald 2010).

While White & McDonald's (2010) predictive model can be seen as indicative of the archaeology of the Cumberland Plain, it is important to note that conclusions based on simple geographical models are not concrete justifications or criteria for site distribution and characteristics (AMBS 1997). The existing distribution and characteristics of sites throughout a landscape is the result of the complex interplay of numerous factors such as periods of occupation, site type, environmental impacts, erosional events and the impacts of modern activities.

Furthermore, the Cumberland Plain is a different environment to the central Sydney region. However, the stream order model may be used to make general predictions of Aboriginal site distribution in other regions, as proximity to freshwater resources is a defining factor upon occupation patterns in any environment.

Attenbrow (2010: 62) defines two broad environments in relation to food resources within the Sydney region. The coastal zone comprises the ocean shoreline, Port Jackson, Broken Bay, Port Hacking and Botany Bay. The current study area falls within this zone. The region from around 30 kilometres inland to the foot of the Blue Mountains, including the Parramatta and Georges Rivers makes up the coastal hinterland zone. Attenbrow (2010: 56) determined through an examination of site types and traits across the Sydney region that there was a focus of activity along the waterways, including the ocean and estuarine shoreline along the coast, which is of relevance to the current study area. Within the coastal hinterland, the focus of activity was along the rivers.

5.4 Predictive model

The predictive model comprises a series of statements about the nature and distribution of evidence of Aboriginal land use that is expected in the study area. These statements are based on the information gathered regarding:

- Landscape context and landform units.
- Ethno historical evidence of Aboriginal land use.
- Distribution of natural resources.
- Results of previous archaeological work in the vicinity of the study area.
- Predictive modelling proposed in previous investigations.

Predictive statements are as follows:

- Shelters and midden deposits will be the most likely Aboriginal site type.
- Low density artefact scatters, isolated finds and rock engravings may also occur.
- Aboriginal sites will be located in areas of least ground disturbance (i.e. on intact sections of outcropping sandstone, or beneath fill deposits and buildings that were constructed on fill and/or with shallow foundations).

The potential for Aboriginal sites is limited by the levels of ground surface disturbance within the study area. There is some potential for burials to exist where intact midden deposits are present.

The study area may potentially contain evidence of early European contact with Aboriginal populations. Evidence might include flaked glass and metal objects such as axes and knives, but this material can be difficult to discern from European artefacts. Scarred trees are unlikely to be present as almost all original vegetation has been cleared from the study area. Areas of PAD would not be identified across steep slopes, in areas of flooding, or in areas of high disturbance.

6.0 Site Survey Methodology and Results

6.1 Survey methodology

A sample survey of the study area was conducted on the 3 June by Alyce Howard and Jenny Winnett (Artefact Heritage) and on the 13 June 2014 by Alyce Howard and Josh Symons (Artefact Heritage). Full coverage of the study area was not possible due to the density of development and private property throughout the study area. Concrete and asphalt surfaces cover a great deal of the study area and areas of parkland generally exhibit evidence of modification and disturbance, at least on the surface. As such, there was little to no visibility throughout the study area. However, site survey was useful in clarifying landform features and confirming information acquired through archival research.

A sample survey of the study area is acceptable under the OEH *Code of Practice* (2010) with justification. There were three main reasons for conducting a sample survey, including density of vegetation, development and the abundance of private property. Buildings and hard surfaces obscured the ground surface across substantial portions of the study area.

The survey was undertaken in accordance with the OEH *Code of Practice* (2010). A handheld Global Positioning System (GPS) was used to track the path of the surveyors and to record site coordinates. An aerial map of the study area was also carried by members of the survey team in the field. All accessible sections of the study area were covered on foot and examined for traces of Aboriginal occupation.

A photographic record was kept of all sections of the study area that were accessible. Photographs were taken to record landform units (where present) within the study area, vegetation, levels of disturbance, and areas of archaeological potential. Scales were used for photographs where appropriate

6.2 Survey observations

The study area has been cleared of most of the original vegetation and extensive modification of the natural landforms has occurred. However, some relatively intact pockets remain. Examples of remnant outcropping sandstone and potentially intact subsurface deposits have been identified within the study area, and are discussed below in relation to the individual Precincts.

Rozelle Rail Yards Precinct

The Rozelle Rail Yards Precinct has been cleared of all original vegetation and is currently being used for a mixture of residential and commercial/industrial purposes. The original sandstone formation has been cut through and levelled, leaving high standing sections along the northern and southern edges of the

Rozelle Rail Yards Precinct Construction of the Inner West Light Rail Extension is presently underway in large sections along the southern edge of the Rozelle Rail yards Precinct.

Substantial portions of the Rozelle Rail Yards Precinct are covered in buildings and hard surfaces. The area of the rail lines running east-west through the centre of the study area is mostly covered in overgrown vegetation, including dense, long grass and low-lying shrubs. Ground surface visibility across the Rozelle Rail Yards Precinct was therefore nil, except around vehicle tracks and along the rail lines where visibility ranged up to ten percent (Plate 1 Plate 2).

Sections of remnant sandstone and elevated locations within the Rozelle Rail Yards Precinct may be intact landforms. This includes most of the northern edge of the study area, except for where the sandstone has been cut through to create a vehicle access from Lilyfield Road. It includes the sections of sandstone at the very north-western and north-eastern ends of the study area. The surfaces of the sandstone platforms in these areas are obscured by dense vegetation and could not be inspected. The sandstone platforms at the eastern end of the Rozelle Rail Yards Precinct are covered by vegetation and 19th century houses (Plate 1). Levels of disturbance to the sandstone platforms during construction of the houses are unable to be determined without further investigation.

Plate 1: Vegetation covering top of sandstone at eastern end of Rozelle Rail Yards Precinct, view E

Plate 2: Visibility along rail lines and vehicle track edges within Rozelle Rail Yards, view SW.

Blackwattle Bay Precinct

Blackwattle Bay Precinct is characterised by areas of reclaimed land, interspersed with some original landforms. Blackwattle Bay Precinct features the Sydney Fish Markets site and the Hymix Concrete. This area is also bordered by residential apartments to the north and east. (Plate 3 Plate 4).

Background research (Casey & Lower 2013) has indicated that the wharves of Blackwattle Bay are the product of land reclamation and site survey supports this. Other areas of reclaimed land are evident along

the western border of the Pyrmont Peninsula, and are interspersed with sections which may correspond to the original landform (Plate 3).

Cuttings into the original sandstone were identified on the eastern section of the Precinct (on the western border of the Pyrmont Peninsula). These sandstone exposures were inspected for traces of Aboriginal occupation but were found void (Plate 4).

Plate 3: From Sydney Fish Market Site , view NW.

Plate 4: Bank Street , view SE.

White Bay Power Station Precinct

White Bay Power Station Precinct can be broadly divided into thirds. The southeast third of the White Bay Power Station Precinct comprises reclaimed land and is introduced fill. It is an artificially constructed landform. Background research identified that a small section of the southwest corner of the White Bay Power Station Precinct may shadow the original shoreline (Birch 2007) (Figure 2), but site survey confirmed that this area has been subject to extensive modification associated with the levelling of Glebe Island.

