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## Statement of Heritage Impact

**Name of the heritage item:** Goat Island

**State Heritage Register:** Listing no. 00989, Goat Island.

**Address and location:** Lot 3, DP837195, Sydney Harbour, Sydney, NSW

**Statement of heritage impact for:**

Proposal to dismantle and remove the 4-10 tons fixed electric tower crane cantilever rotary jib.

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**Prepared for:**

Department of Climate Change, Environment, Energy and Water (NSW National Parks and Wildlife Service)

**Date:** 10 January 2025

**Issue:** 1





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## Executive Summary

Goat Island is of state significance as a harbour island centrally located in the inner western area of Sydney Harbour in Port Jackson. Port Jackson includes the waterways of Sydney Harbour, Middle Harbour and North Harbour, and The Sound, the port's mouth between South and North Head. Port Jackson extends upstream to Cockatoo Island, where the Parramatta River ends. Its major tributaries include Parramatta River, Lane Cove River and Middle Harbour Creek.

The history of Goat Island demonstrates all the phases of use and development from Precontact Aboriginal occupation to the present-day custodian ship. There have been notable changes in the physical and environmental character of the island including the quarrying of stone for island structures, substantial removal of natural vegetation, and modifications to the ridge line and foreshore. The island has been characterised by construction and demolition of structures as the purpose as needs changed over time.

The Island is of considerable aesthetic significance as one of several prominent Sydney Harbour islands that contribute to the overall beauty and pattern of the harbour. It now forms part of Sydney Harbour National Park and will be transferred to Aboriginal owners to re-establish *Me-Mel* (Goat Island is commonly referred to as Me-Mel) as a place to strengthen and celebrate Aboriginal culture for the health, well-being and benefit of all Australians. It is visually prominent at the confluence of Port Jackson, Darling Harbour and the Parramatta River. The almost continuous use of the island since the 1820s for a variety of activities related to the operational management of Sydney Harbour by various government agencies is significant as is its value as part of the historic landscape. It is the site after 1833 of the first major facility for the storage of ordnance and explosives in both government and private hands. It is also the site of the first permanent establishment of the Water Police in Sydney Harbour. After 1901 it was transformed into a shipyard and base for port management operations by the Sydney Harbour Trust and its successor the Maritime Services Board.

In July 2023 the NSW Government reconfirmed its commitment to transferring Goat Island to Aboriginal ownership and management. NPWS is leading the project to work with the Me-Mel Transfer Committee to make recommendations to the NSW Government for the transfer. NPWS is also conducting essential repair and remediation works to expedite the transfer process. In parallel, a Registered Aboriginal Owners research project for Me-Mel is being independently undertaken by the Office of the Registrar of the Aboriginal Land Rights Act 1983.

Although no longer in its original location at Mort's Dock, the Goat Island 4-10 tons Fixed Electric Tower Crane (the Tower Crane) demonstrates historical significance for its association with maritime activities in Sydney Harbour, first at Mort's Dock from 1924 to 1959 and then at the Goat Island Shipyard from 1963. While the Tower Crane can be considered as being a landmark feature with significance associated with the industrial heritage of the island, the removal of the crane will enhance the Magazine Precinct and the natural significance of the island, eliminate the high risk to visitors and buildings of exceptional significance and enable visitor access to areas currently prohibited due to the safety risk. The proposal to remove the Tower Crane is preceded by the removal of historically significant wharfage equipment on the island as well as other locations around Sydney Harbour which have been declared to be at the end of their service lives and not feasible to restore and safely retain. Goat Island has a history of change. Buildings and structures were built for utilitarian purposes related to each phase of management and many have since been removed, demolished, or have been subject to extreme dilapidation due to environmental factors



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and lack of maintenance. Removal of the Tower Crane jib is consistent with the 2011 CMP which explicitly states that removal would be considered acceptable if the crane becomes a hazard to public safety or to other buildings.

Other options have been considered including doing nothing, wrapping, and retention and repair, however none of these options will fully eliminate the unacceptable risk to public safety.

The Me-Mel Transfer Committee is looking at how the cultural and environmental management and tourism potential of Me-Mel can provide significant opportunities for self-determination, economic development, employment, and training for the Aboriginal community.

The transfer of Goat Island to Aboriginal ownership will provide the opportunity for communities to celebrate and connect to a continuum of culture and history in a place of great significance. The island's natural and built environment will be improved, adapted and maintained to enable sustainable commercial and non-commercial activity so that it becomes a key part of the NSW and Sydney visitor economy attracting domestic and global visitors.

NPWS is currently working with Me-Mel Transfer Committee to prepare a master plan strategic framework to inform financially sustainable future use options of the island and inform preliminary recommendations that will be shared with future Registered Aboriginal Owners, the Minister for Environment and the Minister for Aboriginal Affairs and Treaty in relation to the transfer of the island to Aboriginal ownership. The master plan strategic framework will consider interpretive display and potential future use options of the crane tower. The master plan strategic framework is progressing and will need to be considered further by future Registered Aboriginal Owners.





## 1 -The Heritage Item

### 1.1 Site description

Goat Island lies in the inner harbour, one kilometre west of the Sydney Harbour Bridge, north of Balmain and south of Balls Head (Figure 1).

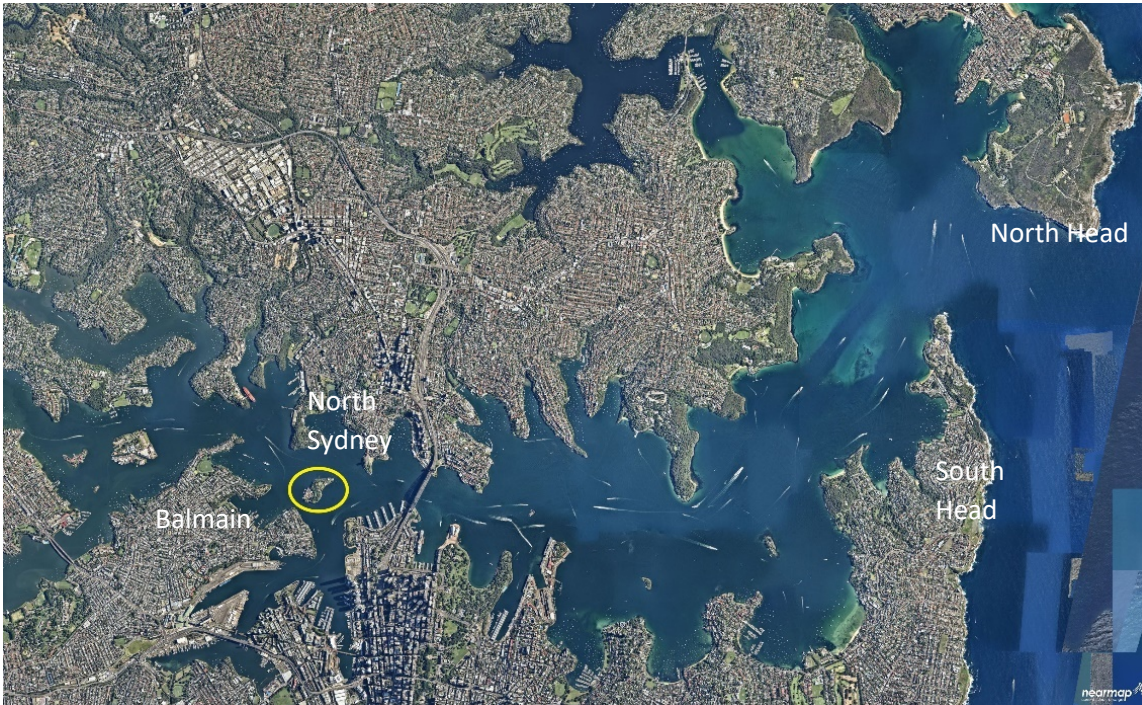


Figure 1: Location of Goat Island shown circled in yellow (Nearmap, accessed 18 March 2024)

Goat Island is a rocky island rising in the centre to approximately 20m (Figure 2). The island includes 1.1 hectares of reclaimed land along the harbour foreshore. Like most of the islands of the harbour, the island's geology features shallow skeletal remnant topsoils and subsoils overlaid on Hawkesbury Sandstone. The island is crowned with a treed and grassy central north south flat ridge and fringed with a rocky foreshore with cliffs and outcrops.

It is one of the thirteen original islands in Sydney Harbour. Goat Island is an island of 5. hectares in area located in the western area of Sydney Harbour. It is one of the eight remaining Sydney Harbour islands of the original 14 islands that were seen in 1788. The remaining islands are Goat Island, Cockatoo Island, Fort Denison (previously Pinchgut Island), Spectacle Island, Snapper Island, Rodd Island, Clark Island and Shark Island. The islands that are now connected to the main shoreline are: Rodd Point, Berry Island, Garden Island, Bennelong Island, Darling Island and Glebe Island. Of these, Rodd Point and Berry Island, despite their land connection can be understood as islands.

The landscape of Goat Island is a highly modified one as illustrated in early photographs, which show the extent of quarrying, reclamation, benching, clearing and development. This is like other islands such as Fort Denison where most of the island top was removed to build the fort, Cockatoo where extensive excavation and change to the form of the island took place, Snapper which was filled and excavated to create an almost levelled platform with only one remaining outcrop of native vegetation and Spectacle which had two smaller islands combined. Shark Island retains a largely natural form with its rock-shelved edge but has had extensive changes to the actual landscape and Clark Island retains native vegetation but again has been subject to extensive landscape modifications over its use since settlement. Rodd Point, now connected to the shore with a narrow





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causeway is a modified island with extensive reclamation and introduced landscape and buildings. Garden Island is a heavily modified island, now a naval base that has been connected to the foreshore with extensive infrastructure. Only Berry Island, also connected to the shore with a narrow causeway, retains elements of its pre-settlement vegetation and form as it has not undergone substantial modification or clearing. Berry Island, and nearby Balls Head Reserve, provide some indication of how Goat Island may have looked in the early years of the colony.

Goat Island has a variety of buildings including a relatively intact sandstone Powder Magazine complex constructed from 1833-1839 and a Water Police Station building (ca 1838). In the 20th century the Sydney Harbour Trust and Maritime Services Board constructed a Harbour Master's Residence, barracks, offices, workshops and amenities buildings and a ship repair facility with two large slipways. Many of the buildings are currently unoccupied due to change of use.



Figure 2: Goat Island location in relation to the inner western Sydney Harbour and aerial view (Source: Artefact 2024)



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### Heritage item

The heritage item, Goat Island, is described in the 2011 Goat Island Conservation Management Plan Volumes 1-4 (CMP). The Tower Crane is one of over 100 heritage elements within the heritage item (Figure 3).

#### LEGEND

- |   |  |
|---|--|
| 1. Ship Repair Workshop                               | 80. Path and Railing to Harbour Master's Shop  |
| 1a. Addition to Ship Repair Workshop                  | 81a. Site of 1878 Magazine and other residence   |
| 2. Paper Workshop                                     | 81b. Site of Residential Cottage No 5  |
| 2a. Paper Workshop Extension                          | 81c. Site of Residential Cottage No 6  |
| 3. Stores Workshop Building                           | 81d. Site of Residential Cottage No 7  |
| 4. Western Section of Broadside Wharf                 | 81e. Site of Residential Cottage No 8  |
| 4a. Central Section of Broadside Wharf (Demolished)   | 81f. Site of Residential Cottage No 9  |
| 5. Coal Ladder at Northern End of Broadside Wharf (C) | 82. Northern Wharf Stone Wall/Well   |
| 6. Diphtheria and judge walk                          | 83. Northern Wharf Precinct Quay Face  |
| 7. Watch House  | 84. Eastern Wharf Jetty Crane (Demolished)   |
| 8. Watch House 1877 Plan                              | 85. Eastern Wharf Quay Face  |
| 9. Harmanhead Crane                                   | 86. Barney's Cut   |
| 13. American Block                                    | 87. Stone steps & White Pillars Precinct   |
| 14. Office and Landing Building                       | 88. Water Police Precinct  |
| 15. Queen's Magazine                                  | 89. Bridge over Barney's Cut   |
| 15a. Southern Addition to Queen's Magazine            | 90. Icebreaker   |
| 15b. Tennis Court (Form)                              | 91. Sandstone Follies  |
| 15c. Tennis shed site                                 | 92. Stone Structure on shore   |
| 16. Saw Shed  | 93. Artillery Quarters   |
| 17. Coopersage  | 94. Pier & Landing Site  |
| 20. Stores Building (Old Coopersage)                  | 95. Remnant kin  |
| 21. Colonial Magazine                                 | 96. Watch House  |
| 22. Inner Store Warehouse                             | 97. Wharf archaeological site - South Depot  |
| 23a. Boat Shed  | 98. Wharf archaeological site - Water Police   |
| 24. Substation  | 99. Scaffolds & gutter features  |
| 25. Barracks  | 100. Site of former store  |
| 25a. Play and Laundry attached to Barracks            | 101. Stone steps   |
| 26. Kitchen Cottage                                   | 102. Remnant of residential precinct   |
| 26a. Kitchen Cottage - Annex                          | 103. Stone Wall  |
| 28. 10 Top Dipway                                     | 104. Place for Bennett Memorial Grove  |
| 28a. 50 Top Dipway                                    | 105. Remnant of former Barracks  |
| 28b. Residential Cottage No. 1                        | 106. Remnant of 1878   |
| 28c. Residential Cottage No. 2                        | 107. Remains of former mess room floor slab  |
| 28d. Residential Cottage No. 3                        | 108. Stone steps   |
| 28e. Residential Cottage No. 4                        | 109. Site of former building   |
| 29. Harbour Master's Residence                        | 110a. Rock cut steps   |
| 45. Port Emergency Services Building                  | 110b. Rock cut mass  |
| 46a. Cottage  | 110c. Rock Cut   |
| 46b. Barracks   | 111. Possible storage cuts   |
| 47. Water Police Station                              | 112. Ruined stone base of steps  |
| 48. Sledge Office                                     | 112a. Dipway   |
| 49. Saw Shed  | 114. Shed  |
| 51. Fire Fighting Building                            | 115. Stone retaining wall & steps  |
| 51a. Wharf Mooring Floating Pier                      | 116. Path  |
| 52. Eastern Wharf                                     | 117. Rock Cuts   |
| 52a. NE Section of Eastern Wharf (Demolished)         | 118. Landing Dismantle   |
| 52b. SE Section of Eastern Wharf (Demolished)         | 119. Ironstone Pit Site  |
| 54a. Ferry Wharf                                      | 120. Jetty Crane   |
| 54b. Small Boat Enclosure                             | 121. Jetty Crane   |
| 54c. Berthing Wharf                                   | 122. Remains of Rail Tracks  |
| 55a. NE Section of the Northern Wharf (Demolished)    | 123. Remains of Signal Mast & Guys   |
| 55b. NE Section of the Northern Wharf                 | 124. Jetty Crane Base  |
| 56. Building (Remnant of jetty)                       | 125. Fire Brigade Scaffolds  |
| 57. Congregated Tin Shed                              | 126. Building Base   |
| 58. American Block                                    | 127. Railing Shed  |
| 58a. Metal Demolition                                 | 128. Light Bracket   |
| 60. Rail from Shipyard to Residential Precinct        | 129. Navigation Markers  |
| 61. Anderson's Quack                                  | 130. Shed  |
| 62. Milliner  | 131. 1878 Magazine site  |
| 63. Lion Kiln   | 132. 1878 Magazine Site Fig Trees (Ficus macrocarpa) c. mid-1980s  |
| 64. Stone Jetty 1825                                  | 133. 1878 Magazine Site Fig Trees (Ficus macrocarpa) & Small-leaved Fig Trees (Ficus oblonga) c. mid-1980s |
| 65. Stone Jetty 1825                                  | 134. Stone (Pithecellobium) stone jetty remnant  |
| 66. Stone Jetty 1825                                  | 135. Indigenous Sydney Harbour vegetation community  |
| 67. Backmaker's Shop Site                             | 136. Including 2 Port Jackson Fig (Ficus rugulosa)   |
| 68. Shell Depot                                       | 137. Canary Island Date Palm (Phoenix canariensis) c. 1920s  |
| 69. Magazine Wall                                     | 138. Canary Island Date Palm (Phoenix canariensis) 1920s & 1930s   |
| 70. Magazine Precinct Stone Retaining Wall            | 139. Jetty Crane (Phoenix canariensis) 1920s & 1930s   |
| 71. Puffin Shed                                       | 140. Canary Island Date Palm (Phoenix canariensis)   |
| 72. Magazine Precinct Quay Face                       | 141. Jetty Crane (Phoenix canariensis) 1920s & 1930s   |
| 73. Recreation Hall Site                              | 142. Heavy DWT vessel  |
| 74. Central Precinct Stone Retaining Wall             | 143. Regeneration area (c. 1940s)  |
| 75. Timber Access Steps to Barney's Cut               | 144. Artillery Pier (Pine) (c. 1930s)  |
| 76. Residence Pits                                    | 145. Small Tree (Eucalyptus x species) interwar period   |
| 77. Quarrying Site on Pidge                           | 146. Hoop Pine (Quercus speciosa)  |
| 78. Residential Precinct First Floor                  | 147. Hangar (Pine) (c. 1940s)  |
| 79. Reservoir   |  |



Figure 3: Map identifying significant sites of built heritage, landscape and archaeology on Goat Island. The Tower Crane is circled (Source: Goat Island CMP 2011).

