

Central Barangaroo Archaeological Research Design & Methodology

SSD-39587022 Early Works Stage 1
Volume 1

Prepared by AMBS Ecology & Heritage
for Aqualand

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Appendices (Volume 2)

1 Introduction

AMBS Ecology & Heritage (AMBS) has been engaged by Aqualand to complete an Archaeological Research Design and Methodology (ARDM) for the proposed early works at Central Barangaroo.

The Early Works EWDA-1 EIS (SSD 39587022) states the following scope:

- Broadly, the proposed development is seeking consent for:
 - Partial demolition of an existing shoring wall capping beam along Hickson Road;
 - Construction of a new secant pile retention wall (approx. 150m long);
 - Excavation of land related to construction of the secant pile retention wall;
 - Localised remediation related to the secant pile retention wall;
 - Associated Archaeological Investigations in the area of excavation and works;
 - Sydney Metro / Hickson Road interfaces – perimeter retention wall interface works, and Hickson Road public domain interface works; and
 - Relocation of stormwater and other services to enable the permanent works outlined above.

These early works are to support the future mixed-use development proposed for the site. They will be followed by additional site preparation works including a larger perimeter retention wall, bulk excavation and remediation program (Stage 2, SSD 46922214, on public exhibition June 2025).

This ARDM has been prepared to guide initial archaeological test investigations based on the Consent Conditions and advice received at the meeting held with HNSW and DPPI on 13 May 2025. It will be updated or superseded by a second ARDM, based on the results of the archaeological testing program to manage the terrestrial and maritime archaeological requirements for the Stage 2 Early Works and remainder of the project.

1.1 Study area

The study area is legally identified as part of Lot 52 DP 1301725, in the City of Sydney Local Government Area (LGA) (Figure 1.1). The site is bounded by Barangaroo Reserve and Nawi Cove to the north, Hickson Road to the east, Barton Street and Hickson Park to the south, and the waters of Darling Harbour to the west.

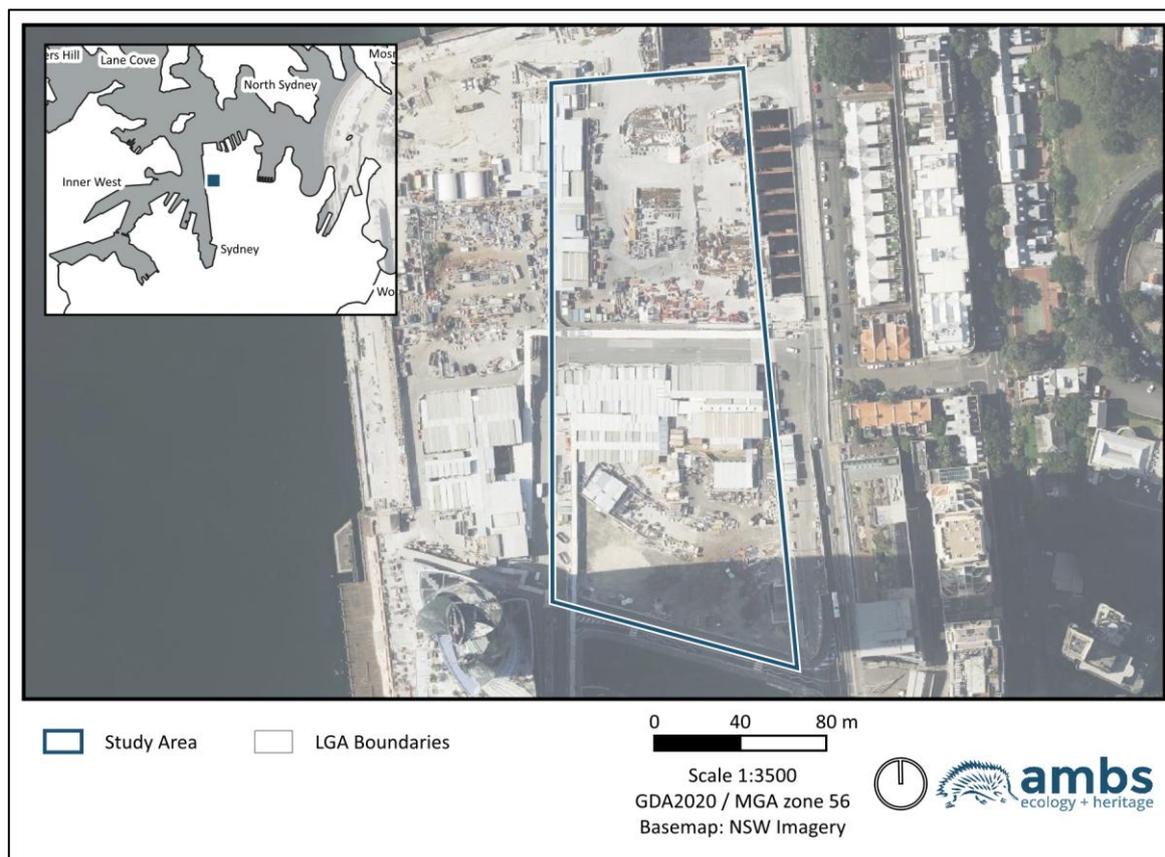


Figure 1.1 Location of the study area.

1.2 Methodology

This report is consistent with the principles and guidelines of the *Burra Charter: The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance 2013* (Burra Charter) (Australia ICOMOS, 2013). The report has been prepared in accordance with current best practice guidelines as identified in the *NSW Heritage Manual* (Heritage Office and DUAP, 1996b) and associated publications including:

- *Archaeological Assessments Guidelines* (Heritage Office and DUAP, 1996a).
- *Assessing heritage significance* (Department of Planning and Environment, 2023a).
- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch, 2009).
- *Guidelines for preparing a statement of heritage impact* (Department of Planning and Environment, 2023b).
- *Investigating heritage significance* (Heritage NSW, 2021).

This ARDM aims to summarise the history and assessed potential and significance of the study area, as presented in previous reports, and provide a comprehensive testing design and methodologies for preliminary archaeological excavations at the site. It draws on background research from:

- Mountains Heritage (2023) *Barangaroo Central: Maritime Archaeological Assessment*. Consultancy report prepared for Urbis Pty Ltd, September 2023.
- Urbis (2022a) *Heritage Impact Statement, State Significant Development Application: 'Central Barangaroo Early Works- Hickson Road Interface'*. Consultancy report prepared for Aqualand B development Holding Pty Ltd (Aqualand) August 2022.

- Urbis (2022b) *Historical Archaeological Assessment, Barangaroo Central, Hickson Road, Barangaroo, Gadigal Country*. Consultancy report prepared for Aqualand Pty Ltd, July 2022.
- Casey & Lowe (2022a) *Barangaroo South, Barangaroo, Archaeological Investigation, Volumes 1-6, Final Report*. Consultancy report prepared for Lendlease (Millers Point) Pty. Ltd, July 2022.
- Casey & Lowe (2022b) *Archaeological Investigation Report, Volumes 1-8, Draft Final Report, Sydney Metro City and Southwest TSE Works, Barangaroo Station*. Consultancy report prepared for Sydney Metro, July 2022.
- GML Heritage (2021) *Central Barangaroo Modification 9 Application, Heritage Assessment and Impact Statement*. Consultancy report for Infrastructure NSW, November 2021.
- Casey & Lowe (2014) *Draft Update 4, Heritage Impact Statement, SSD 6533-2014 Remediation Development Application EPA Declaration Area 21122, Non-Indigenous Archaeology, Block 5, Barangaroo Central*. Consultancy report to Lend Lease Millers Point, June 2014.
- GML Heritage (2012) *Barangaroo Central Waterfront Promenade and interim Public Domain - Archaeological Assessment*. Consultancy report prepared for Boulderstone, October 2012.
- Austral Archaeology (2010) *Barangaroo Archaeological Assessment and Management Plan*. Consultancy report prepared for Barangaroo Delivery Authority, June 2010.

1.3 Authorship

This report has been prepared by Rhian Jones, AMBS Senior Historic Heritage Consultant and Ronan Mc Eleney, AMBS Senior Heritage Consultant. Survey data and mapping was provided by Guy Hazell, ArcSurv, GIS mapping was prepared by Madeline Rodwell, AMBS Project Manager. Chris Lewczak, Principal Maritime Archaeologist - MTS Heritage, and Lian Ramage, AMBS Team Leader, have provided technical input and reviewed this report.

1.4 Limitations

There were no particular limitations on the production of this report. While the Development Approvals pathway for the project is staged, the archaeological testing program has been designed holistically to cover the entirety of the project area, while still prioritising results from the eastern site boundary that will be impacted by the secant pile wall to be installed under the Early Works Stage 1 DA (SSD-39587022). Reporting relating to the extent and location of the remediation works carried out in the southeast corner of the project area was not available for review as part of the preparation of this ARDM, however impacts to the archaeological resource in this part of the site from these works are likely to have been severe.

This ARDM covers the historical archaeological resource of the site, and is designed to be read alongside the Maritime ARDM (MARDM) titled *Barangaroo Central Early Works Stage 1 – Maritime Archaeological Research Design and Methodology 2025* prepared by MTS Heritage and reproduced as Appendix A to this report. While there is some repetition of information across both reports, HNSW has advised that the methodologies for the investigation of the maritime archaeological resource be prepared by a suitably qualified maritime archaeologist. Both terrestrial/historical archaeological remains and maritime remains will be investigated under the same testing program, with the preliminary testing results presented together as one brief report.

1.5 Terms & abbreviations

The definitions of any abbreviations or specific terms used in the body of this report are provided in Table 1.1.

Table 1.1 Terms and abbreviations.

Term / abbreviation	Term
AGL	Australian Gas Light [Company]
AMBS	AMBS Ecology & Heritage
ARDM	Archaeological Research Design and Methodology
Burra Charter	<i>The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013</i>
CoS	City of Sydney [Council]
DA	Development Applications
DCC	Development Consent Conditions
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPI	Environmental Planning Instrument
EWDA	Early Works DA
HAA	Historical Archaeological Assessment
Heritage Act	<i>Heritage Act 1977</i>
Heritage Council	Heritage Council of New South Wales
HNSW	Heritage NSW, Environment and Heritage, Department of Climate Change, Energy, the Environment and Water
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
LGA	Local Government Area
MAA	Maritime Archaeological Assessment
MARDM	Maritime Archaeological Research Design and Methodology
MHNSW	Museums of History NSW (formerly NSW State Archives and Historic Houses Trust)
MTS Heritage	Mountains To Sea Heritage (also Mountains Heritage)
NSW	New South Wales
S170 Register	Section 170 Heritage and Conservation Register
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SSD	State Significant Development

2 Statutory context

The conservation and management of heritage items, places, and archaeological sites takes place within the framework of relevant Commonwealth, State, and local government legislation. Non-statutory heritage lists and registers, ethical charters, conservation policies, and community attitudes and expectations can also have an impact on the management, use, and development of heritage items.

2.1 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) provides protection for heritage places, buildings, works, relics, moveable objects, precincts and archaeological sites that are important to the people of NSW. These include items of Aboriginal and non-Aboriginal (historic) heritage significance. Where these items have particular importance to the people of NSW, they are listed on the State Heritage Register (SHR).

The Heritage Act also provides protection for significant archaeological remains or ‘relics’, which are defined in the Act as:

- any deposit, artefact, object or material evidence that—*
- (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
 - (b) is of State or local heritage significance.*

Sections 139 to 146, Divisions 8 and 9 of Part 6 of the Heritage Act refer to the requirement that excavation or disturbance of land that is likely to contain, or is believed may contain, archaeological relics is undertaken in accordance with an excavation permit issued by the Heritage Council (or in accordance with a gazetted exception under Section 139(4) of the Heritage Act). In particular Section 139 refers to the need for a permit in certain circumstances:

- (1) A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.*
- (2) A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.*

2.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the main act regulating land use planning and development in NSW. The EP&A Act also controls the making of environmental planning instruments (EPIs). Two types of EPIs can be made: LEPs covering local government areas; and State Environment Planning Policies (SEPPs), covering areas of State or regional environmental planning significance. LEPs commonly identify, and have provisions for, the protection of local heritage items and heritage conservation areas.