The southwest third of the White Bay Power Station Precinct has been cleared of vegetation and has been partially landscaped, initially for residential housing and later for the White Bay Power Station (Plate 5). Survey identified that the southwest third of the White Bay Power Station Precinct may retain intact subsurface deposits

The northern third of the Precinct is a mixture of residential and commercial/ industrial structures (Plate 6). Due to the potential lack of deep subsurface disturbance in this section, the northern third of the White Bay power Station Precinct may retain intact subsurface deposits.

Plate 5: White Bay Power Station, view S.

Plate 6: Parson St Balmain view SW.

Rozelle Bay Precinct

The Rozelle Bay Precinct predominately comprises reclaimed land (Plate 7). Surface visibility across the precinct was generally nil as the area is overlain with hard surfaces. Two small sections where the original landform may remain were identified in the northwest and northeast corners of the Precinct (Plate 8). In these sections, the terrain rises from levelled reclaimed sections and corresponds with the original shoreline (Birch 2007) (Plate 8) (Figure 2). Both sections are currently occupied predominately by residential structures. Due to the potential lack of deep subsurface disturbance in these sections, intact subsurface deposits may remain.

Plate 7: James Craig Road view W.

Plate 8: View Street Annandale, view SSE.

Glebe Island

Glebe Island was not inspected on foot during site surveys as background research indicates extensive modification and disturbance across the island (Irving 2006). The extant terrain of Glebe Island comprises

reclaimed land and artificial shoreline. Plates 9 and 10 provide detail of the Glebe Island Bridge and a context shot of Glebe Island, viewed from White Bay.

Plate 9: Glebe Island Bridge, view to SW.

Plate 10: View from White bay toward Glebe Island, view S.

White Bay Precinct

White Bay Precinct predominately comprises reclaimed land, infill of the artificial shoreline (Plate 11). The north and northeastern borders, however, feature parkland bordered by residential structures (Plate 12). These areas exhibit some potential for intact subsurface deposits. Due to the potential lack of deep subsurface disturbance in these sections, intact subsurface deposits may remain.

Plate 11: Construction site near Roseberry Place, view NE.

Plate 12: View toward Donelly Street across landform with potential for subsurface deposits , view NW.

Wentworth Park Precinct

A large portion of the Wentworth Park Precinct is occupied by Wentworth Park itself (Plate 13), and as such is reclaimed land, introduced fill over the original swamp.

Remnants cuts of sandstone were identified in the northeast corner of the Wentworth Park (Plate 14). The surfaces of these sandstone outcrops were not accessible due to vegetation and their location within an active construction site. The northeast corner may also represent original landforms as the area approximates the natural shoreline and is outside of the site of sandstone quarrying activity (Irving 2006)

Plate 13: Wentworth Park view NE.

Plate 14: Remnant sandstone cutting at approximately 332993/652031, view NE.

6.3 Summary of results

No previously recorded Aboriginal sites were located within the study area. No previously unrecorded Aboriginal sites were identified during the field surveys.

Three previously recorded Aboriginal sites are located within 200 metres of the study area.

AHIMS site # 45-6-2278 [redacted] This site was relocated during the field survey, but could not be accessed.

AHIMS site # 45-6-2960 is a potential archaeological deposit (PAD) [redacted] This site was relocated during site survey and appears to be within an area of disturbance associated with an apartment complex and footpaths.

AHIMS site # 45-6-2666 is also a PAD [redacted] This site has had

a permit issued by OEH in the past. Information on the nature of this permit was not available from OEH at this time. AHIMS site # 45-6-2666 may have been disturbed, destroyed or subject to test excavations. AHIMS site # 45-6-2666 was relocated during the survey but the area is completely overlain with bitumen and cement.

No previously unrecorded Aboriginal sites were identified during the field survey. The majority of the study area has been subject to varying degrees of disturbance and modification. Sections of remnant outcropping sandstone and potentially intact subsurface deposits were identified within the study area. The archaeological potential of the study area is discussed in section 7.2

7.0 Archaeological Potential

7.1 Introduction

Archaeological evidence from pre-European and early European occupation period is an ever-shrinking resource (GML 2006a). There are numerous sections of the study area which have been extensively modified and may retain little to no intact Aboriginal archaeological material. However, there are pockets where original landforms and intact deposits may survive. These pockets, should they contain intact deposits or Aboriginal archaeological material, are potentially of great cultural and scientific value. Aspects of the scientific value of the study area are characterised as the archaeological potential. Archaeological potential is discussed for each Precinct below. Archaeological potential is directly affected by the levels disturbance ad modification in an area. However, assessment of archaeological potential is also a product of the landform context, environmental context and evidence from previous archaeological investigations in the area.

The following categories of archaeological potential have been identified within the study area:

No archaeological potential

Area of no archaeological potential were identified in areas were Aboriginal archaeological material has no chance of being found in situ. This study has identified through archival research that a number of landforms are reclaimed from the harbour. Such areas comprise entirely of introduced fill and artificial sea walls and dykes. These landforms have no potential to contain intact Aboriginal archaeology.

Low archaeological potential

Areas of low archaeological potential are identified where it is unlikely that Aboriginal archaeological material would be present because of extensive disturbance, or if the original landform was not conducive to Aboriginal occupation. For example, Aboriginal people would have been unlikely to have occupied swamp areas, apart from transitory resource gathering activities. Where land has been reclaimed over swampland such as in Wentworth Park, introduced fill is likely to comprise the upper deposits but and natural soil profile buried beneath the fill deposits would be unlikely to contain traces of Aboriginal occupation.

Moderate archaeological potential

Areas of moderate archaeological potential may include original landforms conducive to Aboriginal occupation and/or evidence that intact subsurface deposits may remain, even in areas of moderate disturbance or under fill. Outcrops of remnant sandstone are an example of original landforms, and were identified primarily through background research and site survey. Evidence that intact subsurface

deposits may remain has been synthesised through a combination of archival research and site survey. As demonstrated by previous investigations in urban Sydney contexts (GMHC 1988 DSCA 2006 AHMS 2007), pockets of intact deposits may remain even in areas that have been disturbed and modified. Furthermore, European developments in Sydney were commonly built upon layers of fill and packed down rubble from previous buildings, effectively capping any surviving Aboriginal archaeological deposits (AHMS 2007).

High archaeological potential

No areas of high archaeological potential were identified within the study area. Areas of high archaeological potential are typically identified through site survey and archival research of site distribution in the region, within relatively undisturbed and unmodified contexts.

7.2 Disturbance

Rozelle Rail Yards Precinct

The construction of the rail yards involved cutting through and levelling the original sandstone formation that rose up to the north and west of Rozelle Bay. Introduced fill has been used to level the rail lines. Background research indicates that the eastern half of the Rozelle Rail Yards Precinct lies largely on land that was reclaimed by infilling from 1895 to 1905 (Artefact 2013). Buildings, hard surfaces and vehicle tracks cover many parts of the Rozelle Rail Yards Precinct. Major construction works associated with Balmain Road, Catherine Street, Victoria Road, Lilyfield Road and the City West Link would also have resulted in substantial disturbances to the ground surface within the Precinct.

