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Cosmos Archaeology Pty Ltd

Cockle Bay Marine Structures Redevelopment

Addendum

Heritage Impact Statement

Cockle Bay
Sydney
NSW

October 2017

Cockle Bay Marine Structures Redevelopment
Addendum
Heritage Impact Statement

Prepared for:

Sydney Harbour Foreshore Authority

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October 2017

Cosmos Archaeology Job Number J17/32

Cover image: The first Pyrmont Bridge, 1871, wood engraving. (**Baker, W. & A. C. Cooke, 1871,** "Pyrmont Bridge, Near Sydney." Ebenezer & David Syme, Melbourne. State Library of Victoria, Image No. IAN22/04/71/84)

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EXECUTIVE SUMMARY

Place Management, Property NSW (Property NSW) is currently renewing the marine structures in Cockle Bay as part of the transformation of Darling Harbour. The works were approved as a State Significant Development (SSD 6611) in November 2015. In August 2017 a Section 96 modification of project approval was submitted by Property NSW to include an additional 24m long floating walkway under Pyrmont Bridge.

Comments from the Heritage Council on State Significant Development modification (SSD 6611 MOD1) noted that the impact on heritage of the floating walkway extension underneath Pyrmont Bridge had not been adequately assessed as no archaeological investigation had taken place in the immediate area. This document addresses the concerns of the Heritage Council by presenting the findings of a maritime archaeological survey conducted under Pyrmont Bride and assesses the impact of proposed piling (four piles) associated with the gangway.

The first Pyrmont Bridge was constructed in 1856-1858 by the Pyrmont Bridge Company. It was designed by engineer Edward Orpen Moriarty, who later became Engineer-in-Chief of the harbours and Rivers Branch of the NSW Department of Public Works. The bridge was purchased by the NSW Government in 1884, and demolished in 1902-1903 after construction of the current Pyrmont Bridge.

Wharf 49 was constructed in early 1890s as part of the expansion of the Darling Harbour railway goods yard. It was widened in ca.1908-2911 by the Sydney Harbour Trust, partially buried in the south by the Railway Department in the late 1920s, and eventually demolished in the mid-1980s during the redevelopment of Cockle Bay.

A site inspection was undertaken beneath the western side of Pyrmont Bridge on 6th October, 2017, supervised by maritime archaeologist Cosmos Coroneos. The majority of material identified during the survey was modern discards. Some loose short lengths of timber piles are likely recent deposits. One timber pile of 250 mm diameter could not be identified, although it is unlikely to be related to the former maritime structures of the first Pyrmont Bridge or Wharf 49 due to its small size. Rock armour identified on the site was likely placed with the construction of the seawall or of Wharf 49 in the late 19th to early 20th century.

While there is a potential for buried remains of the first Pyrmont Bridge beneath the rock armour, this would be north of the study area. Potential remains of the first Pyrmont Bridge have been assessed as having Local significance due to their association with engineer Edward Orpen Moriarty and the Pyrmont Bridge Company. There is high potential for buried archaeological deposits associated with Wharf 49 within the sediment however the density of artefacts is expected to be low within the sandy seabed and higher within the rock armour. These remains have been assessed as having Local significance.

The proposed four piles will not impact potential remains of the first Pyrmont Bridge, as they are north of the study area, and will not impact the unidentified pile noted in the survey. The four piles will have the potential to impact potential maritime archaeological remains associated with Wharf 49. However, taking into account the assessed cultural heritage significance of the identified maritime archaeological remains with total impact area of 0.52m^2, the potential disturbance/damage of the piling is considered to be minor.

This potential impact has been mitigated by the archaeological recording undertaken as part of the dive inspection on 6th October 2017, the findings of which are presented in Section 4 and Annex A of this report.

Based on the findings of this report, our understanding of best heritage practices and specific heritage asset management guidelines prepared by the NSW Heritage Office, it is assessed that the proposed works will have an acceptable impact to the identified maritime archaeological remains and that no further mitigation is required.

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1 INTRODUCTION

1.1 Background

Place Management, Property NSW (Property NSW) is currently renewing the marine structures in Cockle Bay as part of the transformation of Darling Harbour. The works include the demolition of all structures south of Pyrmont Bridge and the construction of new facilities such as a public wharf, floating boardwalk, events pontoon and pods, water taxi ranks and a public visiting vessel facility.

The potential impact of these works on the maritime archaeological were assessed in the Cosmos Archaeology May 2015 Maritime Archaeological Survey and Statement of Heritage Impact Report (MAS&SoHI) for then Sydney Harbour and Foreshore Authority (SHFA) as part of the Environmental Impact Statement (EIS) for State Significance Development Application (SSD 6611).[1] SSD 6611 was approved in November 2015.

In August 2017 a Section 96 modification of project approval was submitted by Property NSW to include an additional 24m long floating walkway adjacent to the Australian National Maritime Museum. The proposed walkway is to pass under the current Pyrmont Bridge.

Comments from the Heritage Council on State Significant Development modification (SSD 6611 MOD1) noted that the impact on heritage of the floating walkway extension underneath Pyrmont Bridge had not been adequately assessed as no archaeological investigation had taken place in the immediate area.[2] It recommended that:

> *An underwater inspection of the area under the proposed floating walkway beneath Pyrmont Bridge be is to be undertaken by a suitably qualified and experienced maritime archaeologist to:*
>
> - *assess the presence (or likely presence) of archaeological sites and relics in this area, both above and below the seabed, and*
> - *submit a Heritage Impact Statement which includes the findings of the inspection and an assessment of the heritage impact and mitigation measures in relation to the installation of the proposed piles associated with the proposed floating walkway under Pyrmont Bridge.*

NSW Public Works Advisory which is overseeing the project contracted Cosmos Archaeology to implement the recommendations of the Heritage Council. This report addresses the recommendations made by the Heritage Council by presenting the conduct and the findings of the underwater dive inspection and assessing the impact of the proposed floating walkway on the identified archaeological remains.

This document is presented as an addendum to the May 2015 MAS&SoHI and as such the historical research in that report is not reproduced here. The historical background presented in this document directly pertains to the first Pyrmont Bridge and the former wharfage that was located under the shadow of the current Pyrmont Bridge.

[1] **Cosmos Archaeology Pty Ltd, May 2015,** Cockle Bay Marine Structures Redevelopment – Maritime Archaeological Survey and Statement of Heritage Impact, report prepared for Sydney Harbour Foreshore Authority. The report is Annex 6 of the EIS.
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6611

[2] **Johnston, Rochelle, Manager Coonservation, Heritage Division, Office of Environment & Heritage, 14 September 2017** – letter : *Heritage Council comments on Renewal of Maritime Structures Cockle Bay, Darling Habour – s.96 modification for construction of an additional 24m long floating walkway adjacennt to the Australian National maritime Museum*. File: SF1742025 Job ID: DOC17/449172

1.2 Study Area

The study area for this assessment covers the shadow of the proposed floating walkway as it passes under Pyrmont bridge and connects to the existing ANMM timber landing (***Figure 1***). Of particular focus are the locations of the proposed four piles, which secure the structure to the seabed (Figure 2).

1.3 Objectives

The objectives of the investigation are to:

- *Undertake a maritime archaeological underwater survey of the area surrounding the proposed fixed ANMM landing and fixed ANMM landing support;*
- *Assess the presence (or likely presence) of archaeological sites and relics in this area, both above and below the seabed;*
- *Prepare statements of significance for any archaeological sites and relics that are or may be present within the project area;*
- *Assess the heritage impact of the proposed works on any archaeological sites and relics that are or may be present within the project area; and,*
- *Propose mitigation measures.*

1.4 Abbreviations

The following abbreviations are used throughout this report:

ANMM	Australian National Maritime Museum
EP&A Act	*Environmental Planning and Assessment Act 1979*
ICC	International Convention Centre
LEP	Local Environment Plan
MAS&SoHI	Maritime Archaeological Survey and Statement of Heritage Impact
nm	nautical mile
NSW	New South Wales
REP	Regional Environmental Plan
SEPP	State Environment Planning Policy
SHFA	Sydney Harbour Foreshore Authority
SHR	State Heritage Register (NSW)
SREP	Sydney Regional Environmental Plan (Sydney Harbour Catchments 2005)
SSD	State Significant Development

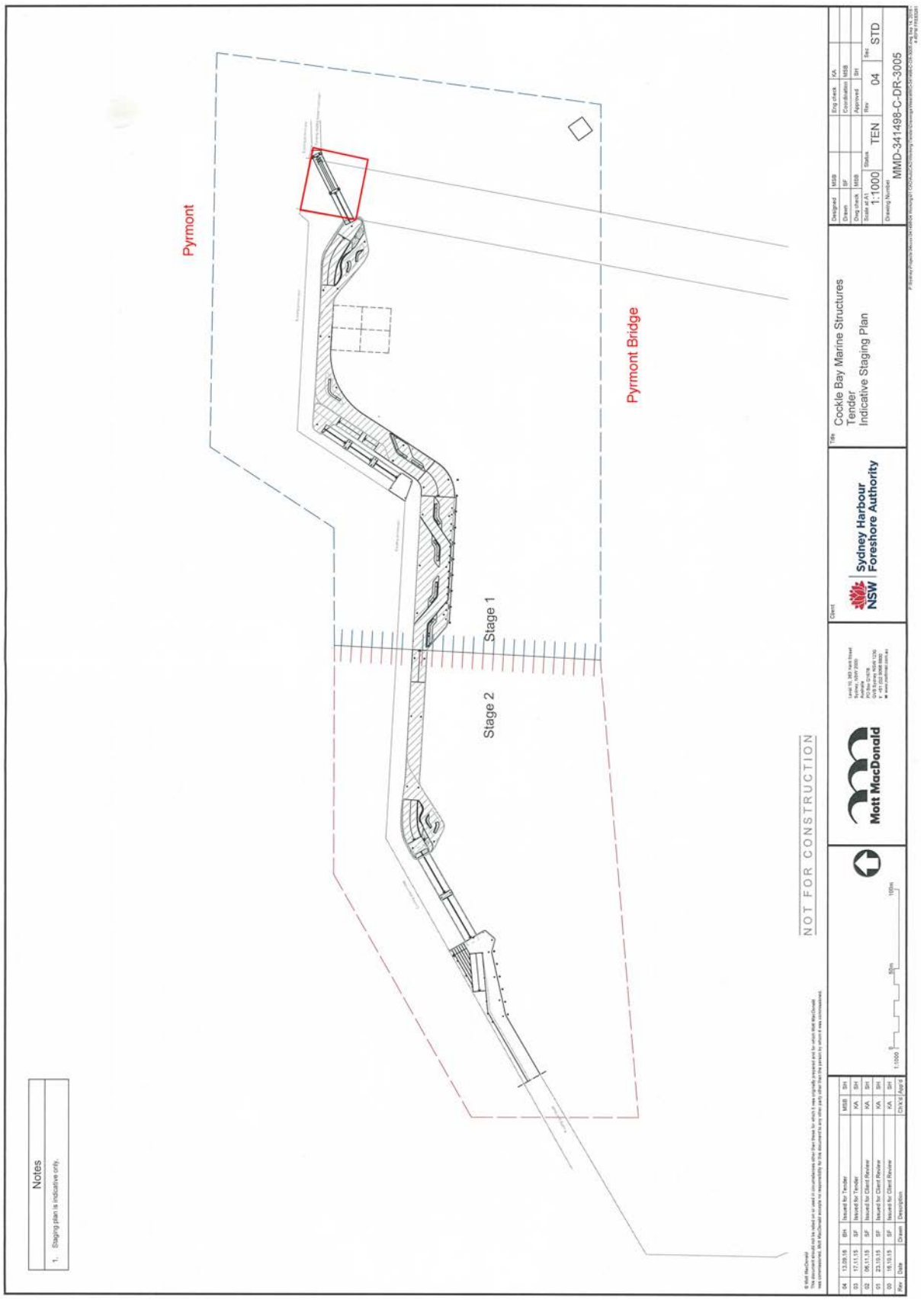

Figure 1: Proposed layout plan of the Western development. Study area shown as red box. (Plan supplied by NSW Public Works Advisory)

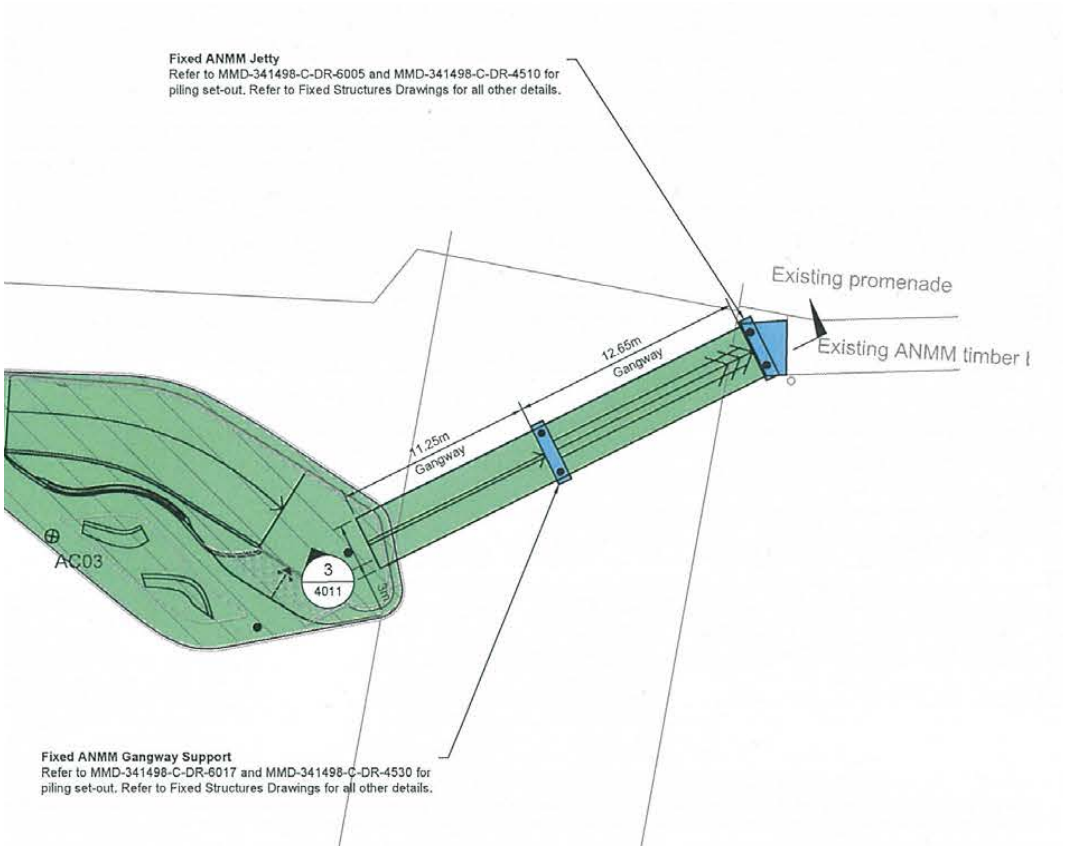

Figure 2: Close up plan of the floating gangway including the fixed ANMM jetty and fixed ANMM gangway support (both shown in blue). (Plan supplied by NSW Public Works)

2 STATUTORY ISSUES

2.1 Cultural Heritage Statutory Protection – Introduction

Cultural heritage in New South Wales (NSW) is protected and managed under a hierarchy of legislation. The following section provides a brief summary of the relevant statutory regulations relating to the current project area.