The Tower Crane consists of a fixed tower and a cantilevered rotary jib. The crane is 20 metres tall, and the jib is 67m long with 44m long front cantilever and a 23m short rear cantilever. The crane is made of steel, predominantly riveted angle, and tee-sections, joined by gusset plates to form a rigid trussed structure. The crane had a 10 tons load capacity at 60 feet and 4 tons at 140 feet.



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### Heritage listings

Heritage listings are detailed in table 1.

Listing type	Item name and document details	Listing number
Local heritage item	<i>N/A – Unincorporated Waterways</i>	
State agency s 170 heritage and conservation register	Goat Island	HHIMS ID 3452
State Heritage Register	Goat Island (Figure 4)	SHR No. 00989
SEPP Biodiversity and Conservation 2021 Schedule 5 Sydney Harbour Heritage Items from Chapter 6	Goat Island includes former harbour master’s residence, pathway from magazine precinct to water police station precinct, former ordinance magazine, former laboratory and original cooperage, former cooperage, wall gate and sentry post, entry to magazine area, former barracks, former kitchen, Andersons Couch, lime kiln, Barney’s Cut, former water police station	116
NSW EPBC Policy	Goat Island Schedule 5 Sydney Harbour l116 Heritage Items from Chapter 6	
National Trust Heritage Register	The Tower Crane is listed as an item of significance.  The National Trust Heritage Register does not impose statutory obligations and is more an indication of the heritage significance held by the community.	

**Table 1: Heritage Listings**

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





State Heritage Register - SHR: 00989 - Plan: 3012  
 Goat Island  
 Port Jackson

Gazettal Date: 02 April 1999  
 0 30 60 90 120 Metres  
 Scale: 1:3,000  
 Datum/Projection: GCS GDA 1994



**Legend**

-  SHR Curtilage
-  Land Parcels
-  Railways
-  Roads
-  LGA
-  Suburbs

Figure 4: Goat Island showing the SHR curtilage (Source: Heritage NSW <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5045143>)



### Site and its context

The 4-10 Tons Fixed Electric Tower Crane is located within the ship repair facility on the western side of the island, adjacent to and over-swinging the nineteenth century Powder Magazine complex (Figure 5). The Tower Crane is one of over 100 heritage elements on the island.

The Tower Crane consists of a fixed tower and a cantilevered rotary jib. The crane is 20 metres tall, and the jib is 67m long with 44m long front cantilever and a 23m short rear cantilever. The crane is made of steel, predominantly riveted angle, and tee-sections, joined by gusset plates to form a rigid trussed structure. The crane had a 10 tons load capacity at 60 feet and 4 tons at 140 feet.



**Figure 5: Location of the Shipyard Precinct, on Goat Island (Nearmap, accessed 18 March 2024)**

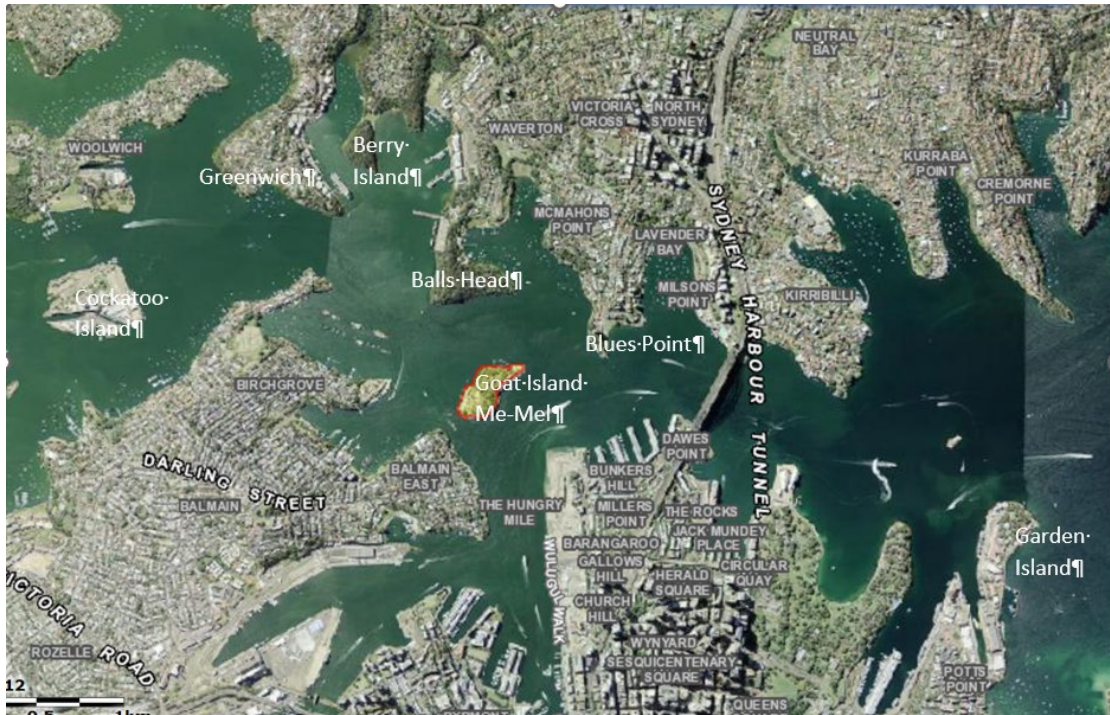
Goat Island is in the vicinity of several sites of State Significance on the Balmain Peninsular to the south, Dawes Point to the southeast, Blues Point to the northeast, Balls Head to the north and Berry Island and Greenwich to the northwest (Figure 6). Balls Head, Waverton Peninsula and Berrys Bay, in the early years of the twentieth century, attracted interest mainly due to 'deep-water frontages considered suitable for industrial or commercial development. A Quarantine Depot was established next to Woodley's in 1912, and the Coal Loader on the western side of the peninsula in 1913-17. A metamorphosis of Balls Head bushland into a severely degraded state in this period, caused by large-scale industry, was not lost on the community. Henry Lawson (1867-1922), one of Australia's well-known writers, published a poem in 1916 'The Sacrifice of Balls Head', a lament and protest on





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behalf of the 'harbour people', its 'poorer families', at the 'sordid crime' of 'cutting down Balls Head to make a wharf for coal.



**Figure 6: Location of Goat Island shown outlined in red shown in relation to other landmarks in Sydney Harbour (Source: Sixmaps, accessed 17 December 2024)**

Modifications such as 'dredging and reclamation' at Berrys Bay for the Quarantine Depot soon occurred. In a shift of thinking about the harbour shoreline, Berry Island, close by, in 1916 was handed to North Sydney Council by the state government with a 15-year permissive occupancy agreement.

Since the 1960's Islands and Headlands around Sydney Harbour have undergone remediation and "beautification" through bush regeneration and conservation of the cultural landscape as well as maritime and colonial history.

Goat Island provides views to these natural headlands and other significant landmarks (Figures 7-10)



**Figure 7: View north from Goat Island across the North Wharf Depot Precinct to Balls Head Reserve and Berry Island. (Source: Artefact February 2024)**



**Figure 8: View northeast from the Goat Island across the former Finger Wharf to Blues Point and North Sydney (Source: Artefact February 2024)**





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Figure 9: View east from the Water Police precinct on Goat Island towards the Sydney Harbour Bridge. (Source: Artefact February 2024)



Figure 10: View west from the ridge of Goat Island across the Tower Crane to Birchgrove and Greenwich (Source: Artefact February 2024)

### The proposed works area

The proposal will occur within the shipyard precinct of the island (Figure 11).



Figure 11: The proposed works area (Nearmap accessed 18 March 2024)

## 1.2 Site summary history

### Documented history of Goat Island

Goat Island was originally the cultural lands of surrounding Aboriginal communities.



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An independent Registered Aboriginal Owners' research project for Me-Mel is being led by the Office of the Registrar of the Aboriginal Land Rights Act 1983 was commissioned to help identify Registered Aboriginal Owners and will conduct further Aboriginal, cultural and heritage research.

The detailed history of Goat Island is documented in the *Goat Island Conservation Management Plan* (2011) and is summarised as follows.

### *Pre-Contact Period – Pre 1831*

Early colonial writings record Woollawarre Bennelong claimed a hereditary relationship with the island. It was reported by David Collins that Bennelong said that the island belonged to his father and that Bennelong was seen frequently on the island with his wife Barangaroo. Recognition that a particular place was claimed by an Aboriginal person contrasted with early European concepts of Aboriginal land ownership and occupation, and Goat Island is one of few specific sites that were documented as belonging to an Aboriginal person.

Early colonial writings record that the island was known to the local Aboriginal people as “Memel” (various spellings), with meanings associated with eyes or vision, and a place from which you can see far. The only surviving evidence of Aboriginal use of the island are two shell middens under small rock overhangs.

### *Colonial Period – 1831-1900*

The building, site and landscape changes to the Island through quarrying and filling from the colonial period are of significance as a landscape group of elements but also as individual items (Figure 12).

This significance is seen in:

- The quarrying and excavation that allowed development made a dramatic change to the landform and appearance of the Island. This modification was also seen at Cockatoo and Garden Islands in contrast to the relatively untouched topographical forms of several of the recreational harbour Islands. Quarrying was an important aspect of the development of Sydney and the harbour edge as it both provided stone for construction and the levelled platforms on which to construct buildings.
- The construction of the Magazine complex to a standard late 18th century British imperial naval design. This the earliest magazine complex design in the country. It is also significant for its location on an Island facing away from early Sydney, for its convict construction from stone quarried on the site and for the importance of gunpowder storage and explosives storage in early years of the colony.
- The barracks buildings and Kitchen Cottage are a rare surviving group of early colonial military buildings that demonstrate the transfer of British designs and military practices to the colony.
- The Water Police Station and precinct, which marked the beginning of a long association of the Island with the management of Sydney Harbour, demonstrates the importance of the harbour to the early development of Sydney, NSW and the country. The Water Police Station is rare, as the earliest of the few extant 19<sup>th</sup> century Water Police related buildings in Sydney and in Australia and has important associations with the 1850s Sydney Water Police Court buildings (now the Police & Justice Museum) in Phillip Street, Sydney. The Water Police station also demonstrates the early reliance on police control related to shipping and port activity and the need to locate such facilities in a prominent location with commanding views (for surveillance and communication) of much of the harbour.
- Archaeological sites related to the Colonial phase of development on Goat Island are of state significance for their ability to demonstrate the earliest phases of development and modification of the Island within the context of the early colony.





Figure 12: Goat Island viewed from Balls Head C1900 (Source SLNSW)

#### *Maritime Period – 1901-1992*

The 90-year maritime history of the Island is linked with the development of Sydney's port facilities. Development of the port commenced with European colonisation and continued throughout the nineteenth century. The amalgamation of the NSW Marine Board and the Navigation Department under the Sydney Harbour Trust Act of 1900 brought the management of port facilities and shipping in Sydney Harbour under one authority and enabled the Sydney Harbour Trust's dramatic redevelopment of Sydney's port facilities in the early 20th century.

The total reliance on shipping for connection with the rest of the world, the development of Sydney Harbour was a significant activity of the first half of the twentieth century in which Goat Island played a major role. It was the operational headquarters of the maritime authorities from 1901 to the late 1980s, which included the base for the Sydney Harbour Master in the early 20<sup>th</sup> century, the maritime fire brigade to the 1980s, berthing for dredges and floating plant used around the harbour and the fleet of vessels used in wharf construction and repair, and from 1925 a major shipyard constructed by the maritime authorities. The structures, including wharves, constructed on and around the island in this period reflect the development of maritime facilities over time, changing technology and changing administrative arrangements.

The *Maritime Services Act 1935* created the MSB and set out its administrative functions and requirements including responsibility for development control. The Port of Sydney is defined as the land below mean high water mark and includes the State-owned islands but not the Commonwealth-owned islands.





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The *Maritime Administration Act 1989* made administrative changes to the MSB. The Island has been part of the Sydney Harbour National Park since 1995 after it was transferred from the MSB. The island is not incorporated within any local government area and are not subject to any local controls for planning and development.

Dan Tuck, in *Goat Island: A Contextual History*, wrote:

*When the MSB began considering divesting itself of Goat Island in the late 1980s it ceased actively improving the island's facilities and commenced instead an informal program of essential maintenance. When the MSB commenced leaving the island in the early 1990s much of the basic maintenance had ceased and in the windswept maritime locale, 'mothballed' buildings, wharfage and fittings began to decay unarrested. (DECC,2007).*

### *National Park 1995 – Present*

The Island's inclusion into the Sydney Harbour National Park in 1995 and the resultant administrative change from a maritime authority operational headquarters to public recreational use, involved conservation works to buildings, some wharves and paths, and changed vegetation management of the Island. The major physical changes during this period have been removal of some of the wharves and revegetation of parts of the Island. The National Park status of the Island ensures ongoing protection, conservation, public recreation and access, and interpretation of the Island, however the poor condition of assets on transfer from the MSB, the high logistical costs of managing an island without a land base, the high on-going capital and operational costs, the lack of commercial uses generating revenue for maintenance and the corrosive marine environment have constrained the agency's ability to maintain all buildings and structures.

### *Future Ownership*

In May 2022, the then NSW premier Dominic Perrottet announced \$43 million in funding to clean up and restore Goat Island over the next four years and committed to transferring Goat Island to Aboriginal ownership, governance and management. The Me-Mel Transfer Committee was also formed to guide and provide recommendations for the transfer of the land. Fourteen members make up the group, including diverse representatives from Aboriginal organisations and community, NSW government members from the Premier's Department, Aboriginal Affairs NSW and National Parks and Wildlife Service.