As observed during the field survey, sections of remnant sandstone are present along most of the northern edge of the Rozelle Rail Yards, particularly at the western and eastern ends (Artefact 2013). Commercial/industrial buildings and houses are built directly on top of the sandstone within the Precinct, and the level of disturbance to the platform surfaces and sub-surface deposits in these sections is currently unknown (Artefact 2013).

Blackwattle Bay Precinct

Development of Pyrmont and Ultimo has impacted upon much of the Aboriginal archaeological record. Rock faces and outcrops were quarried and the land was cleared and levelled for buildings, impacting upon the evidence of Aboriginal occupation in the Blackwattle Bay Precinct (Ross 1988 Fitzgerald & Golder 2009). Two sections of the Blackwattle Bay Precinct have been identified as being within the alignment of original landforms as well as being outside of margins of disturbance associated with quarrying and other deep subsurface impacts. These sections are located in the northeast corner and along the eastern margin of the Blackwattle Bay Precinct.

White Bay Power Station Precinct

Disturbance within the White Bay Power Station Precinct can be broadly divided into thirds. The southeast third of the White Bay Power Station Precinct comprises reclaimed land and is introduced fill. It is an artificial landform.

The southwest third of the White Bay Power Station Precinct has been cleared of vegetation and has been partially landscaped, initially for residential housing and later for the White Bay Power Station. Despite the disturbance and modification associated with these phases of development, the southwest third of the White Bay Power Station Precinct may retain pockets of intact sub surface deposits.

The northern section of the White Bay Power Station Precinct, while also having been subject to some modification and disturbance associated with the construction of residential structures, may retain intact subsurface deposits. Residential structures commonly do not require deep subsurface disturbances. Furthermore, there is evidence of early European developments having been built over rubble of previous structures and layers of fill, effectively capping any Aboriginal archaeological deposits (AHMS 2007). The northern section of the White Bay Power Station Precinct is situated within the landform of the original shoreline. This landform context, combined with the likely lack of deep subsurface disturbance, indicates that the northern section of the White Bay Power Station Precinct may retain intact subsurface deposits.

Rozelle Bay Precinct

The original sandstone formation that once rose up to the northwest of the Rozelle Bay Precinct has been cut through and levelled. Introduced fill has been used reinforce the modern shoreline and create wharfage across the northern and north-eastern sections of the Rozelle Bay Precinct. However, this fill covers original landforms that were tidal mudflat and swampland (Birch 2007)

The western section of the Rozelle Bay Precinct, including Bicentennial Park, has also been subject to land reclamation activities (Birch 2007) (Figure 2 and Figure 3). However, as with the northern margins of Rozelle Bay, introduced fill may cover existing landforms and the nature and extent of remnant deposits cannot be determined without subsurface investigation.

Glebe Island Precinct

This study has identified that the central and south-western portions of the Glebe Island Precinct align with the original landform of Glebe Island. This area has been subject to modification associated with the levelling and quarrying of Glebe Island (Irving 2006). However, the nature and extent of the impact of these activities cannot be determined without subsurface investigation.

The northern and eastern shoreline of Glebe Island is artificial for a margin of approximately 50 to 200 metres in different areas. This margin consists of introduced fill.

White Bay Precinct

The White Bay Precinct predominately comprises reclaimed land, an artificial sea wall infilled with introduced material (Irving 2006). The artificial shoreline extends from 30 metres to 170 metres from the original shoreline in places.

The north and north-eastern margins of the White Bay Precinct exhibit some potential for intact subsurface deposits where parkland and residential structures are currently situated. Residential structures commonly do not require deep subsurface disturbances. Furthermore, there is previous evidence of early European developments having been built over rubble of previous structures and layers of fill, effectively capping any Aboriginal archaeological deposits (AHMS 2007). The northern section of the White Bay Precinct is situated within the landform of the original shoreline. This landform context, combined with the likely lack of deep subsurface disturbance, indicates that the northern section of the White Bay Precinct may retain intact subsurface deposits.

Wentworth Park Precinct

A large portion of the Wentworth Park Precinct is occupied by Wentworth Park itself, and as such is reclaimed land. Unlike reclaimed land where artificial landforms have been constructed with introduced fill and sea walls, Wentworth Park consists of fill over original swampland. Subsurface deposits of the original Blackwattle Swamp may remain beneath the layers of silt fill.

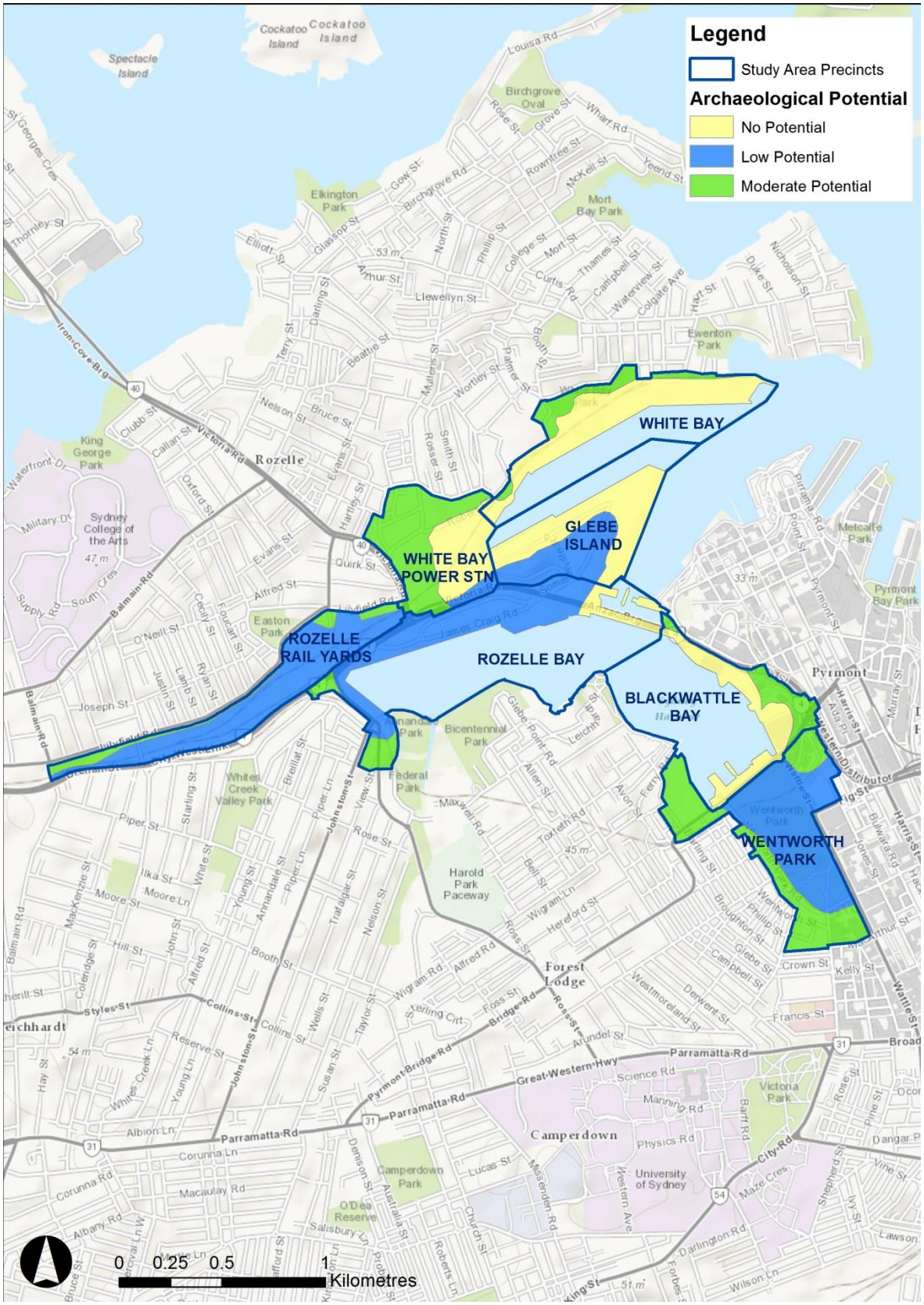
The margins to the west and south of Wentworth Park exhibit evidence of infilling, however the extent of infilling in these sections is likely to have been less than that which covers Wentworth Park. Site survey identified that the terrain rises to the south and west of Wentworth Park, indicating that these areas may approximate the natural landform and therefore may be less modified and disturbed than the Wentworth Park area.

