

Godden Mackay Logan

Heritage Consultants



Hammerhead Crane, Fleet Base East, Garden Island, Sydney

Heritage Interpretation Plan

Report prepared for Brookfield Johnson Controls
on behalf of the Department of Defence
October 2014

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Report Register

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The report has been reviewed and approved for issue in accordance with the GML quality assurance policy and procedures.

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Executive Summary

GML Heritage Pty Ltd (GML) has been commissioned by Brookfield Johnson Controls (BJC) on behalf of the Department of Defence (Defence) to prepare a Heritage Interpretation Plan (HIP).

On 17 July 2013, the Defence received approval from the relevant Commonwealth Minister to remove the Hammerhead Crane located at Fleet Base East, Garden Island, NSW (EPBC 2012/6430). A series of conditions of consent were stipulated with the approval including undertaking an Expressions of Interest program, the preparation of additional reports, undertaking archival recording prior to and during removal works, and holding an exhibition commemorating the Hammerhead Crane.

This report has been prepared to satisfy Consent Condition 6 of the approval which requires a HIP to be prepared which commemorates the heritage values of the Hammerhead Crane. The content must include:

- a) details of specific element or vantage points of the Hammerhead Crane;
- b) details of how the heritage values of the Hammerhead Crane (including its life history) will be commemorated both on and off site (on a temporary and permanent basis);
- c) identification of the themes and stories that will be explored;
- d) details of the salvaged high value components of the Hammerhead Crane;
- e) how, where and by whom any high value components of the Hammerhead Crane salvaged for conservation and / or public display will be used (following consultation with the relevant stakeholders); and
- f) undertake a public consultation for the Draft HIP and provide a summary of any submissions received.

Interpretation is an essential part of the heritage conservation process. Appropriate interpretation of heritage supports community recognition, enjoyment and understanding of an item's values and significance.

Development and implementation of a comprehensive interpretation program focused on the Hammerhead Crane will assist in offsetting the impacts associated with its removal by enabling the history, heritage significance, capabilities and operations of the crane to be understood, enjoyed and appreciated by current and future audiences through a variety of media and initiatives.

In developing a plan for interpretation for the Hammerhead Crane, this HIP has taken into consideration the heritage values of the site, the identified key interpretive stories, the site analysis and the varied needs of the potential audiences. The recommended interpretive initiatives also consider the use of various media to present the information and engage with audiences.

Refinement of these recommended interpretive initiatives has occurred in consultation with Defence and other stakeholders. Further refinement will occur in the preparation of the Stage 2 HIP and/or planning and implementation of the interpretive initiatives. Stipulated and preferred initiatives are detailed in Section 4.0 of this report. Initiatives which were considered, but are not proposed, are referred to in Section 4.0 of this report, and included as Appendix D for reference.

A requirement of consent condition 6 was to invite public comments on the HIP for a period of no less than one month. The public consultation period occurred over 20 business days. It commenced on Monday 22 September 2014 and concluded on Monday 20 October at 5.30pm EST. One submission was received via online (Survey Monkey) with some supporting documentation submitted via email. This process and the details of the submission are included in Section 5.0 of this report.

Conditions of Consent 6 Checklist

	<u>Reference in Report</u>
6. The person taking the action must engage a suitably qualified expert to prepare a Heritage Interpretation Plan (HIP) which commemorates the heritage values of the Hammerhead Crane. The HIP must include (but not necessarily be limited to):	Section 1.5 - Suitably Qualified Expert
a) details of specific elements or vantage points of the Hammerhead Crane which were identified in accordance with condition 7(a) of this approval and how they have been captured by the archival recording required under condition 8 of this approval;	Section 3.3.5 – Visual Catchment Appendix A – Visual Catchment Assessment Appendix B – Available Resources for Interpretation
b) details of how the heritage values of the Hammerhead Crane (including its life history) will be commemorated both on and off site (on a temporary and permanent basis);	Section 4.0 – Interpretation Opportunities
c) identification of the themes and stories that will be explored through the measures required under condition 6(b) of this approval;	Section 2.5 – Key Historic Themes Section 2.6 – Key Stories for Interpretation
d) details of the salvaged high value components of the Hammerhead Crane, identified in accordance with condition 7(b) of this approval;	Appendix B – Available Resources for Interpretation
e) how, where and by whom any high value components of the Hammerhead Crane salvaged for conservation and / or public display will be used (following consultation with the relevant stakeholders); and	Section 4.2.2 – Interpretive Initiative B—Display of High Heritage Value Components (as of July 2014)
f) (in the final version only) a summary of any submissions received in response to public consultation on the HIP.	Section 5.4 – Key Issues from Submissions
Prior to providing the HIP to the Minister for approval, the person taking the action must invite public comment on the HIP for a period of no less than one month.	The public consultation period occurred over 20 business days from 22 September 2014 to 20 October 2014.
The HIP must be approved by the Minister within two years of the date of this approval and must be implemented.	To be approved and implemented.

1.0 Introduction

GML Heritage Pty Ltd (GML) has been commissioned by Brookfield Johnson Controls (BJC) on behalf of the Department of Defence (Defence) to prepare a Heritage Interpretation Plan (HIP) to commemorate the heritage values of the Hammerhead Crane, Garden Island, Sydney.

This HIP has been prepared to satisfy Consent Condition 6 of the approval for the removal of the Hammerhead Crane from Fleet Base East at the Garden Island Naval Base Sydney, NSW (EPBC 2012/6430).

1.1 Background

The 2009 Defence White Paper identified a number of new naval capabilities entering service, including the Canberra class Landing Helicopter Dock (LHD) and the Hobart class Air Warfare Destroyer (AWD) vessels, both of which are significantly larger than the capabilities they will replace. The LHDs will be introduced from late 2013. These proposed new capabilities will impact on already limited berthing capacity and flexibility at Fleet Base East (FBE), Garden Island. The location of the Hammerhead Crane restricts berthing of these vessels and hence further compounds the availability problem at FBE.

In 2009, Worley Parsons was engaged by Defence to provide a technical engineering basis for determining the most appropriate means for addressing the environmental, health, safety and operational issues associated with the Hammerhead Crane and to provide a cost benefit analysis of each option. Based on a consideration of costs, benefits and residual risks, it was recommended that the Hammerhead Crane be removed.

In 2012, Defence commissioned Parsons Brinkerhoff and Brookfield Multiplex Services (BMS) to prepare an *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* (EPBC Act) Referral for the removal of the Hammerhead Crane from FBE at the Garden Island Naval Base Sydney, NSW. Defence determined that the removal of the Hammerhead Crane was necessary to allow Garden Island to provide training and logistic support, maintenance facilities and berths for major current and future Royal Australian Navy (RAN) ships home-ported in Sydney, as well as additional berths for other visiting RAN and foreign warships.