In July 2023 the New South Wales government re-confirmed its commitment that the heritage-listed island would be returned to Aboriginal ownership. The NSW government signed a Memorandum of Understanding agreement with the Me-Mel Transfer Committee outlining agreed roles, responsibilities and guidelines for developing recommendations for the transfer.

The NSW National Parks and Wildlife Service (NPWS) is working with the Me-Mel Transfer Committee to make recommendations to the NSW Government for Me-Mel's transfer to Aboriginal ownership, governance and management. NPWS is also currently undertaking a program of repair and remediation of the island's built assets to reduce liabilities and risks on the island, and to prepare Me-Mel for transfer to a long-term Aboriginal ownership entity. An independent Aboriginal Owners research project led by the Registrar of the Aboriginal Land Rights Act 1983 has been commissioned to help identify and register Aboriginal Owners for Me-Mel. The island is a complex site and needs careful consideration before it is transferred.



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### *Post Settlement Timeline of Development on Goat Island*

Date	Development on the Island
1831	A quarry was established at the north-eastern tip of the island overseen by the Department of Public Works to supply high quality sandstone for public buildings in Sydney.
1833	Construction began on an Imperial gunpowder Magazine complex (or ordnance depot) commenced in the island's southwestern corner. By 1838, stone wharves, magazine, (for the storage of 3000 barrels of gunpowder) cooorage, compound wall, military barracks, kitchen, privy (demolished), lime kilns and possibly a blacksmith's shop were complete.
1835	The Committee of Police and Gaols recommended stationing the Colonial water police on the island's north-eastern tip. Captain George Barney ordered a 'wet ditch' to be cut to separate the Water Police Station from the remainder of the island.
1838	The Water Police Station was constructed with sandstone quarried from the adjacent channel. The island's vegetation was cleared for the Magazine and Water Police Station. The Magazine was guarded by Imperial (British) infantry units from the 1830s and Royal Artillery units in the 1860s.
1853	A Colonial Magazine was constructed to store merchant's powder. Additional bays were completed by December 1859 and by 1861, there were over 7000 barrels of gunpowder stored on Goat Island.
1861-62	A new stone jetty was constructed on the island's western foreshore and was joined to the two Magazines with a covered way
1865	The departure of the Water Police in 1865 meant that the Water Police building was used as a cartridge laboratory and a bridge was constructed across the channel.
1870's-1900	Three small explosive Magazines were constructed elsewhere on the island (since demolished).
1885	The Magazines stopped housing military explosives and became a repository for firearms cartridges and fuses.
1901	The island was transferred to the NSW Government, apart from the magazine complex. The newly formed Sydney Harbour Trust (SHT) established itself on Goat Island and constructed the Harbour Master's Residence. The SHT oversaw dredging the harbour and all its tugs, barges and dredges were moved to the island. Later, firefighting tugs also used the island as a depot. The SHT constructed several staff cottages, established harbour dredging and firefighting depots and built the first timber wharves on the island
1901-1903	The SHT constructed wharves on the island's north edge comprising the harbour master's jetty, the first ferry wharf and the first broadside wharf with a coal stage and two buildings for stores and workshops.



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1902	A depot including a wharf, a substantial two-storey timber workshop and a coal store had been established on the northeast shore of the island, east of Barney's Cut.
1903-1906	A firefighting depot and wharfage were built on the island's northern end, to the west of Barney's Cut, including quarters for a fire captain and crew.
1908	The NSW government gained control of the whole of Goat Island with a deal transferring part of Cockatoo Island to the Commonwealth
1912	A barracks was constructed next to the former Water Police Station for the fire-fighting depot
1925	27 Harbour Trust Firemen and their families living on Goat Island in fifteen cottages and barracks.  SHT repurposed the old Magazine buildings. The SHT also excavated into the cliff north of the Magazine and filled the foreshore in front to construct a new shipyard
1936	The NSW Maritime Services Board was established in 1936, subsuming the Sydney Harbour Trust and occupied Goat Island as its operational depot in Sydney Harbour
1942 -1950's	Most of the wharves were rebuilt, some extended and new wharves were added. Barney's Cut was partially infilled and more skeleton wharves (now demolished) were added along the island's eastern shore.  MSB built the 1943 Firefighting building, the 1945 Gear Shed and altered the 1912 Barracks. The MSB built recreational facilities, now demolished, for the island's residents: a tennis court and tennis court pavilion, a recreation hall and swimming baths.
1960's	A gradual decline in the island's usefulness because of the growing use of containerisation.
1969	The island's wharves were upgraded in 1969 including concrete decking which replaced much of the earlier timber decking
1992	Management was transferred to the NSW National Parks and Wildlife Service (NPWS).
1994	Since 1994, NPWS has run public tours and educational curriculum-based activities and hosted members of the public to watch the New Years Eve Fireworks. Goat Island has been the venue for several memorable concerts including Midnight Oil, Green Day and Foo Fighters and been used as a set for television shows.
1995	The island (excluding the wharves and shipyard) was incorporated into Sydney Harbour National Park.
1998	The former MSB shipyard was reactivated under a leasing agreement between NPWS and a commercial operator operating a ship repair business.
2023	The NSW Government committed to transferring Goat Island to Aboriginal ownership and management

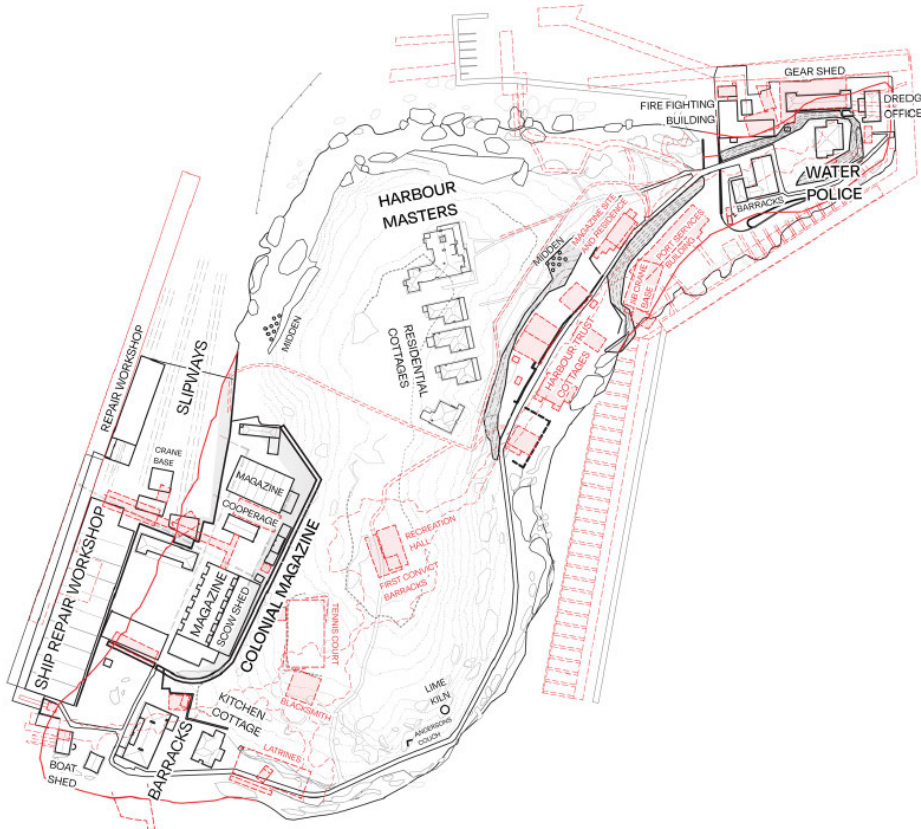




2024	The private ship repair business ceased operation.
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**Table 2: Historical Timeline**

Goat Island has a long history of change for utilitarian purposes and the layering of buildings across the island demonstrates the necessity to continue to alter the island, demolish and replace structures, to meet the needs of each phase of use (Figure 14).



**Figure 13: Plan showing former (now demolished) buildings and structures on Goat Island outlined in red (Source: Tyrrell Studio)**

### Documented History of the Tower Crane

The history of the crane is documented in the *Goat Island Conservation Management Plan* (2011). Further research has been undertaken to inform this proposal and the conservation management plan (CMP) inventory sheet for the crane was updated in 2024 in the form of an addendum to the CMP (Attachment A). The following information is extracted from the addendum.

The 4-10 tons Fixed Electric Tower Crane was fabricated in Parkhead, Glasgow in 1924 by the Scottish engineering firm Sir William Arrol & Company, for Mort's Dock & Engineering Company.

Mort's Dock was established at Balmain in 1854 by Thomas Mort and Captain Rowntree. Mort and Rowntree formed the Waterview Bay Dry Dock Company, (later renamed Mort's Dock & Engineering Company) in 1853 and built Australia's first dry dock and patent slip. Mort's Dock & Engineering Company purchased the Arrol Shipyard Crane, described in a 1927 Sir William Arrol & Company catalogue as a tower crane for shipyards, made of various heights and powers to suit varying



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conditions (Figure 14). The only bespoke feature of Mort's Dock crane was the height of the crane. The crane was shipped in sections from Glasgow and erected on the western side of the company's main dry dock in 1924 to 1925. The crane was commissioned in 1926. The crane's order number is 2184 (Figure 15).

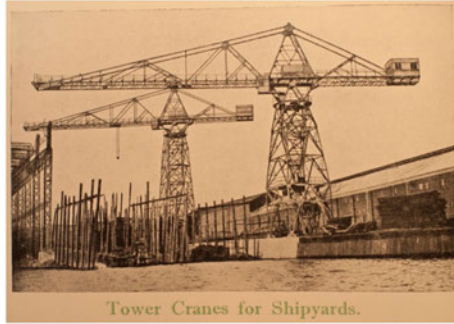


Figure 44: The 1927 Arrol Cranes catalogue (Urbanglasgow.co.uk)



Figure 55: Manufacturer's plate (TTW, 2022)

The crane operated at Mort's Dock from 1926 to 1959 (Figure 16). Labour unrest and other factors during the post-World War II recovery led to the closure of Mort's Dock on 12 November 1958. On 16 January 1959, liquidators sold the site with contents and the crane placed on the market. The Maritime Services Board of NSW (MSB) purchased and dismantled the crane in 1962. The MSB used the Royal Australian Navy Floating Titan Crane to move and re-erect the crane at its Goat Island shipyard to supplement use of smaller derrick cranes. The MSB made minor modifications to dismantle, move and re-erect the crane such as welded and bolted splice plate connections. Footings for the crane new location were poured in January 1963 and the crane was re-erected and operational by 1964 (Figure 17).



Figure 66: Mort's Dock 1930s (National Library, PIC/15611/16907 LOC Cold store PIC/15611/nla.obj-163236024)

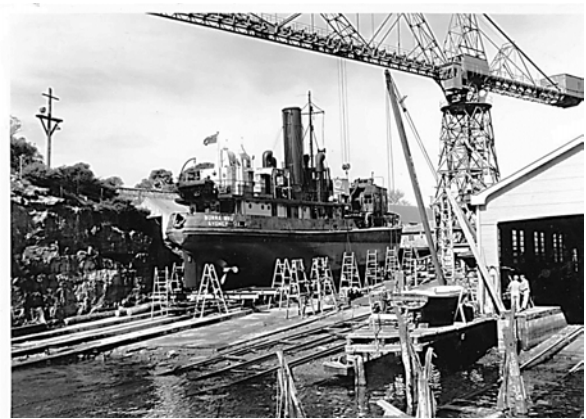


Figure 77: Goat Island 500T slip early 1960s City Sydney Item 785704)

By 1992 all MSB operations at Goat Island had been relocated and the MSB Marine Engineering Division had been dismantled. The scaled down marine operations service, MSB's firefighting and oil spill response, was transferred to Walsh Bay. The NSW National Parks and Wildlife Service (NPWS) assumed responsibility for Goat Island in 1992. In 1998 the shipyard, including the crane, was reactivated by NPWS under a lease between a commercial ship repair operator and NPWS. The several subsequent shipyard leaseholder(s) operated the crane from 1998 until 2010.

In 2010, following a WorkCover NSW inspection, the shipyard leaseholder commissioned an engineer's inspection, which concluded that the crane was damaged beyond repair and unsafe to



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operate. In December 2010, WorkCover NSW issued Prohibition Notice No.153358, prohibiting the use of the crane as it was unsafe to operate, and the crane was subsequently taken out of service.

### Previous physical change

The site has undergone significant change since 1833. The following images detail the changes to the site on which the Tower Crane is located (Figures 18-23).



Figure 88:: Goat Island prior to construction of the magazine complex. An 1848 painting from a circa 1833 drawing (National Library of Victoria, PIC Drawer 2333 #U2123 NK6286)



Figure 99: Goat Island between 1869 and 1885. The land between the Colonial Magazine and shoreline (at left of image) was subsequently excavated to create the shipyard (State Library of NSW, PXA 450 No. 22).



Figure 10: Goat Island in the 1950s (Former MSB Archives File 1072-11)





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Figure 21: Goat Island, looking south over the shipyard towards East Balmain prior to the relocation of the crane in 1962 (Former MSB Archives MSBL1425).



Figure 22: Goat Island, looking south over the shipyard towards East Balmain prior to the relocation of the crane in 1962 (Former MSB Archives MSBL1425).





Figure 23: Goat Island in May 2022 (DSY Media/NPWS)

### 1.3 Physical analysis

#### Description of the Tower Crane

The crane tower has a square base with four legs bolted to concrete pads, presumably with deep rock-bolts which provide resistance to overturning. The tower carries a pair of upper and lower bearings which support the rotary jib and allow the jib to rotate, while providing resistance to the overturning moment produced by the cantilevered load at the end of the jib (or by the counterweight at the other end of the jib when there is no load on the hook). The top of the fixed tower tapers inwards to support a large-diameter ring, which acts as the upper bearing for the jib, and as a static horizontal gear ring for controlling the angle of rotation (or slew) of the jib.

The jib is tee-shaped, with a long horizontal jib as two unequal back-to-back cantilevers, mounted on top of a short vertical pivot member which nests inside the tower and is supported by the upper and lower bearings. The short end of the cantilever jib carries a small corrugated-iron motor house, holding a pair of motors and winches. The motors and winches function as a fixed counterweight to the hook and load. At the centre of the rotary jib, above the pivot, is another corrugated iron motor house, which holds a heavier electric motor and winch to raise or lower the hook and its load. There is also a second electric motor and some gearing to drive the pinion which engages the large horizontal gear ring on the tower and controls the rotation/slewing of the jib (Figure 14).

Mounted on one side of the jib, close to the tower, is a small cabin for the crane driver. The cabin has windows looking down onto the area covered by the hook and rotates with the jib so that the driver always has a good view of the hook and load. The cabin also has a chair for the driver, and several electric control handles to control the speed and direction of the various motors driving the winches and gears. The driver gained access to the cabin from ground level by climbing a series of steep narrow steel ladders within the tower and walking along a steel chequer-plate catwalk.