Site survey identified remnants outcrops of sandstone in the northeast corner of the Wentworth Park Precinct. These sandstone outcrops exhibit evidence of cutting (Plate 14). The upper surfaces of the outcrops were not able to be investigated due to vegetation cover and their location within an active construction site. The northeast corner may represent the original landform as the area approximates the natural shoreline and is outside of the site of sandstone quarrying activity (Irving 2006).

7.3 Archaeological Potential

The archaeological potential of the study area is detailed in Figure 13 and discussed by individual Precinct below.

Figure 13: Bays Precinct study area map of archaeological potential



Rozelle Rail Yards Precinct

No archaeological potential

No areas exhibiting no archaeological potential were identified within the Rozelle Rail Yards Precinct.

Low archaeological potential

The ground surface throughout the majority of the Rozelle Rail Yards Precinct has been subject to major disturbance through cutting, filling, levelling and other construction activities. This area has been assessed as having a low potential to retain Aboriginal archaeological material (Figure 14)

The eastern half of the Rozelle Rail Yards Precinct was infilled as part of a process of land reclamation that was undertaken from 1895 to 1905. This area was originally part of the rocky water front along Rozelle Bay, including the swamp associated with the estuary of Whites Creek. It is likely that the area would have been utilised by Aboriginal people for resource gathering. However, it is unlikely that Aboriginal people would have established long-term occupation sites on land that was swampy and subject to frequent inundation. This area therefore has a low potential to yield Aboriginal archaeological material.

Moderate archaeological potential

Portions of outcropping sandstone are present along the northern edge of the Rozelle Rail Yards Precinct, and also at the north-western and north-eastern ends of the Precinct. Industrial/commercial buildings and houses are built directly on the sandstone platforms at the eastern end of the Rozelle Rail Yards Precinct. Levels of disturbance to the platform surfaces and to sub-surface deposits in these areas are currently unknown. Rock shelters, middens and art sites have been previously recorded in the vicinity of the Rozelle Rail Yards Precinct. A previously recorded shelter with associated midden is located just 20 metres to the north of the study area, beneath a house on the north side of Lilyfield Road. The elevated location along a sandstone ridge above nearby water and food sources, and the presence of suitable shelter, would have made this area well-suited to occupation by Aboriginal people.

A 19th century hotel is located within the Rozelle Rail Yards Precinct, at the corner of Gordon Street and Lilyfield Road. The hotel is positioned along a moderate south-facing slope, on what originally would have been an elevated location above the bay. The landform context would have been optimal for Aboriginal occupation and outcropping sandstone was evident nearby. As such, this area was designated as having a moderate archaeological potential.

It is possible that intact landforms and subsurface deposits may remain underneath vegetation and residential/commercial structures in the areas highlighted in Plate 1. These areas are therefore assessed as exhibiting moderate archaeological potential.

Figure 14: Rozelle Rail Yards Precinct map of archaeological potential

Blackwattle Bay Precinct

No archaeological potential

Three areas were assessed as having no archaeological potential within the Blackwattle Bay Precinct (Figure 15). The first section is a margin of approximately 30 metres between the Western Distributor Freeway and the eastern shoreline of Blackwattle Bay represents an artificial landform created though reclamation activities. The second section of no archaeological potential is located partially across the Sydney Fish Markets site. This section has similarly been created through land reclamation activities and is an artificial landform. The third section includes the car park and wharves at 100 Bridge Road, Ultimo, along the south-eastern shoreline of Blackwattle Bay These wharves have also been identified as the product of land reclamation activities.

Low archaeological potential

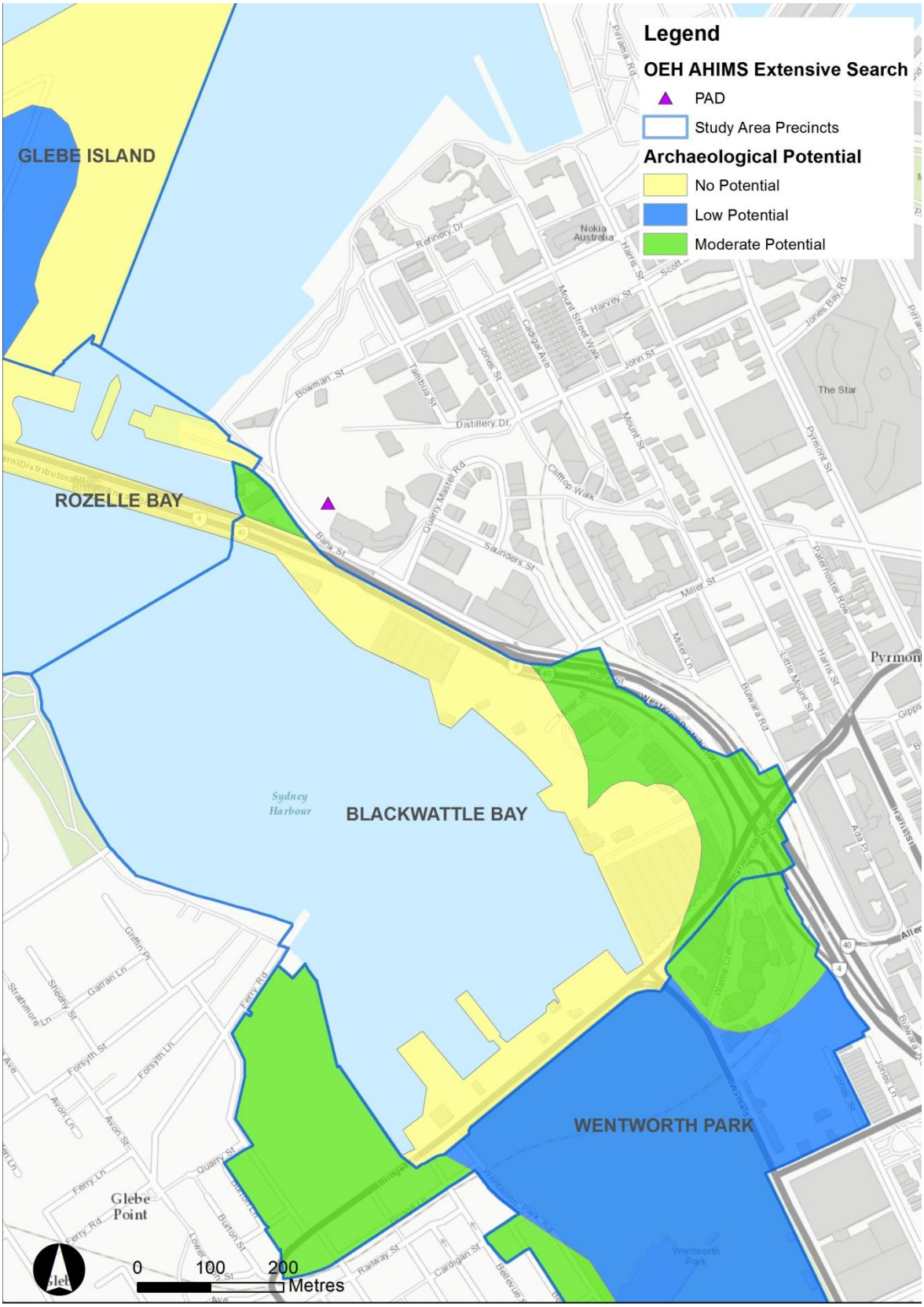
No areas of low archaeological potential were identified within the Blackwattle Bay Precinct.