On 15 June 2012, Defence submitted a Referral under Section 68 of the EPBC Act for the removal of the Hammerhead Crane. On 12 July 2012, the proposed action was determined to be a controlled action by the then Department of Sustainability, Environment, Water, Populations and Communities (DSEWPaC) and as such was required to be assessed by Preliminary Documentation.

On 17 July 2013, the Defence received approval from the then Minister of DSEWPaC to remove the Hammerhead Crane located at FBE, Garden Island, New South Wales. A series of conditions of consent were stipulated with the approval. Regarding the HIP, consent condition 6 stated that:

6. The person taking the action must engage a suitably qualified expert to prepare a Heritage Interpretation Plan (HIP) which commemorates the heritage values of the Hammerhead Crane. The HIP must include (but not necessarily be limited to):

- a) details of specific elements or vantage points of the Hammerhead Crane which were identified in accordance with condition 7(a) of this approval and how they have been captured by the archival recording required under condition 8 of this approval;*
- b) details of how the heritage values of the Hammerhead Crane (including its life history) will be commemorated both on and off site (on a temporary and permanent basis);*
- c) identification of the themes and stories that will be explored through the measures required under condition 6(b) of this approval;*
- d) details of the salvaged high value components of the Hammerhead Crane, identified in accordance with condition 7(b) of this approval;*
- e) how, where and by whom any high value components of the Hammerhead Crane salvaged for conservation and / or public display will be used (following consultation with the relevant stakeholders); and*
- f) (in the final version only) a summary of any submissions received in response to public consultation on the HIP.*

Prior to providing the HIP to the Minister for approval, the person taking the action must invite public comment on the HIP for a period of no less than one month.

The HIP must be approved by the Minister within two years of the date of this approval and must be implemented.

1.2 Heritage Listings

The following is a summary of the heritage listings for Garden Island and the Hammerhead Crane:

1.2.1 Statutory Heritage Listings

- The Garden Island Precinct is a 'Listed Place' on the **Commonwealth Heritage List (CHL)** (Item # 105286). This Precinct also contains seven individually listed CHL items, identified in Table 1.1.
- The Captain Cook Dock Precinct is an 'Indicative Place' on the **CHL** (Item # 105608)

Garden Island, in its entirety, is located within the buffer zone of the World Heritage and National Heritage Listed Sydney Opera House.

1.2.2 Non Statutory Heritage Listings

While Garden Island is Commonwealth land, the listings for the site in the NSW State Heritage Register (SHR) and Sydney City's Regional Environmental Plan have no statutory effect while the land is in Commonwealth ownership. These listings are as follows:

- The Sydney Harbour Naval Precinct is 'Listed' on the **NSW SHR** (Item # 01705)—it is identified as an 'unincorporated area' because it is an area of land that is not subject to local government control (refer to Figure 1.5).
- The Garden Island Precinct is identified as a heritage item on the **Sydney Regional Environmental Plan** (Sydney Harbour Catchment) 2005 (Schedule 4, Part 2, Item #6) (refer to Figure 1.6)

- Garden Island is also identified on the **National Trust of Australia Register** (Item #6209)

Since February 2012, the **Register of the National Estate** (RNE) no longer has statutory effect although the RNE remains as a database. Relevant RNE entries are as follows:

- The Garden Island Precinct was 'Registered' on the **RNE** (Item #2171), as were the seven individually listed items within the Precinct, and two figureheads identified below:
 - RNE Item #2176 was a timber figurehead of the clipper ship Windsor Castle, which was launched in 1869. Carved to represent Queen Victoria dressed in regalia.
 - RNE Item #2177 was a carved timber figurehead of a woman from the clipper ship Consuela, built in 1880s and which traded to Australia.
- The Hammerhead Crane was an 'Indicative Place' on the **RNE** (Item #100965)
- The Captain Cook Dock Precinct was an 'Indicative Place' on the **RNE** (Item #103690)

1.3 Resources

In preparing this HIP, the following documents and resources related to the Hammerhead Crane were reviewed and relevant information incorporated within this report:

- Hammerhead Crane—Heritage Assessment, prepared by Godden Mackay Logan (November 2005);
- Hammerhead Crane—Heritage Impact Statement, prepared by Godden Mackay Logan (November 2005);
- Hammerhead Crane—Heritage Impact Assessment, prepared by Godden Mackay Logan (October 2012);
- Proposed Removal of the Hammerhead Crane from Garden Island, Sydney—Public Consultation Summary Report, by Godden Mackay Logan (April 2013);
- Proposed Removal of the Hammerhead Crane from Garden Island, Sydney—Heritage Input into Tender Technical Specifications, prepared by Godden Mackay Logan (June 2013);
- Hammerhead Crane—Archival Recording Report—Stage One (Prior to Removal), prepared by Godden Mackay Logan (October 2013);
- Hammerhead Crane—Heritage Interpretation Plan—Support Document, prepared by Godden Mackay Logan (October 2013); and
- Hammerhead Crane—Salvage and Reuse Report, prepared by Godden Mackay Logan (December 2013).

Relevant information and resources (photographs, transcripts, additional information etc) from the above documents have been extracted and form the appendices of this report, supplementing and referred to in the contents in the body of this HIP.

1.4 Methodology and Terminology

This HIP uses the terminology, methodology and principles contained in *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013* (the Burra Charter). It has been prepared with regard to the methodology outlined in the *NSW Heritage Manual 1996*, produced by the NSW Department of Urban Affairs and Planning and the NSW Heritage Office. This report has also been prepared according to the principles and approaches as set out in the *Heritage Interpretation Policy* produced and endorsed by the NSW Heritage Council in August 2005.

Following the guidelines set out by the NSW Heritage Branch, the preparation of integrated, multi-faceted 'interpretation' should be carried out as part of a three-stage process. This HIP consists of the first stage and includes:

- research and analysis of the place and its context;
- identification of Commonwealth, state and local historic themes and key messages for the place;
- constraints to interpretation within the existing context (including client requirements);
- site inventory—likely resources, site elements, associated people and places and the existing and potential audiences;
- interpretive objectives; and
- potential interpretive media and locations.

Stage 2 will be undertaken through preparation of a more detailed Interpretation Plan which includes development of the interpretive content, identification of specific media and locations, and consultation with interpretation stakeholders. This includes developing content for interpretive signage, exhibition design and specifications for display of high significance components.

Stage 3 would involve the manufacturing and implementation of the identified interpretive devices; including detailed design, production and installation. This includes signage and exhibition panel specifications and manufacturing, and installation of high significance components and associated display material.

Stages 2 and 3 of the interpretation planning process would occur following completion of this stage of the HIP and in consultation with Defence and other stakeholders.

1.5 Suitably Qualified Expert

GML Heritage Pty Ltd (GML) is a leading provider of advisory and research services in environmental heritage, planning, interpretation and archaeology. GML provide expert services that facilitate the conservation management of all types of heritage. GML has been a member of the Defence Environment and Heritage Panel (DEHP) since 2004.