The EP&A Act also requires consideration to be given to environmental impacts as part of the land use planning process. In NSW, environmental impacts include cultural heritage impacts and as such any required Review of Environmental Factors, Environmental Impact Statement, or Environmental Impact Assessment should incorporate an assessment of European heritage. The consent authority is required to consider the impact on all heritage values.

2.3 Summary of heritage listed items

There are no listed State or local heritage items within the Central Barangaroo study area. The site is located in close proximity to the western edge of the Millers Point & Dawes Point Village Precinct (SHR 01682) and Millers Point/Dawes Point Conservation Area (SHR 00884, see also 2012 Sydney LEP Conservation Area CA35) which are assessed as having State significance (Figure 2.1). It is also in close proximity to Dalgety’s Bond Stores, Munn’s slipway and Sewerage Pumping Station No.14, which are listed on the Infrastructure NSW S170 Heritage and Conservation Register as having local significance (Figure 2.2).

For further discussion of the adjacent heritage items, including individual listings for specific addresses within the Millers Point and Dawes Point Conservation Areas, see GML 2021 Section 6.3, 6.4 and 6.5: 63-101, and Urbis 2022a Section 4.2: 35-40.

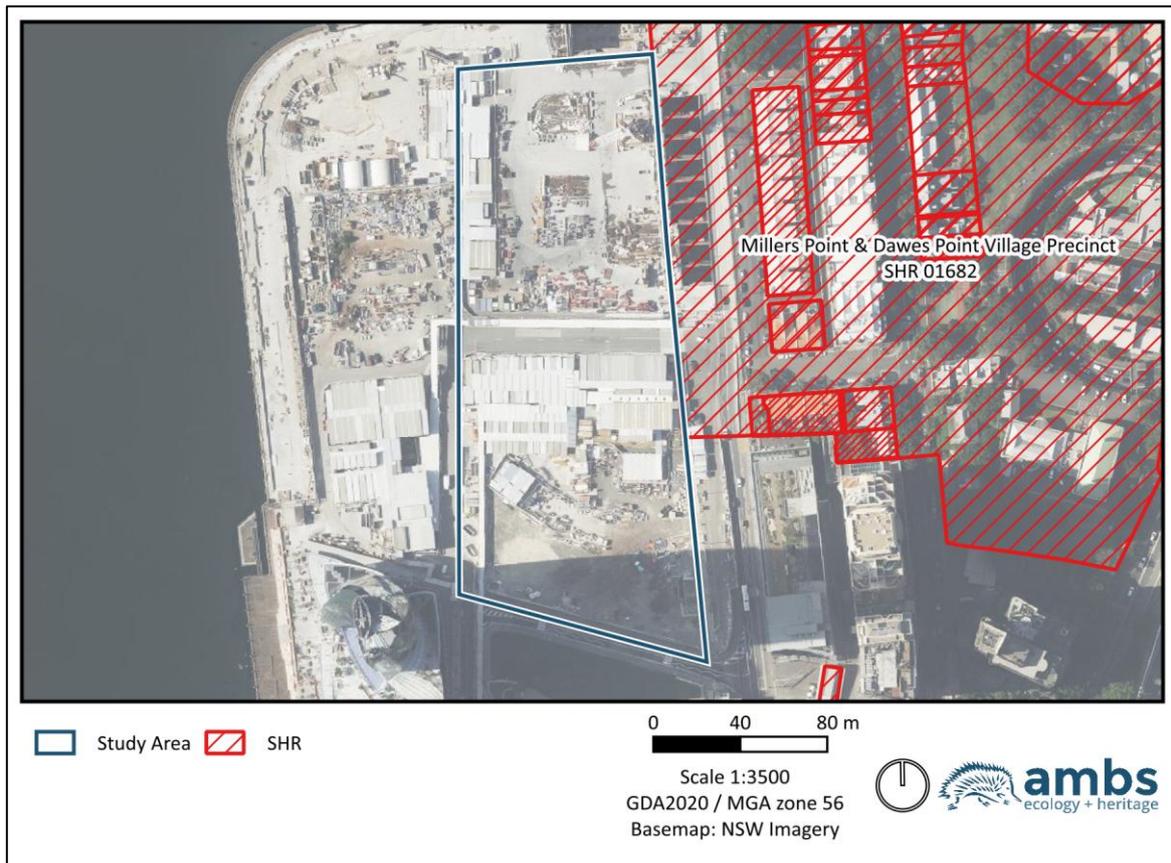


Figure 2.1 Plan showing location of study area in relation to the State significant Millers Point & Dawes Point Village Precinct (SHR 01682).



Figure 2.2 Plan showing the study area in relation to heritage items of local significance and conservation area as listed on the 2012 City of Sydney LEP.

3 Historic context

The history of the site has been well-researched and presented in a number of previous reports. It is not the intent for this ARDM to reproduce large amounts of text, but to focus on analysis of plans that have not been included in previous reports, and preliminary additional historical research to refine key events and dates relevant to the properties in the central and southeastern portions of the Project Area that will be the main target of the proposed archaeological testing. The following analysis is confined to the central and southern portions of the Project Area; a comprehensive history of the northern portion has previously been prepared by Casey & Lowe (2017 and 2022) for the Barangaroo Metro Station redevelopment and a comprehensive history of the southern portion containing the AGL Gasworks property was produced by Casey & Lowe (2014) for SSD 6533-2014 Remediation Development Application EPA Declaration Area 21122.

The five phases of historical development discussed below have been adopted from the Urbis 2022 HAA and Mountains Heritage 2023 MAA, and may be subject to change in later documents to better reflect the surviving archaeological resource as it is uncovered.

3.1 Phase 1: Early European settlement (1788-1820s)

Darling Harbour saw little development in the early years of settlement due to the scarcity of fresh water and the rocky topography that separated it from Sydney Cove. The primary activities in this part of the harbour were gathering both fresh shellfish for food and discarded shells, mostly from Aboriginal middens, for the production of lime. The area became known as 'Cockle Bay' in 1804. In 1811 Governor Macquarie ordered the construction of the first wharf, Market Wharf, on the east side of the harbour. In 1826 Cockle Bay was renamed 'Darling Harbour' by Governor Darling (Ashton et al 2000, as in MTS Heritage 2023:15-16).

There are no known maritime infrastructure or other structures built on the site in this period. The nature of the harbour foreshore would have consisted of shallow sandy beach areas and rugged sandstone outcrops. The land within the Project Area appears to be particularly steep (see Figure 3.7 for evidence of rock or landslide in the central portion of the Project Area, albeit at a later date) which may have been the reason that it remained vacant while the adjoining foreshore of the Darling Harbour to the north and south were developed at this time.

3.2 Phase 2: Early Development (1820s-1870s)

From the 1830s onwards the properties in the Project Area started to be developed, with reclamation along the foreshore and construction of a potential stone wharf near the southeast corner of the site. The wharf was located on the northern boundary of Lot 1, Section 93, with one acre, two roods formerly granted to James Jenkins in 1834 (Gov. Gazette No.101 Wed 5 Feb 1834). At present, it is not known what the wharf was used for. An 1833 plan shows stone walls extended from Jenkin's property out into Darling Harbour, with a note stating there was an application to reclaim the land by the Australian Gas Light Company, and an amended application for a jetty on piles (note undated, but prior to 1855). James Jenkins was a former convict who operated a boat building business from the market wharf to the south of the subject area (Walsh 1969, as in Urbis 2022:13). By 1855 Jenkin's grant was owned by shipwrights Hely, Drake and Harper (SMH 1855), later operating as Hely and Harper constructed a floating dock in 1862 (Hobbs 2017:54, as in Urbis 2022:13).

The land to the north of Jenkin's property (Lot 2, Section 93) was owned by Edward Cureton, noted convict stonemason recorded as contracted to build the Macquarie Place obelisk and fountain. The 1828 census lists Cureton as a stonemason residing at Darling Harbour and he was formally granted one rood, 22 perches in 1834 (Gov. Gazette No.101 Wed 5 Feb 1834). A note on the 1833 plan

indicates Cureton was granted permission to extend his wharf in September 1849, and the first written references to his wharf are in 1849 and 1851 (NSW Government Gazette 1849, 1851, as in Urbis 2022:13), indicating that the construction and subsequent extension may have happened in quick succession. In the late 1850s through to the mid-1870s the wharf was known as Buckley's Wharf (SMH 2 July 1858:4, Figure 3.6). The land was sold in 1865 to Miller, who operated at the property as Miller's Boat Wharf (SMH 10 Feb 1866:1) or Miller's Boat-builder (SMH 16 May 1868:1), with advertising at the time suggesting small dinghies, waterman skiffs and pleasure boats were built and sold at the site (MTS Heritage 2023:18).

Adjoining Cureton's property to the north (Lot 3, Section 93) was land owned by Captain John Forster Church, commander of merchant vessels and surveyor to the 'Australian Marine' (meaning the Royal Navy Marines stationed in Australia) and Union Assurance Company (insurance company established in 1836). Neither Cureton or Forster Church appear to have reclaimed or developed the foreshore portions of their properties prior to 1833, although both lots are shown to contain large stone houses. John Forster Church died in 1844 and the property was occupied by his wife until her death in 1862 (NSW Government Gazette 17 June 1862, as in MTS Heritage 2023:18).

Thomas Agars constructed a sizeable wharf in the western part of Lot 4, Section 96 by 1833 (Figure 3.3) and by 1838 had a newly built 40-ton cutter moored at 'Agars Wharf' ready for auction (Figure 3.1). An import-export merchant, publican and local politician, Agars primarily operated out of a warehouse in Kent Street North, likely 105 Kent Street (Sydney Alderman website) using smaller vessels to transport goods from his Darling Harbour wharf to and from Sydney Cove (MTS Heritage 2023:20). An 1837 advertisement by Agars refers to his Kent St warehouse as 'opposite Trafalgar Terrace' and an 1855 plan identifies the wharf on his Darling Harbour property as 'Trafalgar Wharf' (Figure 3.4).

Agars died in 1852 although it is not known if his property was sold at that time. By 1858 a letter to the editor of the Sydney Morning Herald suggests that public baths have been built on Agars property:

'...by Mr Buckley of Kent-street North, immediately below the National School, who has erected two commodious and well-protected baths for the use of the public; the larger one for gentlemen, and the smaller for female.' (SMH 18 Feb 1859:3)

An 1860 death notice refers to a residence at 'Buckley's Baths, Darling Harbour' (SMH 17 Jul 1860:8, and an 1866 plan of Darling Harbour shows the location of Agars Wharf as 'Public Baths' (Figure 3.5). It appears that George Buckley was likely the owner of both Cureton and Agars Wharves, either simultaneously or successively between 1858 and 1866.

For Sale by Private Contract,
On the Wharf of Thomas Agars, Esquire,



THE HULL of a fine Vessel, upwards of 40 Tons per Builders measurement; all ready for launching, for strength and model not to be surpassed by any Vessel ever built in the Colony; well adapted for the Coal, Cedar, or Coasting Trade. For particulars enquire of G. Buddivent, Ship Builder, on the Premises, or W. Amner, Shipwright's Arms, Prince-street.

Figure 3.1 Advertisement referencing Agars Wharf, *Commercial Journal and Advertiser*, Wed 24 October 1838:1.