Moderate archaeological potential

Two areas of moderate archaeological potential were identified within the Blackwattle Bay Precinct. The first is a small corner in the northeast of the Precinct, bordered by Bank Street to the east, the Western Distributor Freeway to the south and Blackwattle Bay to the west. This corner has been subject to disturbance and modification on its margins associated with the construction of Glebe Island Bridge and Anzac Bridge. However, the extent of modification in the area is unable to be determined without subsurface investigations. Furthermore, this area is situated within an original landform.

The second area of moderate archaeological potential is situated approximately across the site of the Sydney Fish Markets car park (Figure 15). This area has been identified as within an original landform and is outside of the impact zone associated with quarrying activity. This area would also have been an attractive occupation site for Aboriginal people as it on a moderately sloping sandstone ridge and near to drainage lines and estuarine coastal resources. Fill and rubble has been identified in the upper layers of the deposits (Plate 3), however, the presence or absence of intact deposits beneath this fill is unable to be determined without further investigation As such, this area has been assessed as having moderate archaeological potential.

Figure 15: Blackwattle Bay Precinct map of archaeological potential



White Bay Power Station Precinct

No archaeological potential

The southeast third of the White Bay Power Station Precinct comprises reclaimed land and is introduced fill. It is an artificially constructed landform. The southeast third of the White Bay Power Station Precinct is therefore assessed as having no archaeological potential (Figure 16).

Low archaeological potential

No areas of low archaeological potential were identified within the White Bay Power Station Precinct.

Moderate archaeological potential

Two sections of the White Bay Power Station Precinct were identified as having moderate archaeological potential. The southwest third of the White Bay Power Station Precinct has been cleared of vegetation and has been partially landscaped, initially for residential housing and later for the White Bay Power Station (Figure 16). The northern third of the Precinct features a mixture of residential and commercial/ industrial structures. Residential structures commonly do not require deep subsurface excavations. Furthermore, there is evidence of early European developments having been built over rubble of previous structures and layers of fill, effectively capping any Aboriginal archaeological deposits (AHMS 2007).

Furthermore, both the northern third and the southwest third of the White Bay Power Station Precinct are situated within the landform of the original shoreline. The original landform would have been rocky hills, close to freshwater and coastal recourses, making it an optimal site for Aboriginal occupation.

The landform context, combined with the likely lack of deep subsurface disturbance, indicates that these sections may retain intact subsurface deposits. As such, both the southwest and northern thirds of the White Bay Power Station Precinct have been assessed as having moderate archaeological potential.

Figure 16: White Bay Power Station Precinct map of archaeological potential

Rozelle Bay Precinct

No archaeological potential

A small portion in the northeast corner of the Rozelle Bay Precinct has been identified as having no archaeological potential (Figure 17). This area is part of the land reclamation that was undertaken along the eastern margin of Glebe Island. As such, this is an artificial landform and exhibits no archaeological potential.

Low archaeological potential

The majority of the Rozelle Bay Precinct has been assessed as having low archaeological potential. The northern margin of Rozelle Bay (approximately 120 metres wide) and the western margin of Rozelle Bay (approximately 30 metres wide) have been subject to land reclamation activities (Figure 17). However, unlike land reclamation works where land has been entirely reclaimed from the harbour and an artificial landform has been constructed, these sections of Rozelle Bay were originally tidal mudflats and low-lying estuarine environments. Subsurface deposits of the original landforms may remain beneath the layers of fill. These environments would not have been optimal for Aboriginal occupation, but may still have been utilised. As such, this area has been assessed as having low archaeological potential.