GML has an extensive knowledge of the Hammerhead Crane having provided heritage assessments, expert reports, input into the EPBC Act Referral and specialist and strategic heritage advice regarding the crane to Defence since 2000.

GML's project team includes highly experienced heritage consultants with a depth of knowledge about the Hammerhead Crane and its industrial heritage significance and interpretation specialists with extensive experience in interpretation planning and implementation.

1.6 Author Identification

This HIP has been prepared by Julian Siu, Consultant with input from Rebecca Hawcroft, Associate. The historical research has been prepared by Michelle Richmond, Historian with input from industrial heritage expert Dr Iain Stuart, JCIS Consultants. Specialist interpretation input has been provided by Sharon Veale, CEO and Partner of GML. Input, review and editing have been provided by Prof Richard Mackay, AM, Partner of GML.



Figure 1.1 Garden Island Naval Base, within Sydney Harbour. (Source: Parsons Brinkerhoff 2012)



Figure 1.2 Garden Island aerial with the Hammerhead Crane (Defence Asset 76) at FBE1N and associated wharves. (Source: Parsons Brinkerhoff 2012)

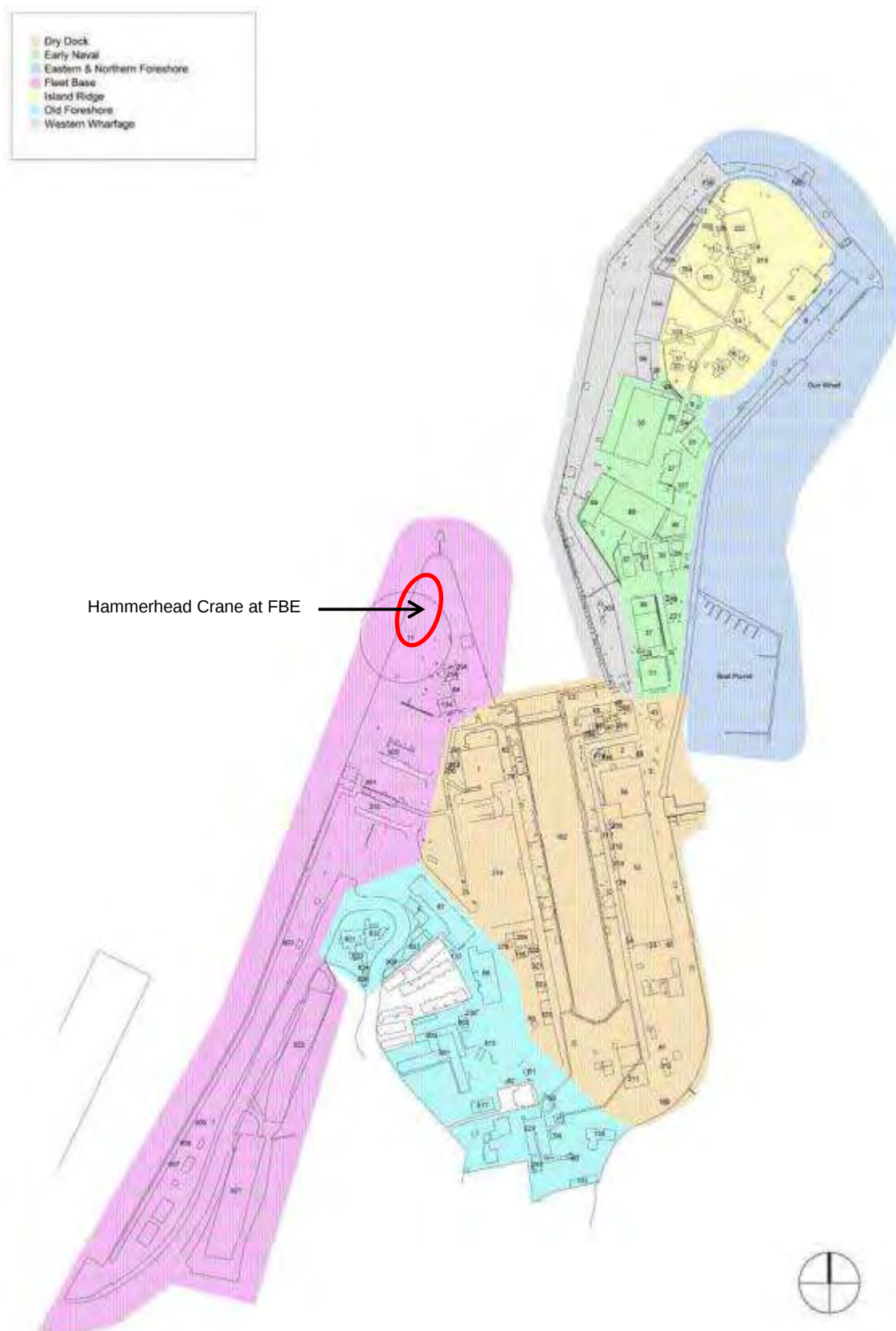


Figure 1.3 The Garden Island Naval Base, owned and managed by Defence. The colours show precincts delineated for day-to-day management and the location of the Hammerhead Crane is shown circled on FBE (Source: GML 2008, Garden Island Naval Base, Heritage Management Plan)