2.1.1 NSW *Heritage Act 1977* (amended 1999)

The NSW *Heritage Act 1977* is the primary piece of State legislation affording protection to all items of non-indigenous environmental heritage (natural and cultural) in NSW. Under the Act, "items of environmental heritage" include places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. Items of heritage identified as having State significance are listed on the NSW State Heritage Register (SHR) and are afforded automatic protection against any activities that may damage the item or affect its heritage significance under the Act.

Under Section 89J(c) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), a developer would not be required to apply for approvals or excavation permits under the Heritage Act for State Significant Development. However, under Schedule 2, Part 2(4) of the Environmental Planning and Assessment Regulation 2000 the Director General is required to:

> *Consult with the relevant public authorities and have regard to the need for the requirements to assess any key issues raised by those public authorities.*

Under Section 146 of the Heritage Act, the discovery of a relic also requires that:

> *A person who is aware or believes that he or she has discovered or located a relic (in any circumstances, and whether or not the person has been issued with a permit) must: (a) within a reasonable time after he or she first becomes aware or believes that he or she has discovered or located that relic, notify the Heritage Council of the location of the relic, unless he or she believes on reasonable grounds that the Heritage Council is aware of the location of the relic, and (b) within the period required by the Heritage Council, furnish the Heritage Council with such information concerning the relic as the Heritage Council may reasonably require.*

Relic provision and protection

In addition to buildings and items listed on the SHR, various cultural heritage sites, items, archaeological features and deposits are afforded automatic statutory protection by the relic provisions of the NSW *Heritage Act 1977*. The Act defines a 'relic' as something 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 145 of the Act prevent the disturbance or excavation of any land if there is a reasonable cause to suspect that a relic will be discovered, exposed, moved, damaged or destroyed, unless an excavation permit has been issued by the Heritage Council of NSW. The type of permit that is required depends on whether the relic or relics have been listed on the State Heritage Register.

There is also an obligation under the Heritage Act to stop work and contact the Heritage Office if relics are unexpectedly disturbed or uncovered. Any relics located are required to be reported under the *NSW Heritage Act 1977*, Section 145.

Infrastructure still in use today that has been identified as a heritage item is known as a 'work'. These items are not defined as a relic, and development affecting them can be carried out under a list of Standard Exceptions for State significant items published by the Heritage Council.[3] The significance of the item and the level of impact determine the requirement to undertake a heritage assessment and proposed suitable mitigation works; however, a permit application is not required. Impacts to the cultural significance of relics assessed to be minor can qualify for an exception from the requirement for a permit.[4]

For the purposes of this Act, the State of NSW includes the seabed and the water column up to 3 nautical miles (nm) from the coast. The NSW *Heritage Act 1977* therefore, within 3 nm of the NSW coast, can protect shipwrecks. Shipwrecks currently under the jurisdiction of the NSW *Heritage Act* are identified in the Historic Shipwrecks Register, maintained by the NSW Heritage Council.

Part 3C of the Act contains provisions for the protection of shipwrecks over 75 years old. This section is included in the Act to provide a link to and consistency with the (Commonwealth) *Historic Shipwrecks Act 1976*. In NSW the 'relics' provision takes precedence over Part 3C when it comes to determining the legal and protected status of a wreck and associated artefacts.

Management of heritage assets by NSW Government agencies

The NSW Heritage Act 1977 also requires all government agencies to identify and manage heritage assets in their ownership and control. Under Section 170 of the Act, government instrumentalities must establish and keep a register entitled the "Heritage & Conservation Register" which includes all items of environmental heritage listed on the State Heritage Register, an environmental planning instrument or that may be subject to an interim heritage order, which are owned, occupied or managed by that government instrumentality.

Under Section 170A of the Heritage Act 1977, each government agency must also ensure that all items entered on its Heritage and Conservation Register are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the NSW Minister for Infrastructure & Planning on advice of the NSW Heritage Council.[5] These principles serve to protect and conserve the heritage significance of identified sites, items and objects, and are based on relevant NSW heritage legislation and statutory guidelines.

2.1.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) established the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The *Act* requires that environmental impacts are considered prior to land development; this includes impacts to cultural heritage items and places as well as archaeological sites and deposits. The *Act* also requires that Local Government agencies prepare planning instruments (such as Local Environmental Plans, Development Control Plans) in accordance with the *Act* to provide guidance on the level of environmental assessment required.

The EP&A Act is the main act regulating land use planning and development in NSW. Part 5.1 Division 115Y of the Act provides a process for the assessment and approval of State Significant Development (SSD).

Applications made under Part 5.1 of the EP&A Act are subject to environmental assessment requirements, prepared by the Director General of Planning and Infrastructure. Under Schedule 2(3)(4) of the Environmental Planning and Assessment Regulation 2000 the Director-General is required to:

[3] **NSW Heritage Branch, 2000,** Schedule of General Exceptions; **NSW Heritage Branch, 2006,** Standard Exceptions for Works Requiring Heritage Council Approval.
[4] **NSW Heritage Branch, 2006,** Schedule of Additional Exceptions.
[5] NSW Heritage Office, 2005.

Consult relevant public authorities and have regard to the need for the requirements to assess any key issues raised by those public authorities.

This should include consultation with Heritage Division regarding items, places and archaeological sites that have heritage significance.

Sydney Regional Environmental Plan – Sydney Harbour Catchment (2005)

NSW Regional Environmental Plans (REPs) are plans drafted by the Department of Planning and apply to a nominated "region," covering broad issues such as urban growth, commercial centres, extractive industries, recreational needs, rural lands and heritage and conservation. They provide the framework for detailed local planning by councils. The local council of the area in which development is proposed to be carried out is usually the consent authority for that development for the purposes of the REP, unless the Department of Planning selects to substitute the Minister or Director General of Planning as the consent authority in respect to particular forms of development.

The stated objections of the *Sydney Regional Environmental Plan (SREP) – Sydney Harbour Catchment (2005)* with regards to foreshores and waterways areas are as follows (Section 53);

(a) To conserve the environmental heritage of the land to which this Part applies, and

(b) To conserve the heritage significance of existing significant fabric, relics, settings and views associated with the heritage significance of heritage items, and

(c) To ensure that archaeological sites and places of Aboriginal heritage significance are conserved, and

(d) To allow for the protection of places which have the potential to have heritage significance but are not identified as heritage items.

***Note:** Attention is drawn to the provisions of the* Heritage Act 1977 *and the* National Parks and Wildlife Act 1974 *under which an approval or permit under either or both of those Acts may be required for certain activities, whether or not development consent is required by this clause.*

Part 5 of the *SREP – Sydney Harbour Catchment (2005)* contains provisions for the protection and conservation of cultural heritage sites, items and values – both Aboriginal and non-Aboriginal.

Under the REP, a "heritage item" is defined as:

(a) A building, work, archaeological site or place:

(i) That is specified in an inventory of heritage items prepared for the purposes of this plan, being an inventory that is available at the head office of the Department, and

(ii) That is situated on a site described in Schedule 4 and identified on the Heritage Map, or

(b) A place:

(i) That is specified in an inventory of heritage items prepared for the purposes of this plan, being an inventory that is available at the head office of the Department, and

(ii) That is described in the inventory as a place of Aboriginal heritage significance.

Clause 55 of the REP provides protection for heritage items. Under this clause, the following development may be carried out only with development consent:

(a) Demolishing or moving a heritage item,

(b) Altering a heritage item by making structural or non-structural changes to its exterior, including changes to its detail, fabric, finish or appearance,

(c) Altering a heritage item by making structural changes to its interior,

(d) Disturbing or damaging a place of Aboriginal heritage significance or an Aboriginal object,

(e) Erecting a building on, or subdividing, land on which a heritage item is located.

(2) Development consent is not required by this clause if:

(a) In the opinion of the consent authority:

(i) The proposed development is of a minor nature or consists of maintenance of the heritage item, and

(ii) The proposed development would not adversely affect the significance of the heritage item, and

(iii) The proponent has notified the consent authority in writing of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development will comply with this subclause and that development consent is not otherwise required by this plan.

(4) Before granting development consent as required by this clause, the consent authority must assess the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item concerned.

(5) The assessment must include consideration of a heritage impact statement that addresses at least the following issues (but is not to be limited to assessment of those issues, if the heritage significance concerned involves other issues):

(a) The heritage significance of the item as part of the environmental heritage of the land to which this Part applies, and

(b) The impact that the proposed development will have on the heritage significance of the item and its setting, including any landscape or horticultural features, and

(c) The measures proposed to conserve the heritage significance of the item and its setting, and

(d) Whether any archaeological site or potential archaeological site would be adversely affected by the proposed development, and

(e) The extent to which the carrying out of the proposed development would affect the form of any historic subdivision.

(6) The consent authority may also decline to grant development consent until it has considered a conservation management plan, if it considers the development proposed should be assessed with regard to such a plan.

Clause 59 – Development in Vicinity of Heritage Items:

1) Before granting development consent to development in the vicinity of a heritage item, the consent authority must assess the impact of the proposed development on the heritage significance of the heritage item.
2) This clause extends to development:
   (a) That may have an impact on the setting of a heritage item, for example, by affecting a significant view to or from the item or by overshadowing, or
   (b) That may undermine or otherwise cause physical damage to a heritage item, or
   (c) That will otherwise have any adverse impact on the heritage significance of a heritage item.
3) The consent authority may refuse to grant development consent unless it has considered a heritage impact statement that will help it assess the impact of the proposed development on the heritage significance, visual curtilage and setting of the heritage item.
4) The heritage impact statement should include details of the size, shape and scale of, setbacks for, and the materials to be used in, any proposed buildings or works

and details of any modification that would reduce the impact of the proposed development on the heritage significance of the heritage item.

Cockle Bay falls under the *Darling Harbour Development Plan No. 1,* which means that the 'consent authority' is the Minister for Planning.

Darling Harbour Development Plan No 1

The Darling Harbour Development Plan No 1 is made under the Environmental Planning Assessment Act 1979 and from 2009 is taken to be a State Environment Planning Policy (SEPP). The plan encourages the development of a variety of tourist, educational, recreational, entertainment, cultural and commercial facilities within Darling Harbour and makes provisions with respect to controlling development. Clause 6 details that a permit is required for certain development including:

(a) For the purposes of tourist, educational, recreational, entertainment, cultural or commercial facilities (other than facilities used for pawn broking or other forms of moneylending),

(b) For the purposes of transport facilities,

(c) For the purposes of beautifying the landscape,

(d) For any purpose specified in Schedule 1, or

(e) For any purpose incidental or subsidiary to a purpose referred to in paragraph (a), (b), (c) or (d).

Schedule 1 includes the following list of developments that may be carried out under a permit: Amusement parks; art galleries; child care centres; commercial premises (other than premises used for pawn broking or other forms of moneylending); car parking stations; charter boat facilities; convention centres; entertainment centres; exhibition centres; film, television and radio studios; hotels; light industries; markets; motels; museums; parks and gardens; places of assembly; places of public worship; professional consulting rooms; public buildings; public utility undertakings; recording studios; recreation facilities; refreshment rooms; residential buildings; serviced apartments; shops; theatre restaurants; utility installations.

Clause 7 of the plan prohibits all other development not referred to in Clause 6, and Clause 8 explains that permits are also required for renovation or demolition of a building or work.

2.2 Statutory Heritage Register Search

In NSW there are four types of statutory listings for non-indigenous cultural heritage sites, objects and places:

- National Heritage List;
- NSW State Heritage Register;
- *Regional Environmental Plan* (REP);
- *Local Environmental Plan* (LEP); and,
- Section 170 Heritage and Conservation Register;

Heritage register searches were undertaken for the project area with the following results.

2.2.1 National Heritage List

The National Heritage List is a register of natural and cultural places with outstanding heritage significance to the Australian nation. Each entry to the National Heritage List is assessed by the Australian Heritage Council as having exceptional heritage value and is protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The Act requires that approval is obtained from the Australian Government Minister for the Environment Protection, Heritage and the Arts before any action takes place

that has, will have, or is likely to have, a significant impact on the national heritage values of a listed place.

There are no sites listed on the National Heritage List located within the study area.

2.2.2 NSW State Heritage Register

The *State Heritage Register* is a statutory list of places and items of State heritage significance made by the Minister Planning. The Register lists a diverse range of places, including archaeological sites, that are particularly important to the State and which enrich our understanding of the history of NSW.

Places and items listed on the Register are legally protected under the NSW *Heritage Act 1977* and approval is required from the Heritage Council of NSW prior to undertaking work that results in their alteration or modification.

The Pyrmont Bridge is listed on the State Heritage Register as an Item of State Significance (Item Number 01618). The listing includes a heritage curtilage area that extends to the either side of the bridge (Figure 3).