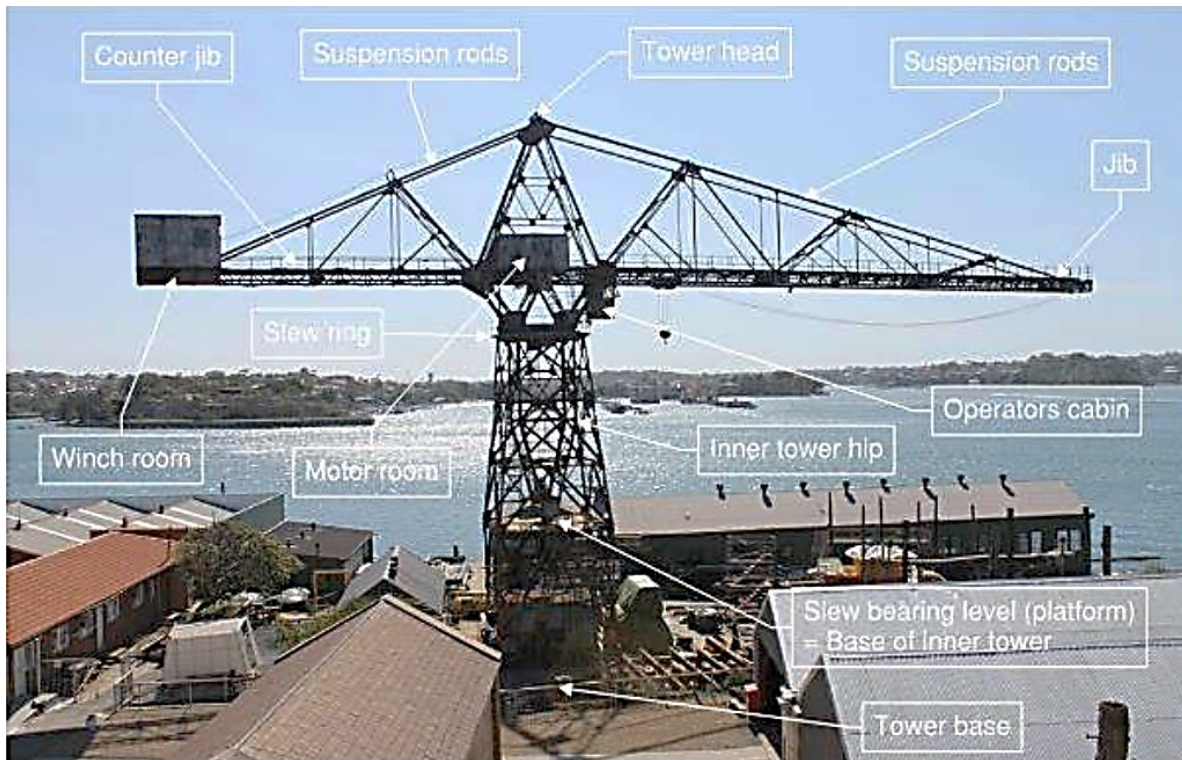


Figure 124: Crane components (TTW, 2023)

### Condition of the Tower Crane

The condition of the crane is detailed in *Me Mel Goat Island 1925 Electric Tower Crane Assessment and Consideration of Structural Issues* (TTW, 2022). In summary, the report states:

- The crane is heavily corroded with considerable loss of thickness for key members.
- There is crevice corrosion at joints and between plates, where rainwater collects, and the integrity of rivets between members has not been assessed.
- Some handrails and catwalks/floors are now in such an advanced state of corrosion that additional safety latch lines are required to access the crane safely, using fall arrest systems.
- The floor to the counter jib winch room is considered too corroded to enter, as there is an absence of structural elements to safely attach a fall arrest.
- There are asbestos-containing materials (ACM), and the crane structure is painted with lead-based paint, the remains of which are friable and flaking.
- The crane is at the end of its service life and under NSW Work Health and Safety legislation, and even if repaired there is no possibility that the crane can be returned to service.
- The crane is a hazard to persons and other heritage buildings on the island.
- If the crane was to be repaired it would be as a non-operating structure and require considerable immediate and ongoing resources, expertise, work, and financing to minimise future risk to life and property.
- If not repaired and regularly maintained, it is recommended that it should be dismantled.

The full report is provided as Attachment B.

A 2010 condition inspection report by R.K. Findlay indicates that the poor condition is reflective of the salt laden environment and lack of galvanising.





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*The operational environment is not ideal for the crane especially when the components such as the main structure are not galvanized to assist in protection against corrosion, using mild steel sections protected with an appropriate paint was typical of techniques used in the era of construction however constant attention was required to prevent the onset of corrosion.*

The report also states that the condition of the crane was likely a result of poor maintenance prior to 1998:

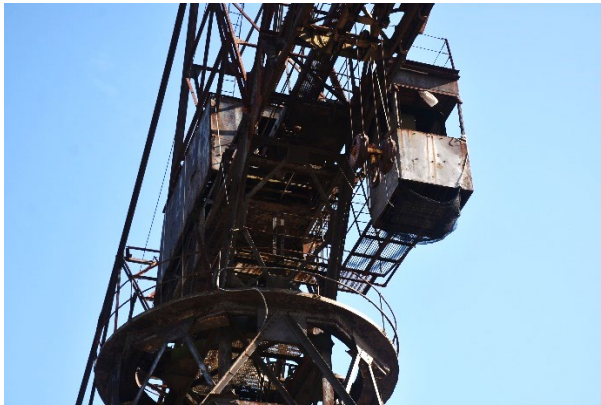
*The extent of the damage to the machine is consistent with poor maintenance whilst under the control of the previous occupants of the site and it would be fair to say that the crane would have at best been in a marginal condition when Sydney Ship Repair and Engineering took up the lease.*



**Figure 135:** Looking up to the slew ring under the jib showing extensive corrosion. (TTW June 2022)



**Figure 146:** Looking up to the underside of the motor room showing extensive corrosion. (TTW June 2022)



**Figure 157:** Looking up to the underside of the operator's box showing extensive corrosion. (TTW June 2022)



**Figure 168:** The manufacturer's plaque bolted to the tower. (TTW, June 2022).





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Figure 179: Looking up to the underside of the winch room at the short end of the jib showing extensive corrosion. (TTW, June 2022).



Figure 30: Looking up a tower leg, showing considerable corrosion. (TTW, June 2022).



Figure 31: Looking along the jib when the crane was last climbed by an engineer showing extensive corrosion and paint loss. (Arcadis, July 2021)



Figure 318: Looking along the jib when the crane was last climbed by an engineer showing extensive corrosion and paint loss. (Arcadis, July 2021)



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Figure 33: Looking along the jib when the crane was last climbed by an engineer showing extensive corrosion and paint loss. (Arcadis, July 2021)



Figure 194: Looking onto the Level 1 Platform when the crane was last climbed by an engineer showing extensive corrosion. (Arcadis, July 2021)

TTW has identified a radius in which risk should be considered elevated (high) based on the high risk item findings associated with the crane structure in its current state. This area includes a circular zone of 1.5x the jib slew radius of the crane and allows for potential catastrophic failure of the crane or subsequent collapse of one or more surrounding buildings in such an event, or the possibility of falling debris outside the immediate jib radius (Figure 35).

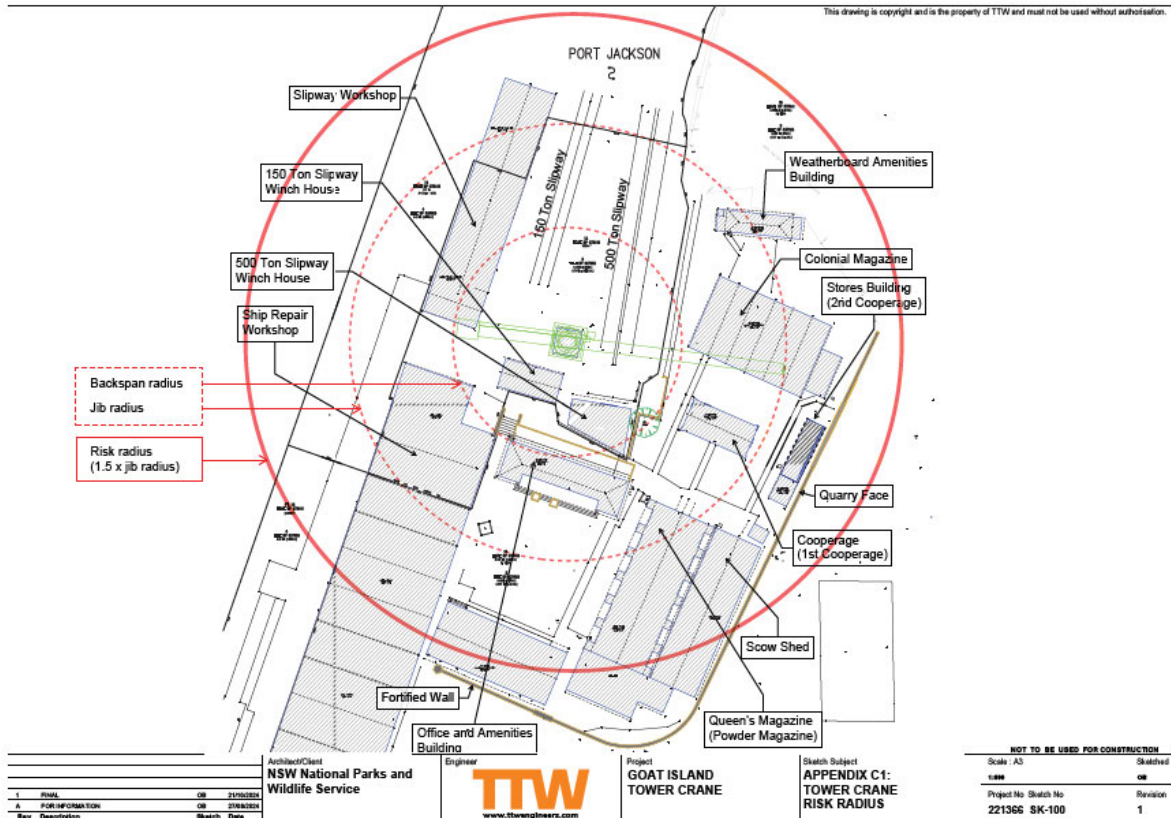


Figure 205: Tower Crane Risk Radius (Source: TTW)





## 2. Significance Assessment

Goat Island is listed as an item on the NSW State Heritage Register (SHR #00989). A state heritage register listing recognises a place or object as significant for all of NSW. The listing is assessed and recommended by the Heritage Council of NSW and made under the Heritage Act 1977 by the NSW Minister. The place or object may be, for example, a building, Aboriginal site, cultural landscape, single object, or collection, known archaeological item or a heritage conservation area.

The terms 'cultural significance', 'cultural heritage value', 'cultural heritage significance' and 'heritage significance' are often used interchangeably. *The Heritage Act 1977* uses 'heritage significance'. Heritage significance can encompass natural environments, modified landscapes, built places or objects. A place or object may also have a range of values for different individuals or groups (Australia ICOMOS 2013b).

The heritage significance of Goat Island is related to the cultural landscape and its almost continuous use by European settlers since the 1820s for a variety of activities related to the operational management of Sydney Harbour by various government agencies. The island is close to Balmain, North Sydney, and Pyrmont. The significant aesthetic values of the island are both internal as views experienced from within the island as well as views to the island and from the island. Physical evidence of the historical periods of occupation of Goat Island exists either as extant structures or archaeological evidence. The island has been progressively modified from the commencement of quarrying for the Magazine precinct through to its incorporation into the Sydney Harbour National Park. Extensive areas of the island were cleared around the Magazine Precinct, however much of the vegetation has been re-established over time. Archaeological resources on Goat Island have high scientific value and a high level of interpretation potential.

The state heritage inventory assessment of heritage significance is provided in table 3.





Criteria (a)  
Historic Significance

It is important in the course or pattern of NSW's cultural or natural history.

Goat Island is a harbour island west of the Sydney Harbour Bridge between Balmain and McMahons Point, which demonstrates all phases of use and development from Precontact Aboriginal occupation to Colonial Occupation in 1833 to the present day.

Goat Island is of historical significance as the documented site of incarceration and attempted re-education of four Aboriginal convicts during the 1830s. The history of the Aboriginal convicts on the Island is of state significance as it encapsulates issues of conflict over land, early 19<sup>th</sup> century European prejudices and judicial treatment of Aboriginal people.

Goat Island contains one of the two major convict-built public works projects on Sydney Harbour (the other is at Cockatoo Island). In the 1800s, the island was used as a home for convict work gangs and as a gunpowder storage depot. The Queen's Magazine, which stands on Goat Island, was built in the 1830s by convicts using sandstone quarried from the eastern side of the island.

It is the site of the first major facility for the storage of ordnance and explosives in both government and private hands. It is also the site of the first permanent establishment of the Water Police in Sydney Harbour. It has associations with Royal Engineer George Barney and Colonial Architect Edmund Blackett.

The Magazine precinct contains various buildings and structures, including a former ammunition store group, guardhouse/ officers' quarters and cottage, stone wall, entrance gate and sentry box, dungeon, stone stores, and a former mill. It is an early example of the State's response to the need to provide a safe storage facility and distribution point for both publicly (both Imperial and Colonial) and privately owned explosives. All the major elements of the 1830's complex have survived and are reasonably intact, with later structures and services.

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Criteria (b)  
Historic associations

It has strong or special association with the life or works of a person or group of persons, of importance in NSW's cultural or natural history.

Goat Island has associations with Royal Engineer George Barney and Colonial Architect Edmund Blackett.

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Criteria (c)  
Aesthetic or technical significance

It is important in demonstrating characteristics and/or a high degree of creative or technical achievement in NSW.

Goat Island is of considerable aesthetic significance. It is one of several prominent Sydney Harbour islands that contribute to the overall beauty and pattern of the harbour. It is visually prominent at the confluence of Port Jackson, Darling Harbour, and the Parramatta River. The Queen's Magazine's powerful architectural qualities are complemented by the unusual design of the contemporary stone cooerage, barrack buildings and perimeter walling. The use of sandstone and slate enhances the overall aesthetic qualities. The Magazine's aesthetic qualities are further enhanced by the topographical setting on the southwestern edge of the island and by the curved alignment of the stone security wall. The variety, extent, and pattern of wharves is unusual in such a concentration and provides a rich visual interplay between the rhythm of the piles and the rocky foreshore.