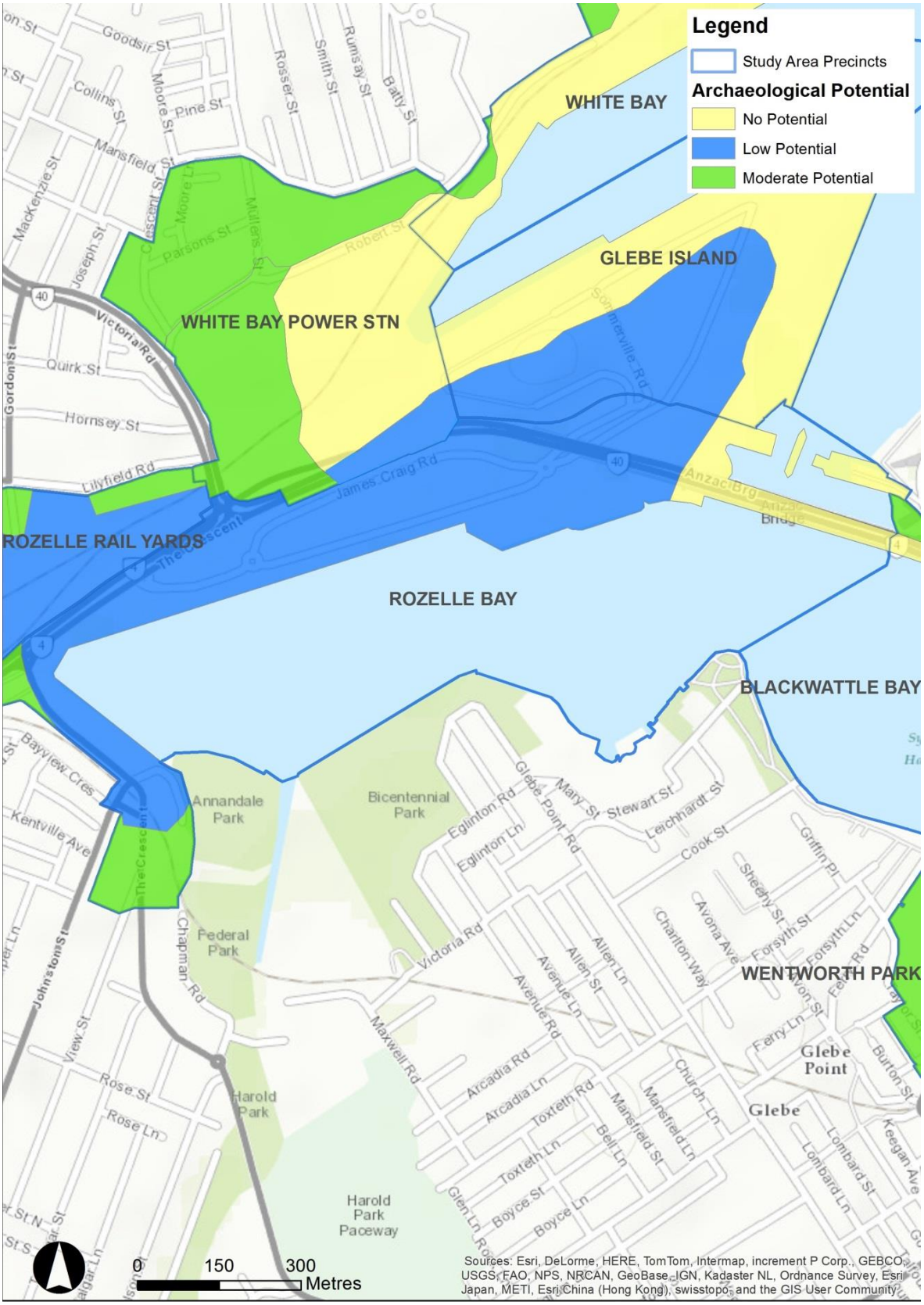
Moderate archaeological potential

Two small sections in the northwest and southwest corners of the Rozelle Bay Precinct were identified as having moderate archaeological potential. An approximately 10 metre by 100 metre section in the north-western corner of the Precinct sits upon the margins of land reclamation. However, site survey identified that the terrain rises in this corner and may approximate the natural landform.

The section in the southwest is partially occupied by Bicentennial Park and residential structures. This section is also within the original landform and while it has been subject to some modification and disturbance associated with development and land reclamation, the extent cannot be determined without further investigation.

As intact subsurface deposits may remain in both areas, they have been assessed as moderate archaeological potential (Figure 17).

Figure 17: Rozelle Bay Precinct map of archaeological potential



Glebe Island Precinct

No archaeological potential

The northern and eastern shorelines of Glebe Island are an artificial landform and consist of introduced fill. These margins are approximately 50 to 200 metres in different areas. The northern and eastern margins of Glebe Island are assessed as having no archaeological potential (Figure 18).

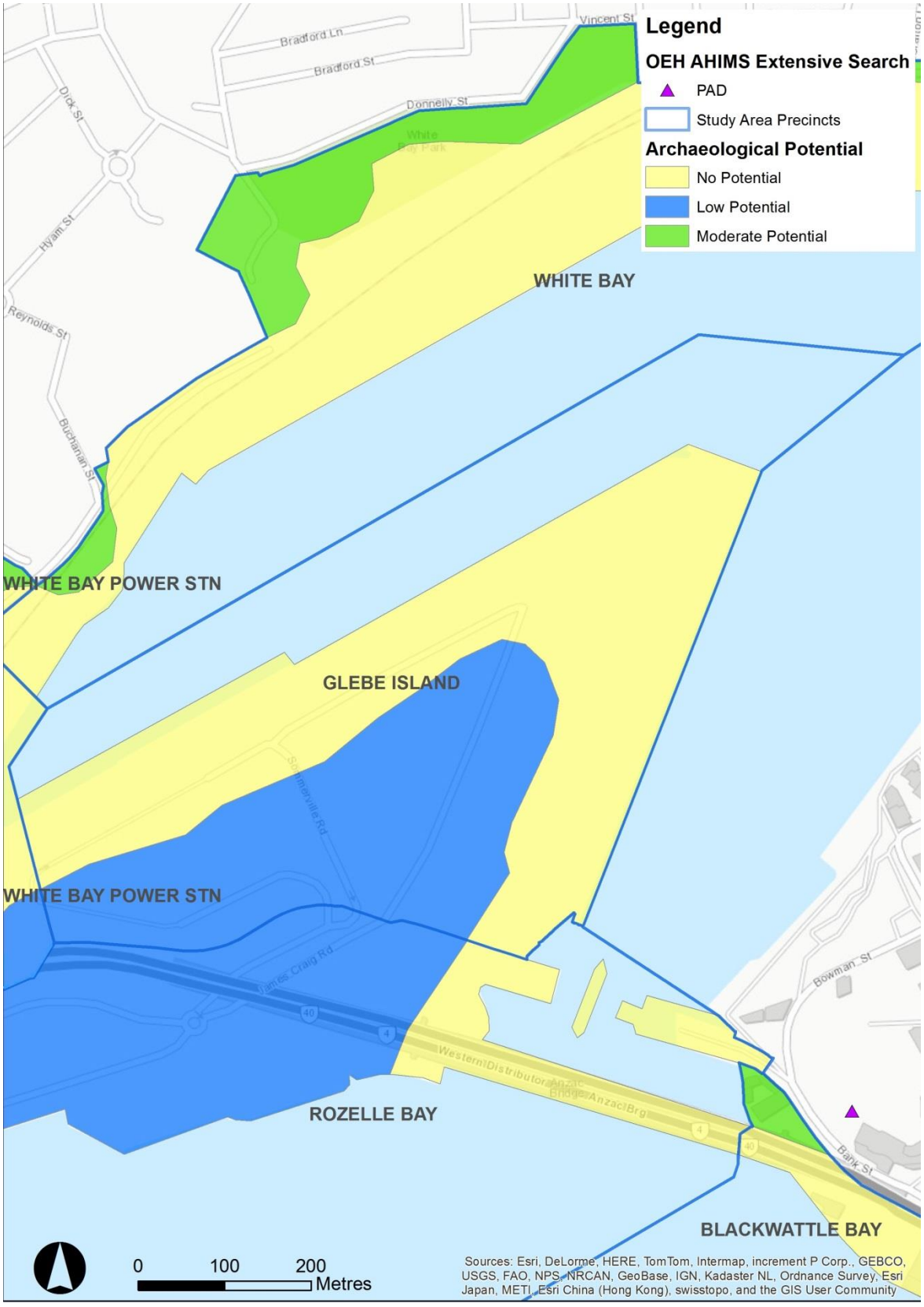
Low archaeological potential

This study has identified one area of low archaeological potential within the Glebe Island Precinct The centre of Glebe Island, despite evidence of some quarrying and infilling (Irving 2006) cannot be designated as void of archaeological potential as intact subsurface deposits may remain. The central portion of Glebe Island is therefore classified as having a low archaeological potential (Figure 18).