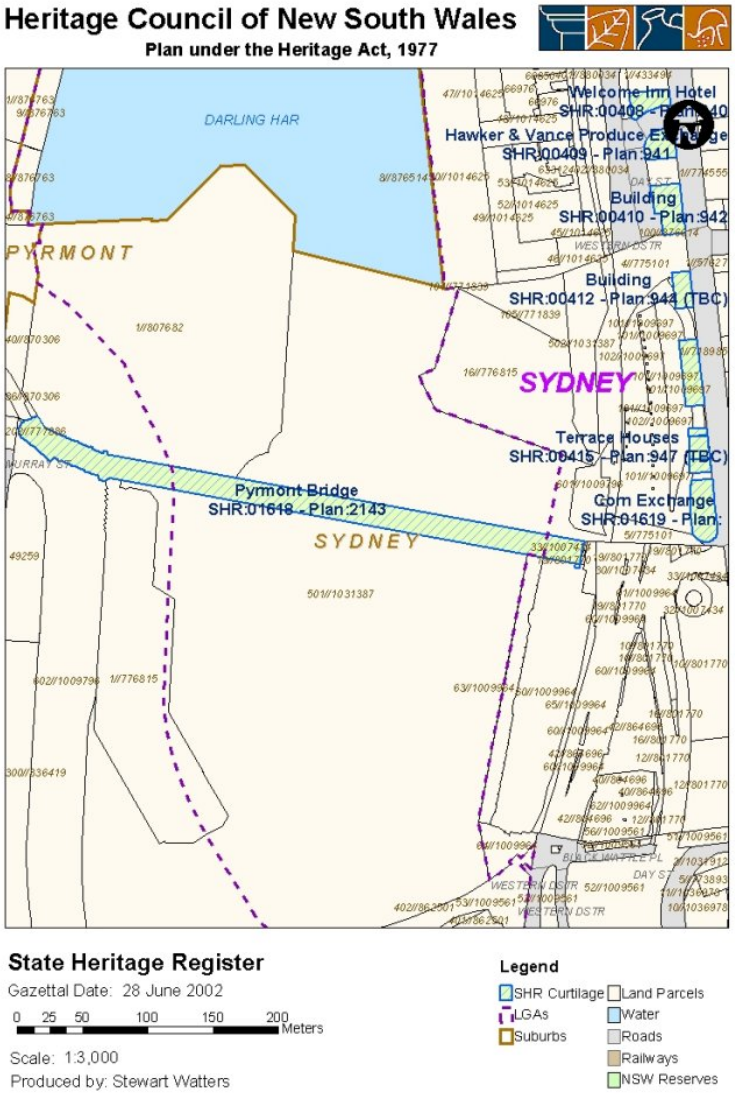

Figure 3: Curtilage for Pyrmont Bridge.[6]

[6] **NSW Environment and Heritage, 2002, "Pyrmont Bridge"**, available http://www.environment.nsw.gov.au/heritageapp/HeritageItemImage.aspx?ID=5053337#ad-image-8, accessed 26 February 2015.

2.2.3 NSW Historic Shipwreck Register

The NSW Historic Shipwreck Register is a database maintained by the NSW Heritage Division and contains upwards of 1,800 wrecks.[7] This database has been built up around historical accounts of the loss of vessels, mainly through the systematic examination of newspapers from the 1790s to the present day. The database has been augmented by other sources such as archival information from the Australian Hydrographic Office.

The database has been searched to locate any known or potential shipwrecks that have occurred specifically in Darling Harbour / Cockle Bay and greater in Sydney Cove. There are 112 registered vessels that are listed as wrecked in "Sydney Harbour" that have not been located. This description includes vessels that were reported lost within "Sydney Harbour Heads", or general locations such as "just outside Circular Quay" whereby the location may be further afield than the location described.

Refining the search to closer to the study area, there were four shipwrecks that have occurred in Darling Harbour. These were:

William Woolley – 201 ton wooden hulled brig that was lost in 1854 when it caught fire and was scuttled while bring timber into Sydney Harbour. The location of the wreck is unknown.

Sterling – an iron hulled single screw steamer lost in 1919 when it collided with another vessel at Federal Wharf. The vessel was later refloated and removed from the site.

Orphan Girl – a woodern hulled lighter that collided with another vessel in 1880. The vessel was travelling from Pennant Hills to Darling Harbour. The vessel was wrecked and it's location is unknown.

Omeo – 16 ton wooden screw steamer harbour tug who's boiler expolded at it's wharf at Bathurst Street Wharf.

There is no potential for archaeological remains associated with the shipwreck of *Sterling* to be present within the project area. While the vessel was refloated, there is the potential for remains associated with the collision to still be on the seabed in the vicinity of Federal Wharf, but this is removed from the study area.

The vessels *William Woolley* and *Orphan Girl* have Darling Harbour included in their shipwreck register listings as this was their destinations. It is possible that both of these wrecks are within the greater Darling Harbour area, however, they are unlikely to be within the study area of the report.

The vessel of *Omeo* was lost at the Bathurst Street Wharf. These wharves are now covered over by reclamation works and are located behind the current seawall. Therefore, the wreck likely to be to the south and outside of the study area of this report.

2.2.4 Sydney Local Environmental Plan 2012

Identified items of cultural heritage significance within the project area are listed on Schedule 5 of the *Sydney Local Environmental Plan 2012.* Each item listed on Schedule 5 is subject to protection under the planning and development controls of the LEP.

There are no listings on the Sydney LEP that are located close to the study area and be impacted by the proposed works.

2.2.5 NSW Section 170 Heritage and Conservation Register

All NSW State Government Agencies are required to keep an up to date record to assist in total asset management by providing information on their assets which have identified heritage significance. The Register has been prepared in accordance with the NSW Heritage Office guidelines and corresponds with information in the State Heritage Inventory, as managed by the NSW Heritage Office.

[7] **NSW Heritage Office, 2007** 'Maritime Heritage Online', NSW, available http://www.environment.nsw.gov.au/maritimeheritage/index.htm

Pyrmont Bridge is listed on the Sydney Harbour Foreshore Authority's Section 170 Heritage and Conservation Register.

2.3 Summary of Statutory Provisions

The table below provides a summary of the heritage listed items that are located within or near the study area (Table 1).

Table 1: Summary of heritage listed sites.

Item	NSW *Heritage Act (1977)*		*Environmental Planning and Assessment Act (1979)*	
	SHR	*S170*	*REP*	*LEP*
Pyrmont Bridge – Sydney, Part of Lot 501, DP 1031387 and part of Lot 1010, DP 1147364	01618	Sydney Harbour Foreshore Authority		

The impacts to Pyrmont Bridge were assessed in the 2015 MAS&SoHI report and hence are not repeated in this report.[8]

[8] *Op. Cit.* Cosmos Archaeology Pty Ltd, May 2015

3 HISTORICAL BACKGROUND

A detailed historical overview of the development of maritime industry and infrastructure within the whole of Cockle Bay has been previously prepared for the 2015 MAS&SoHI and was further expanded in Annex A of that report.[9] The following section presents a summary of identified historic maritime infrastructure likely to have been situated within the study area – namely the former Pyrmont Bridge and Wharf 49.

3.1 The First Pyrmont Bridge – 1858

The first Pyrmont Bridge was constructed in 1856 to 1858 by joint stock company "The Pyrmont Bridge Company," formed and incorporated under NSW legislation in 1855. The Pyrmont Bridge formed part of a wider scheme proposed by the Company, including the construction of a bridge over Black Wattle Swamp and the formation of several connecting roads. The scheme was directed towards effectively opening up direct transport connections between the developing districts of Pyrmont, Glebe, Leichardt, Camperdown and the Parramatta Road, with the business centre of Sydney (Figure 4).[10]

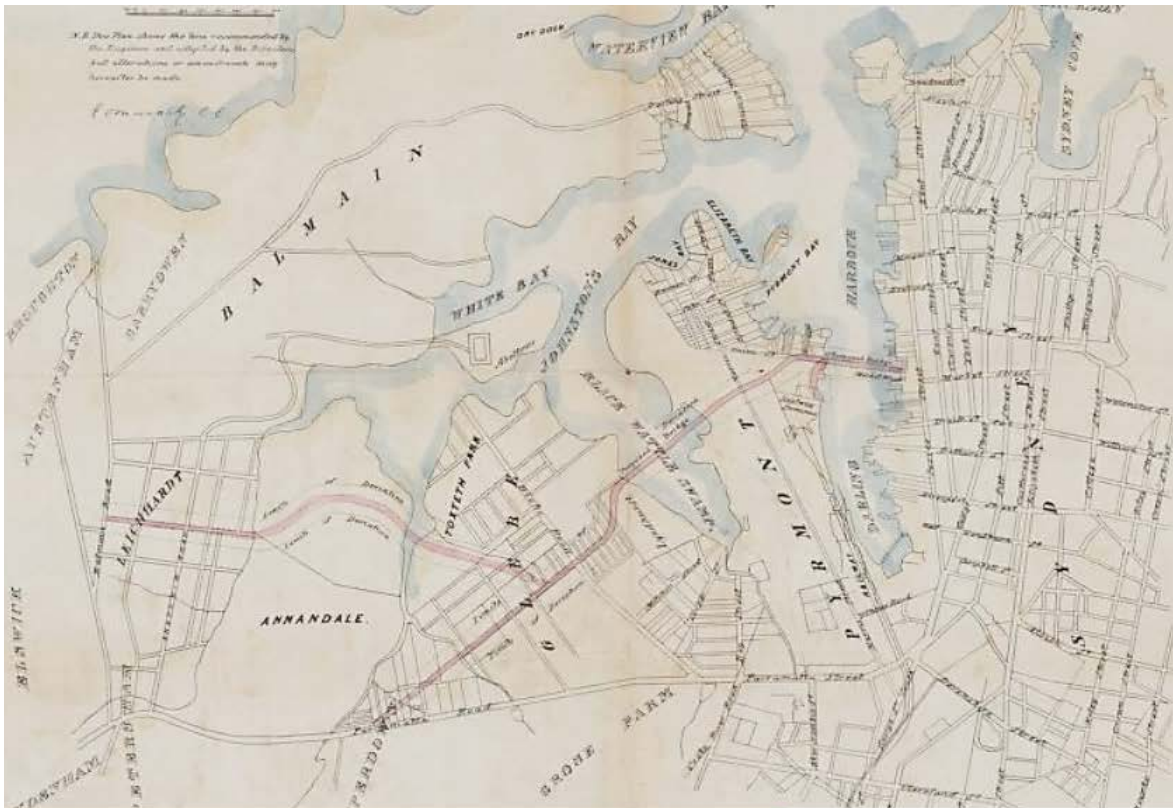

Figure 4: 1857 plan of Sydney and surrounding suburbs, showing the roads and bridges – including Pyrmont Bridge – proposed by the Pyrmont Bridge Company (marked in red). *Note that this plan does not accurately depict the actual location of the Pyrmont Bridge as constructed.*[11]

[9] *Op. Cit.* **Cosmos Archaeology Pty Ltd, May 2015**
[10] **Anon., 10th February 1858,** "The Pyrmont Bridge." *The Empire;* **Allan, P., 1907,** "The Pyrmont Bridge, Sydney, N.S.W." Paper No. 3483, The Institution of Civil Engineers.
[11] **Moriarty, E. O., 1857**, *A plan of part of Sydney and its environs: showing the bridges and roads to be constructed by the Pyrmont Bridge Company,* Allan & Wigley Litho, Sydney, NSW., Ferguson Collection, National Library of Australia, MAP F 310.

The Pyrmont Bridge was a low-level timber bridge with a central iron swing span to allow passage of shipping, designed by engineer Edward Orpen Moriarty, later Engineer-in-Chief of the Harbours and Rivers Branch of the NSW Department of Public Works. The bridge connected Union Street, Pyrmont, with the foot of Market Street, Sydney; following the then direct alignment of Union Street and meeting Market Street at an angle. The bridge measured 1140 feet (347.5 metres) long, with a carriageway situated 10 feet (3 metres) above high water and comprising a central roadway 39 feet (11.8 metres) in width, with pedestrian footways each measuring 5.5 feet (1.7 metres) wide on either side, flanked with timber guardrails featuring decorative diagonal crossings. The abutments and approach walls on either side were formed of sandstone masonry, backed by earthen embankments secured with rock rubble facing.

The main bridge spans were supported on a series of iron-bark timber trestle piers, comprised of vertical bearing piles and angled fender piles, cross-braced with transverse diagonals and topped with iron-bark headstocks and corbels. The piers were spaced approximately 40 feet (12.2 metres) apart and utilised a total of approximately 300 iron-bark piles; all of which were coppered from approximately 1 foot (0.3 metres) below the mudline to the top of the cross bracing. The bridge superstructure was formed of longitudinal iron-bark girders, connected with wrought iron tension roads, supporting an iron-bark plank sheeting roadway covered with asphalt and sand.

The central swing span consisted of a large iron swivel, surmounted by three wrought iron lattice beams, mounted in their centre on cast-iron conical rollers and wheels working on a circular rail; the whole of which was supported by a cluster of 54 iron-bark piles. The swing span was operated manually and once in the open position, provided a passage of 56 feet (17 metres) in width for vessels on each side of the span. Several buoys attached to large anchors were laid down in the harbour by the Pyrmont Bridge Company to enable vessels to tie off whilst waiting for the bridge to open; a steamer was also constantly kept in readiness to tow vessels through the bridge if required.

The construction of the bridge was carried out by contractor Mr. T. Alston, under the supervision of engineer E. O. Moriarty, with the iron swing span fabricated by the Australasian Steam Navigation Company. The first pile was driven on 16th of October, 1856, and the completed Pyrmont Bridge was opened with great ceremony on the 17th of March 1858 (Figure 5 to Figure 10).[12]

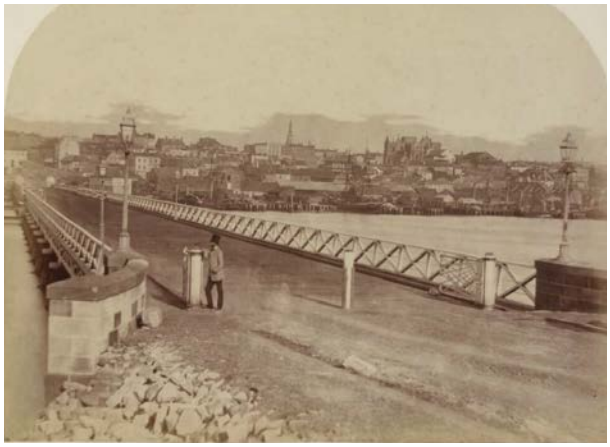

Figure 5: Pyrmont Bridge, 1859, facing south-east towards Sydney. [13]

Figure 6: Pyrmont Bridge, 1871, wood engraving, facing north-east towards Sydney. [14]

[12] **Anon., 17th October 1856,** "The Pyrmont Bridge." *The Empire*; *Op. Cit.* **Anon., 10th February 1858**; **Anon., 18th March 1858,** "Opening of the Pyrmont Bridge." *The Empire; Op. Cit.* **Allan, P., 1907**.
[13] **Blackwood, W., 1859,** "Pyrmont Bridge, Sydney." National Library of Australia, Image NO. PIC/8208/11 LOC Album 123.
[14] **Baker, W. & A. C. Cooke, 1871,** "Pyrmont Bridge, Near Sydney." Ebenezer & David Syme, Melbourne. State Library of Victoria, Image No. IAN22/04/71/84.