Goat Island was also the emergency centre for bacteriological research during the 1900 outbreak of bubonic plague. After 1901 it was the shipyard and base for port management operations by the Sydney Harbour Trust and its successor the Maritime Services Board



<p>Criteria (d) Social significance</p>	<p>It is an example of the State's response to the need to provide a safe storage facility and distribution point for both publicly (both Imperial and Colonial) and privately owned explosives. As an island isolated in Sydney Harbour, Goat Island during the Sydney Harbour Trust/ Maritime Services Board periods provided a place for accommodation, work, as a shipyard and operational depot and recreation for a variety of people for a period of over ninety years. It is of local significance for the people who lived and worked on the island and of regional significance for what it can tell us of the living conditions of the people who lived and worked on the island in the 20th century.</p>
<p>Criteria (e) Research potential or educational significance</p>	<p>The research and historical archaeological potential of Goat Island are high. It has been continuously occupied by Europeans since 1833. It can demonstrate the layering of use and occupation over a period of 150 years, including those earlier facilities that were adapted for later functions. Surviving physical evidence can demonstrate the lifestyles and working conditions of a diverse range of occupants and staff on the island, during all phases of development from pre-European to the late 20th century activities of the Maritime Services Board.</p>
<p>Criteria (f) Rarity</p> <p>It possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history.</p>	<p>The architectural qualities of the early stone buildings on the island are remarkable and rare. The Queen's Magazine with its barrel vault, massive external buttressing and carefully detailed ventilation system, is the finest and earliest large powder magazine.</p> <p>This criterion is exclusive and is concerned with places that are few. Determining what constitutes 'few in number' relies on contextual study. It is difficult to make claims without knowing how many other places survive or how many places existed at some time in the past.</p>
<p>Criteria (g) Representative significance</p> <p>It is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments.</p>	<p>The facilities on the island are representative of the maritime industrial activities that were once common around the inner harbour and the Parramatta River. Integrity and intactness are high. The structures retain enough of their original fabric to enable their form, function, and interrelationships to be easily read and understood. The variety of cultural and landscape forms and plantings on the island are representative of the different stages of occupation.</p>

**Table 3: Assessment of State Heritage Significance from the NSW State Heritage Inventory**

## 2.1 Statement of Significance

### Statement of significance from the SHR listing

*The Colonial Magazine is historically significant as probably the oldest surviving magazine built to store merchant's powder in Australia, evidence of the growing need for storage of privately owned gunpowder in the expanding colony of New South Wales. It has historical associations with its designers, Colonial Architects Edmund Blackett and Alexander Dawson, and despite the loss of original structural arrangement retains some ability to demonstrate its former use as a magazine facility for the storage of gunpowder. The building also has some historical significance as part of the shipbuilding establishment on Goat Island since 1925. The building is aesthetically significant mainly for the technical innovation of its design which departed from the military standard typified by the adjacent Queen's Magazine. The Colonial Magazine is also technically significant for*



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*the surviving evidence of its construction and use, and for the archaeological evidence likely to be present beneath and around the building. (Phillips 2000: 53)*

### **Statement of significance from the 2011 CMP**

The Statement of Significance for Goat Island relating the Maritime Period is extracted from the Goat Island Conservation Management Plan 2011 Volume 1.

#### *Maritime Period 1901- 1993*

*The works undertaken during this period redefined the appearance of the Island with the addition of wharves, shipyard, workshops, residences and a range of large and small support buildings. The initial ordered aesthetic values of the Island seen in the formal layouts of colonial buildings were quickly dissipated with a range of developments that overlaid earlier developments, occupied the most accessible areas and redefined the harbour edge for about a third of the Island's perimeter. Most of the structures from this period were utilitarian in character and designed to facilitate industrial activity. The exception, through its prominent location, substantial size and fashionable architectural style is the Harbour Master's Residence which makes a statement about the importance of the Sydney Harbour Trust, the status of the Harbour Master, and the future development of Sydney Harbour. This is of very high aesthetic and creative achievement at state level.*

*Collectively the buildings from this period contribute to the overall aesthetic values of the Island as an industrial site and several elements demonstrate particular creative or technical value.*

*The aesthetic values of the Island are both internal, as experienced from within the Island, and as views to the Island as set out in section 3. Significant views to and from the Island are of local significance, with the exception of those views outlined in Table 5.1 and shown on Figure 5.6 Views of exceptional and high significance. Of note are the views from the Water Police Station and later from the Harbour Master's Residence to the harbour to the east, north and south, which as a result of the views and their ability to assist harbour surveillance, determined the siting of the buildings. This is of state significance.*

*A number of the works from this period are of particular creative and technical achievement as seen in:*

- the construction of the various slipways, in particular the 500-ton slipway and the excavation required to achieve this which is of state significance.*
- the relocated hammerhead crane of state significance, principally for its earlier history and its role within the harbour as a whole.*
- the construction of some of the wharves which is of state significance. The wharves do not have landmark value, although the Broadside Wharf has particular aesthetic value with its important function of separating the slipways and workshop buildings from the Harbour – wharves 4a and 4b. These wharves are of state heritage significance.*

*Generally, the northern and western edges of the Island are strongly defined by wharves, but the eastern and southern edges of the Island are less visually defined by the wharves that are located there.*

*The wharves have some aesthetic significance as a visual element that characterizes the present form of the Island in relation to its former uses. This is a relatively new aesthetic presentation of the Island as when used for port purposes the wharves were largely not visible through the shipping moored against them. The largely empty wharf structures have overall moderate heritage significance only. In contrast to their significance in relation to the maritime use and appearance of the island, the wharves impact on the natural aesthetic values of the island in its now partially re-vegetated form as the island forms a focal point in views from Darling Harbour and the city towards the north shore and from the north shore headlands looking south. The aesthetic significance of the wharves overall is of local heritage significance.*

*The appearance of the wharves on the island is not unique or distinctive as the form of construction and appearance are typical of most timber wharves around the Harbour. Wharves are however an integral part of the Island's life and history, and wharves make some aesthetic contribution to these attributes. This is of local heritage significance.*





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*The landscape of the island during this phase of use has low aesthetic significance as the main landscape works undertaken involved clearing and maintaining the existing open landscape form. Only after the winding down of maritime use has the natural landscape started to re-establish.*

*Of particular interest in terms of cultural or introduced plantings and landscape from the period (of local significance) are:*

- *The frangipani in the shipyard (item 43)*
- *The various date palms on the Island (items 99, 136, 138)*
- *The Bougainvillea (item 139)*

*These are of local aesthetic significance.*

### 2.2 Significance of the proposed work area

The proposed works are confined to the Tower Crane which is part of Goat Island - a listed item.

#### **Statement of significance for the Tower Crane from the 2011 CMP**

The inventory sheet in Volume 3 of the CMP identifies the Tower Crane as being of moderate significance and provides a statement of significance:

*The Hammerhead Crane is of heritage significance for its long association with the commercial shipping industry in Sydney Harbour (1924-1959) and as part of the current commercial use of the Goat Island shipyard (1998-; and maritime port authority usage by the NSW Maritime Services Board (1962-1993). It played a major role in the operation of the MSB Goat island shipyard 1962-1993, which indicates the level of shipyard activity at the MSB's Goat Island Shipyard in this period and continues in use as part of the current commercial operation of the Goat Island shipyard. The Hammerhead Crane is of aesthetic significance as a large and visually prominent trussed steel structure which is a rare and dramatic industrial landmark within Sydney Harbour, evidenced by recent Sydney Harbour paintings such as those of Jane Bennett.*

#### **Revised statement of significance for the Tower Crane**

The CMP addendum (2024) for the Tower Crane provides a revised statement of significance based on recent additional research:

*The Goat Island 4-10 tons Fixed Electric Tower Crane is the third oldest amongst a large collection of surviving large dockside/ maritime cranes in NSW. The surviving large dockside/ maritime cranes, mostly on Garden and Cockatoo islands in Sydney Harbour, display a range of configurations, loadings and age. The Tower Crane is the only crane in NSW fabricated by Arrol and Co.*

*The Goat Island Tower Crane is associated with Sir William Arrol & Co, one of the most recognised 19<sup>th</sup> and 20<sup>th</sup> Century British engineering companies which built hundreds of bridges, hydraulic and electric cranes to suit a variety of purposes, docks, hydro-electric and nuclear power stations across Britain, including 125 sites in Scotland alone. In NSW Arrol and Co supplied fabricated steelwork for the first Hawkesbury River Railway Bridge (1889). The Goat Island Tower Crane was not a bespoke Arrol and Co crane, like the 250T Giant Cantilever Crane on Garden Island, but was a standard catalogue item.*

*Although not in its original location the Tower Crane demonstrates historical significance for its association with maritime activities in Sydney Harbour, first at Mort's Dock from 1924 to 1959 and at the Goat Island Shipyard from 1963.*

*The crane's structure is heavily corroded, with considerable loss of thickness on some key structural members. The crane's whole electrical equipment and assembly is more than 60 years old and obsolete. There are no records of any significant electrical upgrades by MSB since 1964.*



### 3. Proposed Works

#### 3.1 The proposal

The NSW National Parks and Wildlife Service (NPWS) proposes to:

- Photograph and digitally record the 4-10 Tons Fixed Electric Tower Crane,
- Dismantle and remove the cantilever rotary jib and upper tower, retaining and storing the operator's cabin and operator's controls, hook and hook trolley, and winch room racking machinery for future interpretive display.
- Treat the corrosion and paint the crane tower.
- Remediate the local area including removal of contaminants such as asbestos and lead-based paints.

The crane tower will be retained to the slew ring level. (Figures 36 & 37). The proposal does not involve excavation.



Figure 216: The crane tower, with the slew ring at the top.  
(R Newton/NPWS, 2024)



Figure 227: The slew ring level (R Newton/NPWS, 2024)

#### Dismantling Sequence

The crane will be dismantled in stages (Figure 38). The technical documents by Paul Connett Heritage Structural Engineer and Olivia Britt, Structural Engineer, Taylor Thompson Whitting (TTW), *Dismantling Sequence Dwg SK01 to SK09 Rev2 October 2024*, are provided as Attachment C.



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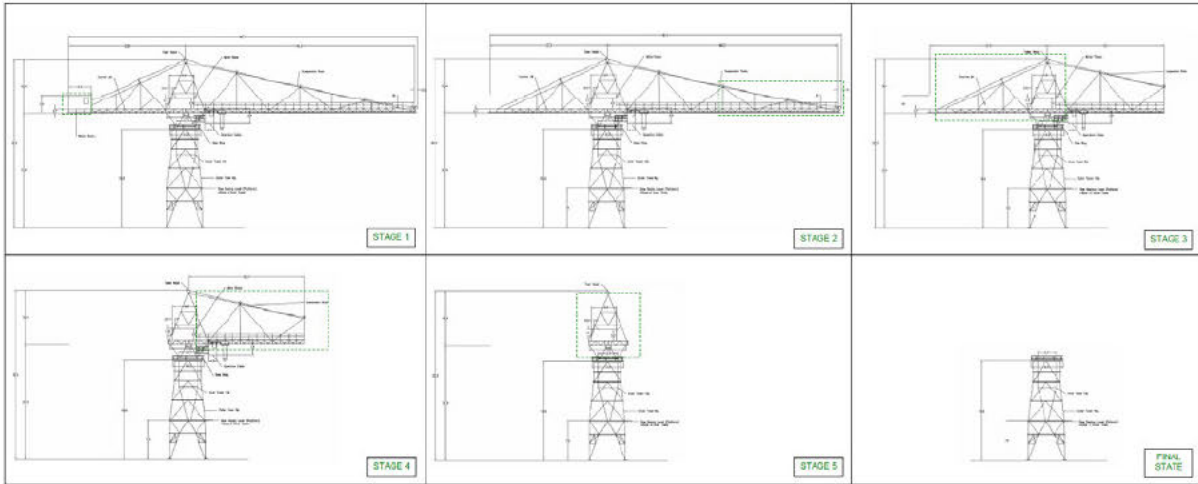


Figure 238: Dismantling sequence (TTW, 2024)

The dismantling sequence is summarised in Table 4 below.

Stage	Details
1	Remove winch room and winch (2.8T)
2	Remove front end of boom (9.9T)
3	Remove backspan (5.8T)
4	Remove remainder of boom (9.2T)
5	Remove upper tower above slew ring (including motor room), tower over motor room, motor room and tower under motor room and above slew ring (12.5T)
6	Final state: Retain tower

Table 4: Dismantling Sequence

The upper tower will not be retained as it is supported by the suspension ties to the jib.

### Crane Tower Repair and Re-paint

Proposed works include:

- a) Scaffold tower and jibs to safely access all parts of the tower
- b) A thorough structural inspection and analysis
- c) Abrasive blast cleaning steel structure to remove all lead paint, back to bright metal.
- d) As structure is within National Park assume full encapsulation of structure will be required
- e) to abrasive clean.
- f) NDT weld inspection (base plates and boom and suspension rod splices) and ultrasonic
- g) testing of rivets and bolts
- h) Replacing structural members where required (cutting and splicing) and repairing/augmenting
- i) connections where required (plating/welding/bolting)
- j) Replace corroded handrails, walkways, platforms and floors by welding in new tube and plate





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- k) Re-plate heavily corroded slew ring external walkway (considerably corroded to the southern
- l) side, where water ponds), which acts as a horizontal ring beam, stiffening the slew ring.
- m) Install anchor points for rope access maintenance
- n) Whip abrasive blasting to remove flash corrosion, and priming within 2 hours
- o) Protective coat all steelwork for 25-year design life to repainting
- p) Repeat NDT weld inspection and ultrasonic testing of rivets and bolts every 10 years and
- q) repair/replace/augment as required. Re-protective coat all repairs.

These works will enable access for inspection by rope-access certified engineers only. None of the existing ladders or barriers comply with the National Construction Code or relevant Australian Standards for public access.

### Cost Estimate

The cost to dismantle and remove the jib and retain and repair the tower was estimated in 2024 at \$2,938,715 ex-GST, with an additional cost to maintain the tower over 25 years of \$469,531 ex-GST excluding escalation.

### Interpretation

Prior to removal, the crane will be photographed, digitally recorded and a 3D model created. Key components of the rotary jib will be retained and stored for future interpretive display (Figures 39-46).



Figure 249: The crane hook (R Newton/NPWS, 2024)

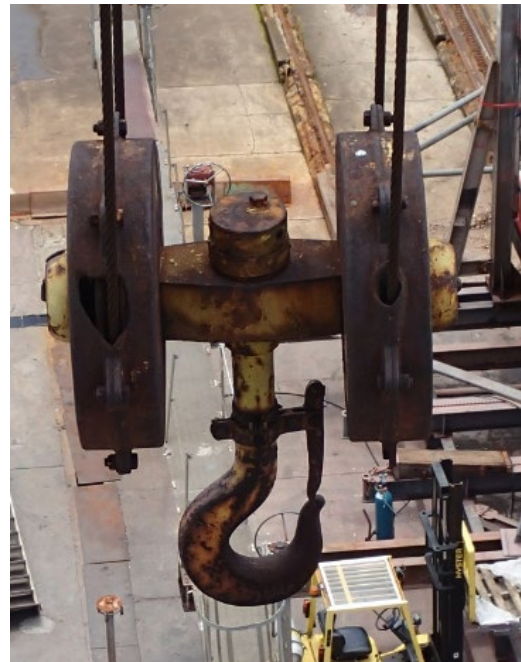


Figure40: The crane hook (P Connett, 2014)



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Figure 41: The operator's cabin (R Newton/NPWS, 2024)



Figure 42: Operator's controls (P Connett, 2014)



Figure 425: Hook trolley (P Connett, 2014)

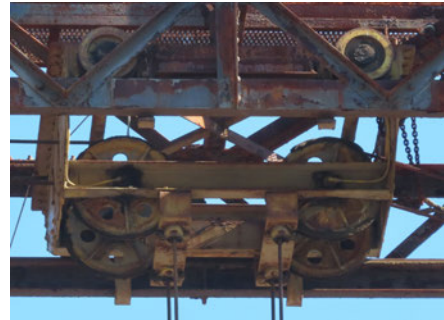


Figure 264: Hook trolley (R Newton/NPWS, 2024)



Figure 275: Winch room racking machinery (P Connett, 2014)

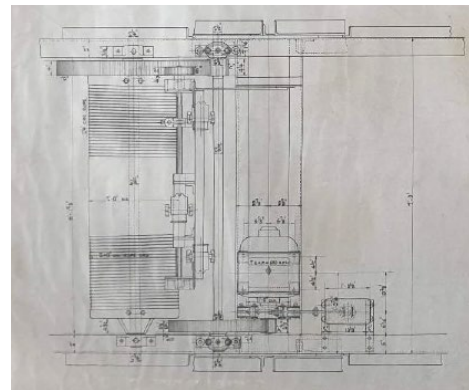


Figure 286: 1924 plan of the racking machinery (NPWS)

## 3.2 Background

### Pre-lodgement consultation

NPWS met with officers from Heritage NSW on Goat Island in November 2022 and discussed a proposal to remove the entire crane. Removing the jib and retaining the tower for interpretive purposes was raised by HNSW to mitigate the impact of removing the crane.