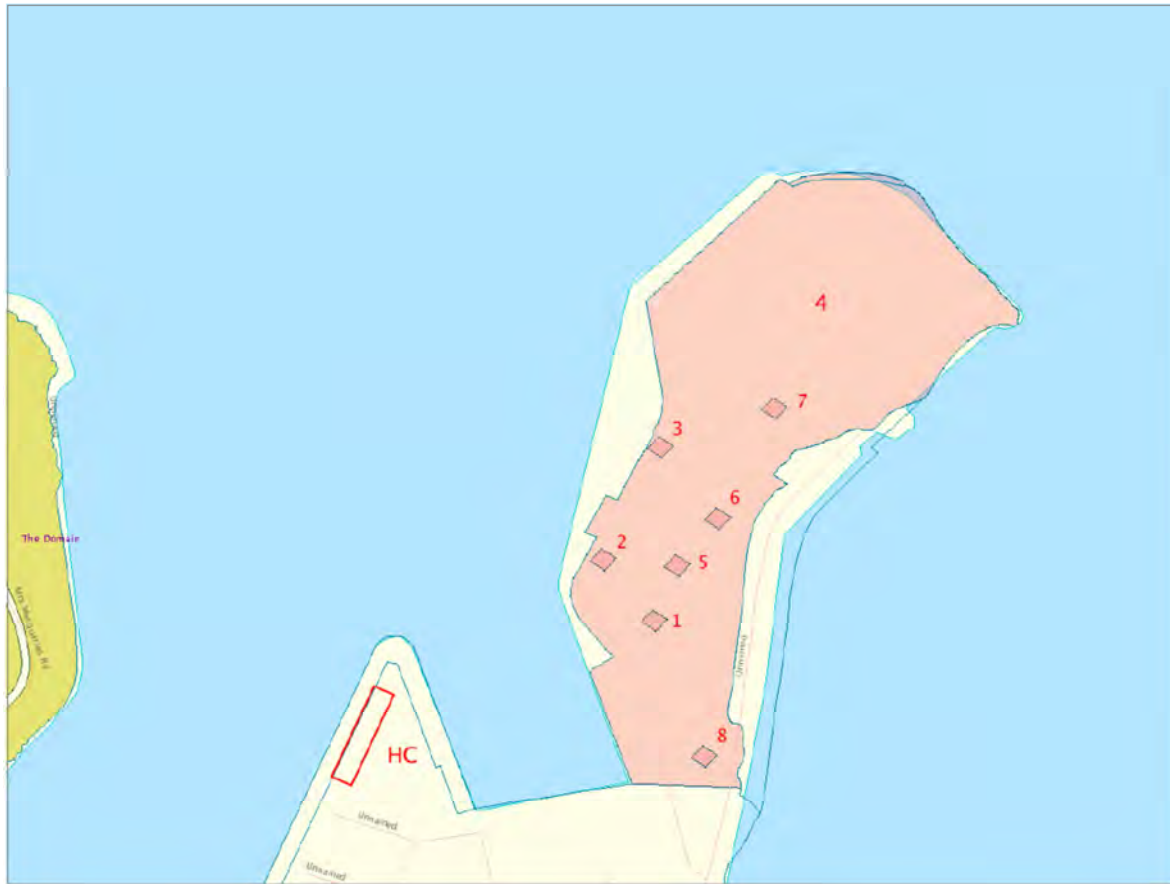


Figure 1.4 CHL boundary for the Garden Island Precinct, shown pink. The map also shows all individual places listed in the CHL. Garden Island Precinct refer to Table 1.1) and the Hammerhead Crane (HC) location-as listed in the Register of the National Estate. Note: #4 refers to the Garden Island Precinct. (Source: DSEWPac Heritage Information Section)

Table 1.1 Individual Commonwealth Heritage places within the CHL Garden Island Precinct (and the former RNE Place ID).

No.	CHL Name & Defence Asset No.	Location	CHL Place ID	RNE Place ID
1	Buildings 31 and 32—Assets 31 and 32	Endeavour Road North	105287	2172
2	Chain and Anchor Store (former)—Asset 88	West Road	105293	2181
3	Factory—Assets 95 and 99	West Road	105290	2178
5	Naval Store—Asset 89	Return Store Lane	105291	2179
6	Office Building—Asset 27	Office Square	105292	2180
7	Residences Group—Asset 16 to 20	Hill Road	105289	2175
8	Rigging Shed and Chapel—Asset 37	Riggers Lane	105288	2173

Heritage Council of New South Wales

Plan under the Heritage Act, 1977



State Heritage Register

Gazetted Date: 12 November 2004

0 50 100 200 300 400 Metres

Scale: 1:7,000

Produced by: R. Bolzan

Legend

- | | |
|------------------|--------------|
| SHR Curtilage | Land Parcels |
| Effected Parcels | Water |
| Historic Regions | Roads |
| LGAs | Railways |
| Suburbs | NSW Reserves |

Figure 1.5 State Heritage Register boundary for the Sydney Harbour Naval Precinct (Source: Heritage Division NSW)

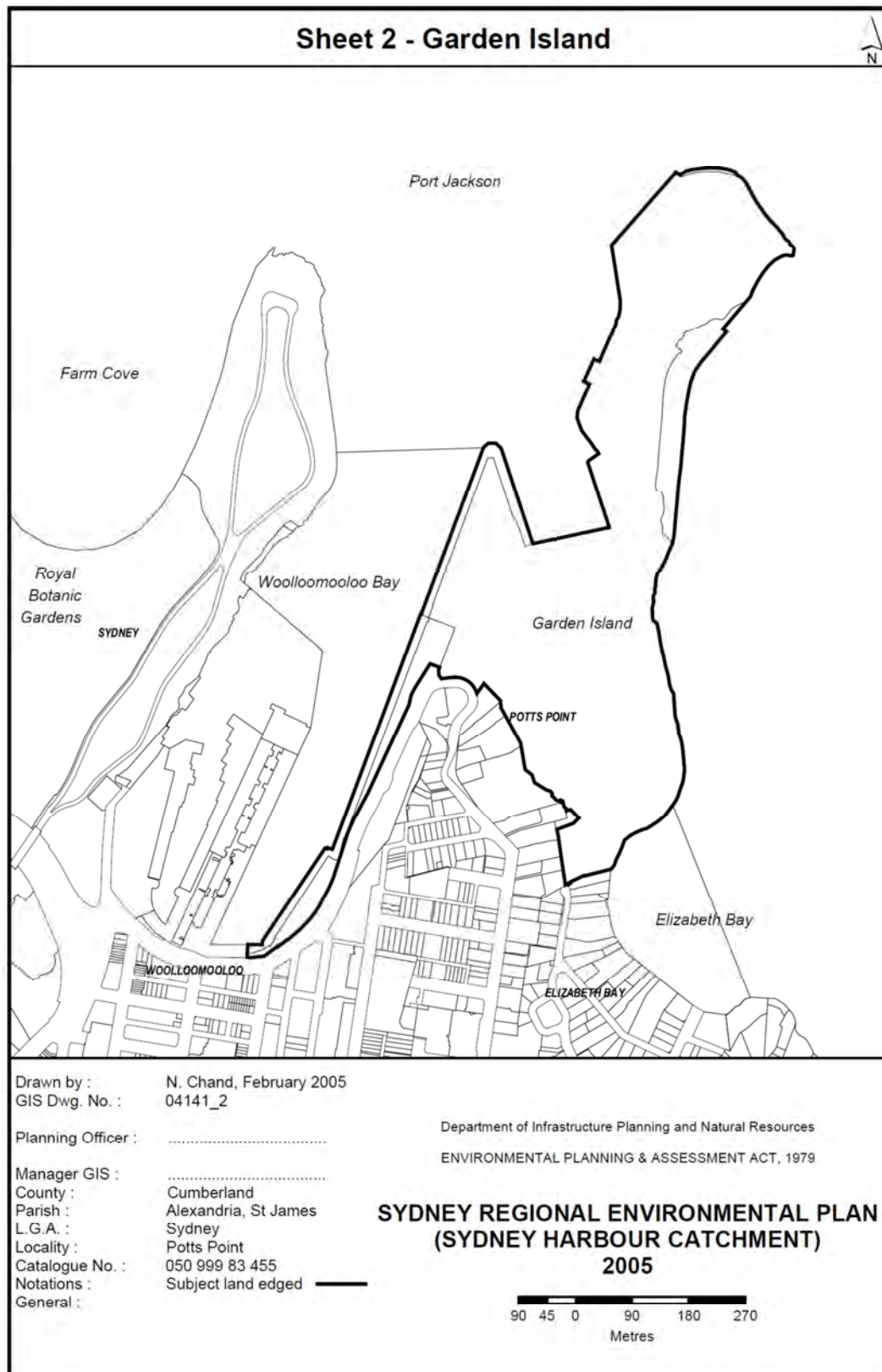


Figure 1.6 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 boundary for Garden Island (Source: Department of Planning and Infrastructure)