Figure 7: Pyrmont Bridge, ca.1900, facing north-east towards Sydney. [15]

Figure 8: Pyrmont Bridge, 1879 bird's eye view sketch showing swing span open. [16]

Figure 9: Pyrmont Bridge, ca.1880-1890, facing south-east towards Sydney. [17]

Figure 10: Pyrmont Bridge, ca.1880, facing south-east towards Sydney showing swing span open. [18]

The Pyrmont Bridge was operated as a toll bridge by the Pyrmont Bridge Company until 1884, when, following increasing public complaint, the NSW Government purchased the bridge and abolished the tolls. By this time, however, public pressure to replace the low-level timber bridge altogether was also increasing. Whilst the bridge provided an important link between Sydney and the western suburbs, it was a continued source of annoyance to both road and maritime traffic due to the extended delays caused by the opening and closing of the swing span – one newspaper article at the time stated that "*the swing on Pyrmont Bridge is responsible for a fearful amount of blasphemy*."[19] Concerns were also being raised regarding the continued operational capacity of the bridge in light of increasing vehicular traffic loads and the increasing size of vessels entering the harbour.

Throughout the early 1890s, various proposals for a new Pyrmont Bridge were considered by the NSW Government and the Parliamentary Standing Committee on Public Works,

[15] **Anon., ca. 1880,** "Pyrmont Bridge, Sydney." Cubis Postcard Collection, http://www.anathan.me/Pyrmont-Bridge.html
[16] **Anon., 1879,** Bird's eve view of Sydney, looking East from Pvrmont 1879. City of Sydney Archives.
[17] **Anon., ca. 1880-1890,** "Pyrmont Bridge." Sydney Harbour Foreshore Authority.
[18] **King, H., ca. 1880,** "First Pyrmont Bridge, built in 1858, looking east towards Market Street and the city of Sydney, 1880." Australian Consolidated Press, Sydney, National Library of Australia, Tyrell Collection, Image No. PIC P803/14/11 LOC Row 64.
[19] **Anon., 24th March 1894,** "The Pyrmont Bridge." *The Sydney Morning Herald.*

including a number submitted as part of a public competition. After prolonged inquiry, a design prepared by the Public Works Department – specifically Robert Hickson, Engineer-in-Chief and Percy Allan, Engineer-in-Charge of Bridge Design – for a higher level, timber and steel, swing span bridge was selected. The new bridge was to be sited to the southern side of the existing Pyrmont Bridge, necessitating a slight realignment of both Market Street and Union Street approaches (Figure 11). Construction commenced in 1899 and the new Pyrmont Bridge was opened to traffic with great celebration on 28th of June 1902. The first Pyrmont Bridge was subsequently demolished throughout late 1902 to 1903 (Figure 12 to Figure 15).[20]

Figure 11: 1900 plan of Darling Harbour, depicting the second Pyrmont Bridge, then in construction, and the first Pyrmont Bridge still standing to the north. [21]

[20] *Op. Cit.* **Allan, P., 1907**; **Otto Cserhalmi & Partners Pty Ltd, 2006,** *Pyrmont Bridge, Darling Harbour, Sydney – Conservation Management Plan,* prepared for the Sydney Harbour Foreshore Authority.; **Sydney Morning Herald, 24th March 1894,** Parliamentary Standing Committee on Public Works "Report Together with Minutes of Evidence, Appendix and Plan Relating to the Proposed Removal of the Pyrmont and Gelbe Island Bridges." Government Printer, Sydney; **Trueman, E. G., 1988,** "Pyrmont Bridge – Construction and Restoration." *Fourth National Conference on Engineering Heritage 1988: Preprints of Papers*; Institution of Engineers, Australia, Barton ACT.

[21] **Le Bihan, E., 1900,** Plan of Darling Harbour, showing the proclaimed resumption, *Australian Town & Country Journal* [12th May 1900] Sydney, NSW, State Library NSW Ca90/16.

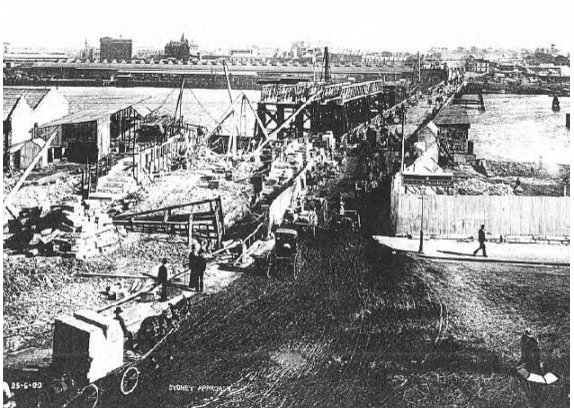

Figure 12: The second Pyrmont Bridge in construction, 1900, facing south-west towards Pyrmont, showing the first bridge to the right. [22]

Figure 13: The second Pyrmont Bridge nearing completion, 1902, facing east towards Sydney, showing the first bridge on the left. [23]

Figure 14: The first Pyrmont Bridge bring dismantled, 1903, facing east towards Sydney, showing the second bridge on the right. [24]

Figure 15: The first Pyrmont Bridge bring dismantled, 1903, facing south-east towards Sydney, showing the second bridge in the background. [25]

3.2 Wharf 49

Wharf 49 was constructed in the early 1890s as part of the extension of the Darling Harbour railway to the new Government wharves in Pyrmont Bay and the associated expansion of the Darling Harbour railway goods yard (Figure 16). Wharf 49 was a long open wharf, constructed of timber piles and decking, built parallel to the shoreline on the frontage of ca.1870s reclamation. The wharf was widened with the northern end tapered towards shore in ca.1908-1911 as part of the Sydney Harbour Trust improvements to Darling Harbour. By the late 1920s, the southern portion of Wharf 49 was buried in the Railway Departments reclamation of the head of Darling Harbour, however, the northern portion remained in operation. Wharf 49 was demolished in the mid-1980s during the redevelopment of Cockle Bay by the Darling Harbour Authority, with the southern portion largely buried in reclamation.

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[22] **Allen, P., 1900,** "The Sydney Approach to the Bridge in June 1900." Public Works Department History Collection, Department of Main Roads, reproduced in Otto Cserhalmi & Partners Pty Ltd 2006 *Pyrmont Bridge, Darling Harbour, Sydney – Conservation Management Plan.* Prepared for the Sydney Harbour Foreshore Authority.

[23] **Anon., 21st June 1902,** "The Construction of the Pyrmont Bridge – the Last Days of the Old Bridge." *The Australian Town and Country Journal.*

[24] **Allen, P., 1903,** "Pyrmont Bridge - Old Swing Span." Heritage Design Services, reproduced in Otto Cserhalmi & Partners Pty Ltd 2006 *Pyrmont Bridge, Darling Harbour, Sydney – Conservation Management Plan.* Prepared for the Sydney Harbour Foreshore Authority.

[25] *Op. Cit.* **Allen, P., 1903**.

Figure 16: Darling Harbour railway goods yard, ca.1905, showing a section of Wharf 49 in left foreground. [26]

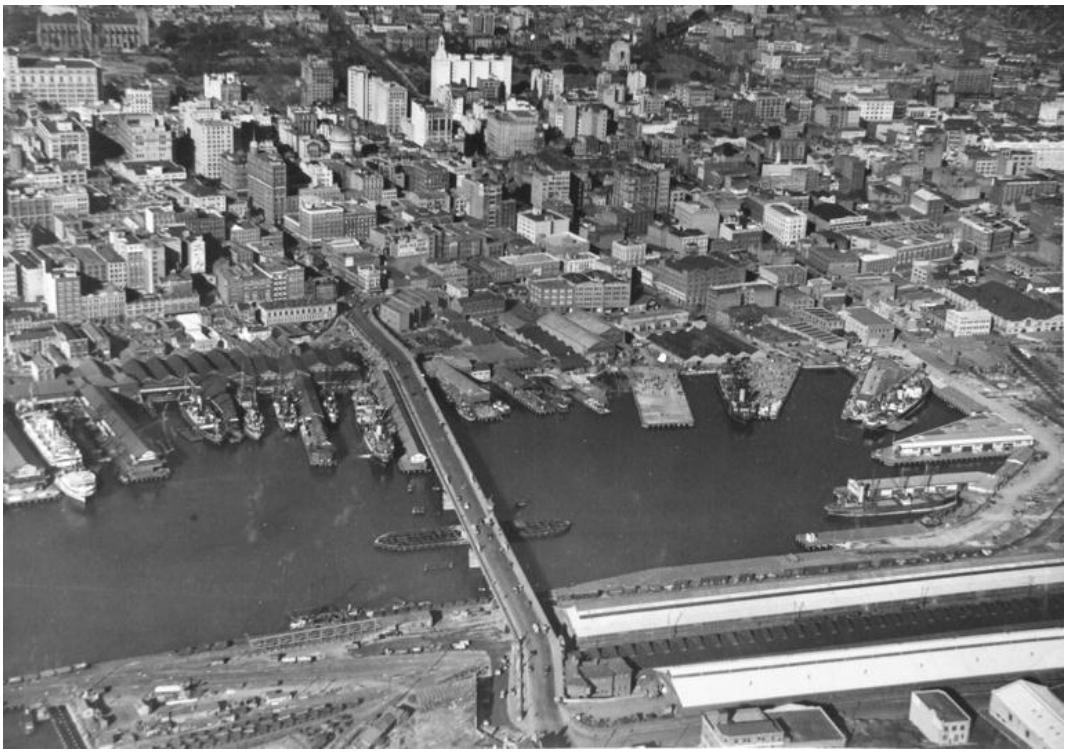

Figure 17: 1937 oblique aerial photograph of Darling Harbour, showing Wharf 49 in foreground. [27]

[26] **Anon., ca.1905,** "Railway Yards – Darling Harbour, Sydney." Powerhouse Museum, Postcard 86/454.
[27] **Anon., 1937,** "Aerial view of Sydney, showing Cockle Bay and Darling Harbour waterfronts 1937." Town Clerks Photograph Albums, 1932-1937, City of Sydney Archives, Image No. SCC 005998.

Figure 18: 1943 aerial view of Darling Harbour, showing Wharf 49 being re-decked.[28]

Based on the historical research undertaken for the 2015 MAS&SoHI and the additional research presented above the known maritime structures as they relate to the study area are presented in ***Figure 19***. As can be seen the alignment of the first Pyrmont Bridge lays to the north of the current Pyrmont Bridge and to the north of the southern end of current ANMM landing.

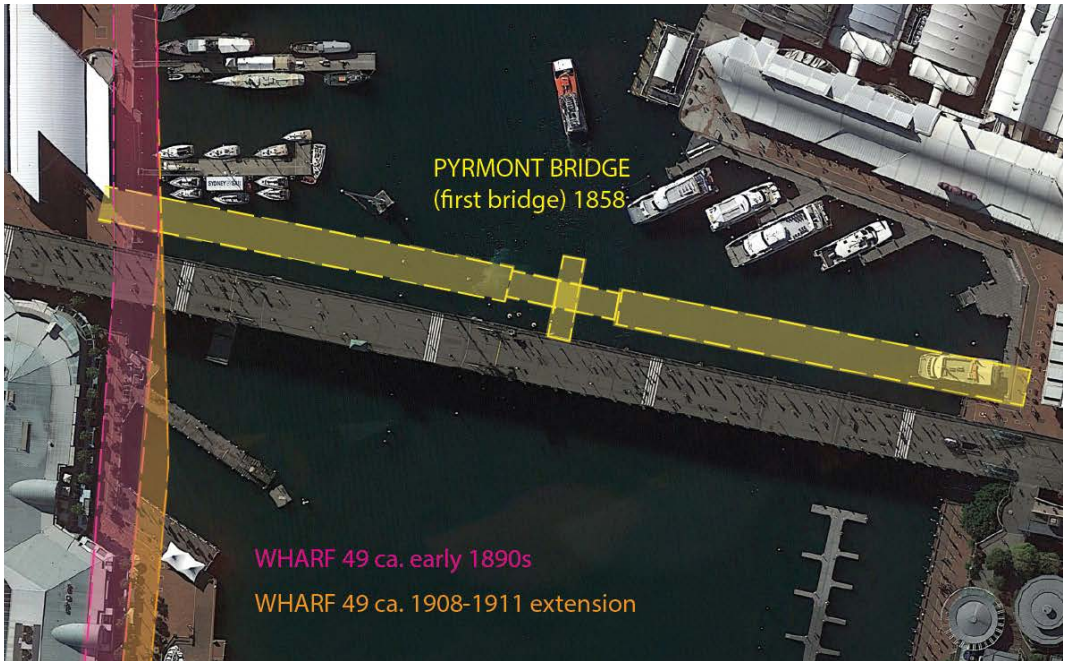

Figure 19: Overlay showing the predicted location of historical features, as depicted on archival maps and plans, within the north-west corner of Cockle Bay. (Base image: Google Earth)

[28] **Adastra Aerial Survey, May-June 1943,** Commissioned by NSW Main Roads Department; available from NSW Land and Property Information, SIX viewer http://maps.six.nsw.gov.au/

4 SITE INSPECTION

4.1 Dates and Personnel

The dive inspection was carried out on the morning of the 6th October, 2017. The supervising maritime archaeologist was Cosmos Coroneos and the commercial dive team and equipment was supplied by Waterway Constructions Pty Ltd. All diving was carried out in accordance with AS2299 diving standards.

4.2 Weather and Tide Conditions

Sydney Harbour conditions are not greatly affected by the minimal changes in tide but rainfall on previous days transports silt and debris from land which can severely dampen visibility (Table 2). Fortunately, no rain had fallen on the previous day to diving (Table 3). Conditions were overcast with a stiff southerly breeze during the inspection. The location of the survey area was sufficiently sheltered that there was no appreciable wave activity. Though situated in a small bay surrounded by large structures such as bridge pylons, there was no appreciable surge.

Table 2: Tides for the 6th October, 2017.[29]

06-Oct-2017	**Time**	0309	0920	1526	2137
	Height (m LAT)	0.22	1.67	0.25	1.69

Table 3: Rain and wind conditions for the three days previous as well as for 6th October, 2017.[30]

Date	Rain (mm)	Wind 0900 (km/h)	Wind 1500 (km/h)
03-Oct-2017	0.0	9 W	22 ENE
04-Oct-2017	0.0	17 S	20 ENE
05-Oct-2017	0.0	9 W	17 ENE
06-Oct-2017	0.0	24 SSW	19 SE

4.3 Conduct of Inspection

The diving was carried out at the top of the high tide. Water visibility was around 2 m. Two dive transects were undertaken. Both transects were arranged so as cover the proposed four pile locations (Figure 20 and

Table 4). The diver (Taylor Fletcher, Waterways Constructions Pty Ltd) was fitted with Surface Supplied Breathing Apparatus which provided in-water communications with the surface as well the option for helmet mounted video allowing the surface team to view the dive in real time.