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### Heritage Council Approvals Committee (HCAC) resolution 31 January 2023

Heritage NSW tabled a briefing paper at the Heritage Council Approvals Committee (HCAC) on 31 January 2023, to which HCAC published a resolution. NPWS had not formally lodged a Sec60 application nor had the opportunity to present the proposal to the Approvals Committee.

### Pre-lodgement submission May 2024

NPWS submitted a pre-lodgement submission in April 2024 proposing to remove the entire crane. The submission included a statement of heritage impact including a response to the HCAC resolution of January 2023 (Table 5).

No.	HCAC Resolution 2.3	NPWS response
1	Notes the contents of the paper presented by HNSW.	<p>No NPWS response was requested by HNSW.</p> <p>HNSW provided a copy of its summary paper tabled at the HCAC meeting on 7 February 2023. NPWS is concerned that the summary paper understated the crane's substantial risk to public safety and buildings of exceptional significance. The summary paper recommendations were also founded on an unpublished draft non-statutory report which does not apply to NPWS estate, was not subject to consultation with the relevant land managers or stakeholders.</p>
2	Notes that the crane is likely to be of State heritage significance as an individual item due to its rarity and representativeness of industrial maritime activity in Sydney Harbour and Australia.	<p>The CMP endorsed under S38A by the Heritage Council 6 April 2011 states that the crane is an element of high significance, being a part of a state-listed item.</p> <p>NPWS has undertaken further research and updated the inventory sheet for the Tower Crane including historical analysis, physical analysis, comparative analysis, assessment of significance, statement of significance and conservation policy.</p>





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3	Supports the celebration and conservation of the shared heritage of Sydney Harbour.	NPWS notes and agrees. The objects of the National Parks and Wildlife Act include the conservation of objects, places or features of cultural value within the landscape including places of historic significance and fostering public appreciation, understanding and enjoyment of cultural heritage and their conservation.
4	Notes that the crane appears to have not been maintained in accordance with the Heritage Act 1977.	Management of Goat Island was transferred to NPWS in 1992. The crane was in poor condition with substantial corrosion at the time of transfer from the Maritime Services Board to NPWS in 1992 (Robert Bird, manager of Goat Island 1992-1998, personal communication, March 2024). Goat Island was listed on the state heritage register in 1995.
5	Requests that National Parks and Wildlife Services (NPWS) explores options to reduce the cost of conserving the crane and	The cost of retaining the crane is based only on the minimum works necessary. The actual cost will likely now be much higher. Reducing the cost of repairs can only be done by means of reducing this scope and compromising the outcome.
	increase future community engagement	NPWS discussed the condition of the Tower Crane and the NPWS proposal to remove the Tower Crane with the Me-Mel Transfer Committee on 30 March 2023 and 14 March 2024. NPWS outlined the options in this paper to the Committee. The Committee supports the proposal by NPWS to remove the Tower Crane.

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	<p>– consider alternatives between fully operational and complete demolition</p>	<p>It is not possible to make the crane operational. The crane is at the end of its service life and even if repaired, under NSW Work Health and Safety legislation there is no possibility that the crane can be returned to service.</p> <p>Other options have been considered in this report.</p>
	<p>and ensure that future planned maintenance costs are considered and fully funded.</p>	<p>There are no safe or viable alternative uses for the crane that can contribute to the substantial cost of maintenance.</p> <p>The NSW Government is committed to transfer Goat Island to Aboriginal ownership and management. It is fiscally and socially irresponsible to bequeath an obsolete, high-risk asset with high ongoing maintenance costs to future community owners.</p>
<p>6</p>	<p>Directs that Heritage NSW provide the proposed Section 60 application for consideration at a future Approvals Committee meeting for its determination.</p>	<p>Noted.</p>
<p>7</p>	<p>Requests an updated Conservation Management Plan (CMP) that addresses all aspects of Me Mel’s history and significance before its transition to the Aboriginal people.</p>	<p>The current CMP was endorsed by the Heritage Council at its meeting on 6 April 2011.</p> <p>The 2011 CMP, in 4 volumes, is a substantial and comprehensive piece of research and advice and its findings and recommendations are still relevant. No major change has occurred on the island since 2011.</p> <p>NPWS submits that there is no need to update the 2011 CMP prior to the island’s transfer to Aboriginal ownership, and</p>

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		management. The CMP’s findings and recommendations are still relevant to inform conservation works and site management while the site remains part of NPWS estate.
8	Requests that NPWS consults with the Heritage Council of NSW on the updated CMP	NPWS notes the comment for (7)

**Table 5: HCAC resolution and NPWS response**

HNSW referred the matter to the Heritage Council Approvals Committee and no formal feedback has been provided by HNSW as part of the pre-lodgement submission service.

**Heritage Council Approvals Committee (HCAC) resolution May 2024**

NPWS was subsequently invited by HNSW to deliver a presentation on the proposal to the Heritage Council Approvals Committee at their meeting of 7 May 2024. At the meeting NPWS was not permitted to deliver the presentation. Instead, the Chair guided the discussion with a focus on NPWS’ responses to the previous resolution.

One member of the HCAC suggested that NPWS examined the option of retaining, re-using and interpreting the crane tower and did not support the production of a 3D model as an interpretive tool; these were of only temporary interest.

Following the meeting, the HCAC resolved (moved by David McNamara and seconded by Caitlin Allen) to:

1. Note the contents of this paper and the crane’s likely individual State Heritage significance (currently sits within SHR curtilage).
2. Note that the significant crane is in a state of disrepair.
3. Refer the applicant to the previous Approvals Committee Resolution (Res 2023-05) made at the meeting held on 31 January 2023.

Apart from the resolution, no formal feedback was provided by the HCAC as part of the pre-lodgement submission service.

**Consideration of alternatives**

**Option 1: Do nothing.**

While the Tower Crane remains out of service it is necessary to ensure that the crane swings freely on its slew with the wind, which means that the crane jib routinely swings over elements of exceptional significance, including the Queens Magazine and Cooperage, with risk of falling debris causing irreversible damage to these buildings. The Magazine and Shipyard precincts will also remain unavailable for public access as the risk to public safety cannot be eliminated while the crane continues to rotate over these areas. This risk also affects any future uses of these precincts.

Doing nothing will not address the steadily increasing likelihood of falling objects risking harm to life, property, and environment, including items of exceptional heritage significance. Doing nothing will not address the eventual risk of catastrophic failure of part or all the crane.

Doing nothing is not feasible.

**Option 2: Wrapping**

Wrapping or netting tower and jib netting apertures small enough to capture all items heavy enough to fall and harm visitors, employees, buildings, and other assets would likely accelerate corrosion,





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increase wind resistance, and become an intrusive visual element. This option would not address the eventual risk of catastrophic failure of part or all the crane.

This is also not consistent with the CMP which states that any new elements related to Work, health and safety are not to dominate the setting, physically or visually (CMP, p.276).

Wrapping is not feasible.

### **Option 3: Retain and maintain.**

The following works would be required as a minimum to repair the crane and make safe for the immediate future:

- Scaffold tower and jibs to safely access all parts of the crane.
- A thorough structural inspection and analysis.
- Engage crane maintenance engineer to inspect and service slew bearing and slew ring, to ensure crane can weathervane.
- Crane maintenance engineer also to remove cables, hook, and anything that could fall from the crane (or install catch-nets where items cannot be removed).
- Loose window frames and glass have already been removed and the central motor room roof (which is very corroded and doily-thin) has been tied down with ropes.
- Remove asbestos containing material (ACM), by a specialist contractor. Allow to encapsulate areas to remove asbestos.
- Abrasive blast cleaning steel structure to remove all lead paint, back to bright metal. As structure is within National Park assume full encapsulation of the structure will be required to abrasive clean.
- NDT weld inspection (base plates and boom and suspension rod splices) and ultrasonic testing of rivets and bolts.
- Replacing structural members where required (cutting and splicing) and repairing/augmenting connections where required (plating/welding/bolting).
- Replace corroded handrails, walkways, platforms, and floors by welding in new tube and plate.
- Re-plate heavily corroded slew ring external walkway (considerably corroded to the southern side, where water ponds), which acts as a horizontal ring beam, stiffening the slew ring.
- Replace corroded motor, winch room and control cabin roofs and with new welded steel tube beams and plate (nominally 6mm thick plate).
- Patch motor and winch room walls need patching with steel plate (nominally 6mm thick).
- Whip abrasive blasting to remove flash corrosion and priming within 2 hours.
- Protective coat all steelwork for 25-year design life to re-painting.

The estimated cost to repair and make the crane safe was estimated in 2024 at \$4,801,027 ex GST, not including escalation.

The crane could be repaired and retained as a non-operating crane at considerable expense but will also require considerable ongoing resources, expertise, work, and money to keep the crane safe and minimise risk to life and property. If repaired as a non-operating crane, ongoing maintenance would include:

- Annual inspections.
- Regular maintenance of the crane cantilever jib suspension system (jib and suspension rods).



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- Regular service and maintenance of the slew mechanism on a biannual or annual basis, ensuring that the jib can rotate freely.
- NDT weld inspections and ultrasonic testing of rivets and bolts every 10 years with repair/replacement/augmentation as required and re-protective coating of any repairs.

The additional cost of maintaining the crane over 25 years was estimated in 2024 at \$2,271,250 ex GST, not including escalation.

These cost estimates, prepared by a quantity surveyor with expertise in complex engineering structures, are provided as Attachment D.

The consequence of no or low maintenance is potentially catastrophic if a small or large part of the jib structure, the machinery room, the winch room, the hook or any of the suspension rods fail and fell.

The rotary jib must continue to weathervane, i.e., self-rotate to align parallel with the wind direction. The rotary jib's slew mechanism will jam if it is not regularly maintained and greased. A catastrophic failure could occur if the slew mechanism jammed during a high wind weather event and the jib was not able to rotate. Part or all the jib could distort or fracture in a cross wind and collapse in part or in full.

Importantly, no matter how thorough any crane repairs and inspections are, the risk of items falling from the crane jib, because of the crane's age, highly corrosive environment and its open riveted lattice structure cannot be fully eliminated. A rivet head or even a small corroded 10mm thick plate falling 20m could cause injury or death. This high risk prevents the nationally significant Magazine Precinct, which is under the sweep of the jib, from ever being safe to use.

The responsibilities and risk to maintain a safe crane in a public place are too onerous for any owner, either a public entity or a private or community organisation such as the future Aboriginal owners. It is submitted that it is not realistic or reasonable for any owner to keep a large, redundant, highly risky, unwieldy, unsafe, high maintenance public asset, such as the crane, without a viable use that would justify regular inspections, maintenance, and renewal of protective coatings. There are no safe or viable alternative uses for the crane that could contribute to its substantial upkeep. The crane cannot be safely climbed by any unqualified persons. The crane, as an open lattice structure, cannot be used to house and weather protect any alternative use. The crane is obsolete, cannot be returned to service and cannot generate any income to justify the onerous maintenance responsibilities.

Retention is not feasible.

### **Option 4: Relocate**

The 2011 CMP advised that the crane's continuing use as part of an operational shipyard is important for its conservation, however, the crane can no longer be safely or legally operated and the crane can never be returned to service.

The 2011 CMP advised that the crane could be relocated if it becomes redundant. The crane is now redundant. Relocation of the crane is not feasible because it is so corroded that it will not be feasible to unbolt and reassemble and for the structure to be certified by a Principal Certifier and Structural Engineer, every rivet would need to be tested, and the thickness of every member measured and replaced if corroded. Even if reassembly was feasible, the cost of relocation with subsequent ongoing maintenance costs will be excessive and unsustainable, relocation would not eliminate the on-going risk of failure and falling elements and the loss of public space to accommodate the crane (such as the original site of Mort's Dock, now a public reserve) would likely be unwelcome.

Relocation is not feasible.



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### **Option 5: Remove the entire tower.**

Removal of the crane will enable visitor access to areas currently restricted due to safety risk and enable future use of the Powder magazine and Shipyard precincts. Removal of the crane will also enhance the heritage significance of elements of greater significance, namely the natural landscape qualities of the island and the Powder Magazine precinct – which is of exceptional significance. Removal of the crane is consistent with the 2011 CMP which explicitly states:

*This structure can be considered as both a landmark feature and as having impact on an appreciation of the natural landscape of the island and the magazine precinct. Removal would be considered acceptable if:*

- a) *The slipways cease permanent operation and/or the crane becomes a hazard to public safety or to other buildings. (CMP, p.270)*

Ongoing maintenance would be eliminated, enabling re-direction of those resources to the ongoing maintenance of buildings of higher significance which are either already in use or have potential for re-use.

The cost to dismantle and remove the crane was estimated in 2024 at \$1,936,967 ex-GST excluding escalation.

### **Option 6: Remove the jib and convert the tower into a viewing platform.**

It would be possible to provide access by means of internal steps to the Slew Ring Platform and reuse that part of the tower as a viewing platform. It is not possible to provide internal access beyond that point using stairs and access would only be available via ladder. The extent of modifications necessary to provide compliant public access to the top of the tower would have an adverse impact on the tower. Without significant alterations to the tower, there are no means to provide wheelchair access to any proposed viewing platform.

Public access is currently available to the island overlooking the Magazine Precinct and the Tower Crane and this vantage point offers superior views of the western side of the island, the Parramatta River and nearby headlands such as Ballast Point (Figure 37).

Conversion of the tower to a viewing platform will be expensive and of marginal interest compared with the current natural views available on the crest of the island.

### **Justification for removal of the jib and retention of the tower**

The crane is at the end of its service life. It is heavily corroded with considerable loss of thickness for key members. There is no possibility that the crane can be returned to service. The shipyard and slipways have ceased permanent operation.

The crane is a hazard to people and other exceptional heritage buildings on the island. Removal of the jib will reduce this risk.

Removal of the jib will:

- Eliminate the risk of catastrophic failure and of elements falling off the jib.
- Enable access for visitors and contractors to areas currently restricted due to safety risk.
- Enable conservation works to proceed to the buildings within the Magazine Precinct.
- Enable future use of the Powder magazine and Shipyard precincts.
- Enhance the heritage significance of elements of greater significance, namely the natural landscape qualities of the island and the Powder Magazine precinct – which is of exceptional significance.





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Removal of the crane is consistent with the 2011 CMP which explicitly states:

*This structure can be considered as both a landmark feature and as having impact on an appreciation of the natural landscape of the island and the magazine precinct. Removal would be considered acceptable if:*

- b) *The slipways cease permanent operation and/or the crane becomes a hazard to public safety or to other buildings. (CMP, p.270)*

Key components of the jib will be retained and stored by NPWS. The masterplan strategic framework process that is underway will consider options for future interpretation of the key components of the jib.



## 4. Heritage impact assessment

### 4.1 Matters for consideration

#### **Fabric and spatial arrangements**

The proposal to remove the Tower Crane jib will involve the removal fabric of an item of industrial heritage which is no longer operational and has become severely compromised by its corroded condition. While the removal of the jib will constitute a change to the existing spatial arrangement in the Shipyard Precinct, any significant fabric will be retained and assessed for salvage and possible reuse through interpretation.