THOMAS AGARS.
*Many years confidential Clerk to the highly
respectable Firm of*
JOHN BETTINGTON, SONS & CO.
(NOW RETIRED),

BEGS to inform his Friends and the Public,
that he has commenced business as
GENERAL AGENT & WAREHOUSMAN,
for which purpose, as also for the Sale of Foreign
and Colonial Produce, he has opened a Ware-
house in Kent-street, North, opposite Trafalgar
Terrace.

In respectfully soliciting of his Friends and the
Public a share of their patronage & support, which
it shall be his endeavour to merit, he has the ho-
nour to acquaint them that he has now on **SALE**

Mauritius Sugar
Hyson Skin Tea
Demerara Rum, 8 O. P.
Genuine Scotch Whiskey
Very superior London Vinegar
Striped Shirts
Duck Frocks
Flushing Trowsers
Blankets, 8-4
Starch, in 6lb. packages
Green Paint, in 28lb. kegs
Soap
Negrohead Tobacco
Twine
Corks
Chalk
Port Wine, in 3 dozen cases
Gold-coloured Sherry, in quarter casks
and bottle, &c.
Colonial Butter, rendered Fat
Hides, Sheep Skins, &c.

Trafalgar Warehouse. }
Kent-street, North. }

Figure 3.2 1837 advertisement by Thomas Agars referencing his warehouse in Kent Street North. *Commercial Journal and Advertiser*, 28 Jun 1837:3.



Figure 3.4 At some point between 1855 (left) and 1865 (right), the property [Lot 3] in between Agars or Trafalgar’s Wharf (Lot 4, top) to the north and Cureton’s Wharf (Lot 2, bottom) to the south was reclaimed and developed. City of Sydney Detail Plans 1855 Sheet 2 (left) and Sydney Trigonometric Survey Sheet 1865 Block A2 (right). Full overlays provided in Appendix B.



Figure 3.5 Detail from 1866 plan labelling Agars or Trafalgar’s Wharf (top) as ‘Public Baths’. Plan Darling Harbour made by order of the Harbour Commissioners, 1866.

The ground to the north of Agars property (Lot 5) is variously identified as ‘Govern^t Ground,’ on the 1833 plan (Figure 3.3; the red annotation that reads ‘Dedicated as a Site for Ferry & Public landing place’ is likely a later addition from c.1871), and as ‘Sydney Corpⁿ’ on the 1875 plan (Figure 3.6), and ‘Vacant Ground’ on the 1880 plan. It does not appear that this ground was reclaimed or built on until after 1903. From the 1840s onwards the northern portion of the Project Area is developed by various businessmen and shipbuilders (see Casey & Lowe 2017, 2022 for detailed history).

3.3 Phase 3: Industrial Growth (1870s-1900s)

Economic growth in NSW throughout the late 1860s and early 1870s led to increased shipping traffic requiring new and modified wharfage in Darling Harbour. The NSW Government redeveloped their lands in the southern portion of the harbour, constructing the Iron Wharf in 1874, the Rozelle to Darling Harbour Goods Line in 1855 with extensions built in 1913 and 1922, and the Pyrmont Bridge in 1902 (Dictionary of Sydney website). Private wharf owners also redeveloped and extended their own holdings during this period.

During this period, the AGL Gasworks expanded north by purchasing Langdon’s land (Lot 15) and west by reclaiming land into the harbour. Jenkins’ property (Lot 1) also underwent reclamation works, although there is no evidence that his 1870s application for a new 150ft dock and jetty eventuated. In the early 1870s Jenkins’ land was purchased by Thomas Stephen Rowntree to use as part of his ship works yard. In 1872 Rowntree purchased Hely and Harper’s floating dock and moored it in front of the Darling Harbour property and was in use until he sold the business in 1880 (MTS Heritage 2023: 25-26). The property was then used by AGL who continually expanded and added new infrastructure between 1869 and 1892 (Austral 2010:31). A full history of the AGL property was written by Rosemary Broomham in 2007 which was summarised and reproduced as a timeline in Casey & Lowe in 2014.

The northern portion of the Project Area was occupied by private merchants and shipbuilders; the majority of these properties are outside the Project Area. Cuthbert’s Shipbuilding Yard was purchased by Dibbs in the late 1860s. By 1877, Dibb’s had redeveloped the slips and constructed new jetties and stores (Hobbs 2017 as in MTS Heritage 2023:27), including Jetty 2. The seaward end of Jetty 2 extended into the Project Area (Figure 3.8) but the majority of the Cuthbert/Dibb shipyard and associated infrastructure has previously been investigated by Casey & Lowe during the Sydney Metro excavations (see Casey & Lowe 2022b for results) and an in-depth history of the northern portion of the Project Area is available in Casey & Lowe 2017 and 2022b.

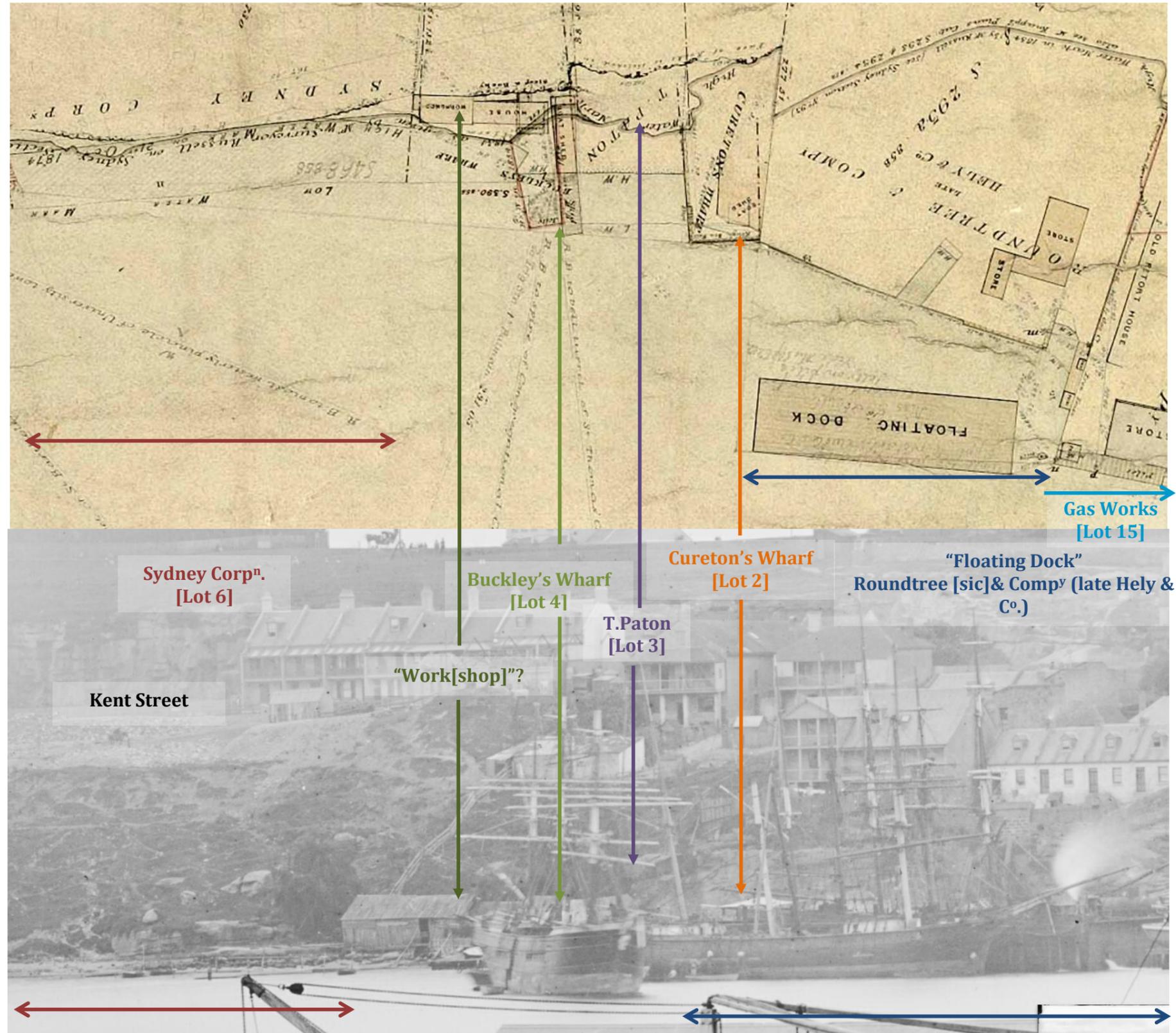


Figure 3.6: Detail from 1875 survey of eastern Darling Harbour (MHNSW AO Map 4774, top), compared with detail from c.1870-1875 photograph (SLNSW ON 4/Box 60/no. 356, bottom). Annotations by AMBS.

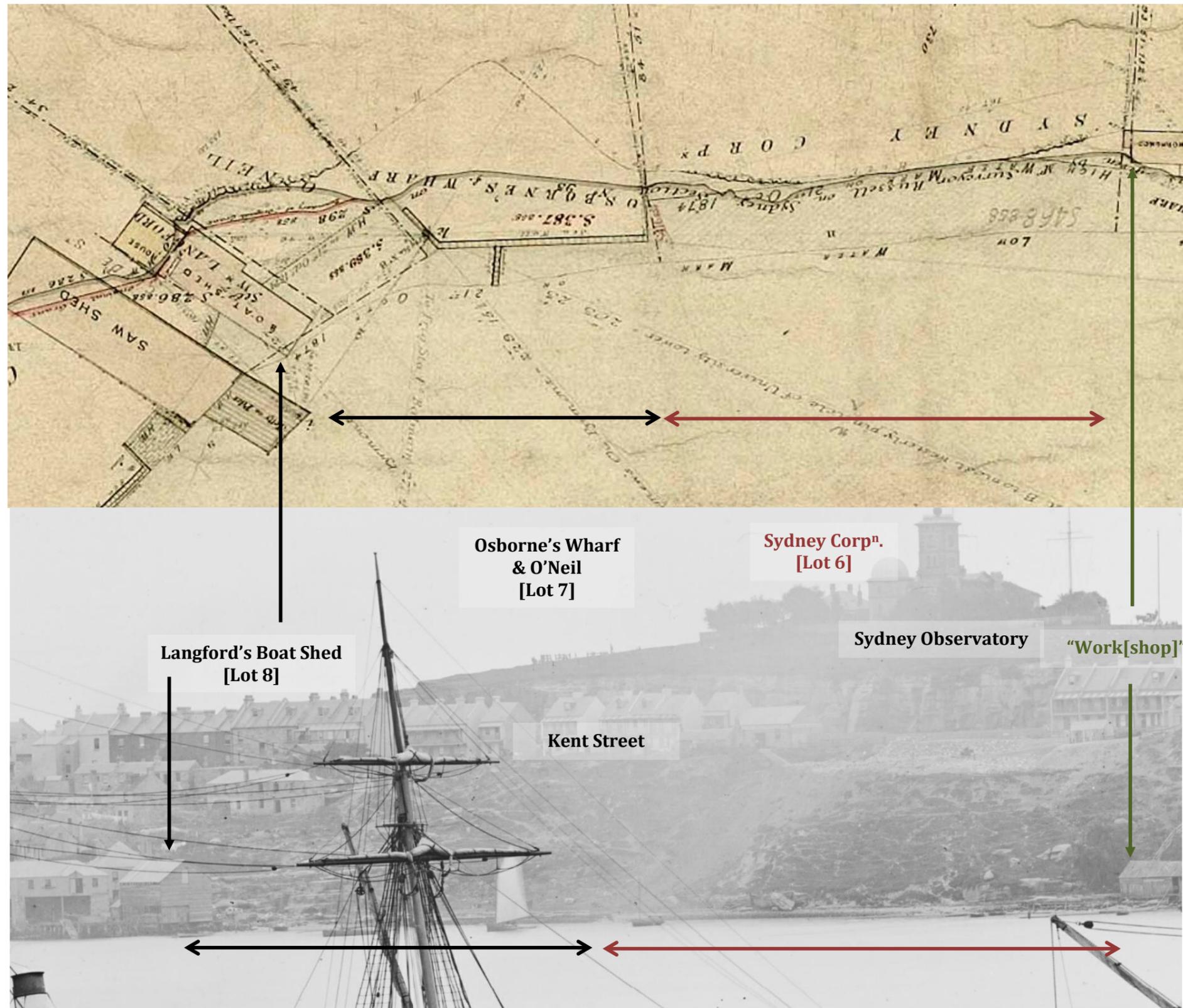


Figure 3.7: Detail from 1875 survey of eastern Darling Harbour (MHNSW AO Map 4774, top), compared with detail from c.1870-1875 photograph (SLNSW ON 4/Box 60/no. 356, bottom). Areas arrowed black are outside the Project Area, or have previously been salvaged by Casey & Lowe as part of the Sydney Metro excavations. Annotations by AMBS.