For each transect one end of an orange polymer line weighted at two metre intervals with crimped lead was tied off to the existing pile adjacent to the seawall at the southern end of the ANMM timber landing. The line was then swum out by a diver on a pre-determined bearing. In the case of the first transect the line was swum out towards the southern-most

[29] **Bureau of Meteorology, Australian Government, 2017a,** 'Sydney (Fort Denison) – New South Wales: Times and Heights of High and Low Waters', available http://www.bom.gov.au/ntc/IDO59001/IDO59001_2017_NSW_TP007.pdf, accessed 19 October 2017.
[30] **Bureau of Meteorology, Australian Government, 2017b, '**Sydney, New South Wales, August 2017 Daily Weather Observations', available http://www.bom.gov.au/climate/dwo/IDCJDW2124.latest.shtml, accessed 22 August 2017.

pylon of the Pyrmont Bridge (Figure 21). As the transect was over 20 m in length (28 m) a second weighted orange line was attached.

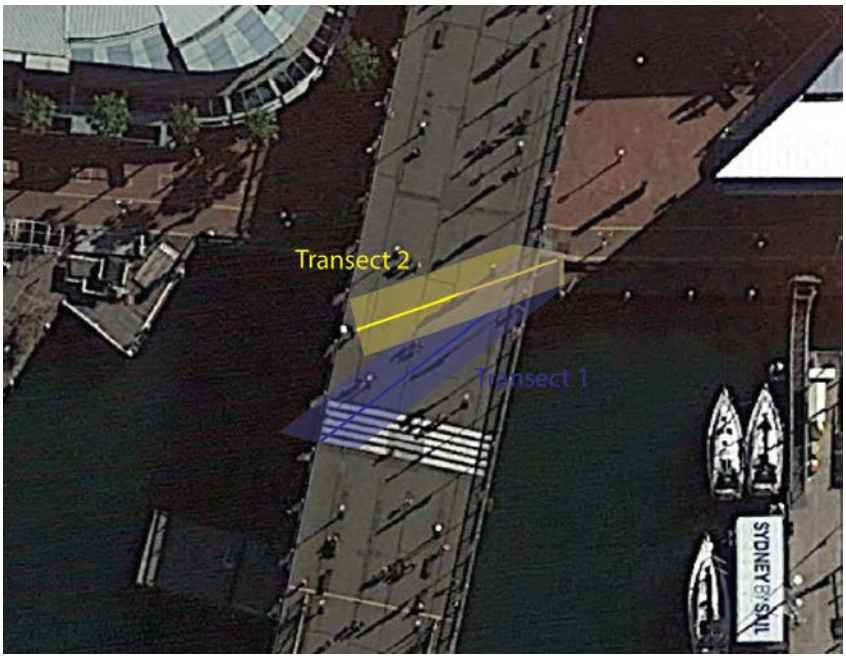

Figure 20: Location of dive transects.

Table 4: Transect details.

Transect	Coordinate (UTM Zone 56H)	Bearing (mag)	Distance (m)	Width (m)	Time	Diver
1	333441 m E, 6250773 m S to 333458 m E, 6250751 m S	133°	28	5	0830 to 0905	T. Fletcher
2	333441 m E, 6250773 m S to 333448 m E, 6250753 m S	151°	20	5	0915 to 0945	T. Fletcher

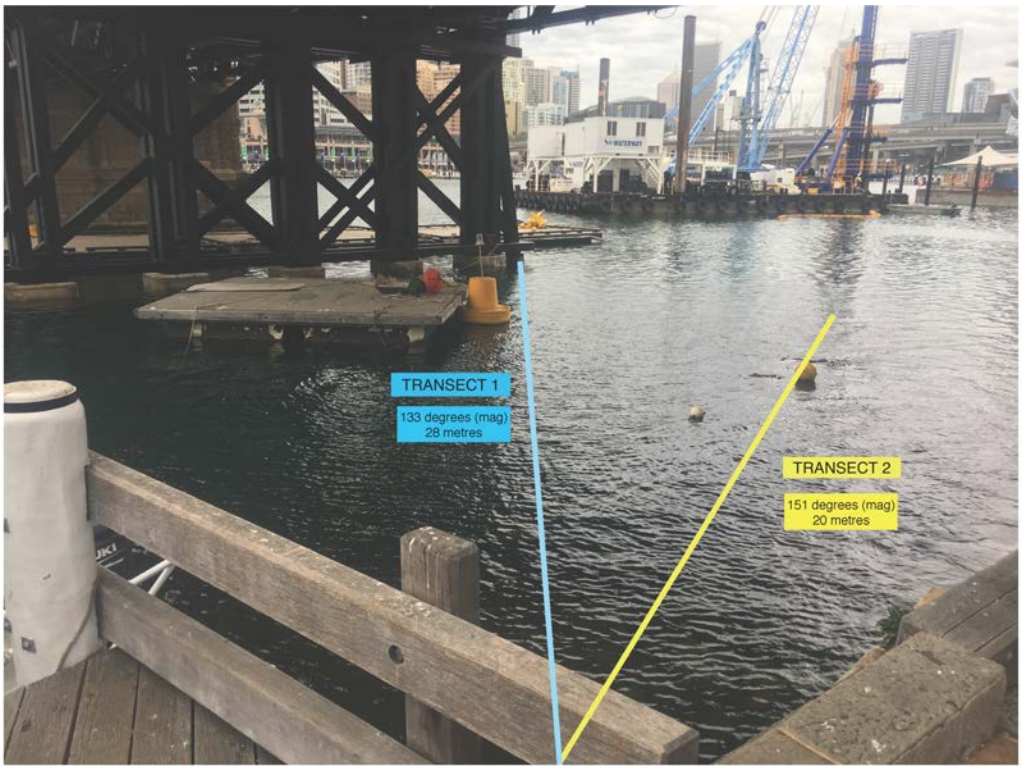

Figure 21: Positioning of Transect 1 and 2.

When the line was satisfactorily set the diver was instructed by the maritime archaeologist on the surface to proceed along on one side the transect line relaying via in-water communication any cultural objects observed as well as the composition of the seabed. Where there was considerable marine growth the diver was instructed to move it aside to see/feel whether there were any objects present.

Once the diver completed one side of the transect line, he crossed the line to the other side and repeated the process. The diver stayed within 2 to 3 m of the transect line at all times and as the water visibility was around 2 m it can be conservatively considered that the diver inspected 2.5 m of seabed on either side of each transect line amounting to each transect effectively covering a 5 m corridor.

Each transect was fully recorded with the helmet mounted video. Where appropriate the diver placed a 500 m scale, taped at 50 mm increments, to allow measurements of an object to be obtained from the video footage. The video records of the dive inspection are provided in Annex A.

4.4 Findings of the Diving Inspection

4.4.1 Seabed

The two transects covered an area consisting of rock rubble placed at the base of the seawall passing under the western end of the Pyrmont Bridge, which gave way to sandy seabed densely covered in places with algae and other marine growth. Towards the end of Transect 1, close to the bridge pylon, the seabed became siltier.

4.4.2 Transect 1

The seabed at the north western end of the transect, closest to the seawall, was composed of rock rubble (rock armour for the seawall) which slopes towards the east for a distance of 4

m and at a 15° angle where the toe of the batter becomes covered with sand (***Figure 22***).[31] At this zone the marine growth, mostly algae, was relatively dense.[32]

The remainder of the transect was composed of a sandy seabed except for the eastern most 6 m where the seabed transitions into a more silty matrix. Within the sand zone there were the occasional protruding rock associated with the rock amour protecting the seawall. There was a scatter of modern materials on the seabed surface such as pipes, various ferrous objects, car tyre and concrete block used as a mooring.[33]

Some loose timbers were observed which, for the most part, were recently deposited flotsam. Two of the observed timbers were the remains of 400 mm diameter round piles, which may have been cut at either end but were too deteriorated to be certain.[34] These pile sections were lying horizontally and it could not be determined whether they are associated with a former maritime structure in the immediate vicinity or had floated in.

4.4.3 Transect 2

This transect ran along the rock rubble slope which protects the seawall (Figure 23). As with Transect 1, the seabed at the toe of the rubble batter was composed of sand with varying densities (up 70%) of marine growth and isolated rock protruding above the seabed in places.

The cultural material observed was similar to Transect 1 in that there was a scatter of modern flotsam. Three concrete mooring blocks were observed in this transect.[35] One large timber girder, 400 mm diameter with a square profile and 1.5 m long, appeared to be the remains of a headstock with ends that appeared cut but heavily degraded.[36]

Close to the seawall and the southern end of the ANMM timber landing the poorly preserved remains of a 250 mm diameter timber pile was observed protruding approximately 500 mm from the rock rubble.[37]

4.5 Summary and Archaeological Potential

The majority of the cultural material observed during the survey was modern discards such as a car jack, a tyre and timber flotsam. There were an unexpected number of concrete blocks which appear to have been temporary modern moorings for works associated with the bridge and surrounding structures.

Discarded and loose short lengths of timber piles and possibly a headstock were observed. From the objects themselves, it was not possible to tell whether these objects were associated with former maritime structures located in the immediate vicinity of the survey area or had floated in and sunk. The survey conducted in February 2015 identified a collection of timber piles of round-profile and 500 mm diameter that were determined to be recently disposed or arrived on the site. It is likely that the loose short lengths of timber piles and the headstock were similarly recently deposited. As such, they are not associated with any former maritime structures in the immediate vicinity of the site.

The degraded *in situ* remains of a timber pile, 250 mm in diameter, were observed protruding from the rock rubble within a few metres of the current seawall. The fact that this pile has a small diameter of only 250 mm suggest that it may not be associated with the noted former maritime structures of the first Pyrmont Bridge or Wharf 49. The diameter of piles associated with such larger structures are usually in excess of 300 mm.[38] Rather, it is more likely to

[31] See video CBPB_171006_T1_northside_01 at 00:01 for example of rubble
[32] See video CBPB_171006_T1_northside_01 at 01:02 for example of marine growth
[33] See video CBPB_171006_T1_northside_01 at 10:26
[34] See video CBPB_171006_T1_northside_01 at 05:21 and CBPB_171006_T1_southside_01 at 01:33 for examples of remnant piles
[35] See video CBPB_171006_T2_northside at 03:40 for example of mooring block
[36] See video CBPB_171006_T2_southside at 03:34
[37] See video CBPB_171006_T2_southside at 07:14
[38] **Cosmos Archaeology Pty Ltd September 2017** Cockle Bay Park Development : Maritime Archaeological Assessment – DRAFT. See Section 5 – site inspection for description and interpretation of piles observed.

have been associated with smaller, perhaps temporary, installations along the foreshore such as an ancillary structure for the construction of the current Pyrmont Bridge or an earlier version of the current landing/boardwalk linked to the ANMM.

The rock armour evident at the base of the seawall identified during the survey was likely placed during the construction of Wharf 49 and seawall in the late 19th century to early 20th century. The rock armour also likely continues beneath the sandy seabed, as evidenced by the occasional loose rock observed further along the transects. It is possible that remains earlier structures may have been buried beneath the rock armour. Any buried remains would be protected within the seabed and, depending on the type of remains, may still exist. It should be noted that the historical research has placed the first Pyrmont Bridge to the north of the existing bridge and hence any potential structural remains would be to the north of the study area.

The presence of sand and silt in the seabed also indicates a potential for archaeological deposits associated with Wharf 49 to be buried within the study area. Within the area composed of rock amour it is likely that small artefacts such as ferrous nuts, fragments of bottle glass and small personal items such as coins would be present in amongst the rock rubble. Larger objects would have eventually moved down the rock armour slope being mobilised by surge and occasional propeller jet turbulence. Therefore there could be expected to be a higher likelihood of artefact material (in terms of mass rather that number) present in the sandy seabed beyond the toe of the rock armour. However this expectation should be tempered with the possibility that dredging during the working life of Wharf 49 may have truncated such deposits and as such the expected artefact density associated with Wharf 49 can be expected to be low in both the sandy and rock rubble seabed.

Cosmos Archaeology Pty Ltd October *2017* *Burrill Lake Bridge Archival Recording* – DRAFT. For diameter of 1880s bridge piles which ranged from 300 to 400 mm diameter.

UNIT ID	Transect 01	DATE	06/10/2017	LOCATION	Pyrmont Bridge - western end				
START TIME:	0830	FINISH:	0905	TOTAL TIME (MIN):	35	RECORDER	Taylor Fletcher	PARTNER	NA
WATER VISABILITY (METRES)	2	SEABED VISABILITY	20-100%	SPACING (METERS)	5				

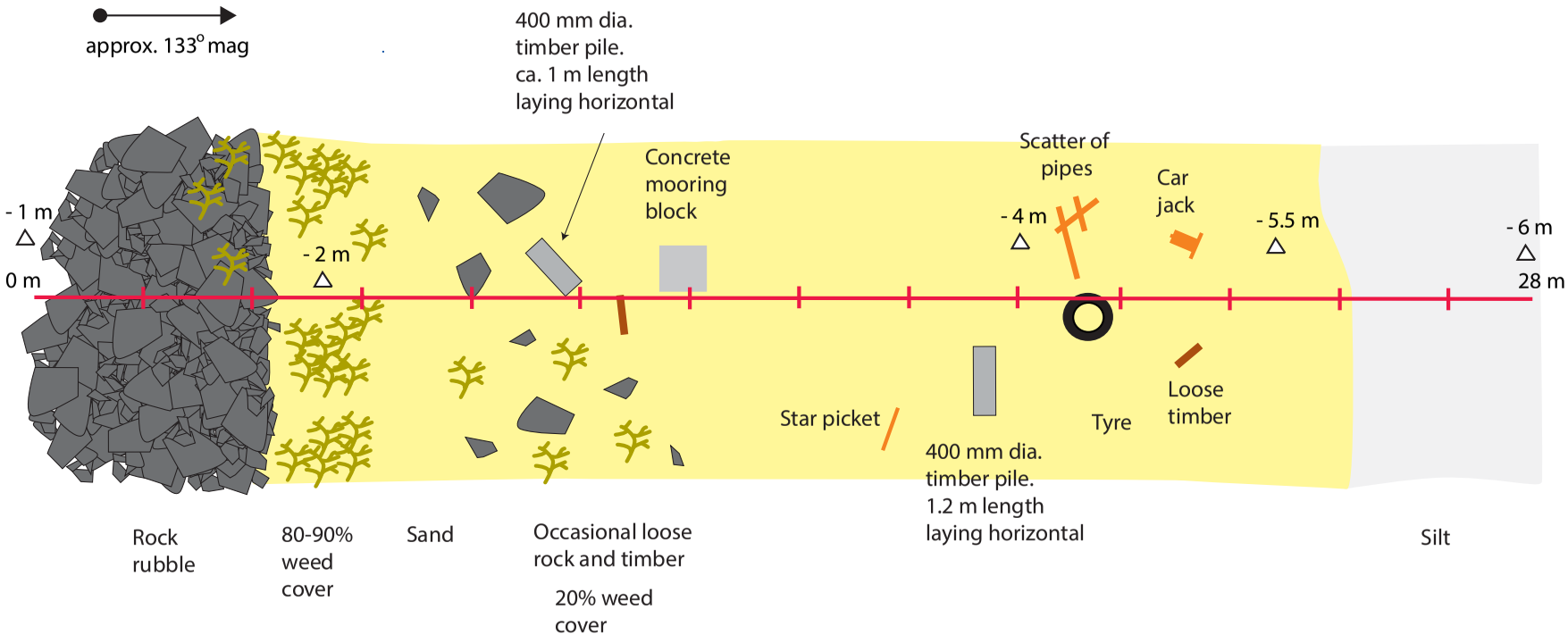

Figure 22: Digitised results of Transect 1.