The change will have a positive heritage outcome in allowing safe use of the Shipyard precinct and enhancing views to and from the Magazine precinct as well as between natural ridgeline of Goat Island and the heritage landscape items in the vicinity in the western area of Sydney Harbour.

#### **Settings, views, and vistas**

The crane is generally not visible from the east, and when seen from northern and western elevated vantage points (e.g., Balls Head) recedes against the island ridge-line vegetation (Figure 47).



**Figure 297:** The view of Goat Island from Balls Head (R Newton/NPWS)

When seen from waters to the west of the island the crane's profile towers above the shipyard buildings (Figure 48).



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**Figure 308:** The Tower Crane over the Shipyard and Magazine precincts (R Newton/NPWS)

The crane also dominates views looking west from the island's western ridgeline (Figure 49).



**Figure 319:** The Magazine Precinct viewed from the island's western ridge (R Newton/NPWS)

The 2011 CMP identifies significant views for Goat Island (Figure 50). Views of the Tower Crane are identified as being of high significance



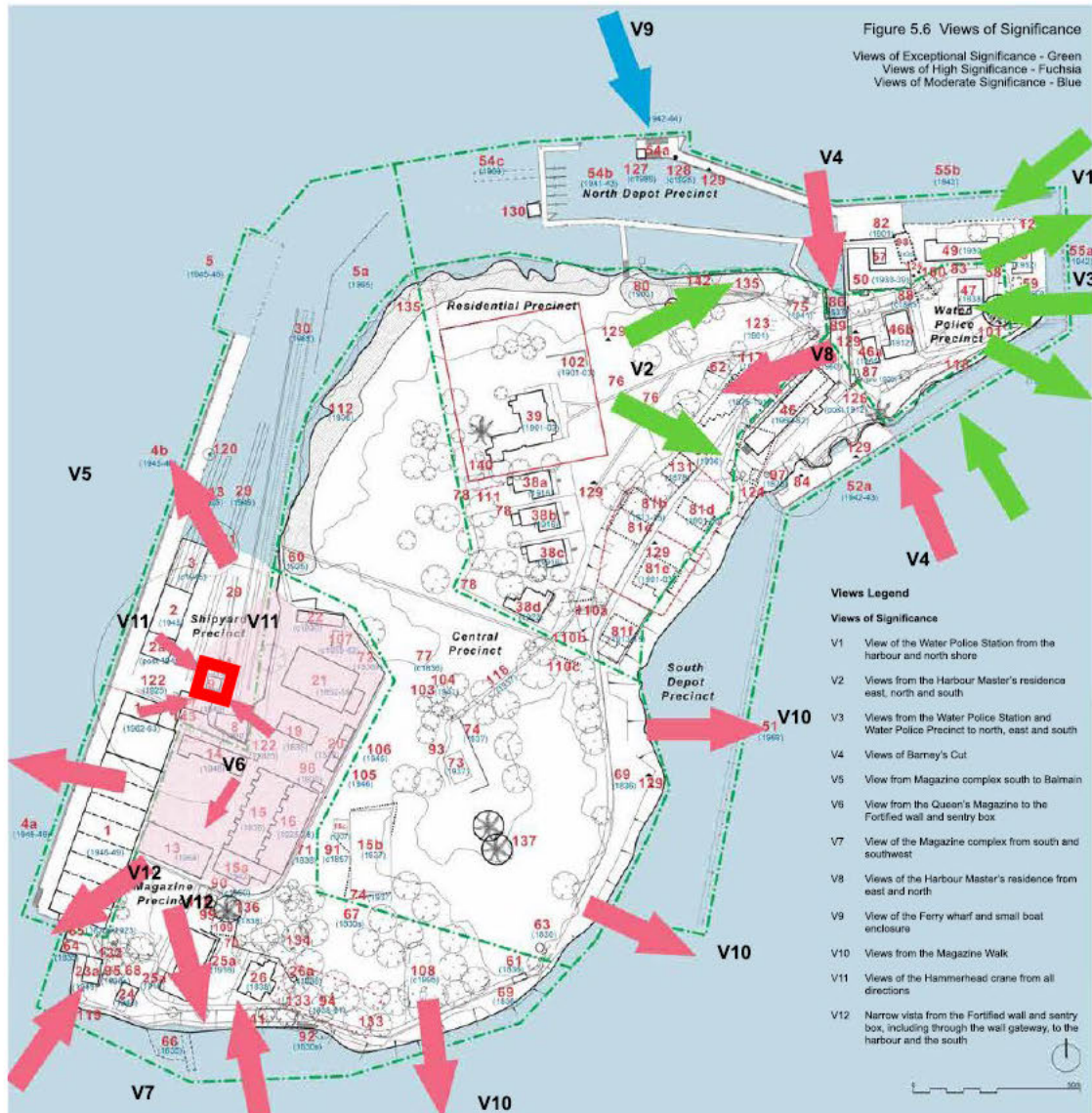


Figure 50: Significant views recorded in the CMP. The location of the Towe Crane is shown indicated in red.  
(Source: Goat Island CMP Volume 1)

While presenting a dramatic asymmetrical 'T' shaped silhouette, with its distinctive open steel lattice structure, slew ring, cabins and prominent topmost cable suspension rods, the crane is an equally intrusive element dominating the intact Magazine Precinct and contributing to the obscuration of the complex from the northern and western aspects.

The removal of the jib will have a detrimental impact on the significance of Goat Island by removing part of an element which demonstrates aesthetic significance as a prominent maritime industrial landmark on the western side of Sydney Harbour.

However, the removal of the jib will reveal more of the 1830s setting within the Magazine Precinct before the crane was erected in the Shipyard. The crane jib is omnipresent seen against the sky in the precinct above the roofs as it looms over the buildings and open areas. Its removal will enhance visitor's appreciation of the nineteenth-century ensemble of colonial buildings in their walled





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compound, which are all items of exceptional significance. This improvement is modelled below (Figures 51 and 52).



Figure 51: Looking west between the two most intact buildings constructed, the Powder Magazine and the Cooperage. The crane is omnipresent and is a jarring element in this view. (Google 2023)



Figure 52: The westward view from the Powder Magazine precinct partially recaptures the qualities of the skyline before the crane was erected.

The 2011 CMP states that:

*This structure can be considered as both a landmark feature and as having an impact on the appreciation of the natural landscape of the Island and the magazine precinct. (CMP, p.270)*

and



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*Removal of structures, elements and buildings of lower significance than the colonial buildings (which have exceptional significance) may take place to recover aspects of that exceptional significance of high significance including the setting of the precincts (Uses Policy 5, p.252).*

The policy also states that the decision to remove site features must be guided by a master plan or an interpretation plan for the island and the ability to recover or reinstate precincts of exceptional value. The removal of the crane jib is consistent with reinstating a precinct of exceptional significance. The decision to remove the crane jib is not underpinned by a current masterplan but is necessary to urgently manage risk while a master plan strategic framework is being prepared to consider future options for the safe, responsible, and pragmatic transfer of the island to Aboriginal ownership and management.

### **Landscape**

The proposal will remove an element of aesthetic significance from the Island whilst recovering the aesthetic qualities of a precinct of exceptional significance. This has been adequately described above.

Conceding to the dominance of the ridge line, the removal of the tower crane jib will have a positive visual heritage impact on the significance of the landform of Goat Island, as well as on the surrounding heritage landforms on Sydney Harbour of noted cultural significance.

Although not formalised as a path, the ridge of the island is its spine and structure. The ridge provides a powerful sense of connectivity to ancient geological transformations -the time when the earth was soft. The shape of the ridge provides subtle but definite suggestions about how to move across this landscape. It offers a powerful experience of being on the island, connected through movement to all that surrounds .

The ridge is the most cohesive experience of the islands landform as it was prior to European settlement.

### **Use**

The crane has been out of service and unused since 2010. The crane will never again be used as a crane. Unlike a redundant building, the crane cannot be repurposed or adapted.

There is currently no visitor access to the northern or western areas of the Magazine Precinct due to the risk of falling debris and hazardous materials beneath the swing of its rotary jib.

The Department of Climate Change, Environment, Energy and Water (DCCEE) work, health and safety risk matrix identifies this risk as very high – the highest risk rating. This rating is based on a likelihood of 'likely' (considerable opportunity and means to occur) and the consequence being 'extreme' (single or multiple fatalities, physical or psychological injury/illness resulting in irreversible, total permanent impairment or disability).

Retention of the jib will constrain future re-use of the Shipyard Precinct and Magazine Precinct.

The proposal to remove the jib does not involve a change to the use of the island or the affected precincts. Removal of the jib will allow for public access to be reinstated to all the Powder Magazine precinct and enable future use of the Shipyard Precinct.

### **Demolition**

This is not applicable. NPWS is not proposing to demolish the whole of a building or work. The proposal is to dismantle and remove only the cantilever rotary jib of the tower crane.





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Nevertheless, Section 63(3)c subsection (2) of the Heritage Act states that proposals to demolish the whole of a building or work will be refused but subsection (3) states that nothing in subsection (2) prevents the approval body from approving an application to demolish if:

a) *it is of the opinion that the building or work constitutes a danger to the users or occupiers of the building or work, the public or a section of the public.*

This is applicable. The crane is a hazard to persons and other heritage buildings within the Powder Magazine and Shipyard precincts. The DCCEE work, health and safety risk matrix identifies the hazard risk as very high – the highest risk rating.

Demolition of the crane would meet the threshold of S63(3)(a), and the Heritage Council could approve demolition under S63(2).

### Partial Demolition

Matters for consideration of partial demolition	Discussion
Is the partial demolition essential for the heritage item to function?	Options for retention and adaptive reuse have been considered in past assessments, however, the structures on the site have become severely dilapidated, resulting in a change of immediate priority from conservation and adaptive reuse to clearing the site of hazardous elements and making it safe.  Once the site has been made safe conservation /reconstruction works will commence and opportunities for adaptive reuse will be explored and considered.
If partial demolition is proposed because of the condition of the fabric, can the fabric be repaired?	Any demolition proposed on the site will be the due to site safety and environmental issues such as high potential for structural collapse and the implications of hazardous effects in the vicinity.
Are important features and elements of the heritage item affected by the proposed partial demolition (e.g. fireplaces in buildings)?	Yes, the physical and visual impact of the removal of the jib will affect views to and from Goat Island, however the demolition will allow the enhancement or views of the natural profile of the Island’s ridge as a dominant element on the site.
Will the proposed partial demolition have a detrimental effect or pose a risk to the heritage item and its significance? If yes, what measures are proposed to avoid/mitigate the impact?	The proposed partial demolition will have a positive effect to the heritage item by removing hazards and improving the site safety as well as enhancing views to and from the Magazine Precinct and heritage items in the vicinity.



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Identify and include advice about how significant elements, if removed by the proposal, will be salvaged and reused.	All significant building fabric will be salvaged where possible and retained on the site to be reused for reconstruction of compromised structures or used as interpretation devices.
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### **Curtilage**

This proposal will have no impact on the physical heritage curtilage of Goat Island, however it will have a positive impact on the visual curtilage with views enhanced to and from the natural form of Goat Island and heritage items in the vicinity

### **Moveable heritage**

This proposal will have no impact on moveable heritage.

### **Aboriginal cultural heritage**

The proposed removal of the crane will not affect any Aboriginal sites, objects archaeology or any cultural heritage associations. The crane is not associated with any past or present Aboriginal community. No excavation is proposed to remove the crane and to remediate the local area including removal of contaminants such as asbestos and lead based paints.

The crane, as a former commercial and then MSB twentieth century asset, has no Aboriginal tangible or intangible associations. Aboriginal communities do not have any association with the crane.

### **Historical archaeology**

The endorsed CMP identifies areas of known and high archaeological potential Vol 1 Fig 5.5, below. Also, the Thorpe W, Schwager Brooks and Partners Pty Ltd. Archaeological Survey and Assessment of Historic Sites 1985 identifies historical archaeological sites across the island. The crane is not within an area of known or high archaeological potential in the endorsed CMP or near to any of the sites identified in 1985.

No excavation is proposed to remove the jib and to remediate the local area including the removal of contaminants such as asbestos, lead based paints.

A separate archaeological assessment was not undertaken for this application as the proposal does not involve excavation and will not have an impact on the island's historical archaeological resources.

### **Natural heritage**

The proposal will have no impact on natural heritage.

### **Conservation areas**

The proposal is not part of a conservation area.

### **Cumulative impacts**

The NSW Government has committed over \$40 million to the essential repair and remediation of Goat Island to prepare for the transfer to an Aboriginal ownership and management entity. The funding is being used to meet minimum standards of maintenance and repair across all buildings on Goat Island, repair wharves and seawalls and remediate lead paint, lead dust and asbestos-containing material where these are determined to present a risk to visitors.

The former Port Emergency Services Building, on the eastern side of Goat Island, was demolished in 2023/2024 under a Section 60 approval by the Heritage Council.



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### Goat Island Conservation Management Plan 2011

The 2011 Goat Island Conservation Management Plan (CMP) in 4 volumes, is a substantial and comprehensive piece of research and provides concise and well-presented analysis of the heritage values of the island and policies from the analysis and assessment of significance. The CMP was endorsed by the Heritage Council in 2011.

The following table identifies the CMP policies relevant to the proposal and discusses how the proposal complies with these policies.

Policy	Policy	Consistency assessment
Uses Policy 1	Improve and extend public access	Complies. Removal of the jib will enable public access to the entire Magazine Precinct and remove constraints to future use of the Shipyard Precinct.
Uses Policy 2	Where a proposed or existing use is predicted to have an adverse impact on the core significance of the place, it should not be undertaken or continue.	Complies. Retention of the jib will have an adverse impact on visitor safety, public access, and future use of the Shipyard Precinct.
Uses Policy 5	Removal to recover Colonial (exceptional) significance	Complies. The removal of the jib is consistent with recovering a precinct of exceptional significance. The decision to remove the jib is not underpinned by a current masterplan but is necessary to urgently manage risk while a master plan strategic framework is being prepared to consider options for the safe and pragmatic transfer of the island to Aboriginal ownership and management.
Use of buildings Policy 1	The policy lists a range of potential uses for the Magazine and Shipyard Precincts.	Complies. Removal of the jib will enable future public uses on the precinct. Retention of the crane jib will constrain future public use of the precincts.
Interpretation Policy 2	Consider the island as a whole when developing interpretation so that it is complementary and not repetitive.	Complies.. The master plan strategic framework is currently under-development and needs to be shared with future registered Aboriginal Owners for





		further consideration, as a part of the preliminary recommendations process for the transfer. This framework will consider interpretation of the crane.
Interpretation Policy 5	On-site signs and information panels are to be discrete in location and appearance.	Complies. NPWS proposes to provide information detailing the significance and use of the crane.
Conservation and maintenance Policy 1	Undertake immediate urgent works across the Island to build elements that are at risk of damage or loss of significant fabric. Priority should be given to elements of exceptional significance.	Complies. The proposal will protect built elements of exceptional significance by removing the risk of objects falling from the jib onto those elements.  NPWS proposes action to manage the Tower Crane - an element at risk of loss of significant fabric.
Conservation and maintenance Policy 7	Seek approvals under the Heritage Act for conservation works	Complies. This statement is part of a Sec60 application seeking approval under the Heritage Act.
Adaptation of Buildings Policy 3	Allow for upgrading equipment, repairs, change and in some cases replacement equipment and infrastructure, where it is necessary to allow uses such as the shipyard use to continue.	Complies. Removal of the jib will enable future use of the Shipyard Precinct.
Enhancing significance Policy V7	<p>Hammerhead Crane</p> <p>Removal would be considered acceptable if:</p> <p>a) The slipways cease permanent operation and/or the crane becomes a hazard to public safety or to other buildings.</p>	<p>Complies.</p> <p>The slipways have ceased permanent operation.</p> <p>The crane is a hazard to public safety and to other buildings.</p>

Table 4: Compliance with the 2011 Conservation Management Plan

Other matters for considerations for proposal to remove the Tower Crane Jib at Goat Island (Source: NSW DPE, 2023).