2.0 History and Significance

2.1 Introduction

Sections 2.2 and 2.3 that follow are drawn from the following GML reports on the Hammerhead Crane: 'Heritage Assessment' (November 2005), 'Heritage Impact Statement' (November 2005), and the 'Proposed Removal of the Hammerhead Crane from Garden Island, Sydney—Public Consultation Summary Report' (April 2013).

Section 2.2 provides a historical overview of the development of Garden Island and the Hammerhead Crane's place within this complex, the crane's context in the history of crane development and its place within the development of ship repair facilities in Australia and worldwide. Section 2.3 provides a comparative study of hammerhead cranes worldwide, both existing and demolished cranes.

Section 2.4 identifies the heritage significance of the Hammerhead Crane and Sections 2.5 and 2.6 identify the key historic themes and key stories for interpretation for the site.

Sydney's Hammerhead Crane (or, more accurately, giant cantilever crane) lies adjacent to the Captain Cook Graving Dock Facility at Garden Island on a wharf constructed in the 1940s. Hammerhead cranes were designed at the peak of naval construction in a battleship era which began around the turn of the twentieth century. Construction of these vessels required mammoth lifting structures to maintain their heavy engineering machinery and main armament. Sydney's Hammerhead Crane commenced construction in 1944, paused in the immediate years after the war, and was completed late in 1951. It was officially commissioned in February 1952.¹ The crane ceased operating in 1996.

2.2 Historical Outline

The history and significance of the Hammerhead Crane is associated with the development of the Garden Island precinct (in particular the Captain Cook Dockyard) and its evolution and development as Australia's oldest and most strategic naval facility.

The location of Garden Island on Sydney Harbour in close proximity to residential areas has meant that expansion and development on the island has occurred within tight physical constraints. Significant changes to the natural topography of the site (including land reclamations) have been undertaken to meet the demands of the growing facility to an extent where the original landscape is barely recognisable.

The Hammerhead Crane lies on reclaimed land and was installed during the most extensive period in the base's development. Its massive size makes it a widely recognisable feature of the base within the Sydney skyline.

2.2.1 Garden Island

Introduction

Garden Island is one of over a dozen Sydney Harbour islands (some now joined to the mainland) and has been used as a naval defence facility for over 150 years. It has been associated with the navy since the arrival of the First Fleet in 1788. Many of the Sydney Harbour islands have been used for a period of time by the navy. Garden Island has been substantially altered with rubble



Figure 2.1 Garden Island 1803 by Woodthorpe (engraver). (Source: DL PXX 84 SLNSW)



Figure 2.2 Garden Island 1865 to 1881. (Source: Garden Island Album compiled by John Lane Mullins PXA 420 SLNSW)



Figure 2.3 1880 view of the Domain and Garden Island showing early naval buildings on the site. (Source: Kerry & Co Power House Museum)



Figure 2.4 1904 Garden Island from the Domain showing the extent of naval development at this time. Note that the southern hill has been levelled but the island is still not connected to the mainland. (Source: State Records AO No. 494)



Figure 2.5 Aerial view of Garden Island before 1945. (Source: State Records)

taken from the levelling of the island used to increase the land area in 1885—the island was joined to the shoreline in the 1940s.

Early History Garden and Picnic Area 1788–1856

Governor Phillip established a vegetable garden for HMS Sirius on the island on 11 February 1788, just 16 days after he had arrived in Sydney (Figure 2.1). Over the following four years, the garden was tended by parties from other naval vessels in port at various times.² By 1801, other gardens around Sydney were supplying the colony with vegetables and Governor King had a battery of garrison artillery posted on Garden Island.³ Governor Macquarie issued a proclamation in 1811, appropriating Garden Island as a civil establishment and it became part of the Domain (administratively). At some point Macquarie leased Garden Island to Judge Advocate Ellis Bent and he was buried on the island in 1825 along with Major John Ovens. Their remains were removed to St Thomas' in North Sydney in the 1870s once the naval development commenced on the island.⁴ The island saw little official use in the following four to five decades after Macquarie departed and was used essentially as a picnic area for the residents of Sydney (Figure 2.2).⁵

Garden Island as a Naval Base

In 1856, the island returned to naval use again when the Government of New South Wales offered, and the British Admiralty accepted, the use of Garden Island as a depot for Royal Navy ships in Australian waters. Royal Navy occupation began in the late 1850s. In 1858 the Admiralty approved an outlay of between £200 and £300 to render the island available for repair of ships, but there was a delay in the completion of the formalities and the transfer was not gazetted until 1866.⁶ Questions over responsibility for further funding saw a delay of around 20 years before construction really began on the island (Figure 2.3). The major period of development for the naval station took place from 1883 to 1896. The first task was the levelling of the southern hill on the island and the reclamation of some of the foreshore. Following this wharves and buildings were constructed. By the 1890s Garden Island had quite an industrial appearance (Figure 2.4).⁷ The Royal Navy stationed an admiral and a squadron of ships there.

Several fine buildings had been completed when the island was handed over to the Admiralty in 1896.

Following Federation in 1901, responsibility for Defence was taken over by the Commonwealth Government. In 1911, the Royal Australian Navy (RAN) was created; and from 1913 Garden Island and the buildings that had been erected on it by the New South Wales Government were handed over to the Commonwealth Government for the RAN. At this time, the RAN's first squadron of six HMA ships arrived and the island became the RAN's main fleet base and principal ship refitting dockyard. During World War I, 852 ships were serviced there and 3000 men employed. Garden Island treated ships from allied fleets as well as RN and RAN vessels (Figure 2.5).⁸

From 1922 to 1929, there was a long-running court case as the New South Wales Government claimed that ownership of the island should remain in its hands. Considerable litigation followed and after seven years the High Court and the Privy Council ruled that the New South Government's claim was valid.⁹ In the meantime, the naval installations on the island had been greatly extended.