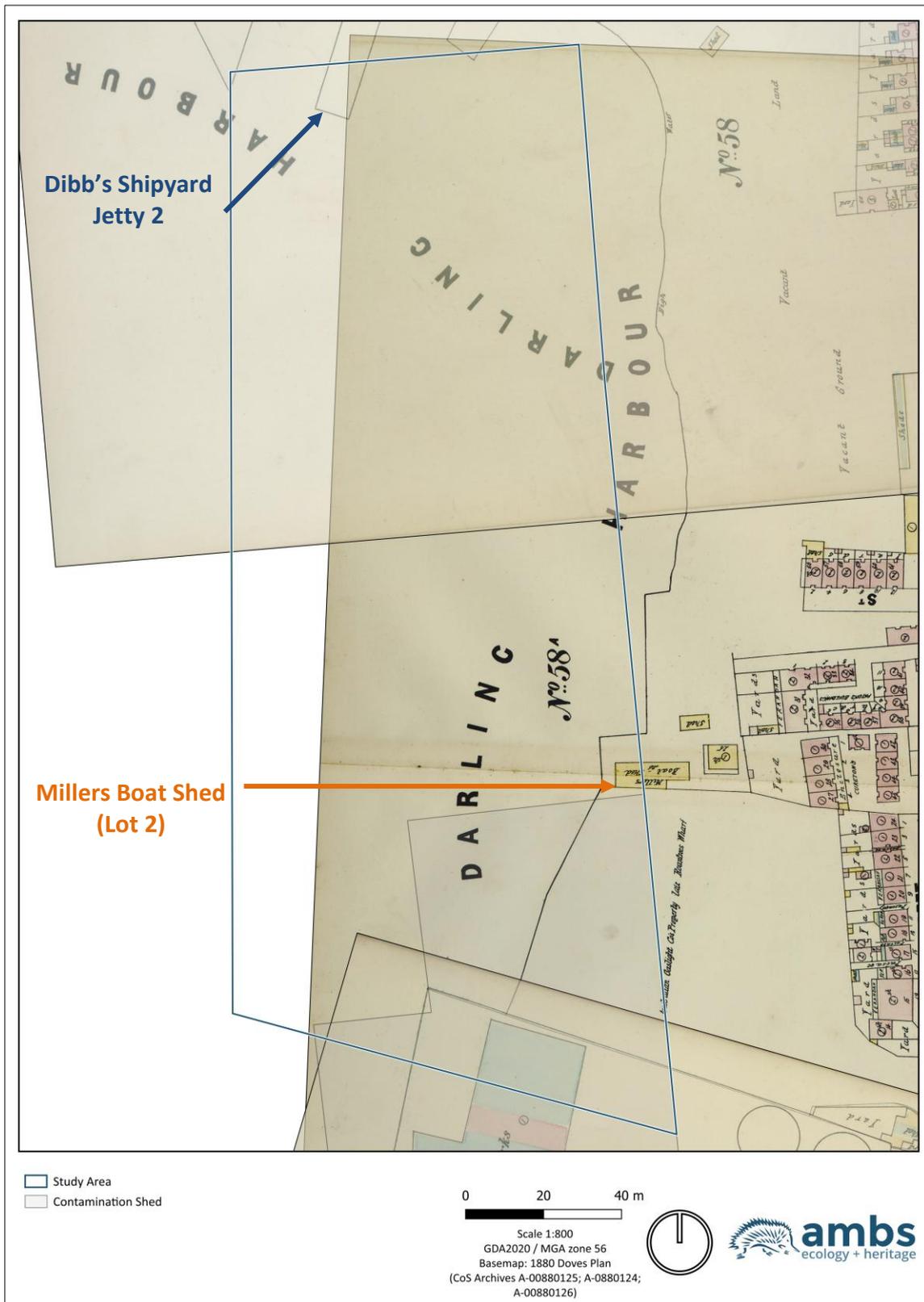


Figure 3.8 The 1880 plan of the site shows the seaward end of Jetty 3 (arrowed blue) at Dibb's Shipyard within the northern portion of the Project Area. The ground formerly referred to as Government Land is now simply labelled as 'Vacant Land/Ground'. 'Millers Boat Shed' is still in operation at Cureton Wharf (arrowed orange), however Agars Wharf appears to have been incorporated or subsumed into the general reclamation works in the central portion of the site by this time, although this is inconsistent with how it is depicted on the 1895 and 1903 plans (see below). H. Percy Dove, 1880, City of Sydney Archives A-00880124 to A-00880126.

3.4 Phase 4: Resumptions and Renewals (1900-1970s)

The government response to the so-called outbreak of plague in Sydney in 1901 led to widespread demolition and reconstruction of jetties and wharves around the harbour. Detailed 'Resumption Plans' were prepared and updated throughout the works. The 1901 Resumption Plan contains detailed notes on the size and owner/occupants of the properties, with the demolition works shown in red. The 'Gas Company's Property' has now been extended further north up to and including the former Cureton's Wharf/Miller's Boat Shed. A very large new Retort House has been constructed extending into the southeast corner of the Project Area (Figure 3.9). The land in between Cureton and Agars Wharves shows the approximate position of the High Water mark (H.W.M), but they are still depicted as separate structures, indicating the depiction of a fully consolidated/reclaimed shoreline on the 1880 plan by Dove (Figure 3.8 above) may be incorrect. Eva Connell Hordern is listed as purchasing Lot 3 (previously owned by Patton and Forster Church) in 1899, while David Joseph Monk is listed as the owner of Lot 4 (Agars Wharf). The Government ground is now identified as being used by the council as a 'Depot for municipal purposes' with no structures shown. The properties in the identified as 'Osbourne's Wharf' and 'O'Neil' on the 1875 plan (Figure 3.7 above) are outside the Project Area, however the 1901 plan indicates that in c.1898 Archibald Mc Lean had leased land from the Crown for 27 ½ years, apparently to construct a jetty at his property extending into the Project Area (Figure 3.10). Mc Lean's Wharf also appears on a 1903 plan (Figure 3.11), indicating it may have still been in use until this time. In contrast to Mc Lean's authorised lease of Crown Land, it appears as though the four jetties erected by Dibbs were identified as 'Jetty on piles apparently unauthorised' (Figure 3.10).



Figure 3.9 Detail from 1901 Resumption Plan showing the new Retort House in the southeast corner of the Project Area (outlined in blue). The grey shading is the approximate location of the decontamination tents. Full overlay provided in Appendix B. 1901 Resumption Plan, Plan H, MHNSW.

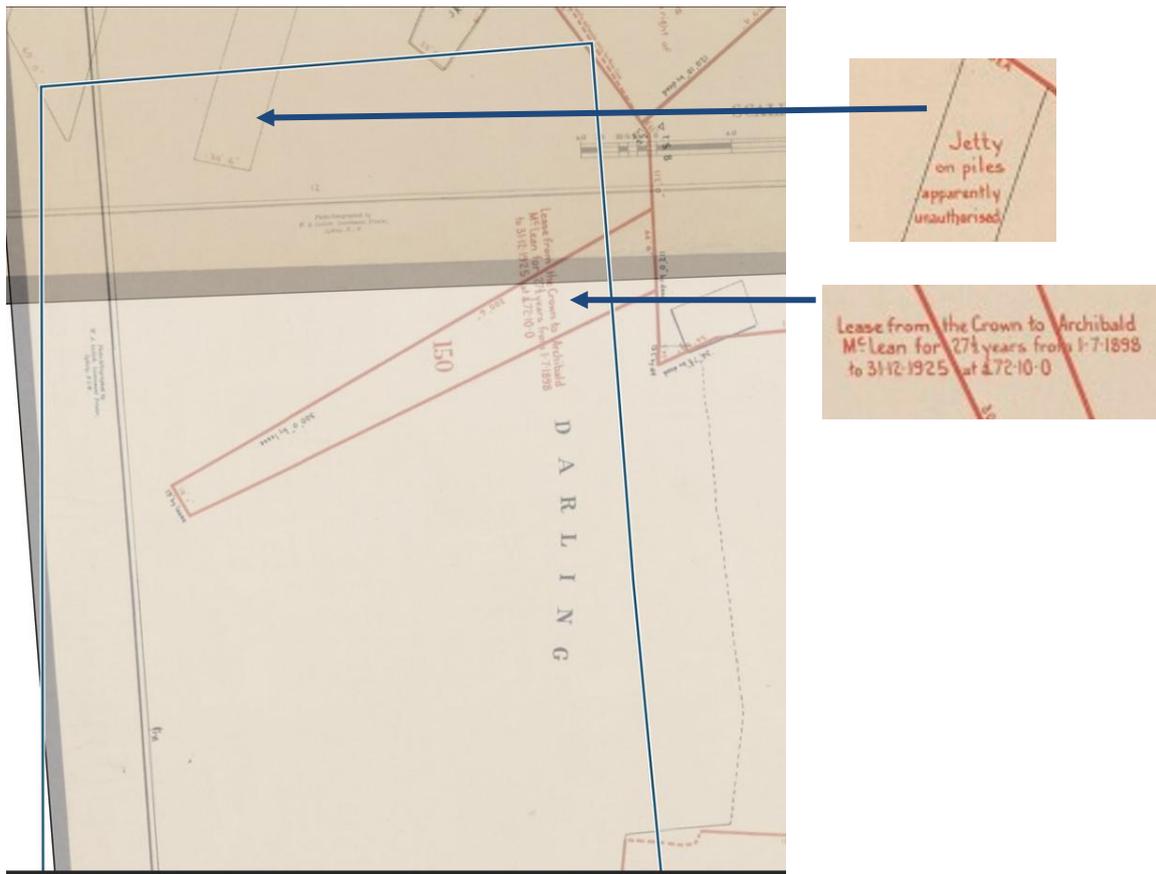


Figure 3.10 Detail from 1901 Resumption Plan showing Jetty 2 at Dibb’s Shipyard (top) as ‘Jetty on piles apparently unauthorised’ and Mc Lean’s Jetty (centre) as ‘Lease from the Crown to Archibald McLean for 27 ½ years from 1-7-1898 to 31-12-1925 at £72.10.0.’ extending into the Project Area. Full overlay provided in Appendix B. 1901 Resumption Plan, Plan G, MHNSW.