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Do the proposed works include removal of unsympathetic alterations and additions? How does this benefit or impact the heritage item and its significance?

The proposal will remove an element of industrial significance from the Island while enhancing the aesthetic landscape qualities of a precinct of exceptional significance. The 2011 CMP states that:

*This structure can be considered as both a landmark feature and as having an impact on the appreciation of the natural landscape of the Island and the magazine precinct. (CMP, p.270)*

and

*Removal of structures, elements and buildings of lower significance than the colonial buildings (which have exceptional significance) may take place to recover aspects of that exceptional significance of high significance including the setting of the precincts (Uses Policy 5, p.252).*

The policy also states that the decision to remove site features must be guided by a master plan or an interpretation plan for the island and the ability to recover or reinstate precincts of exceptional value. The removal of the crane is consistent with reinstating a precinct of exceptional significance. The decision to remove the crane will be underpinned by a current draft masterplan which supports the risk management for the safe, responsible, and pragmatic transfer of the island to Aboriginal ownership and management.

Do the proposed works affect the setting of the heritage item, including views and vistas to and from the heritage item and/or a cultural landscape in which it is sited? Can the impacts be avoided and/or mitigated?

The curtilage of the heritage precinct will be retained; however, the existing crane has been out of service and unused since 2010. The crane will never again be used as a crane. Unlike a redundant building, the crane cannot be repurposed or adapted. There is currently no visitor access to the northern or western areas of the Magazine Precinct due to the risk of falling debris and hazardous materials beneath the swing of its rotary jib.

The Department of Climate Change, Environment, Energy and Water (DCCEEW) work, health and safety risk matrix identifies this risk as very high – the highest risk rating. This rating is based on a likelihood of ‘likely’ (considerable opportunity and means to occur) and the consequence being ‘extreme’ (single or multiple fatalities, physical or psychological injury/illness resulting in irreversible, total permanent impairment or disability).

Retention of the jib will constrain future re-use of the Shipyard Precinct and Magazine Precinct.

The proposal to remove the jib does not involve a change to the use of the island or the affected precincts. Removal of the jib will allow for public access to be reinstated to all the Powder Magazine precinct and enable future use of the Shipyard Precinct.



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Are the proposed works part of a broader scope of works?	The proposed works will inform the future use of the site which will be described in the masterplan. The proposed works will have positive cumulative impacts on the future use of the shipyard precinct which is no longer operational due to the crane can no longer being able to be safely or legally operated. The crane can never be returned to service.
Does this proposal relate to any previous or future works? If so, what cumulative impact (positive and/or adverse) will these works have on the heritage significance of the item?	
Are the proposed works to a heritage item that is also significant for its Aboriginal cultural heritage values? If so, have experts in Aboriginal cultural heritage been consulted?	Goat Island is significant for its Aboriginal cultural heritage values. The Me-Mel Transfer Committee has been consulted about all proposed changes on the Island. [The crane is not of significance to Aboriginal cultural heritage values]
Has the applicant checked if any other approvals or a separate process to evaluate the potential for impacts is required?	
Do the proposed works trigger a change of use classification under the National Construction Code that may result in prescriptive building requirements? If so, have options that avoid impact on the heritage values been investigated?	The removal of the Tower Crane will not trigger as change of use under the National Construction Codes.
If the proposed works are to a local heritage item, are the requirements of the development control plans or any local design guidelines that may apply to the site considered?	The proposed works are to an item of State Heritage significance.
Will the proposed works result in adverse heritage impact? If so, how will this be avoided, minimised or mitigated?	The proposed works will involve partial demolition of historic fabric on the site however this will be resulting in positive heritage impacts for enhanced views to and from the Magazine Precinct and of the natural landform of the island.

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### The Burra Charter

The conservation articles provided below from the Burra Charter, which are of relevance to the proposal, should be followed.

Article No.	Article	Proposal
3.1	Conservation is based on respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible.	Nominated significant components will be carefully dismantled and retained for conservation and interpretive reuse.
14	Conservation may, according to circumstance, include the processes of retention or reintroduction of a use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaptation and interpretation; and will commonly include a combination of more than one of these. Conservation may also include retention of the contribution that related spaces, and related objects make to the cultural significance of a place.	<p>The proposal is to remove intrusive and hazardous elements from the site to make the site safe , as well as removal the detracting elements that compromise the aesthetic value of the site.</p> <p>The landscape of Goat Island is a highly modified one as illustrated in early photographs, which show the extent of quarrying, reclamation, benching, clearing and development.</p> <p>There will be minor modifications to existing near and distant views and vistas between Goat Island and other significant view corridors and heritage items in the vicinity, however, the visual prominence of the Shipyard precinct, including the ridge line, existing roof forms, and vegetation will be retained.</p>
17	Preservation is appropriate where the existing fabric or its condition constitutes evidence of cultural significance or where insufficient evidence is available to allow other conservation processes to be carried out.	<p>The tower will be preserved in situ. or salvaged for future reuse on the site.</p> <p>Nominated significant components will be carefully dismantled and retained for conservation and interpretive reuse.</p>
22.1	New work such as additions or other changes to the place may be acceptable where it respects and does not distort or obscure the cultural significance of the place or detract from its interpretation and appreciation.	The proposed changes will be respectful of the scale, form and materiality of the heritage item Goat Island, and will not distort or diminish views and vistas to and from the prominent heritage site.



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<b>22.2</b>	New work should be readily identifiable as such but must respect and have minimal impact on the cultural significance of the place.	All proposed new work will be respectful and readily identifiable and have minimal impact on the cultural significance of the place.
<b>25</b>	The cultural significance of many places is not readily apparent and should be explained by interpretation. Interpretation should enhance understanding and engagement and be culturally appropriate.	The proposed future works include planning for heritage interpretation on the site of and in the vicinity of removed Tower Crane jib to communicate the cultural significance of the island and its context as one of thirteen original islands within Sydney Harbour.
<b>27.1</b>	The impact of proposed changes, including incremental changes, on the cultural significance of a place should be assessed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes to better retain cultural significance.	The proposed works are consistent with the endorsed Conservation Management Plan (CMP).
<b>27.2</b>	Existing fabric, use, associations and meanings should be adequately recorded before and after any changes are made to the place.	The proposal future works will include a Photographic archival recording of the site to record all existing fabric, spaces and historical associations which are evident on the site.
<b>33</b>	Significant fabric which has been removed from a place including contents, fixtures and objects, should be catalogued, and protected in accordance with its cultural significance.  Where possible and culturally appropriate, removed significant fabric including contents, fixtures and objects, should be kept at the place.	The proposal will include a salvage schedule to ensure that all nominated significant components are retained for reuse on the site.

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### **Impact on views to and from other heritage items in the vicinity**

The proposal will also have positive impacts visual impacts on landscape items of local and state heritage significance in the vicinity in the inner western area of Sydney Harbour (Figure 55).



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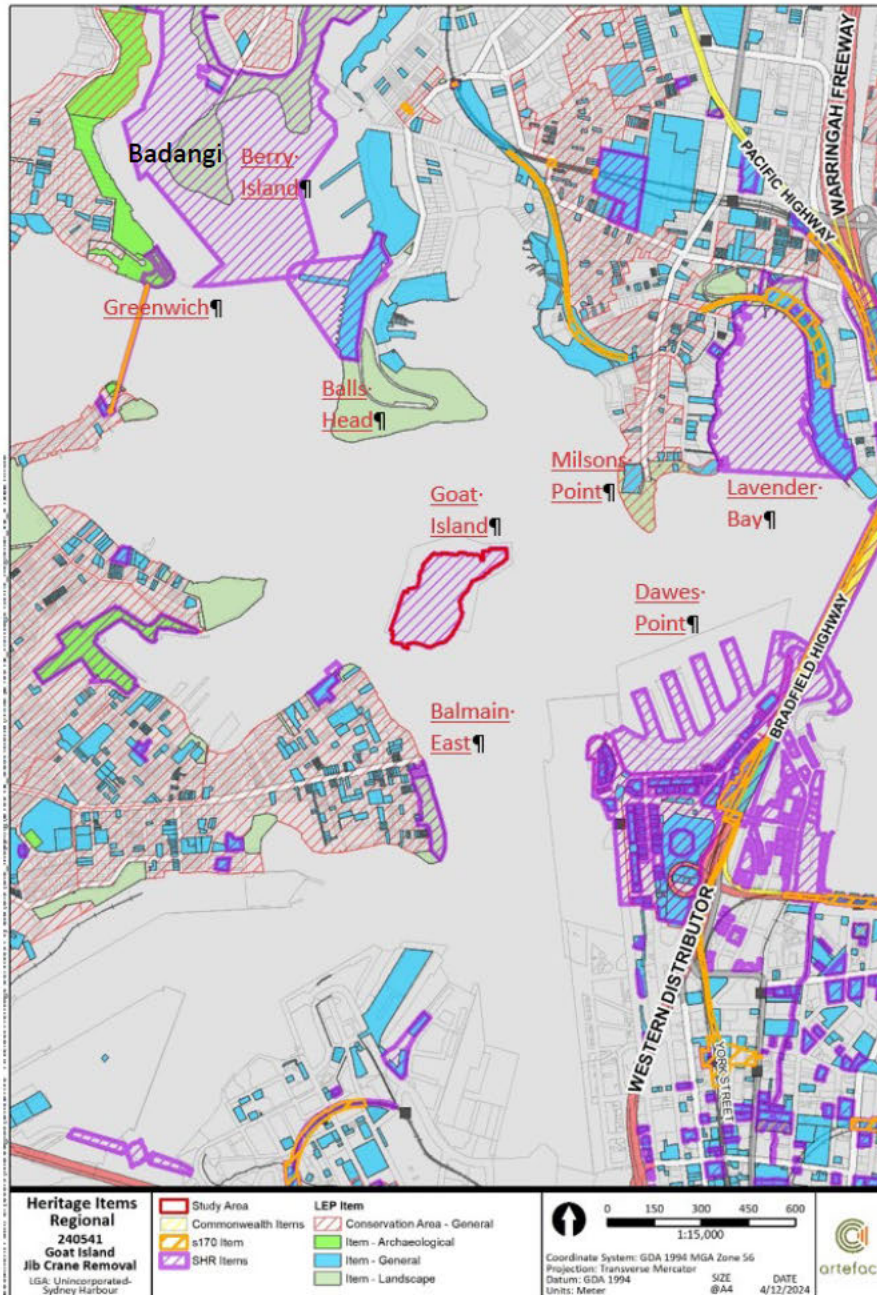


Figure 325: Goat Island shown in the context of heritage items in the vicinity (Source: Artefact 2024)

Listing type and Number	Item name and significance	Heritage Impact of proposal
SHR 2051	<b>Balls Head Coal Loader Complex</b> <i>(including Platform, Pier, and Administrative and Workshop Buildings)</i> - 11 Balls Head Drive Waverton	The removal of the Tower Crane Jib will have no visual impact on the views between Goat Island and the Coal Loader Complex.





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SHR 02075	<b>Badangi</b> - Wollstoncraft and Greenwich	The removal of the Tower Crane Jib will have positive visual impact on the views between the natural features of Goat Island and those at Badangi
SHR 01682	<i>Miller Point and Dawes Point</i> <b>Village – Upper Fort Street Millers Point</b>	The removal of the Tower Crane Jib will have no visual impact on the views between Goat Island and the historical layering at the Miller Point and Dawes Point Village
SHR 01949	<i>Brett Whitely House and Visual Curtilage – 1 Walker Street Lavender Bay</i>	The removal of the Tower Crane Jib will have no visual impact on the views to and from features of landscape setting of the Brett Whitely House and Visual Curtilage
SHR 0193	<b>Iloura Reserve</b> 10-220 Weston Street Balmain East	The removal of the Tower Crane Jib will have positive visual impact on the views to and from the natural features of Goat Island and those of the Iloura Reserve.

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## 5. Summary and recommendations

Goat Island has a long history of change. Buildings were constructed for utilitarian purposes relating to each phase of management. Many buildings and structures have been removed or demolished as the use changed or ceased and the population on the island declined.

The Goat Island 4-10 tons Fixed Electric Tower Crane is an element of significance located within Goat Island - an item listed on the NSW State Heritage Register. The crane is the third oldest amongst a large collection of surviving large dockside/ maritime cranes in NSW, particularly in Sydney Harbour and the Parramatta River. It is the only crane in NSW fabricated by Arrol and Co. Although not in its original location the Tower Crane demonstrates historical significance for its association with maritime activities in Sydney Harbour, first at Mort's Dock from 1924 to 1959 and at the Goat Island Shipyard from 1963 to 2010.

The crane is at the end of its service life. It is heavily corroded with considerable loss of thickness for key members. There is no possibility that the crane can be returned to service. The crane is a hazard to public safety and to buildings of greater (exceptional) significance.

Removal of the crane jib will:

- reduce the risk to public safety and to other buildings of exceptional significance.
- enable visitor access to areas currently prohibited due to safety risks,
- enable future use of the Powder Magazine and Shipyard precincts.
- enhance the heritage significance of elements of greater significance, namely the natural landscape qualities of the island and the Power Magazine precinct – which is of exceptional significance.

Removal of the crane jib is consistent with the 2011 CMP which explicitly states that removal would be considered acceptable if the crane becomes a hazard to public safety or to other buildings.

Other options have been considered including doing nothing, wrapping, and retention and repair. None of these options will fully eliminate the unacceptable risk to public safety. Disassembly for relocation and reassembly is not feasible. Partial removal would produce a poor visual and interpretive outcome. Removal of the entire crane, while the preferred option, is not supported by the Heritage Council.

The proposed change will have a positive heritage outcome in allowing safe use of the Shipyard precinct and enhancing views to and from the Magazine precinct as well as between natural ridgeline of Goat Island and the heritage landscape items in the vicinity in the western area of Sydney Harbour.

It is recommended that the proposal to dismantle and remove the cantilever rotary jib be approved, subject to the following mitigation measures:

- Retention and conservation of the Crane Tower, with future options to be determined by the governing entity of future Aboriginal Owners for Me-Mel.
- Retention and storage of the nominated salvaged components identified above for future interpretation subject to the final master plan for the site.
- Preparation of a 3D model of the crane and a short animation demonstrating how the crane functioned, which can be made available to the public through the NPWS website and/or YouTube.



## 6. Attachments

No.	Title
A	Addendum to the Goat Island Conservation Management Plan June 2011, for the 4-10 Tons Fixed Electric Tower Crane, Goat Island, Sydney Harbour National Park, 1 March 2024.
B	Me Mel Goat Island 1925 Electric Tower Crane Assessment and Consideration of Structural Issues, TTW, October 2024.
C	Dismantling Sequence Dwgs SK01 to SK09 Rev2 12, TTW, October 2024
D	Goat Island, Sydney Harbour. Shipyard Crane – Repair or removal estimate options, Wilde and Woollard, October 2024.