With the outbreak of World War II in 1939, the Commonwealth Government resumed the island under wartime powers and in 1945 purchased it from the New South Wales Government for £638,000.¹⁰

The island formed the base for fleet operations during the Second World War, while shipbuilding and major construction work for the navy was undertaken at Cockatoo Island, which had shipbuilding slips and graving docks.¹¹

The massive new Captain Cook Graving Dock, built at Garden Island during the Second World War, was a huge engineering project for Australia at this time. It connected the island to the mainland and made it one of the most important naval bases in the southern hemisphere (see Section 2.2.2).¹²

The facilities at Garden Island are today shared between the RAN and Thales Australia which leases and operates the Captain Cook Dockyard, taking over from Australian Defence Industries Limited (ADI) who managed the dock from the 1980s until 2006. Thales manages the operations of both naval and civilian work at the dockyard.¹³ The Garden Island Naval Base, also referred to as the Fleet Base East of the RAN, remains as the main naval base in Australia with the Captain Cook Graving Dock being Australia's largest repair and refitting dockyard.¹⁴

2.2.2 Construction of the Captain Cook Graving Dock and the Hammerhead Crane

Garden Island and the Singapore Strategy

The need for a naval graving dock in Australia became crucial with the deteriorating world situation leading up to World War II. In February 1942, Britain lost its great island fortress of Singapore to Japan and with it docking and repair facilities for large warships. Without these it would be impossible to re-establish naval supremacy in the region. Accordingly, a safer home was required and that choice fell upon Sydney, giving impetus to the construction of the Captain Cook Graving Dock and the associated Hammerhead Crane. From an Australian perspective, there had been a growing realisation for the need to strengthen its own defence capabilities closer to home and that the construction of a graving dock would allow a fleet to be based in Australia and, therefore, be strategically important for Australia's defence.¹⁵

During its early years, the RAN had relied heavily on the British Navy for ships, equipment, doctrine, training and personnel, especially officers. It was understood that, in the event of war, the RAN



Figure 2.6 Garden Island just prior to the construction of the Captain Cook Graving Dock. (Source: State Records 9856_2017_2017000253)



Figure 2.7 1941 image of Captain Cook Graving Dock under construction. (Source: SLNSW)



Figure 2.8 Captain Cook Graving Dock under construction. (Source: State Records 9856_a017_A017000063)

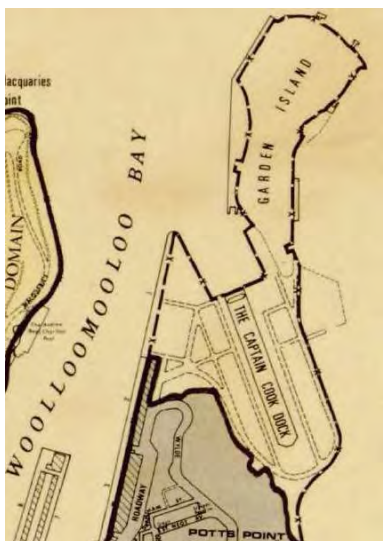


Figure 2.9 1932–1948 City of Sydney Ward Plan showing the location of the new Captain Cook Graving Dock. (Source: City of Sydney Archives)

would automatically come under the control of the British Admiralty. However, by the 1930s, Australia's independence from Britain was seen more widely as an integral part of the nationalism inspired by Federation and the events of World War I. At the outbreak of World War II, the RAN was officered and manned chiefly by Australians (who had trained with the RN) and was under the sole control of the Australian Government, though still largely advised by the British Admiralty.¹⁶

British naval policy in the Pacific leading up to World War II was referred to as the 'Singapore Strategy'. This strategy relied on Britain's newly constructed naval base at Singapore where a Royal Navy fleet was planned to be based as a deterrent to the Japanese.¹⁷ The British commitment to the Singapore Strategy also formed the basis for much of Australia's defence policy during the interwar and early World War II period, despite underlying doubts from some professionals about whether it was a viable option.¹⁸ It was thought of as a way of keeping Australia protected while keeping defence expenditure to a minimum.

In 1937, the British Admiralty suggested that the RAN might purchase a capital ship¹⁹ which would assist in the defence of the Pacific, but this was considered unwise as it would require the purchase of destroyers and escorts to protect the ship and there were inadequate docking facilities in Australia for a capital ship such as a battleship.²⁰ An alternative proposal was for a battleship to be based partly in Australian waters and in Singapore; however, the issue of adequate dock facilities again proved to be a problem.²¹

In 1938, following the growing naval strength and expansionist policy of Japan, the British Admiralty requested that a graving dock be built in Sydney, capable of accommodating the largest ships of the British Navy for repairs or refit.²² The Australian Government immediately agreed and indicated they would pay the expenses of constructing the dock to British Admiralty specifications and plans. This Act seems to indicate that Australia was less certain about the Singapore Strategy at this time and developing its own sense of strategic reality.²³

The Captain Cook Graving Dock

The site at Garden Island was recommended in January 1940 and construction of the new Captain Cook Dry Dock (or Graving Dock) began in July 1940 as a matter of

wartime emergency (Figures 2.6–2.9).²⁴ The works did not only include the graving dock, but also additional wharfage, repair shops and a fitting-out wharf with cranes.²⁵ The aim was to create a major repair facility for all types of warships. Between 1942 and the end of the war in the Pacific, some 4,400 men and women laboured night and day to construct the facility.

The Hammerhead Crane

Construction began on the Hammerhead Crane in 1944 while the dock was under construction; and it was built alongside the fitting-out wharf on the western side of the graving dock. Its design was an exact replica of the dock yard crane built in Singapore just before World War II which had to be destroyed in 1942 before the Japanese takeover (Figure 2.11). The actual plans from the Singapore Naval Base were used for the Sydney crane and it was engineered to the extremes of likely weight demand (Figure 2.19).

The crane was designed to lift up to 254 tonnes (250 tons) and stood 61m high. Its main function was for the lifting of items such as small gun turrets, gun barrels and other machinery from warships undergoing repair or maintenance. Without this capability, the use of the Garden Island complex would have been limited. It was erected in conjunction with the building on the new fitting-out wharf. Thus, the Hammerhead Crane was an essential part of the dockyard facilities designed to service capital ships established at Garden Island. It was the construction of these facilities which was instrumental in the British Admiralty's decision to establish a fleet base in Sydney to support the British Pacific Fleet, although the facilities were still under construction and, in effect, never really used for this purpose owing to the sudden end to the Pacific war.²⁶ Section 2.2.4 provides more detail on the construction of the crane.