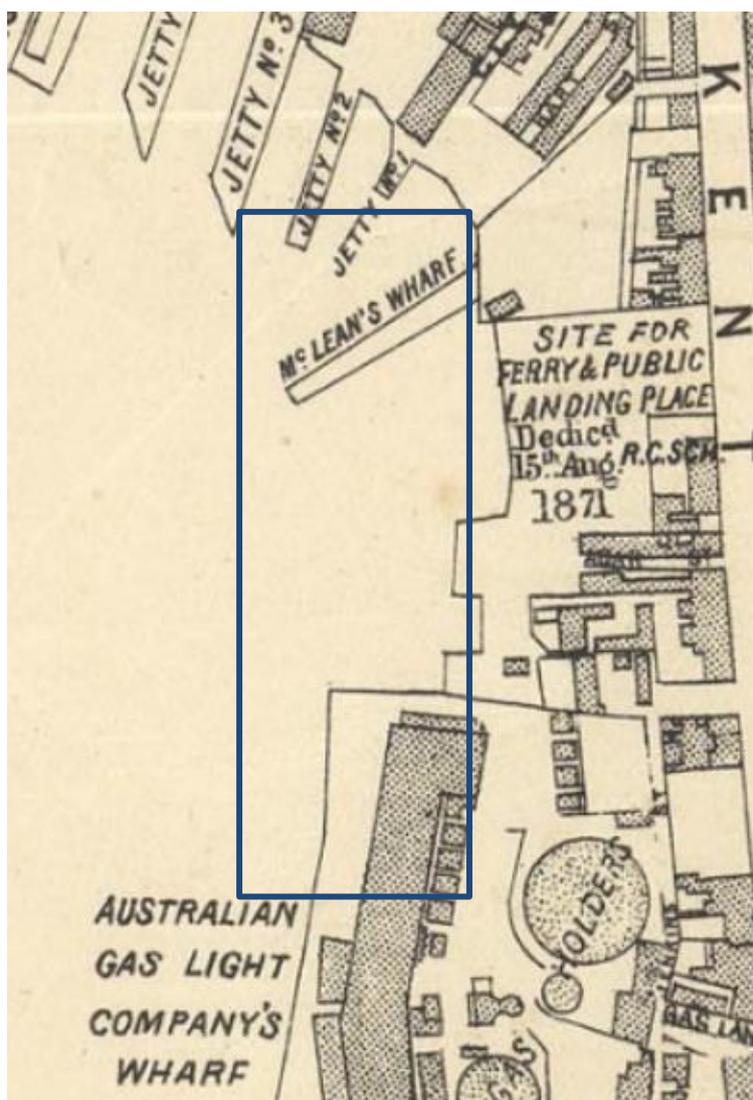


Figure 3.11 1903 plan showing Mc Lean's Wharf and Jetty No. 2. Approximate study area outlined in blue.

The redevelopment of the properties within the Project Area appears to have been completed by late 1910, including two new wharves of the standard design developed by Chief Engineer Walsh. By 1919 a third wharf had been constructed near the southern portion of the Project Area; the wharves were occupied by separate shipping companies and were known as Darling harbour Wharf 3a/b, Wharf 4a/b and Wharf 5a/b (MTS Heritage 2023:34).

3.5 Phase 5: Reclamation and Recent use (1970 – present)

The change in shipping technologies to container ships in the post-war 1950s period mean that wharves and jetties were transformed into flat concrete aprons (Figure 3.12). The exact methods of removing or covering-over the old jetties and wharves is unclear, although it was common practice to cut the piles off at the seabed and/or push the linear wharfage alignment further out into the harbour, with concrete caissons and metal sheet piles and then backfill behind (MTS Heritage 2023: 36). Works continued in Darling Harbour through the 1960s and 1970s, however it became clear that Port Botany was better suited for the semi-trailers transporting the goods. The Bicentennial Project in the mid-1980s led to Darling Harbour being transformed into a major entertainment and tourist complex. The Barangaroo foreshore has undergone intensive mixed-use development from 2012 until the present.



Figure 3.12 1977-1978 photograph showing the container wharves at Barangaroo. The Project Area is in the centre. *Maritime Services Board Annual report 1977-78: 8. As in Casey & Lowe 2017:95.*

	<p>Structural remains associated with the operation of the wharf and archaeological deposits on and with the former seabed relating to Rowntree's floating dock may survive.</p> <p>Low</p> <p>Maritime archaeological deposits located within the former harbour area associated with activities along the former foreshore, including vessels mooring and lightering operations over the water; and relics associated with Cuthbert's Shipbuilding Yard overwater operations.</p> <p>Shipwrecks or shipwreck-related material.</p>	<p>Local</p> <p>State/Local</p>
<p>Phase 3:</p> <p>Later Industrial Development (1870s-1900s)</p>	<p>High</p> <p>Structural remains associated with Cuthbert's/ Dibbs Shipbuilding yards, including wharves, maritime archaeological deposits associated with their use on and within the former seabed.</p> <p>Low</p> <p>Structural remains associated with McLean's wharf and associated deposits on seabed.</p> <p>Shipwrecks or shipwreck-related material.</p>	<p>Local</p> <p>Local</p> <p>State/Local</p>
<p>Phase 4:</p> <p>Resumption and Renewal (1900s-1960s)</p>	<p>High</p> <p>Post-1900 maritime archaeological deposits on seabed adjacent to berth on each wharf.</p> <p>Moderate-High</p> <p>Seawalls, piles and associated wharf infrastructure</p>	<p>Local</p> <p>Local</p>
<p>Phase 5:</p> <p>Reclamation and Recent Use (1960s-Present)</p>	N/A	NIL

4.2 Archaeological Significance

Urbis (2022b:37-39) has previously assessed the project area as having local significance, based on Criterion E: Archaeological Research Potential alone. This assessment of significance claims the subject area does not meet the threshold for heritage significance under Criteria A, B, C, D, F or G. Urbis also supports the 2014 assessment of potential by Casey & Lowe regarding the impact of contamination on the significance of any surviving remains of the AGL gasworks, stating:

Any relics associated with the development of AGL gasworks (Phases 2 and 3) in the south-eastern portion of the subject would be rare examples of Australia's first gas production facility. The gas produced at this facility transformed the streets and homes of Sydney in the mid- to late-19th century. Although intact relics of this facility would likely be important in demonstrating the course of the cultural history of the State, contamination of the site reduces the amenability of relics to investigation and their ability to provide information about the site. As noted by Casey & Lowe (2014), contamination of the site therefore limits the significance that can be ascribed to relics associated with the early development of AGL gasworks Urbis 2022b:38).

4.2.1 Urbis 2022b Statement of Significance

The subject area has a continuous history of industrial development and use since the early 19th century to the present. It was the location of early maritime development of Darling Harbour, dating to the 1820s, and the site of Australia's first gasworks, which began in the 1830s. Potential historical archaeological relics retained within the subject area are likely to be significant at a local level for their research potential

Historical archaeological relics dating to the 19th century that may survive within the subject area include land reclamations (e.g. James Jenkins' grant and the AGL gasworks site), wharves and jetties (e.g. Thomas Agars, David Cureton, Alexander Brodie Spark and TA Dibbs), other buildings and structures associated with ship-building operations (e.g. Hely, Drake and Harper, Miller and TS Rowntree) and buildings, wharves and other structures associated with the AGL gasworks. Archaeological investigation of the subject area has the potential to provide significant information relating to the development of maritime and gas production industries in Darling Harbour, which would not be derived through other sources. This information could contribute to our understanding of early European modification of the landscape, the construction of 19th century buildings, wharves and other structures and the growth and development of Darling Harbour as an industrial area and working port.

The subject area is considered to have local heritage significance for its research potential in relation to the early 19th century development of the maritime industry in Darling Harbour and the establishment and development of the Australia's first gasworks (Urbis 2022b: 39).

MTS Design (2023, 2025) has previously assessed the significance of the project area with far more nuance, identifying items of both local and State significance. Generally, remains associated with the development and use of the site including structural remains, maritime archaeological deposits, reclamation works and evidence of early shipbuilding prior to 1850s may be of State significance depending on integrity, condition and extent. Substantially intact archaeological remains that post-date the mid- nineteenth century may meet the threshold for local significance.

4.2.2 MTS 2025 Statement of Significance

The northern end of Darling Harbour, south of Millers Point, has been associated with maritime industry and trade in Sydney Harbour since the 1830s. The subject site, at this time, was predominately within the waters of Darling Harbour, with the exception of small reclamation events and stone wharves constructed at its southern end. The commencement of shipbuilding to the north increased the harbour area, added to the existing maritime infrastructure.

Successive redevelopment of the waterfront area, included reclamation and the addition of jetties during the mid-to-late nineteenth century, resulted in the construction of early wharves and jetties within the subject site. Structural remains of these early wharves and jetties likely survive at the subject site, below reclamation fill. This early phase of development was carried out by private contractors and not undertaken to any one standard. Given the concentration of shipbuilding and trade services associated with former jetties at the subject site, it is likely that maritime archaeological deposits accumulated on the seabed, particularly at Dibb's Shipbuilding yard and Rowntree's floating dock. These archaeological deposits have the potential to provide significant insights into shipbuilding and repair from the 1860s onwards. Deposits relating to earlier shipbuilding and repair done overwater by Cuthbert, may also have survived at the subject site, below reclamation fill.

The evolution of wharves at the subject site continued until the resumption of wharves and creation of the Sydney Harbour Trust in 1900. After this time, seawalls were improved to be 'rat proofed' and new wharves were built under the standard Walsh design. The potential maritime archaeological remains at the subject site represent over 180 years of maritime

commerce and trade that functioned alongside other wharves located on the eastern side of Darling Harbour. Depending on their integrity, condition and extent, such remains may represent the earliest private maritime infrastructure development in Sydney Harbour and could be State significant for their historical heritage and research values and rarity (MTS Heritage 2023, 2025; see Appendix A – Annexure A for full reproduction of assessment of significance).

5 Project Roles & Responsibilities

5.1 Project Roles

AMBS has the resources and expertise to correctly manage the proposed archaeological testing program and potential salvage excavation of the Project Area, with the technical advice and support from a qualified Maritime Archaeologist. As the heritage management of the project will be ongoing, we are nominating three Excavation Directors to ensure the project is adequately staffed at a senior level:

- Rhian Jones, Senior Heritage Consultant (historic), AMBS Ecology & Heritage. Rhian will act as co-Primary Excavation Director, primarily responsible for the day-to-day operations onsite in accordance with the Development Consent Conditions, best-practice, and in consultation with Chris Lewczak and Ronan Mc Eleney. She will also coordinate logistics, communications and consultation process with Aqualand, HNSW and other stakeholders, as required.
- Chris Lewczak, Principal Maritime Archaeologist, MTS Heritage. Chris will be co-Primary Excavation Director, responsible for the investigation, recording and management of the maritime archaeological resource within the project area, in consultation with Rhian Jones and Ronan Mc Eleney. He will design and execute all appropriate archaeological methodologies for the correct testing, monitoring, inspection and/or salvage of the maritime archaeological resource.
- Ronan Mc Eleney, Senior Heritage Consultant (historic), AMBS Ecology and Heritage. Ronan will be Secondary Excavation Director, responsible for the day-to-day operations onsite in consultation with Rhian Jones and Chris Lewczak.

In addition, the project will be supported by AMBS Director (Heritage) Chris Langeluddecke, Heritage Team Leader Lian Ramage, and administrative support from AMBS Office Manager Sharon Febres. Other staff that will be included in the team, depending on availability, include:

- Madeline Rodwell, Project Manager, AMBS Ecology & Heritage
- Anabelle Thompson, Junior Heritage Consultant, AMBS Ecology & Heritage
- Jane Rooke, Collections Manager/Heritage Consultant, AMBS Ecology & Heritage
- Emily Pickering, Heritage Consultant, MTS Heritage

5.2 Project Responsibilities

AMBS and MTS Heritage on behalf of Aqualand are responsible for the correct management of the archaeological and heritage resource within the project area, in accordance with the Development Consent Conditions, best-practice and in consultation with advice from HNSW. AMBS is primarily responsible for the logistics, communications and consultation with Aqualand, HNSW and other stakeholders, as required. All reasonable efforts to provide correct and clear timeframes, budgets and reasoning for the required courses of action are communicated to Aqualand, HNSW and other stakeholders.