Moderate archaeological potential

No areas of moderate archaeological potential were identified within the Glebe Island Precinct.

Figure 18:Glebe Island Precinct map of archaeological potential



White Bay Precinct

No archaeological potential

The majority of the White Bay Precinct has been assessed as having no archaeological potential (Figure 19). This area follows the shoreline, extending from the eastern corner of the Precinct to the western corner in a margin ranging from 30 to 170 metres. It has been identified as the product of extensive land reclamation and is an artificial landform.

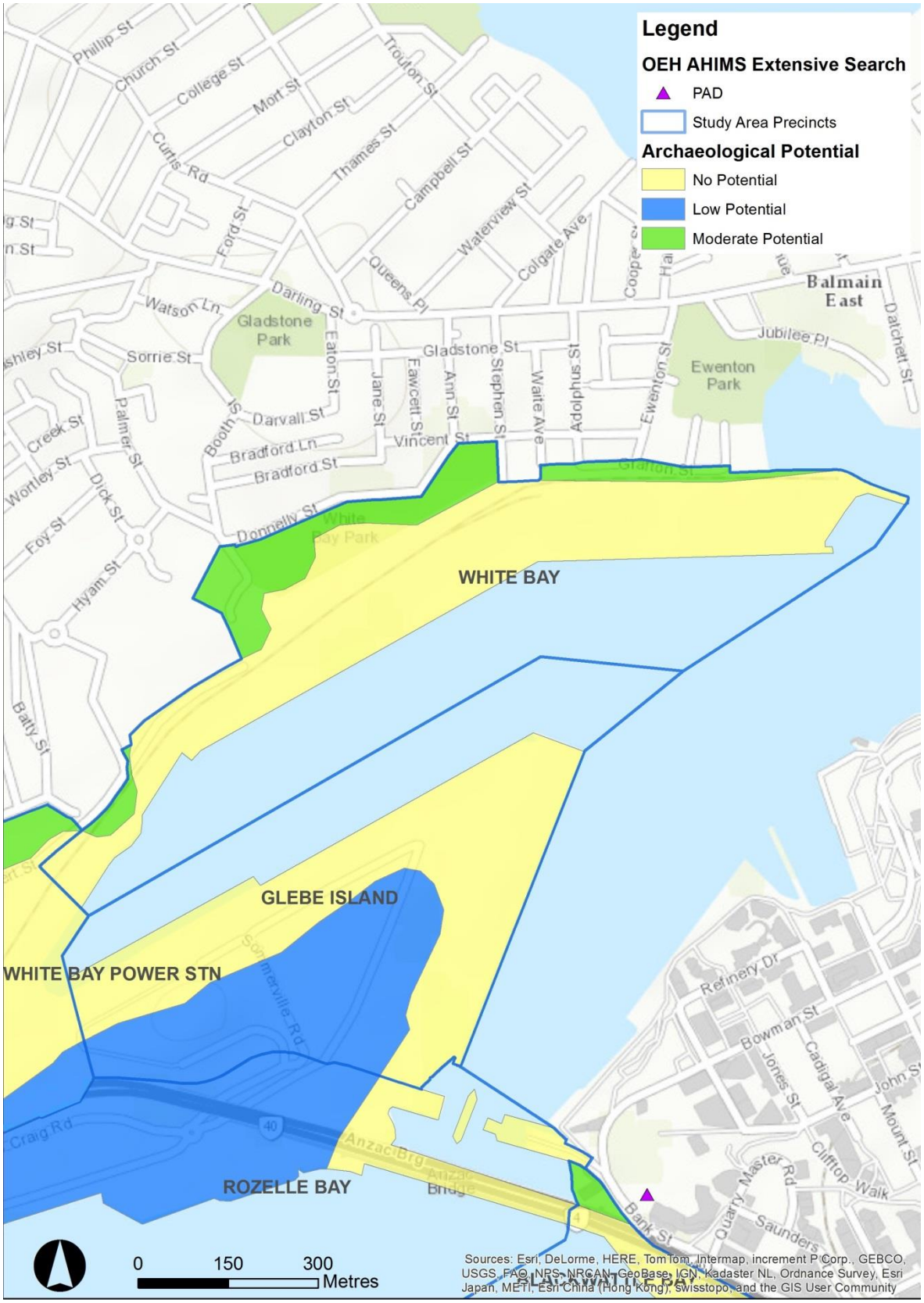
Low archaeological potential

No areas of low archaeological potential have been identified within the White Bay Precinct.

Moderate archaeological potential

Three small areas of moderate archaeological potential have been identified within the White Bay Precinct. These areas are located near the northwest corner and along the northern margins of the Precinct (Figure 19). All three areas are parkland bordered by residential structures. These areas would have been optimal occupation sites for Aboriginal people, situated on raised terrain in close proximity to freshwater coastal and estuarine resources. Both the landform context and the lack of identifiable deep subsurface impacts in these areas indicate that they have a moderate archaeological potential.

Figure 19: White Bay Precinct map of archaeological potential



Wentworth Park Precinct

No archaeological potential

No areas of no archaeological potential were identified within the Wentworth Park Precinct.

Low archaeological potential

One area of low archaeological potential has been identified within the Wentworth Park Precinct. This area covers the majority of Wentworth Park and was originally swampland (Birch 2007). Land reclamation has constructed the modern terrain. However, this study has identified that subsurface deposits of the original Blackwattle Swamp may remain beneath the layers of silt fill and areas impacted by historical development such as the abattoirs. This low-lying swampland would not have been ideal for Aboriginal occupation, although it may have been utilised for resources. Previous excavations in the area have indicated that where intact deposits occur, they may be impacted by disturbance and poor drainage (Steele & Czastka 2003). This area has therefore been assessed as having a low archaeological potential.