When the war ended, only the foundations on the crane had been installed and work on its construction was temporarily paused. The crane was finally completed at the end of 1951 and officially commissioned in February 1952 when the then Deputy Premier of NSW, the Honourable Joe Cahill, drove in the last rivet.²⁷

In 1966 the crane was the largest crane in the southern hemisphere and it remains the largest dockyard crane in Australia today.²⁸



Figure 2.10 Sydney's Hammerhead Crane. (Source: Dr Iain Stuart)



Figure 2.11 Singapore Naval Base Hammerhead Crane 1941–1943. (Source: Australian War Memorial)



Figure 2.12 Titan Hammerhead Crane in Clydebank, UK built in 1907. (Source: Flickr)



Figure 2.13 Sesbo Hammerhead Crane Japan, built in 1913 at Sasebo Naval Shipyard by Sir William Arrol and still standing. (Source: Araten Studios Japan)



Figure 2.14 Nagasaki Hammerhead Crane, Japan. (Source: Dr Iain Stuart)



Figure 2.15 Brooklyn Naval Yard Hammerhead Crane. (Source: Flickr)



Figure 2.16 River Tyne Hammerhead Crane, UK. (Source: Flickr)



Figure 2.17 'Giant Cranes to Equip Warships'—cover of the 1930 *Meccano Magazine* featuring the Hammerhead Crane. (Source: <http://www.meccanoindex.co.uk/MMpage.php?MID=5927&id=1387242949>)

Since its construction in 1951, the Hammerhead Crane has dominated the skyline of Garden Island.

2.2.3 Why a Hammerhead Crane?²⁹

The Industrial Revolution saw boatbuilding change from wood based technology to iron and wood, and then to iron and steel construction. Concurrently there was a change from wind to steam power—initially using steam engines driving paddle wheels and then propellers, turbines and later diesel engines.³⁰

This forced a change in shipbuilding methods with iron and steel shipbuilding requiring more permanent dockyard sites where iron and steel could be fabricated and shaped. In addition, castings for items such as steam engines and gear boxes were required, which were very heavy and difficult to move long distances. To address this change in technology, ships hulls were constructed on slipways and then the fitting out of the heavier materials, such as engines and boilers, was undertaken in a specially constructed fitting-out wharf. For warships, this was when the armour, turrets and guns, etc, would be fitted. Initially use was made of a gantry with overhead travelling cranes and side walking jib cranes; but as warships became larger and their equipment heavier, cranes with greater lifting capacity were needed. Many of the items being fitted to battleships were very heavy; for example, the basic tube forging for a 12' gun barrel was 68 tonnes (67 tons) before the wire winding.³¹ An entire main turret typically weighed 305 tonnes (300 tons)³² and the armoured conning tower from HMS *Hood* weighed 610 tonnes (600 tons).³³

By the turn of the twentieth century, German and US shipbuilding was rapidly advancing and competing with the British for merchant vessels. The Germans developed a new form of heavy lifting crane—the Hammerhead—capable of lifting a load of over 200 tons. The first cranes of this type were produced by Benrather Maschinenfabrik AG in 1898. In 1903 Benrather was contracted by UK firms Vickers and William Beardmore, who were linked commercially, to erect Hammerhead cranes at their shipyards. The Dalmuir crane for Beardmores was erected on the Clyde by the German firm Khncke and cost £3352. Benrather cranes were also erected at Brest and L'Orient in France.³⁴

In the UK, the chief designer of Sir William Arrol & Co (a well-known firm of Scottish engineers) realised that the

German design was susceptible to vibration and Arrol designed a much more stable crane. Their crane, more correctly described as a giant cantilever crane became the most popular design used worldwide. The first Arrol giant cantilever crane emerged in 1905 from the designers/engineers at the Glasgow Electric Crane and Hoist Co.

The design of hammerhead/giant cantilever cranes allowed them to lift heavy items greater distances than normal cranes because of the great stability inherent in the design. The fact that the operator's cabin is high in the structure allows a high level of control and precision in lifting and placing heavy items. This was particularly important in ship fitting-out, maintenance and repair.

From 1906, the Royal Navy began to develop their battleships and later the battle cruiser, of which the RAN had one example, *HMAS Australia*. These ships were revolutionary for having large armoured turrets and barbettes, and armoured citadels and decks, many of which were installed after launching using hammerhead cranes. Construction of the first battleship, *HMS Dreadnought*, heralded the naval armaments race with Germany which ran from 1906 until the First World War. During this period many warships were constructed. The major British shipyards, such as JS White, Vickers, Beardmores and John Brown, all installed either German or English designed hammerhead cranes (Figures 2.11–2.16). The majority of these cranes were constructed by Sir William Arrol & Co. (Figure 2.18).

In the interwar period, the British attempted to prevent a similar armaments race by a series of naval treaties, principally between Great Britain, the USA and Japan.³⁵

2.2.4 Construction of the Sydney Hammerhead Crane³⁶

Tenders for the Sydney crane were called in 1944 and construction took place between 1944 and 1951. The Sydney Steel Company Pty Ltd was contracted to fabricate and erect the crane to the design of Sir William Arrol, with Sir Alexander Gibb and Partners as consultants using the plans from the Singapore Naval Base. All mechanical and electrical equipment came from England, whilst all structural steelwork was fabricated and erected by the Sydney Steel Company' in their Marrickville facilities.³⁷ The steel was from BHP steelworks in Port Kembla.³⁸

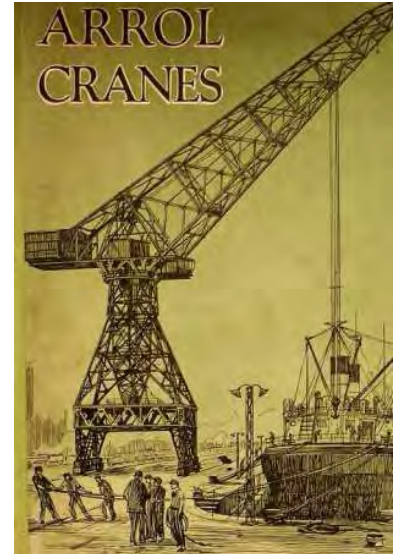


Figure 2.18 From the 1927 Arrol Crane Brochure. (Source: Urbanglasgow)



Figure 2.19 Plan used in the construction of Sydney's Hammerhead Crane. (Source: Powerhouse Museum)



Figure 2.20 Installations on the piers for the Hammerhead Crane in 1945. (Source: Sydney Water Archives)



Figure 2.21 Foundation cylinders being installed. (Source: Naval Historical Society)

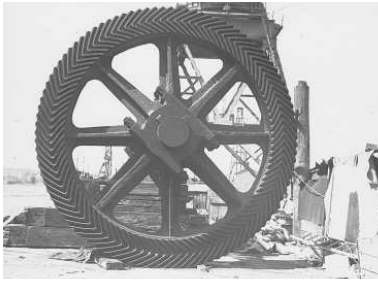


Figure 2.22 Hammerhead Crane base wheel. (Source: Naval Historical Society)



Figure 2.23 Erection of the second girder c1949. (Source: Sydney Steel Archives Warwick Stuart)