Aqualand, and its government partner/landowner Infrastructure NSW are required to ensure that sufficient time and resources are allocated for the correct management of the archaeological and heritage resource within the project area, in accordance with the Development Consent Conditions and best-practice methods recommended by AMBS, MTS Heritage and HNSW. Placemaking NSW is intended as the final recipient of any salvaged relics or objects which will be stored in the Darling Harbour repository, together with relics and objects salvaged from Barangaroo South.

Given the scope of these responsibilities, Aqualand and Infrastructure NSW are fully aware of the risks associated with unexpected finds of an archaeological nature within the Project Area, and are

fully committed to ensuring all reasonable efforts are made to quickly and correctly manage all unexpected finds, on advice from AMBS, MTS Heritage and HNSW.

The site has a high risk of containing a variety of hazardous materials. The health and safety of every person onsite is non-negotiable and all archaeological and heritage works will be carried out under the supervision of the nominated hygienists/safety officers. Aqualand is responsible for engaging appropriate specialists for the safe management and remediation of any hazardous materials. AMBS and MTS Heritage are responsible for ensuring their own staff follow all WHS regulations for the site, but are not responsible for identifying, remediating or disposing of any hazardous materials.

5.3 Ensuring compliance with Development Consent Conditions SSD 39587022

AMBS, MTS Heritage and Aqualand are committed to ensuring compliance with all conditions of consent for the early works program and all other works across the Project Area. Consultation with HNSW, stakeholders and collaboration with technical specialists whenever necessary are crucial to achieving the best outcome for the archaeology and heritage values of the site. Table 5.1 will be updated at the completion of the archaeological testing program, during the revision of this ARDM, and throughout the project.

Table 5.1: DCC SSD 39587022 and relevant report section.

Condition	ARDM Section
<p>Condition C41 – Prior to the commencement of works and following test excavations, the Applicant must prepare an Archaeological Research Design Methodology (ARDM). The ARDM shall:</p> <p>a) Be informed and adopt all of the recommendations of the Maritime Archaeological Assessment, prepared by Mountains Heritage, dated September 2023.</p>	<p>Appendix A – Maritime Archaeological Research Design (MTS Heritage)</p>
<p>b) Present and detail options to re-design the proposal for the in-situ conservation of State significant heritage items identified during the archaeological excavations AND c) Include provisions to consider the conservation of unexpected significant maritime heritage in-situ</p>	<p>For preliminary discussion, see Section 7.2.</p> <p>To be further detailed in the revision of this ARDM based on the results of the archaeological testing.</p>
<p>d) Contain an unexpected finds policy, that outlines all aspects pertaining to the possible discovery of unanticipated finds at the site including:</p>	<p>Appendix E – Draft Unexpected Finds Procedure.</p> <p>To be further developed based on the results of the archaeological testing and any specific requirements of the nominated civil contractor/s.</p>
<p>i. Briefing and education of project staff in the processes associated with the identification and discovery of</p>	<p>Appendix E – Draft Unexpected Finds Procedure.</p> <p>For preliminary discussion, see also Section 7.1.</p>

Condition	ARDM Section
<p>unexpected heritage items and the subsequent processes, including steps specific for maritime heritage items, associated with excavation/conservation/storage/interpretation and display of any discovered items</p>	<p>Detailed information regarding potential conservation, storage, interpretation and display will be developed based on the results of the archaeological testing and included in the revision of this ARDM if required.</p>
<p>ii. Identifying the specific responsibilities for management and funding for the conservation and management of any unexpected heritage items, subject to the negotiations and approval of Heritage NSW/Heritage Council under Condition C43.</p>	<p>For preliminary discussion see Section 5.</p> <p>To be developed in consultation with HNSW, Aqualand, Infrastructure NSW, Placemaking NSW, stakeholders and relevant technical specialists</p>
<p>Condition C42 – Prior to the commencement of construction, the Applicant shall undertake a program of archaeological testing on the site to inform the final design of the proposal. The testing shall aim to understand the nature, extent and significance of the surviving archaeological deposits as set out in the document titled “<i>Historical Archaeological Assessment: Barangaroo Central</i>”, prepared by Urbis, dated 28 July 2022. Maritime archaeological investigations must be undertaken as outlined in the document titled “<i>Barangaroo Central: Maritime Archaeological Assessment</i>”, prepared by Mountains Heritage and dated September 2023.</p> <p>The testing and monitoring program shall have particular regard on areas where potential local and State significant maritime archaeological relics and deposits may be present, including but not limited to areas associated with Agars’ Wharf and Cureton’s Wharf.</p>	<p>Sections 4, 6</p>
<p>Condition C46 – The Applicant shall nominate a suitably qualified and experienced maritime archaeologist to manage the archaeological program according to Conditions C42 to C46. This person must:</p> <ul style="list-style-type: none"> a) fulfil the NSW Heritage Council’s Excavation Director Criteria for the excavation of State significant archaeological sites b) be given authority as the excavation director for any excavation works or monitoring of any maritime sites buried under land reclamation or accreted land. 	<p>Appendix F – Selected CVs and Response to Excavation Director Criteria</p> <p>Section 5.1</p>

Condition	ARDM Section
<p>Condition D48 – All works must cease immediately if a relic or Aboriginal object is unexpectedly discovered. The Applicant must notify the Heritage Council of NSW in respect of a relic and notify the Planning Secretary and the Heritage Council of NSW in respect of an Aboriginal object. Building work may recommence at a time confirmed by either the Heritage Council of NSW or the Secretary of the Department of Planning and Environment.</p>	<p>We understand that HNSW is the correct party to notify (as is standard practice under the <i>National Parks and Wildlife Act 1974 (Amended 2010)</i> if an unexpected Aboriginal object is discovered, and HNSW will also provide confirmation that works can recommence.</p> <p>Appendix E – Draft Unexpected Finds Policy</p> <p>Section 7.1</p>

6 Testing Program

The archaeological resources of any site are finite but have the potential to provide insights into everyday life that are not available from any other resource. Archaeological resources may provide evidence that will enhance the historical record and, as such, make a contribution to an understanding of the history and development of a local region, State or even at a National level. In view of the substantial costs involved in the salvage excavation of a site, a clear understanding of the potential and significance of the archaeological resource through a program of testing. The key questions to be addressed by the proposed testing program are simple:

- What is the survival, condition and extent of the archaeological remains? What is the impact from the c.2015 remediation program and other late twentieth century and twenty-first century works?
- Can multiple phases of archaeological remains be identified? Can the significance of any specific heritage items/relics be assessed?
- What is the research potential of the archaeological resource? In addition to open area salvage, what methods and strategies are best suited for the correct management of the archaeological resource during the rest of the bulk excavation works?

To that end, six test trenches have been designed to give the best chance of answering those questions and gathering information regarding the phasing, depth and nature of the reclamation fills and former seabed deposits. The locations and testing methodologies discussed below have been jointly developed by all three Excavation Directors; the aims of the testing program to determine survival, condition, significance and research potential are equally helpful to understanding both the historical/terrestrial and maritime archaeological resource. Structural remains and deposits (whether they are considered to be historical or maritime) above approximately RL+0.0 will be exposed, cleaned and recorded the same way, under the direction of the Excavation Directors and in consultation with HNSW.

It is not the intent to remove or salvage State significant relics during testing. If there are opportunities to remove locally significant deposits or structures (ie post-1900 surfaces or buildings, or later reclamation fills) in order to understand the depths and condition of earlier phases or deposits on the former seabed this may be considered by the Excavation Directors, however they will only be explored in order to better predict the scope and time required for the second stage of archaeological investigation. This second stage is likely to be some form of open area salvage of key areas, structures and deposits above approximately RL-1.0m. The final stage of archaeological investigation is likely to involve a combination of targeted testing and salvage of maritime deposits below approximately RL-1.0m on the former seabed, and monitoring and/or period inspections of the bulk-excavation across the project area. The methodologies and strategies for the second and final investigations will be further developed based on the results of the testing, and with consideration to the on-ground conditions, overall project staging, site-wide dewatering process etc.

6.1 Proposed testing locations

The trenches (Table 6.1, Figure 6.1) have been positioned to give the best chance of encountering archaeological remains and will be laid out by an archaeological surveyor. For Cureton, Agar and Rowntree's Wharves (T2, T3 and T5 respectively) where there is potential for multi-phase structural remains the trenches are relatively large, with the intent of finding areas outside the footprint of any structures to test the depth of reclamation. For McLean's Wharf and Dibb's Wharf extension (T4 and T6 respectively) the trenches are long and thin to span the full width of the wharf structures, plus the width of a berthed vessel on either side, plus another few metres to the seaward side in the hopes that the trench can be benched and the survival of deposits on the

former seabed containing material discarded from the vessels be identified. The design of T1 is extremely long, with the intent of understanding the impacts from the c.2015 remediation works within the footprint of the contamination tents on the structural remains of the AGL Gasworks (east end) and reclamation (centre); whether there is any archaeological potential at all or a different level of potential inside the footprint of the contamination tents versus outside (west end). It should be noted that the trench location may be subject to minor change in position, or size increased/adjusted by up to 25% if there are in-ground constraints that cannot be avoided and/or it is possible to excavate some deeper sondages to better-understand the maritime deposits but that may require the trench to be benched.

Table 6.1: Summary of proposed test trenches.

Trench	Indicative Size	Purpose
1	40 x 5m	Do remains of the AGL Gasworks structures, wharfage and deposits survive? What is the depth of reclamation in this area? What are the impacts from the c.2015 remediation process and are they different inside and outside the footprint of the contamination tents?
2	20 x 10m	Do remains of Cureton's Wharf (1851) and associated structures survive? Is there evidence of multiple phases of use? What is the depth of reclamation in this area? Can the potential and/or significance of any maritime deposits on the former seabed be identified? What are the impacts or constraints from the electrical substation and switchboard in this location?
3	20 x 10m	Do remains of Agar's Wharf (1841) and associated structures survive? Is there evidence of multiple phases of use? What is the depth of reclamation in this area? Can the potential and/or significance of any maritime deposits on the former seabed be identified?
4	20 x 5m	Do remains of McLean's Wharf (late 1890s) survive? What is the depth of reclamation in this area? Is it possible to test for maritime deposits on the former seabed on both sides of the wharf, and to an extent that encompasses both sides of a berthed vessel?
5	20 x 5m	Do remains of Rowntree's wharfage (c.1872) and associated structures survive? Is there evidence of multiple phases of use? What are the impacts from the c.2015 remediation process?
6	20 x 5m	Do remains of Dibb's Wharf extension (late 1890s) survive? What is the depth of reclamation in this area? Is it possible to test for maritime deposits on the former seabed on both sides of the wharf, and to an extent that encompasses both sides of a berthed vessel? Are there impacts from the use of this area as a set-down area for the construction of the Metro station in 2018-2019?