Moderate archaeological potential

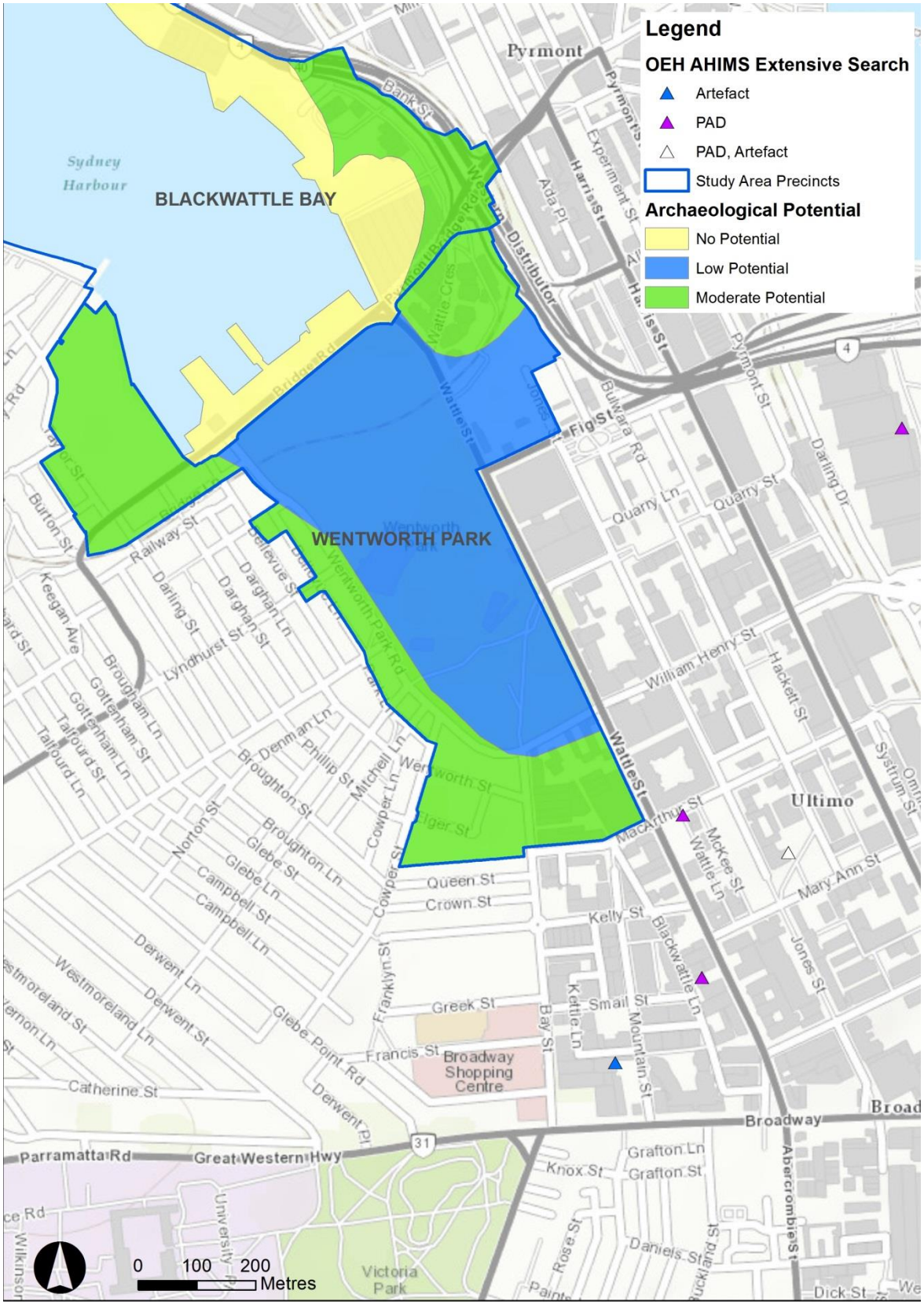
Three areas have been assessed as having moderate archaeological potential within the Wentworth Park Precinct.

The first area extends approximately from Pyrmont Bridge Road to the south of the alignment of the Dulwich Hill line of the Sydney Light Rail. This area approximates the original landform (it is an extension of the area of moderate archaeological potential located within the Blackwattle Bay Precinct). Furthermore, remnant outcrops of sandstone were identified within this area (Plate 14).

The second and third areas of moderate potential include the margins to the west and south of Wentworth Park, as well as the far western corner of the Precinct. These areas exhibit evidence of infilling, however the extent of fill in these sections is likely to have been less than that which covers Wentworth Park. Site survey identified that the terrain rises to the south and west of Wentworth Park, indicating that these areas may approximate the natural landform and therefore may be less modified and disturbed than the Wentworth Park area.

These areas may not have been optimal environments for occupation as they are low-lying swampland. However, they are immediately adjacent to land Blackwattle Creek an important freshwater resource. The potential for intact subsurface deposits to remain in these areas, coupled with the archaeological significance any find may have, contribute to the assessment of these areas as having moderate archaeological potential.

Figure 20: Wentworth Park Precinct map of archaeological potential



8.0 Conclusion and Recommendations

No previously recorded Aboriginal sites were located within the study area. No previously unrecorded Aboriginal sites were detected during the field survey.

The study area has been subject to extensive modification and disturbance since the arrival of Europeans. Development in the study area has greatly impacted the potential for Aboriginal archaeological material to have survived intact in subsurface deposits, although some section of the study area have the potential to retain intact buried archaeological deposits, or obscured sandstone outcrops that have the may contain cultural markings.

Large portions of the study area have been designated as having no archaeological potential. These sections are artificial landforms, constructed as part of land reclamation activities that have been undertaken throughout the study area. Large portions of the study area were assessed as having low archaeological potential. These areas may retain some dispersed subsurface deposits, but such deposits are unlikely to be intact and/or the landform context indicates that these areas would have been unsuitable for Aboriginal occupation. Several smaller sections of the study area were identified as having moderate archaeological potential. In these sections, the existence of intact subsurface deposits is unable to be proven without further investigation. However, archival research indicates that relatively little subsurface impacts have taken place and landform context indicates that these areas would have been suitable for Aboriginal occupation. No areas of high archaeological potential were identified by this study.

As there are no recorded Aboriginal sites within the study area, recommendations on appropriate management and mitigation measures are based on the assessment of archaeological potential.

As this is a high level constraints analysis the management and mitigation measures recommend are general and will apply to all areas designated under each level of potential. There are also a number of management and mitigation measures that apply to the study area as a whole in the context of its future development.

In general the following management and mitigation measures should be implemented:

- Aboriginal consultation with the local Aboriginal community should be undertaken as part of the Master Planning process. The Aboriginal community would advise on the cultural significance of the study area. This advice should be taken into account during all stages of the planning process.
- Aboriginal heritage should be included in the Interpretation Strategy for the Master Plan and the Aboriginal community should be consulted during its development.
- Recorded Aboriginal sites in the vicinity of the study area as identified in this report should not be directly impacted and any indirect impacts to these sites should be avoided.

In addition, the following management and mitigation measures should be implemented for areas designated under the three levels of archaeological potential.

- **No archaeological potential** – There are no Aboriginal heritage constraints on areas designated as having no Aboriginal archaeological potential. No further Aboriginal heritage investigation would be required within these areas prior to development.
- **Low archaeological potential** – There are no Aboriginal heritage constraints on areas designated as having low Aboriginal archaeological potential. No further Aboriginal heritage investigation would be required within these areas. If unforseen Aboriginal objects are uncovered during development, work must cease and an archaeologist, the OEH, and the LALC should be informed. If suspected human remains are found, work should cease, the site should be secured and the NSW Police and the OEH should be notified. It is an offence under the *National Parks and Wildlife Act 1974* (as amended 2010) to disturb or destroy an Aboriginal object.
- **Moderate archaeological potential** – If impacts are proposed within areas of moderate archaeological potential further investigation would be required. In accordance with the OEH Code of Practice, an Archaeological Impact Assessment should be prepared which would include a detailed assessment of archaeological potential, an impact assessment and consultation with the LALC. The Archaeological Impact Assessment would make recommendations on whether further investigation such as subsurface archaeological testing, clearing and monitoring of sandstone platforms, or geotechnical testing were required to assess levels of archaeological significance. If these further investigations located Aboriginal objects an Aboriginal Heritage Impact Permit (AHIP) would be required prior to impacts occurring.

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Project Gutenberg Australia http://gutenberg.net.au/mapsandcharts-land.html

Wentworth Park Games History http://www.wentworthparkgames.org.au/history.html

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