UNIT ID	Transect 02	DATE	06/10/2017	LOCATION	Pyrmont Bridge - western end		
START TIME:	0915	FINISH:	0945	TOTAL TIME (MIN):	30	RECORDER	Taylor Fletcher	PARTNER	NA
WATER VISABILITY (METRES)	2	SEABED VISABILITY	30-100%	SPACING (METERS)	5		

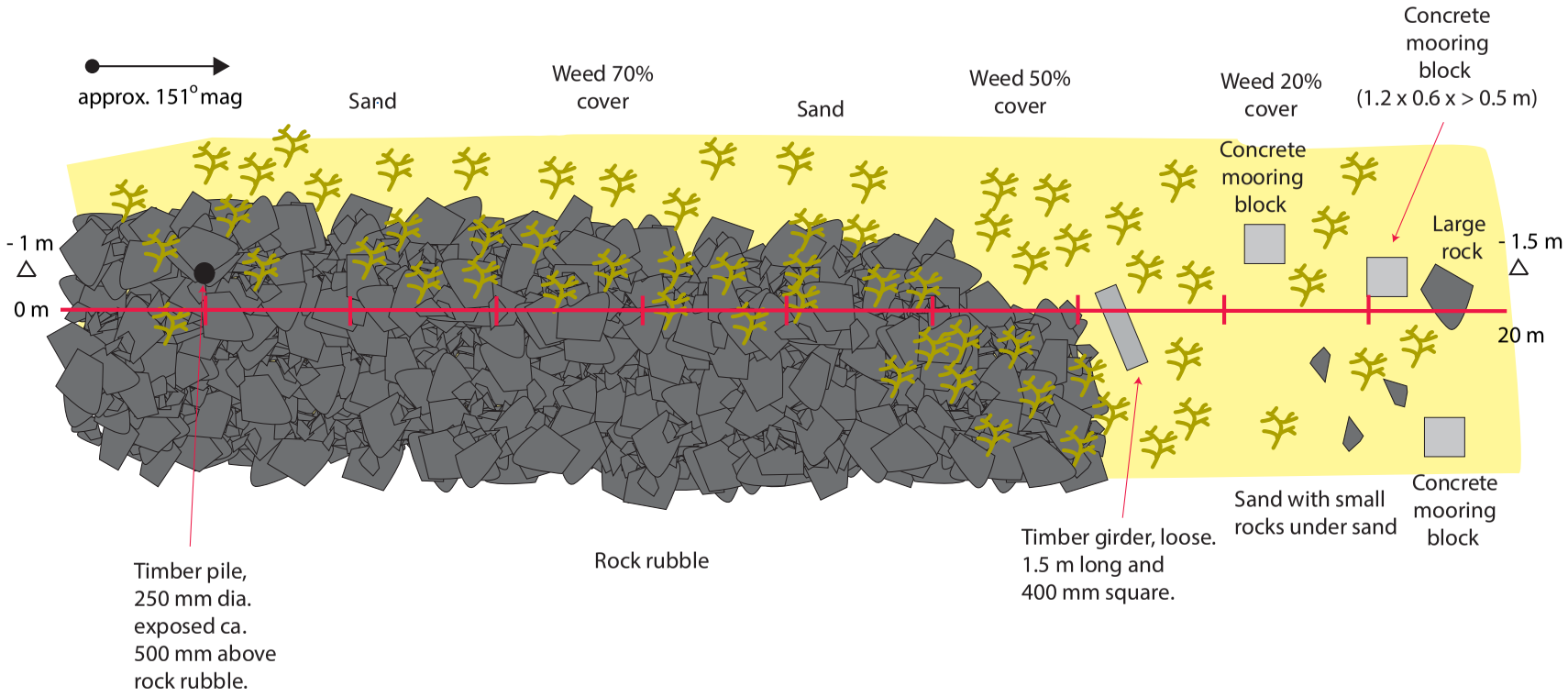

Figure 23: Digitised results of Transect 2.

5 ASSESSMENT OF SIGNIFICANCE

5.1 Introduction

An assessment of cultural significance or heritage significance seeks to understand and establish the importance or value that a place, site or item may have to select communities and the general community. The Australian ICOMOS *Charter for the Conservation of Places of Cultural Significance*[39] (the *Burra Charter 1979,* most recently revised in 1999) is the standard adopted by most heritage practitioners in Australia when assessing significance. It defines cultural significance as:

> *"aesthetic, historic, scientific or social value for past, present or future generations".* [40]

This value may be contained in the fabric of the item, its setting and relationship to other items, the response that the item stimulates in those who value it now, or the meaning of that item to contemporary society.

Accurate assessment of the cultural significance of sites, places and items is an essential component of the NSW heritage assessment and planning process. A clear determination of a site's significance allows informed planning decisions to be made for place, in addition to ensuring that their heritage values are maintained, enhanced, or at least minimally affected by development.

Assessments of significance are made by applying the following standard evaluation criteria provided by the NSW Office of Environment and Heritage[41] in order to establish a statement of significance:

a. An item is important in the **course or pattern** of NSW's **cultural or natural history** (or the cultural or natural history of the local area);

b. An item has strong or special **associations with** the life or works of **a person, or group of persons, of importance in NSW' cultural or natural history** (or the cultural or natural history of the local area);

c. An item is important in demonstrating **aesthetic characteristics** and/or a high degree of **creative or technical achievement** in NSW (or the local area);

d. An item has strong or special **associations with a particular community or cultural group** in NSW (or the local area) for **social, cultural or spiritual reasons**;

e. An item has **potential to yield information** that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);

f. An item possesses **uncommon, rare or endangered** aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);

g. An item is important in **demonstrating the principal characteristics of a class of NSW's cultural or natural places**; or cultural and natural environments.

[39] **Australia ICOMOS Inc. 1999** The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance
[40] *Op. Cit.* **Australia ICOMOS Inc. 1999**: Article 1.2.
[41] **NSW Heritage Office, 2001,** *Assessing Heritage Significance*

5.2 Evaluation

The cultural heritage significance of potential archaeological remains within the study area are assessed below using the criteria presented in **Section 5.1.** The heritage significance of the current Pyrmont Bridge is also presented below.

5.2.1 Potential Remains of the First Pyrmont Bridge (1858 to 1903)

Criterion a) *An item is important in the **course or pattern** of NSW's **cultural or natural history** (or the cultural or natural history of the local area)*

The first Pyrmont Bridge was essential for connecting the city and the inner western suburbs of Sydney. It was initially part of a wider scheme of bridge and road construction to establish direct transport connections between Pyrmont, Glebe, Leichardt, Camperdown and Parramatta Road with the business centre of Sydney. The bridge was designed by engineer Edward Orpen Moriarty, who later became Engineer-in-Chief of the Harbours and Rivers Branch of the NSW Department of Public Works. It was constructed and operated by the Pyrmont Bridge Company before being bought by the NSW Government in 1884.

*Potential remains of the first Pyrmont Bridge are of **State significance** under this criterion.*

Criterion b) *An item has strong or special **associations with** the life or works of **a person, or group of persons, of importance in NSW' cultural or natural history** (or the cultural or natural history of the local area);*

The first Pyrmont Bridge has close association with Edward Orpen Moriarty, later Engineer-in-Chief of the Harbours and Rivers Branch of the NSW Department of Public Works. It is also associated with the Pyrmont Bridge Company.

*Potential remains of the first Pyrmont Bridge are of **Local significance** under this criterion.*

Criterion c) *An item is important in demonstrating aesthetic **characteristics** and / or a high degree of **creative or technical achievement** in NSW (or the local area);*

Remains of the first Pyrmont Bridge have not been identified in surveys of the area. Any potential remains are likely to be buried beneath rock armour on the western side of Cockle Bay and, as such, will be fragmentary. It does not appear that the construction of this bridge was particularly innovative or demonstrated any technical achievement.

*Potential remains of the first Pyrmont Bridge **do not meet** the standards of this criterion.*

Criterion d) *An item has strong or special **associations with a particular community or cultural group** in NSW (or the local area) for **social, cultural or spiritual reasons**;*

The first Pyrmont Bridge would have associations with the workers and public that used the bridge as part of their transport between Sydney and the western suburbs. However, remains of the first Pyrmont Bridge would no longer be identifiable.

*Potential remains of the first Pyrmont Bridge **do not meet** the standards of this criterion.*

Criterion e) *An item has **potential to yield information** that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);*

The construction details of the first Pyrmont Bridge are well documented and represented in photographs and artwork from the time. It is possible that remains of the bridge could provide additional information on its construction such as the types (other than iron bark) and sizes of timber used.

*Potential remains of the first Pyrmont Bridge **do not meet** the standards of this criterion.*

Criterion f) *An item possesses **uncommon, rare or endangered** aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);*

The first Pyrmont Bridge was a precursor to the later and current Pyrmont Bridge. The type and form of the original bridge were not original or uncommon.

*Potential remains of the first Pyrmont Bridge **do not meet** the standards of this criterion.*

Criterion g) *An item is important in **demonstrating** the **principal characteristics of a class of NSW's cultural or natural** places; or cultural and natural environments.*

Any potential remains of the first Pyrmont Bridge are not a good example of early bridge construction due to their fragmentary nature.

*Potential remains of the first Pyrmont Bridge **do not meet** the standards of this criterion.*

Statement of Cultural Significance

Potential remains of the first Pyrmont Bridge only have significance for their association with engineer Edward Orpen Moriarty, who was later Engineer-in-Chief of the Harbours and Rivers Branch of the NSW Department of Public Works, and with the Pyrmont Bridge Company who constructed it. The potential remains have limited potential to yield information on bridge construction and lack any aesthetic or demonstrative characteristics that are not already demonstrated in surviving photographs and artistic works of the bridge. As such, potential remains of the first Pyrmont Bridge are of ***Local* significance**.

5.2.2 Potential Remains of Wharf 49 (early 1890s to mid-1980s)

Criterion a) *An item is important in the **course or pattern** of NSW's **cultural or natural history** (or the cultural or natural history of the local area)*

Wharves in Cockle Bay have served as a trade hub for Sydney from the 1830s. Development on the western side of Cockle Bay was largely associated with the Darling Harbour railway and goods yard, including the construction of Wharf 49 in the early 1890s. It's widening in ca.1908-11, partial burial in the late 1920s and then demolition in the mid-1980s was all as a result of continuing development and redevelopment of the western side of Cockle Bay.

*Potential remains of Wharf 49 are of **Local significance** under this criterion.*

Criterion b) *An item has strong or special **associations with** the life or works of **a person, or group of persons, of importance in NSW' cultural or natural history** (or the cultural or natural history of the local area);*

Wharf 49 has associations with various government departments including: those responsible for extension of the Darling Harbour railway and goods yard in the early 1890s, resulting in the wharf's development; the Sydney Harbour Trust, who expanded the wharf in ca.1908-1911; the Railway Department, who buried the southern portion of the wharf in the late 1920s; and the Darling Harbour Authority who eventually demolished the wharf for the redevelopment of Cockle Bay in the mid-1980s. However, none of these associations can be defined as strong or special.

*Potential remains of Wharf 49 **do not meet** the standards of this criterion.*

Criterion c) *An item is important in demonstrating aesthetic **characteristics** and / or a high degree of **creative or technical achievement** in NSW (or the local area);*

Potential remains of Wharf 49 do not likely have the capacity to demonstrate creative and/or technical achievement as this wharf was likely based on a standard design used for government wharves constructed towards the end of the 19th century and into the 20th century. Regardless, any existing remains would be fragmentary and buried within sediment on the western side of Cockle Bay.

Potential remains of Wharf 49 ***do not meet*** *the standards of this criterion.*

Criterion d) *An item has strong or special* ***associations with a particular community or cultural group*** *in NSW (or the local area) for* ***social, cultural or spiritual reasons****;*

Wharf 49 would have associations with the workers that used the wharf, however, remains of Wharf 49 would no longer be identifiable.

Potential remains of Wharf 49 ***do not meet*** *the standards of this criterion.*

Criterion e) *An item has* ***potential to yield information*** *that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);*

Documented information on the construction details of Wharf 49 appear limited and though there are surviving examples of government wharves built in the early 20th century the type of materials used in its construction and maintenance could provide additional information on the nature of the structure. The artefacts associated with Wharf 49 could contribute to the understanding of the activities that took place on and around the structure.

Potential remains of Wharf 49 are of ***Local significance*** *under this criterion.*

Criterion f) *An item possesses* ***uncommon, rare or endangered*** *aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);*

The type and form of the original bridge were not original or uncommon. Examples of early 20th century wharves can still be seen in Sydney Harbour today such as at Woolloomooloo, Walsh Bay and Jones Bay. While many of the original government wharves have been removed, there are still surviving examples that can be considered as common.

Potential remains of Wharf 49 ***do not meet*** *the standards of this criterion.*

Criterion g) *An item is important in* ***demonstrating*** *the* ***principal characteristics of a class of NSW's cultural or natural*** *places; or cultural and natural environments.*

Any potential remains of Wharf 49 are not a good example of early wharf construction due to their fragmentary nature.

Potential remains of Wharf 49 ***do not meet*** *the standards of this criterion.*

Statement of Cultural Significance

Wharf 49 was one of a number of government wharves constructed in Cockle Bay and throughout Sydney Harbour towards the end of the 19th century and early 20th century. It was a common type of wharf that has associations with workers as well as the government departments that were responsible for its construction in the early 1890s, its widening in ca.1908-11, partial burial in the late 1920s and demolition in the mid-1980s. Potential remains of the wharf have the potential to contribute additional information on wharf construction and activities that took place around it. As such, potential remains of Wharf 49 are of ***Local significance****.*

IMPACT ASSESSMENT

5.3 Proposed Works

The subject of this Heritage Impact Statement is the proposed floating walkway or gangway extending from the existing ANMM timber landing under the present Pyrmont Bridge (Figure 24). One 12.65 m section of the walk/gangway will be supported to two sets of two piles. One set will be located between the southern of the ANMM timber landing and the shadow of the current Pyrmont Bridge while the second set of two piles are to be located approximately under the middle of the current Pyrmont Bridge, between the seawall and westernmost pylons. From there an 11.25 m long walkway will connect to the floating heritage walkway.