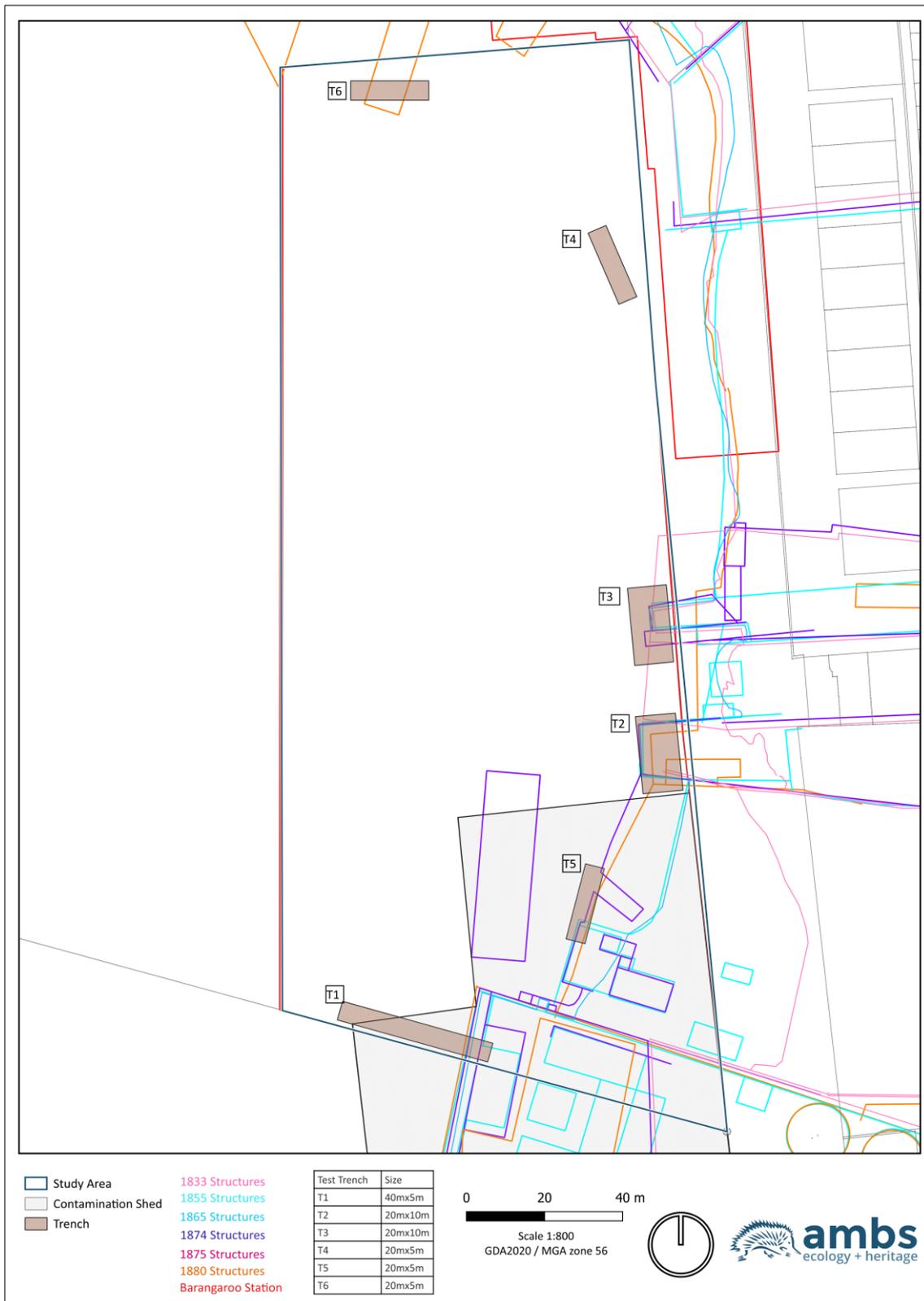


Figure 6.1 Plan showing proposed locations of test trenches in relation to the historic-period structures and foreshore. Note the trenches have been designed to give the best chance of encountering structural remains of buildings or foreshore/maritime infrastructure, however may be subject to changes in size and location based on in-ground constraints and if there is the opportunity to undertake deeper sondages to better understand the maritime deposits.

6.2 Archaeological testing methodologies

All former maritime infrastructure sites/relics as well as seabed deposits will be considered maritime archaeology. As such, any testing of maritime infrastructure sites/relics and seabed should be supervised by the nominated maritime archaeological ED.

6.2.1 Machine Excavation

An appropriately sized excavator (approx. 12-tonne) and experienced operator will remove the overburden/existing hardstand and modern fills under the direction of the Excavation Directors. Delicate work at archaeological levels may require a smaller sized excavator (approx. 5-tonne). Both excavators will need a variety of bucket sizes including a flat-bladed mud/batter bucket.

Once structural remains are encountered (likely from the post-1900 finger wharves), they will be cleaned and investigated by hand, before being recorded and surveyed. If there is potential for earlier phases of use to survive below, certain portions of the later fills and/or structural elements may be removed by machine to allow for earlier features or deposits to be located. If possible, smaller deeper sondages may be machine-excavated to determine the depth of reclamation fills, maritime deposits on the former seabed, or expose underlying bedrock or natural sands. Excavation at depth may either be done by benching the trenches at a 1:1 or 1:1.2m ratio (subject to safety constraints) to allow an archaeologist to clean and record from within the trench, or may be straight-sided and only recorded by photography and/or survey if safe access is not possible.

6.2.2 Manual excavation

Where structural remains and significant features are exposed, generally they will be cleaned and investigated by hand. If archaeological remains are uncovered in areas of contamination, there may be limitations on manual excavation (ie. additional PPE, use of long tools to minimise contact with the ground, no collection of artefacts etc.).

- All underfloor areas will be excavated in a 1 x 1m grid in 50mm spits and wet-sieved (if possible) with comprehensive collection of artefacts.
- Cesspits, wells, cisterns and rubbish pits will be excavated in 100mm spits with stratigraphic priority, or along tip lines (if identifiable) and wet-sieved (if possible) with comprehensive collection of artefacts.

6.2.3 Recording and sampling

Every effort will be made to ensure best-practice single context stratigraphic recording techniques are employed. As discussed above, if safe access to deep trenches is not possible, or in contaminated areas, photography and/or survey may be prioritised over more time-intensive methods such as the production of scale plans or sections.

- All excavation will be surveyed (millimetre accuracy) in order to spatially record all deposits, features and relics.
- All contexts and structural elements will be recorded using archaeological best practice, including:
 - Location, dimensions and characteristics of all archaeological features and deposits will be recorded on pro-forma context sheets.
 - Digital photographs including JPEG and RAW of cleaned features.
 - Scale plans, sections and elevation drawings, if relevant.
 - Photogrammetry/orthophotography, if relevant.
- Sequential number of features and deposits to facilitate the preparation of a Harris Matrix and artefact labelling
- Preparation and development of a Harris Matrix, to show stratigraphic relationships between all recorded features and deposits.

- Soil, pollen and other environmental samples taken from relevant deposits at the discretion of the Excavation Directors for analysis by a palynologist. Typically, these samples are collected in the hopes that analysis will provide insight into the pre-1788 environment, farming and dietary practices.
- Samples of building materials including (but not limited to) bricks, mortar and timber will be collected from structures as relevant.

6.2.4 *Artefact collection and sieving strategy*

Artefacts may be collected from secure deposits where it is believed they have research potential, or at the discretion of the Excavation Directors. The determination of whether comprehensive collection of an assemblage, retention of selected diagnostic fragments, or a representative sample of the artefacts will be made by the Excavation Directors, upon advice from AMBS Collections Manager based on the types of deposits encountered. Specific sampling methodologies for potential maritime deposits are given in Section 6.2.4 and Appendix A MARDM. Certain types of artefact-rich deposits are best investigated through wet or dry sieving, depending on the density of the soil matrix and size of the artefacts. Where relevant, sample sieving of deposits will be done to determine whether a deposit warrants 100% sieving or a proportional sample sieve, and if this should be wet or dry sieved. Specific methodologies for the sieving of maritime deposits are given in Appendix A MARDM.

6.2.5 *Artefact storage and management*

Artefacts will be cleaned, bagged, and labelled in accordance with the archaeological context and securely stored onsite or at the AMBS office for further analysis. Artefacts will be processed and catalogued using a specially designed Access database in line with prior AMBS and other excavations. The analysis will be presented in the final archaeological report. The management of the artefact analysis will be overseen by the AMBS Collections Manager. If required, additional specialists will be engaged to provide advice on specific artefact assemblages.

6.2.6 *Testing Results Report*

As per discussions with HNSW, it has been agreed that the testing results report can be relatively short document with minimal discussion and analysis, designed to facilitate a quick transition from the archaeological testing program to the wider salvage. The focus of the testing report would be to reassess the potential (if required) and inform the locations and methodologies for the next stage of archaeological salvage and/or monitoring of the Project Area. These results would be submitted to HNSW and the results used to update this ARDM/MARDM, or form the basis of a new ARDM/MARDM if required.

The brief testing results report would still include all relevant information, such as:

- Georeferenced plans of the test trenches and any archaeological remains.
- Description and photographs of archaeological remains, including preliminary identification of the phase and date if possible.
- Preliminary response to research questions as relevant to the revision of this ARDM for the remainder of the archaeological investigations (ie. not all research questions may be able to be addressed at the conclusion of the testing).

The results from the testing, including detailed discussion of the archaeology and post-excavation analysis will be fully incorporated into the final excavation report which will be prepared at the conclusion of the full archaeological program. The final excavation report will be submitted to HNSW within 12 months following the completion of the archaeological report. A copy of the report will also be submitted to the Heritage NSW Library.

The testing report will detail the further management and proposed mitigation for any State significant archaeological remains identified in the testing and/or during the course of the next stage of salvage and/or monitoring. Any proposed mitigation measures will require clear and appropriate justification to be developed in consultation with HNSW.

6.2.7 Archaeological monitoring and periodic site inspections

It is not the intent of the archaeological testing program to conduct extensive monitoring or site inspections, however there may be certain types of civil works that are carried out concurrent with the testing program that require monitoring or periodic inspections (for example, removal of hardstand or extant concrete slabs, contamination testing by hygienists, works to facilitate the decommissioning of the active electrical substation on Hickson Road, or similar). Archaeological monitoring and/or periodic site inspections will involve one of the Excavation Directors, Site Manger or Trench Supervisor observing the works for the presence of archaeological remains. Brief work stoppages may be required for any remains to be cleaned and identified, and a hold point may be required if the remains require further investigation. If archaeological monitoring is required, the machine excavator operator and other personnel must respond to any reasonable directives requested by the supervising archaeologist.

6.2.8 Weekly summary and onsite inspections

AMBS and MTS Heritage are committed to providing best-practice heritage outcomes for the archaeological resource through consultation with HNSW. To this end, we propose to issue weekly summary emails including photographs and discussion of the main findings as the works progress. HNSW will be given the opportunity to inspect the archaeological investigations on a regular basis and will be informed of any substantial and significant finds as soon as practicable.

6.2.9 General considerations

- Despite the comprehensive contamination remediation program in the southeast corner of the Project Area and adjoining ground to the south, there is still a high risk of hazardous contaminants in the solid fill and water table across the site, including ACM and various benzene and petrochemicals. The health and safety of every person onsite is non-negotiable and all archaeological and heritage works will be carried out under the supervision of the onsite hygienists/safety officers. If areas containing archaeological remains that are within contaminated ground are identified during the testing, investigations, some best-practice methodologies may not be feasible. For example, if artefact-rich deposits are located within contaminated ground, they may not be suitable for collection and off-site analysis, as is the normal practice. Archaeological excavation is often physically taxing under the best circumstances, and not all best-practice activities may be possible while wearing additional PPE/RPE such as Tyvek suits and half-face respirators. The thresholds for safe work in contaminated areas and PPE/RPE requirements will be determined by the project hygienist, safety officer and/or other suitably qualified person. If best-practice methodologies cannot be employed, advice will be sought from HNSW on how to proceed. A decision tree (Figure 6.2) has been produced to provide preliminary guidance; this will be refined during the testing program in consultation with the project hygienist, safety officer and/or other suitably qualified person, HNSW and once the in-ground constraints are better understood.