Figure 25 is a section plan of the gangway at Lowest and Highest Astronomical Tides showing the fixed and moving elements of the gangway structure. An additional plan of the piles shows that all four piles are of hollow steel, 400 mm in diameter, and will be driven into the bedrock. Coordinates for the piles are also provided and reproduced in Table 5. All provided plans for the gangway, including full plans of the sections depicted below, are available in Annex B.

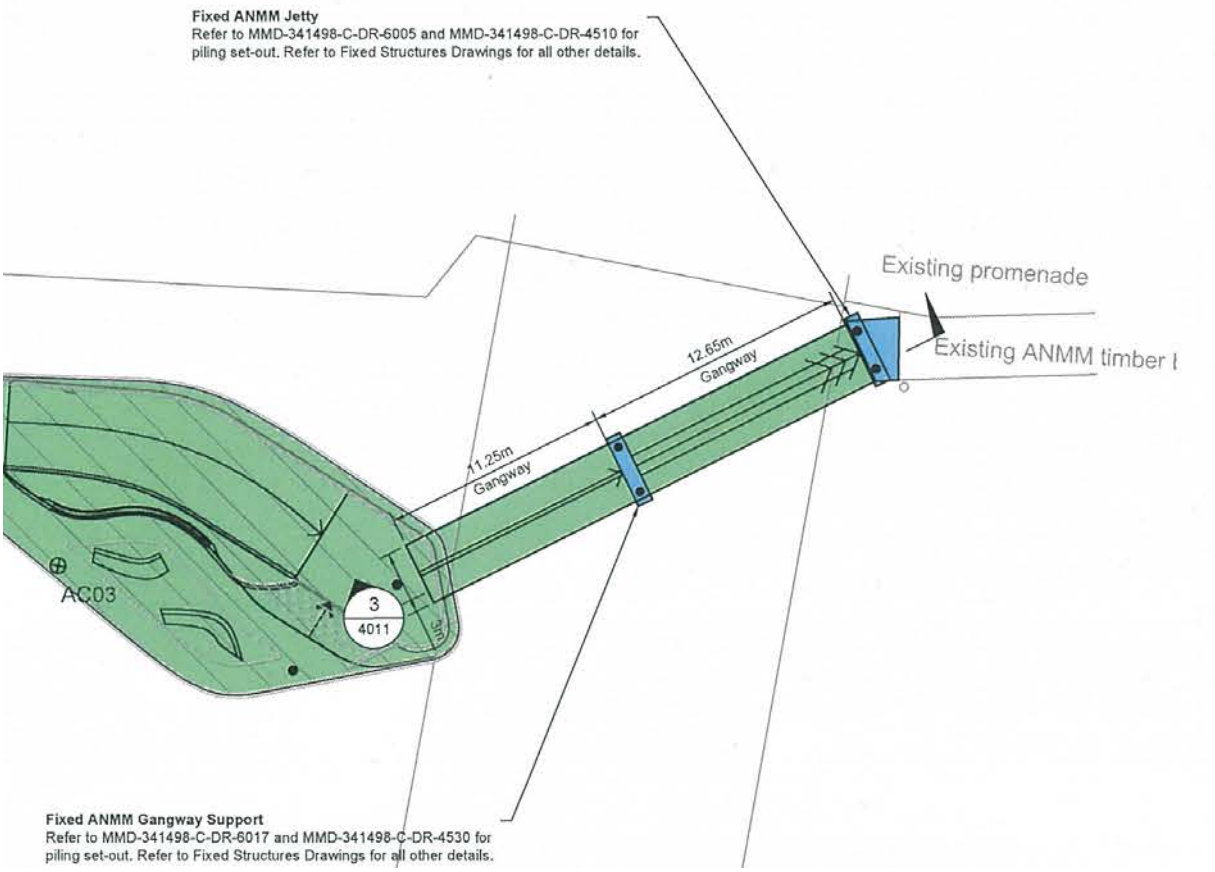

Figure 24: Close up plan of the floating gangway including the fixed ANMM jetty and fixed ANMM gangway support (both shown in blue). (Plan supplied by NSW Public Works)

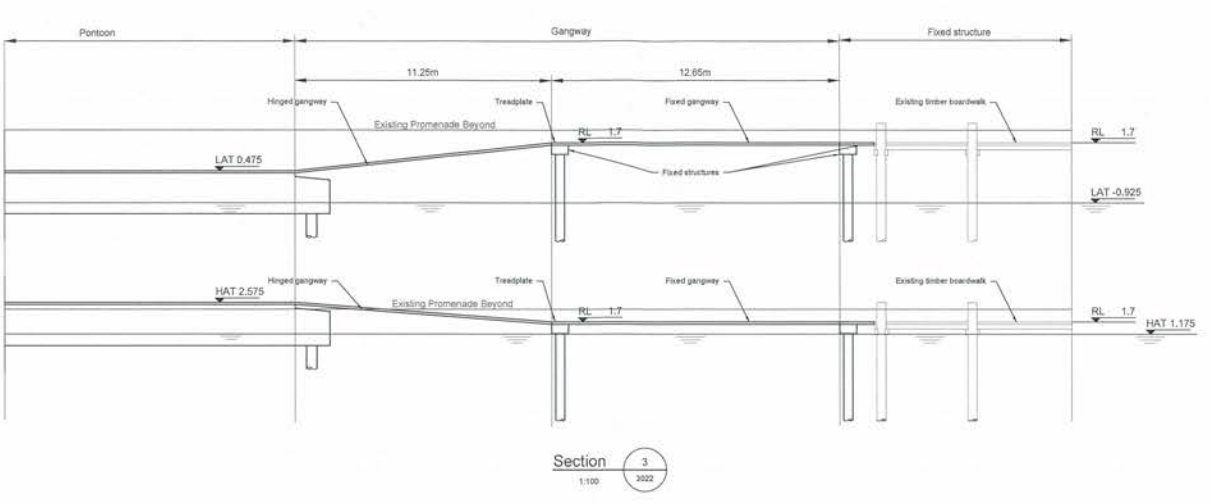

Figure 25: Close up of section plan of the gangway from the existing fixed timber boardwalk (right side) to the pontoon of the pontoon of the floating heritage walkway (left side) during Lowest Astronomical Tide (top) and Highest Astronomical Tide (bottom). (Plan supplied by NSW Public Works)

Table 5: Coordinates of piles for gangway.

Pile Number	Location	Coordinates to MGA
24	Fixed ANMM Gangway Support (West)	E 333446.756, N 6250758.397
25	Fixed ANMM Gangway Support (East)	E 333448.841, N 6250759.426
26	Fixed ANMM Jetty (West)	E 333441.300, N 6250769.812
27	Fixed ANMM Jetty (East)	E 333443.093, N 6250770.697

5.4 Potential Impacts

Based on the proposed works and plans cited above, it is understood that the only impacts to the seabed with the study area will be the installation of four piles associated with the gang/walkway.

A single round standing timber pile of 250 mm in diameter was identified during the survey, protruding from the rock rubble. This pile was considered too small to be associated with Wharf 49 and maybe associated with a later smaller structure. The pile was located 5 m along Transect 2 and, with this information, could be approximately located in relation to the proposed steel piles for the gangway. The timber pile is approximately 2 m away from the proposed steel piles and hence will not be impacted (Figure 26).

The four proposed piles may impact one or more of the piles associated with the former Wharf 49 but the likelihood of this occurring can be considered to be very low. The likelihood of one or more of the proposed piles impacting isolated artefacts associated with activities that took place on and around Wharf 49 however can be considered high.

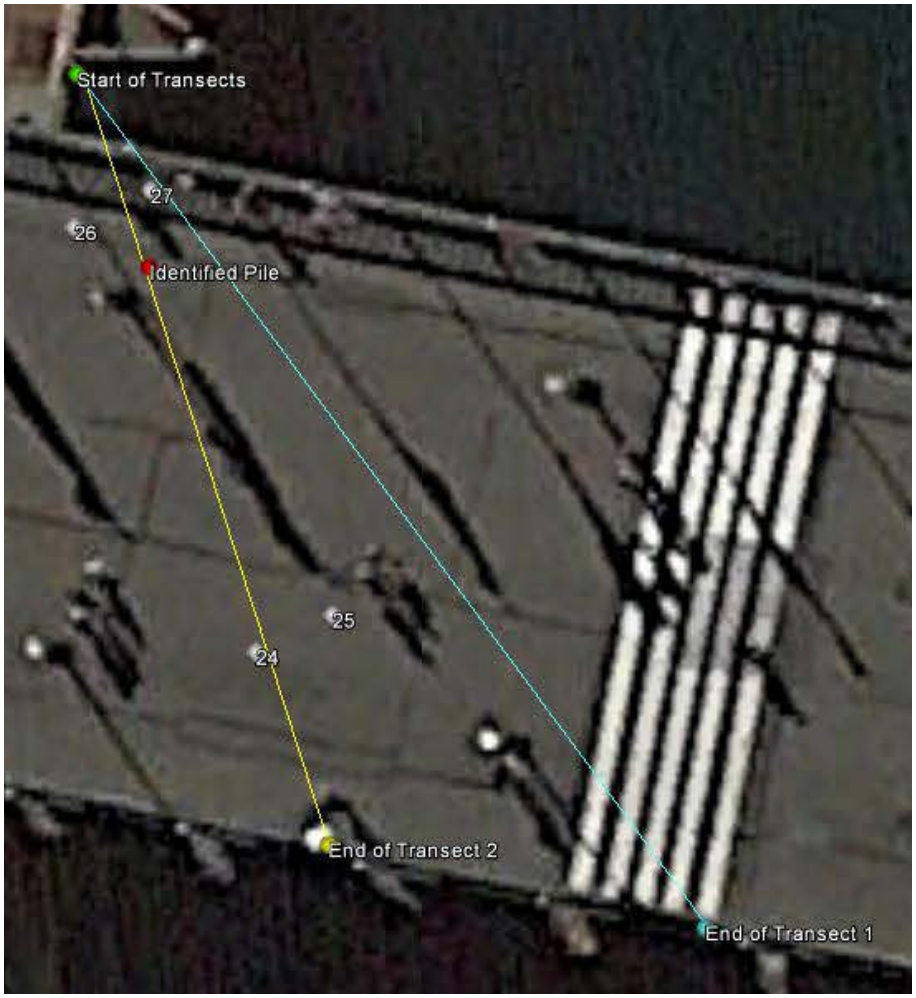

Figure 26: Approximate location of identified timber pile (red) in relation to the proposed steel gangway piles (white).

5.5 Impact Assessment

Based on the NSW Heritage Office Manual 'Statements of Heritage Impact', an impact assessment for an item of heritage significance must address a number of questions relevant to the proposed works. These questions help to ascertain whether all options have been explored prior to the proposed works taking place and whether the proposed option will have an acceptable or unacceptable impact on the heritage significance of the item.

5.5.1 Impact on Potential Remains of Wharf 49 (1890s to 1980s)

What aspects of the proposal respect or enhance the heritage significance of the item/study area?

There are no aspects of the proposed works that enhance the heritage significance of potential archaeological remains associated with Wharf 49.

What aspects of the proposal could have a detrimental effect on the heritage significance of the item/study area?

The piles associated with the gangway may have a direct impact on potential maritime archaeological deposits within the rock armour and buried within sediment. This impact is a small area, 0.52m^2 relative to the size of the potential archaeological resource asscoiated with Wharf 49 which continued for some distance into Cockle Bay. The proposed works are

expected to have a negligible impact to the Local significance of the potential maritime archaeological remains of Wharf 49.

Have more sympathetic options been considered and discounted? Why?

Alternate design options have not been considered for the proposed gangway piles as the size, diameter and style of the piles are required to meet current marine safety and design standards.

Are the proposed changes sympathetic to the heritage item/study area? In what way? (e.g. form, proportions, design)

The extent of impact to potential maritime archaeological remains caused by the gangway piles is negligible in relation to the size the potential maritime archaeological resource.

Is the assessed impact acceptable / can it be mitigated?

The proposed piling works associated with the gangway consists of installing four piles of 400 mm diameter that will impact approximately 0.52m^2. This impact to potential remains of Local significance is considered to be minor. These works are considered to have an **acceptable impact**, especially as the diving inspection undertaken on the 6th October 2017 – the findings of which are presented in Section 4 and Annex A of this report – is considered to be sufficient mitigation in response to the proposed impacts.

6 CONCLUSION AND SUMMARY OF KEY FINDINGS

The key findings of this Heritage Impact Statement are as follows:

- The first Pyrmont Bridge was constructed in 1856-1858 by the Pyrmont Bridge Company. It was designed by engineer Edward Orpen Moriarty, who later became Engineer-in-Chief of the harbours and Rivers Branch of the NSW Department of Public Works. The bridge was purchased by the NSW Government in 1884, and demolished in 1902-1903 after construction of the current Pyrmont Bridge.
- Wharf 49 was constructed in early 1890s as part of the expansion of the Darling Harbour railway goods yard. It was widened in ca.1908-2911 by the Sydney Harbour Trust, partially buried in the south by the Railway Department in the late 1920s, and eventually demolished in the mid-1980s during the redevelopment of Cockle Bay.
- A site inspection was undertaken beneath the western side of Pyrmont Bridge on 6th October, 2017, supervised by maritime archaeologist Cosmos Coroneos.
- The majority of material identified during the survey was modern discards. Some loose short lengths of timber piles are likely recent deposits. One timber pile of 250 mm diameter could not be identified, although it is unlikely to be related to the former maritime structures of the first Pyrmont Bridge or Wharf 49 due to its small size.
- Rock armour identified on the site was likely placed with the construction of the seawall or of Wharf 49 in the late 19th to early 20th century.
- While there is a potential for buried remains of the first Pyrmont Bridge beneath the rock armour, this would be north of the study area. Potential remains of the first Pyrmont Bridge have been assessed as having Local significance due to their association with engineer Edward Orpen Moriarty and the Pyrmont Bridge Company.
- There is high potential for buried archaeological deposits associated with Wharf 49 within the sediment however the density of artefacts is expected to be low within the sandy seabed and higher within the rock armour. These remains have been assessed as having Local significance.
- The proposed works assessed in this report include four piles associated with the floating gang/walkway. All piles have a diameter of 400 mm.
- The four piles will not impact potential remains of the first Pyrmont Bridge, as they are north of the study area, and will not impact the unidentified pile noted in the survey.
- The four piles will have the potential to impact potential maritime archaeological remains associated with Wharf 49. However, taking into account the assessed cultural heritage significance of the identified maritime archaeological remains with total impact area of 0.52m^2, the potential disturbance/damage of the piling is considered to be minor.
- This potential impact has been mitigated by the archaeological recording undertaken as part of the dive inspection on 6th October 2017, the findings of which are presented in Section 4 and Annex A of this report.