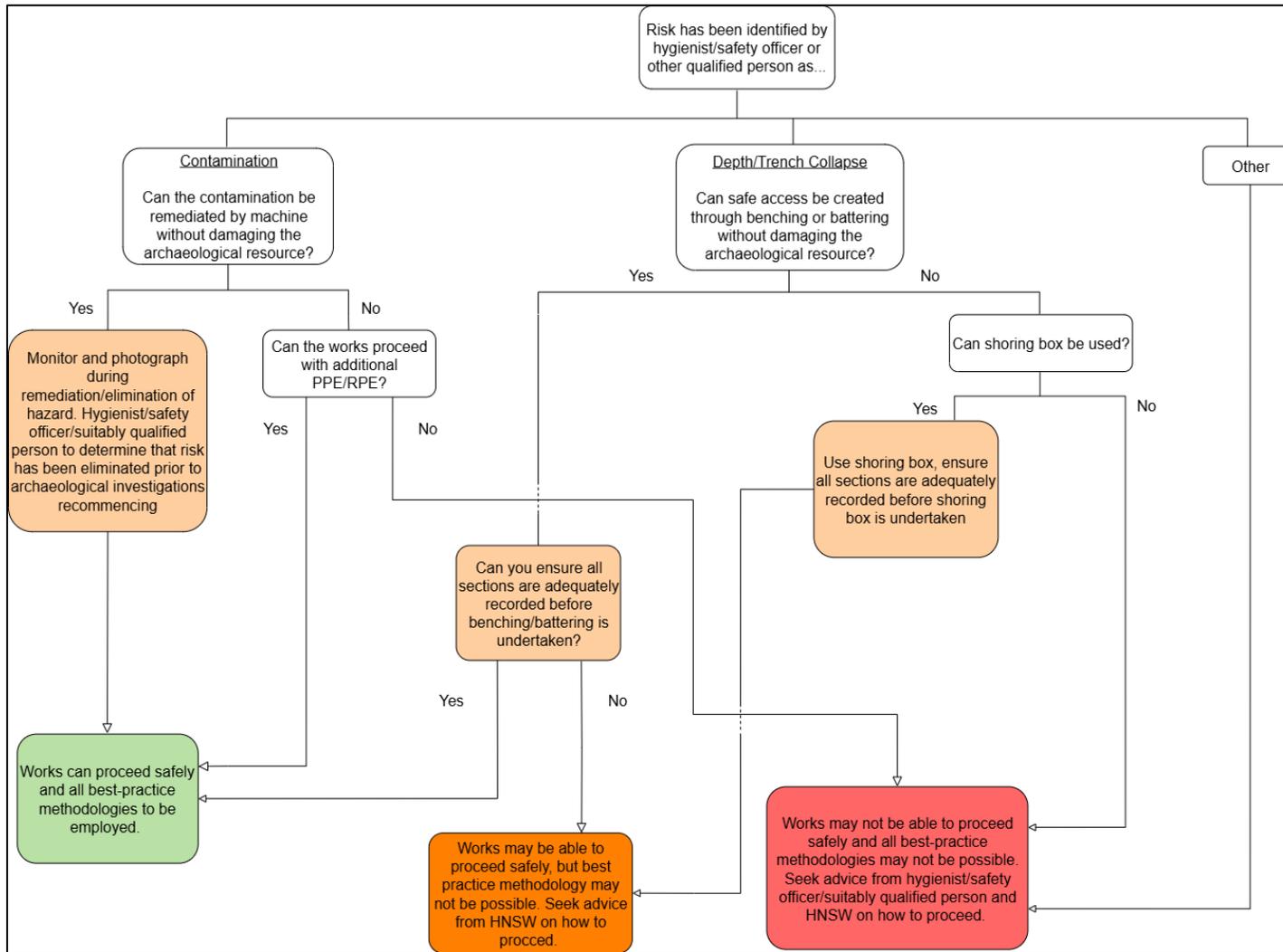


Figure 6.2 Decision tree showing preliminary guidance for determining safe work conditions and best-practice archaeological methodologies to be employed. Note all thresholds for determining safe work in contaminated areas and PPE/RPE requirements will be determined by the project hygienist, safety officer and/or other suitably qualified person.

- All trenches have been carefully designed to give the best chance of understanding the archaeological resource and will be set-out by a specialist archaeological surveyor, if possible. Their location may be changed, adapted or increased/adjusted by up to 25% if there are in-ground constraints that cannot be avoided and/or it is possible to excavate some deeper sondages to better-understand the maritime deposits but that may require the trench to be benched. For example, there is an electrical substation in the location of Cureton's Wharf; the trench design here may need to be dug in two sections. Another example may be that if an opportunity to excavate deeper sondages into any maritime deposits is identified, the trench size may need to be increased in the upper 1-1.2m of fill for benching to allow safe access.

In addition to the historical/terrestrial methodologies given above, specific methodology for the sieving of any seabed deposits may be required during the archaeological testing. These are reproduced below; full discussion of maritime excavation methodologies is given in Section 3.4 of the MTS Heritage 2025 MARDM:14-16 (Appendix A).

6.2.10 Archaeological sieving of former seabed deposits

If identified, seabed deposits located immediately adjacent to wharf and seawalls, as well as in the area on the seabed on the opposite side of a vessel moored at the wharf, would be tested for potential maritime archaeological deposits. If safe access to these deposits was possible, a sondage would be manually excavated. Any sondage trenches would preferably be laid perpendicular, where possible, on the outside of the wharf remains (i.e. starting against the wharf and extending away). Depending on the alignment of the wharf remains and test excavation trench, it may only be possible to place a sondage trench running parallel to the wharf remains.

The former seabed deposits are predicted to be a combination of decomposing silty clays. The deposits would be excavated in nominal spit depths, each spit no deeper than 200mm. The total depth of each sondage would be determined by variables, including depth of excavation, deposit material and safety. The aim would be to gather information relating to archaeological potential, and not to excavate the entirety of the site or deposits. The material would be placed in buckets and would be wet sieved.

A wet sieve station would be established in a designated area at the site. All deposits would be passed through a two-mesh sieve system. The first would be a screen with a larger 10mm-20mm aperture, with a smaller 5mm mesh underneath to catch smaller artefacts. The sieve would be operated by both AMBS and MTS Heritage archaeologists and would work with the Collections Manager (outlined below in Artefact Collection Strategy).

If access to former seabed deposits is not safely accessible for manual excavation, a mechanical excavator may be used to take a sample of the deposit. This method has less archaeological control, however, sampling a specific area would still allow for a greater understanding of the archaeological potential and inform future stages of works at the site. The size of excavator and bucket would depend on the depth and associated reach needed to access the deposits. The sample size would be similar to the manual excavated sondage, approximately 1.4m wide (bucket width) and approximately 0.5m in depth. Material collected in the bucket would be sieved at the established sieve station.

6.3 Research framework (MTS Heritage 2025 MARDM: 10-12)

The following research questions have been extracted from Section 3.1 of the MTS Heritage 2025 MARDM:10-12 (Appendix A). and provide a research framework and methodology for the proposed archaeological test excavation. The proposed archaeological research design questions are focused around three main research topics.

- The construction of pre-1900 wharves at Darling harbour and whether physical evidence of this activity has survived; and
- If they survive, does artefact patterning occur within the former seabed deposits that demonstrates changing use of the former wharves; and
- What is the integrity and archaeological potential of the seabed.

6.3.1 *Construction of pre-1900 wharves at Darling Harbour*

- *Has archaeological evidence of the former Sparke's and Agar's wharf survived? If so, what is the extent, condition and significance of the remains?*
- *What do the remains of these wharves and any other early maritime wharves tell us about early construction techniques for wharves built in Sydney Harbour?*
- *What does the construction type, such as stone wharves or timber, tell us about any specific uses of the wharf(s) that cannot be gained from the historical record?*
- *Is there archaeological evidence associated with the decommissioning/removal of earlier wharves?*
- *Is there archaeological evidence of Rowntree's floating wharf operation, including onshore or overwater operations?*

6.3.2 *Artefact patterning on and within the seabed*

- *Is there evidence of artefact patterning at any wharf remains present on at the site, including at Agar's, Sparkes, McLaren, and Cuthbert/Dibb's wharf sites?*
- *Is there evidence of stratified deposits within the seabed deposits on the site? Or are artefacts found on the deeper and stiffer clay deposits where they have come to rest below the seabed?*
- *What can artefact patterning, or lack thereof, inform us about other similar maritime archaeological sites in Sydney Harbour?*
- *Do these deposits have research potential?*

6.3.3 *Visibility and archaeological potential of the former seabed*

- *Are former seabed deposits easily identifiable below reclamation fills?*
- *Are potential seabed surface sites, such as anchorages and moorings sites likely to be visible in the archaeological record?*

For full research framework, see Section 3.1 in MTS Heritage 2025:10-12 (Appendix A).

7 Other management strategies

7.1 Heritage induction and unexpected finds protocol

AMBS and MTS Heritage will prepare a short document that identifies the archaeological sensitivity of the site and relevant heritage requirements and statutory obligations for the project which will be presented to all on-site personnel (Appendix E – Draft Unexpected Finds Policy). It will include photographs and easy to understand text about:

- The types of archaeological remains that may be encountered and their significance.
- Maps showing location of potential archaeological features.
- Understanding of the unexpected finds procedures.
- Repercussions of any breaches to the approved archaeological strategy as set out in the ARDM and penalties for any breaches to the *Heritage Act 1977* and *National Parks and Wildlife Act 1974* and project conditions of approval

Additional toolbox talks will be given as required, to provide an overview and management of the anticipated archaeological works for that day and in the event of unexpected finds or relics being exposed.

Generally, an unexpected finds protocol is used to manage works in areas with little or no archaeological potential. It includes a flowchart that sets out the steps to be followed if an unexpected heritage or archaeological item is encountered (see Appendix E – Draft Unexpected Finds Procedure). An AMBS or MTS Heritage archaeologist will be ‘on-call’ to attend site and inspect any unexpected finds and determine if they need to be salvaged or additional approvals are needed before works can recommence.

As the project area has been assessed to have low potential to retain Aboriginal heritage objects, Aboriginal heritage values will be managed by the unexpected finds protocol. The project unexpected heritage finds protocol will include management guidance and procedures to be followed by site personnel and environment management staff in the event that suspected Aboriginal or historic heritage objects or relics are identified during works, including potential human skeletal remains.

7.2 Additional archaeological and heritage management strategies

Depending on the results of the archaeological testing, a variety of different approaches and strategies may be required to correctly manage the archaeological resource across the project area. As the archaeological investigations are likely to include a mix of testing, open area salvage and monitoring/periodic inspections (as set out in Sections 6.2 and Appendix A MARDM) over a relatively long period, these additional management strategies will need to be flexible, responsive, and developed in consultation with HNSW. Such strategies will be comprehensively developed in direct response to the types, locations, intactness and reassessed potential and significance of any archaeological remains uncovered during the testing program. Such strategies may include, but not limited to:

- Re-design, retention and/or subsequent reinstatement of State significant heritage items. Certain portions of the project area, or items/relics that have State significant values and exceptional levels of intactness, preservation and interpretive or research potential may be suitable for retention or reinstatement.
- Certain types of heritage items/relics may be best managed by wholesale or *en bloc* excavation and removal off-site to allow for lengthy, detailed investigation, recording and/or conservation works, or facilitate alternate methods of investigation. For example, AMBS routinely facilitates sieving of underfloor or occupation deposits off-site, and much

of the recording of timber elements from UDHB1 was duplicated/improved by use of hand-held 3D scanner in an offsite facility, where the lighting could be controlled.

- Conservation, curation, interpretation and display of significant and suitable heritage items/relics will be carefully considered throughout the archaeological investigations, prior to the bulk-excavation phase of works, rather than as a last minute 'add-on'.

Given the high risk of in-ground contaminants, it may be that certain strategies, such as retention or reinstatement, cannot be safely accomplished.

8 Conclusion and recommendations

AMBS has responded to comments from HNSW on this ARDM/MARDM provided to Aqualand in a letter dated 28 July 2025. HNSW will be kept informed of the results of the archaeological investigations throughout the testing program and invited to inspect and/or advise on the correct management of significant archaeological items as required by the Excavation Directors.

8.1 Recommendations

A copy of this updated ARDM and appendices should be submitted to HNSW for their review and records.

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