Based on the findings of this report, our understanding of best heritage practices and specific heritage asset management guidelines prepared by the NSW Heritage Office, it is assessed that the proposed works will have an acceptable impact to the identified maritime archaeological remains and that no further mitigation is required.

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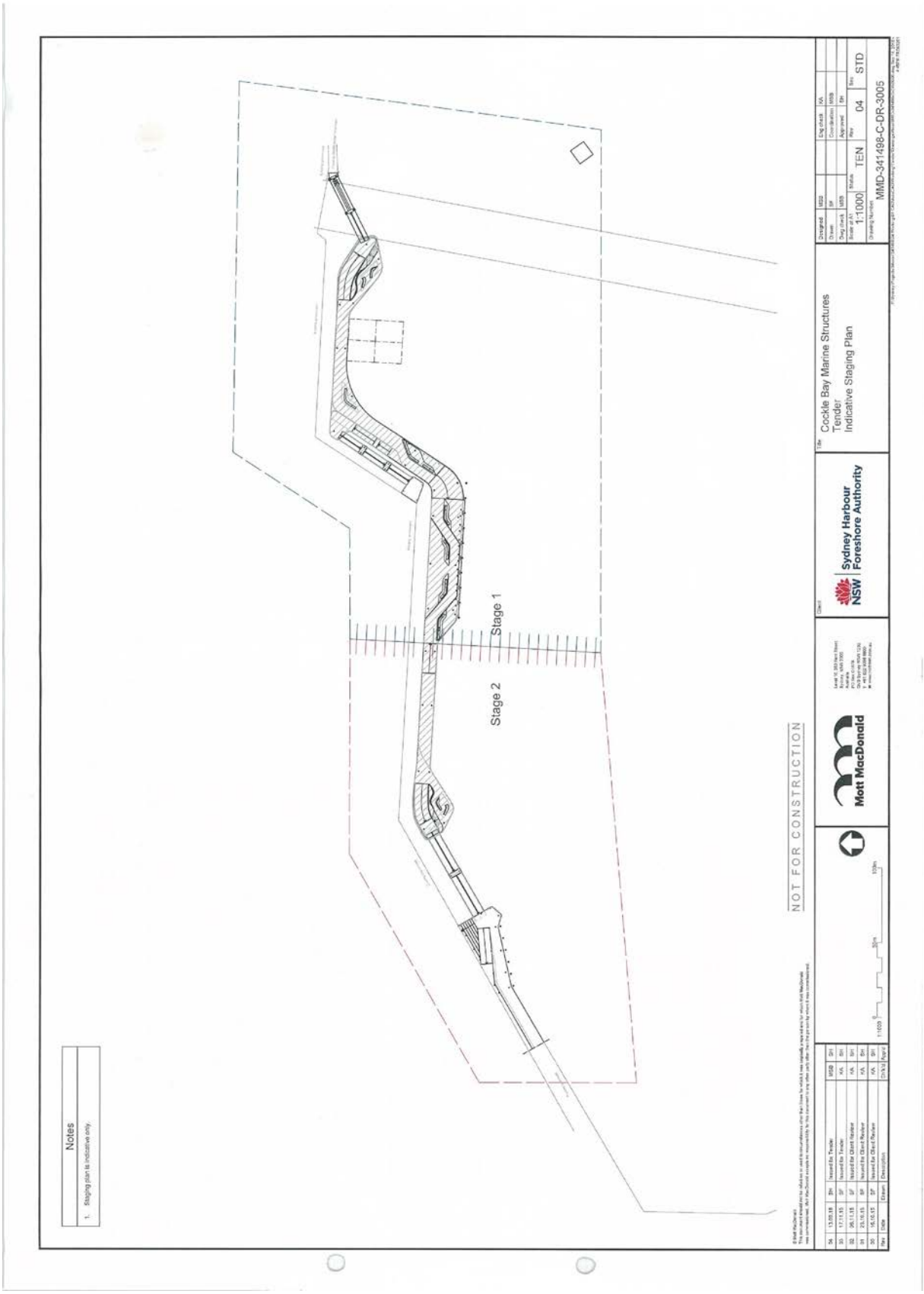
ANNEX A – DIVE VIDEOS

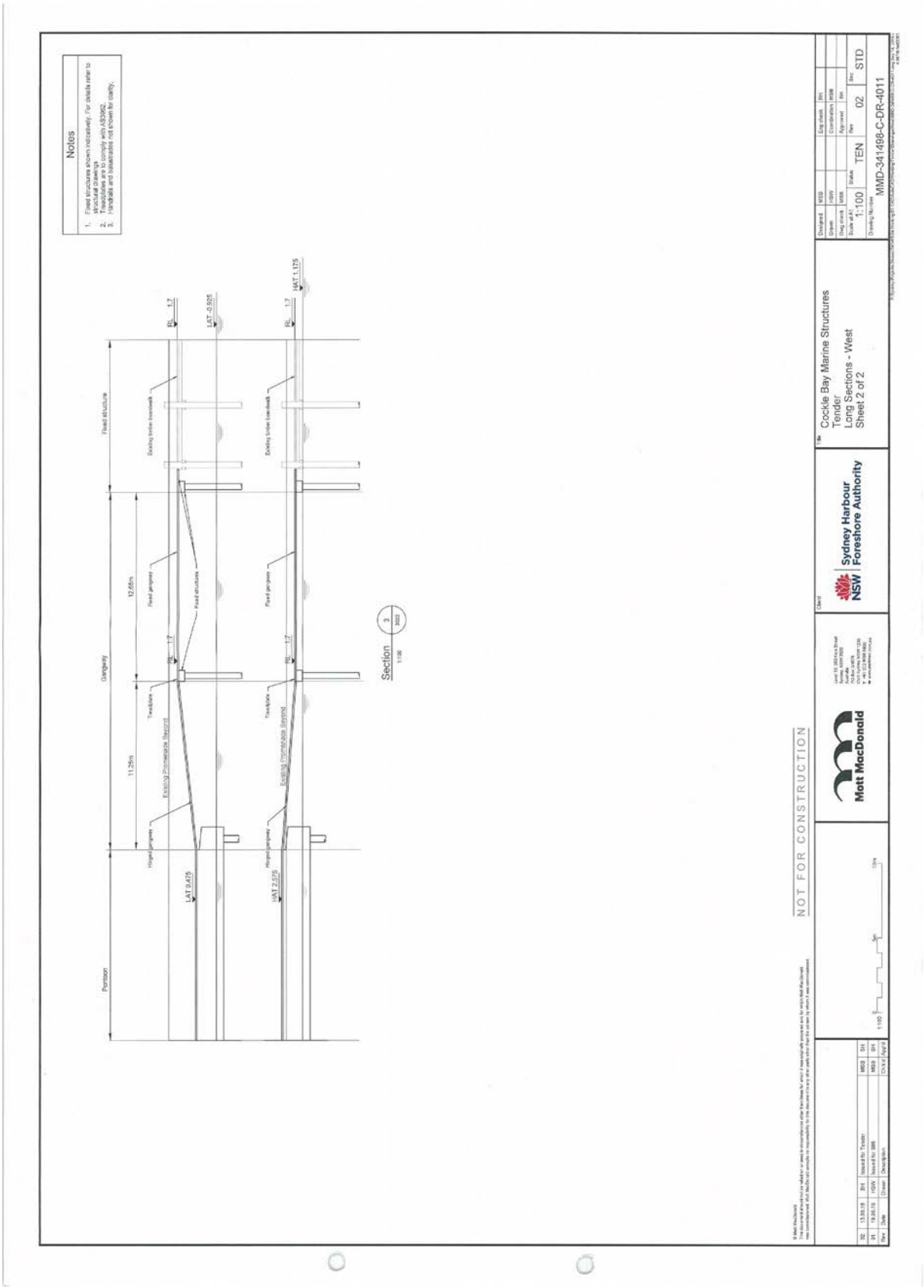
Name	Description	Size (MB)	File type
CBPB_171006_T1_northside_01	Diver transect from 0 m to approx. 20 m on north side of Transect 1.	262.5	.ASF
CBPB_171006_T1_northside_02	Diver transect from approx. 20 m to 28 m on north side of Transect 1.	14.2	.ASF
CBPB_171006_T1_southside	Diver transect from 28 m to 0 m on south side of Transect 1	214.5	.ASF
CBPB_171006_T2_northside	Diver transect from 20 m to 0 m on north side of Transect 2	157.5	.ASF
CBPB_171006_T2_southside	Diver transect from 0 m to 20 m on south side of Transect 2. Shows timber pile at 07:14	306	.ASF

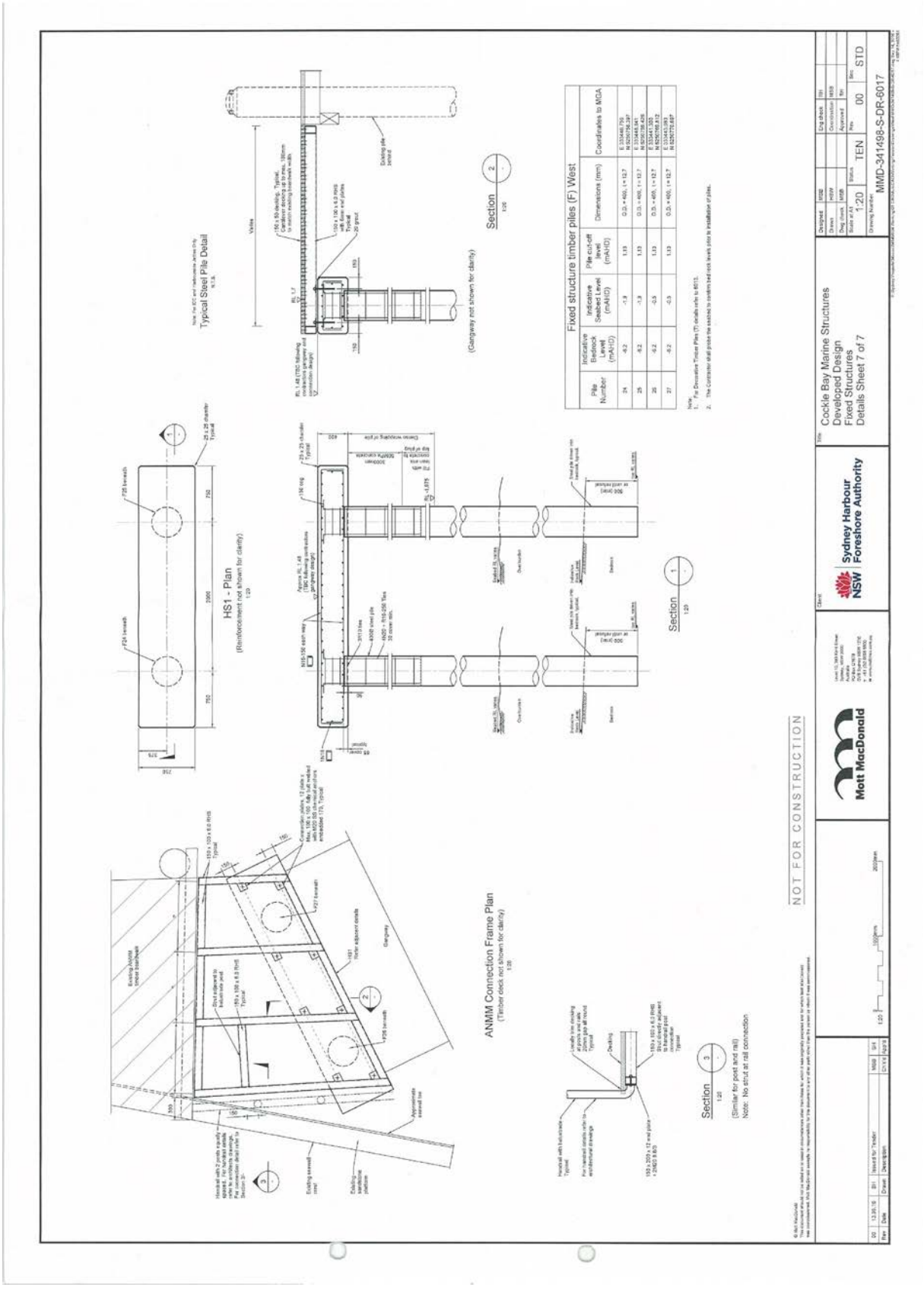
Video files provided separately on external thumb drive.

ANNEX B – PROVIDED PLANS OF THE GANGWAY




Notes
1. Telescopic pile locations are shown indicatively and may be moved to suit the proprietary pontoon system.
Works Legend
Construction only elevated
Proprietary element
NOT FOR CONSTRUCTION
Existing promenade
Existing ANMM timber
Event Barge
AC03
AC04
Mott MacDonald
Sydney Harbour Foreshore Authority
Cockle Bay Marine Structures
Tender
Layout Plan - West
Sheet 3 of 3
1:200
TEN
05
STD
MMD-341498-C-DR-3022


Notes
1. Fixed structures shown indicatively. For details refer to structural drawings.
2. Treadplates are to comply with AS3962.
3. Handrails and balustrades not shown for clarity.
Section
Gangway
Pontoon
Fixed structure
Existing timber boardwalk
Fixed gangway
Existing Dolphin
Treadplate
Hinged gangway
RL 1.7
LAT 0.925
HAT 1.175
LAT 0.475
HAT 2.275
11.25m
12.65m
NOT FOR CONSTRUCTION
Matt MacDonald
Sydney Harbour Foreshore Authority
Cockle Bay Marine Structures
Tender
Long Sections - West
Sheet 2 of 2
MMD-341498-C-DR-4011
1:100
TEN
02
STD


Typical Steel Pile Detail
HS1 - Plan
(Reinforcement not shown for clarity)
Section
(Gangway not shown for clarity)
Fixed structure timber piles (F) West
Pile Number
Indicative Bedrock Level (mAHD)
Indicative Seabed Level (mAHD)
Pile cut-off level (mAHD)
Dimensions (mm)
Coordinates to MGA
ANMM Connection Frame Plan
(Timber deck not shown for clarity)
Section
(Similar for post and rail)
Note: No strut at rail connection
NOT FOR CONSTRUCTION
Mott MacDonald
Sydney Harbour Foreshore Authority
Cockle Bay Marine Structures
Developed Design
Fixed Structures
Details Sheet 7 of 7
MMD-341498-S-DR-6017