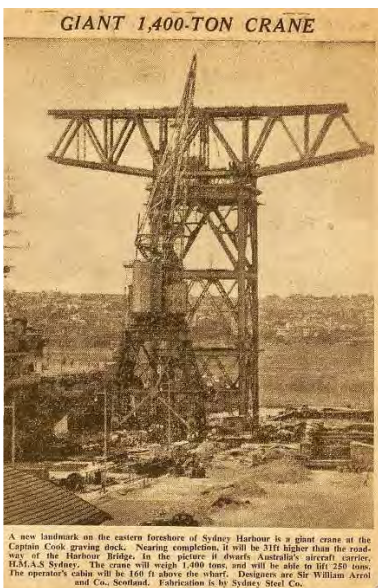


Figure 2.24 Hammerhead Crane partially erected. (Source: SMH 17 Dec 1949)

Both the crane's tower structure and its cantilever jib were trial erected at Sydney Steel's Marrickville workshop, which was done adjacent to the main north-south rail line, providing quite a spectacle for commuters between 1948 and 1950.³⁹

One of the earliest tasks in the construction of the crane at Garden Island was the sinking of the footings for the massive structure (Figure 2.20). Being reclaimed ground (as part of the construction of the Captain Cook Graving Dock), the footings had to be 5m in diameter and reach 30m below the seabed.⁴⁰ The construction of the footings was carried out by the Maritime Services Board.

Work commenced on the four foundation cylinders (named A to D) in August 1944 (Figure 2.21). In March 1945, the precast sections B and D, each weighing 146.8 tonnes (144.5 tons), were lifted and placed in their prepared guides using the floating crane *Titan*. They proved watertight but were extremely 'lively' in the water, the slightest wash from passing vessels causing them to strike heavily against their staging. Work on the footings continued but water penetration, caused by general seepage and small leaks of cylinders A and C, became a concern. The Engineer in Chief reported on 19 August 1946 that: 'Water was coming in fairly rapidly ...' and, on 24 August, two divers worked in relays attempting to plug the leak, but the job was not successful. By Saturday 31 August, water penetration had interconnected the cylinders A and C and they were '... found to be leaking badly ...'.⁴¹

Work continued and, by 18 September 1946, the cylinders were dewatered. The Engineer in Chief subsequently reported: 'No leakage was apparent against the cylinder walls and only one of the four relief pipes showed a slight drip'.⁴²

The first supporting column was reported as being lowered into position in May 1948.⁴³ 'Erection then proceeded with diagonal bracing for the tower, continuing until the 45.6m (149ft, 9in) level was reached. Then, owing to the limitations of the 40.64 tonne (40 ton) erection crane, a different procedure was followed. After checking for height and plumb, riveting and preparation for the four main girders to receive the roller path began, then the roller path was measured with a theodolite to 0.127cm (.005in) and pairs of steel fox wedges were driven in. The bottom track was then fastened to the main top tower girders, followed by the spur wheel and then the rollers were placed in position.

Ninety-six 41cm (16in) diameter solid steel rollers were fitted together to make a spider or live ring running in between the top and bottom track plates.⁴⁴

Simultaneously, work began on the underside of the drum girders to receive the top track plates. These two girders were of such a large diameter (15.2m diameter and 76cm wide) that no machine in Sydney was large enough to work on them. Eventually, a special tool was designed and manufactured to complete the task. After this operation was completed, the track plate was bolted down to the girders and the pivot girder and drum girders were then erected on the tower with a single centre pin and nut locked in position. The centre pin was 46cm (15in) in diameter, with a hollow central section.⁴⁵

When the ends of the short booms were erected (ie 29m/95 ft) from the centre pin to the end, the ballast box was placed in position and the ballast inserted to balance the erection of the long arm of the jib. The ballast consisted of 279.4 tonnes (275 tons) of cast iron billets and was positioned in accordance with a plan provided by the engineer.⁴⁶

The main machinery house on the top of the short arm was then erected as well as the control tower, which was suspended between the two booms towards the nose of the crane. The main winding drums for the 127 tonne (125 tons) hooks were 18.3 tonnes (18 tons) in weight and comprised three sections. Concurrently, the electrical machinery was installed. The main power was 415 volt three phase and all wiring was of 660 volt capacity. The main power was taken through the hollow centre pin in an armoured and lead covered cable. Approximately 1.28km (1400 yards) of cable was used in the installation.⁴⁷

The reeving (or threading) of the wire ropes was an innovation. There were over 16.67km (nine miles) of steel wire installed on the crane. On the main winding drum were 24 pulleys, 12 at the top and 12 at the bottom, for lightening the load. The wire for this section had to be specially made, measuring 762m (2500ft) in length.⁴⁸

The crane had a hoisting speed of 3.66m (12ft) per 55 seconds at the maximum working load. The maximum speed for the crane was 1.83m per minute (6ft per minute). All movements were six feet controlled by two solenoid brakes: a working brake and an emergency brake.⁴⁹

Arrangements for testing the crane were a major feature of the construction process. Huge steel slabs were sent from



Figure 2.25 1950 view of the Hammerhead Crane. (Source: Dr Iain Stuart)



Figure 2.26 1957 view of the Hammerhead Crane. (Source: City of Sydney Archives)



Figure 2.27 1965 view of the Hammerhead Crane and the floating Titan Crane. (Source: Naval Historical Society)



Figure 2.28 Recent aerial view of the Hammerhead Crane and the Captain Cook Graving Dock. (Source: Dean Lewins, file photo: AAP)

England, some weighing 20.32 tonnes (20 tons) and were mounted in a special cradle to obtain a good test lift. There were 100 tests conducted in total in regard to the required specification, covering every function of the crane for each particular load in terms of hoisting, slewing and radius. The efficiency of the braking system in regard to power failures was also stringently tested with the crane passing rigid testing to the satisfaction of all concerned.⁵⁰ The lifting capacity of the crane was tested to 317.5 tonnes (312.5 tons).⁵¹

The lift driver accessed the control cabin via an externally controlled lift with capacity for six persons. The control cabin was complete with a well equipped kitchen as the driver was often up in the cabin for many hours.⁵²

Soon after the completion of the Hammerhead Crane, its construction was discussed in a 1951 article celebrating the Port of Sydney Authority jubilee. Here it was referred to as one of two outstanding events in the Port of Sydney's recent history (the other one being the completion of the Sydney Harbour Bridge in 1932).⁵³ The magnitude of the construction of the Captain Cook Graving Dock and the Hammerhead Crane in terms of Australian engineering achievement was also reflected by an extremely comprehensive series of articles detailing the features of the dock, published by the Australian Institution of Engineers in their journal in 1952.⁵⁴

The Hammerhead Crane was the last major component of the Captain Cook Graving Dock complex to be completed.

William Arrol and Co.

William Arrol founded the company William Arrol and Co. (Arrols) in Glasgow in 1873 at a time of rapid industrialisation in Scotland. The business initially specialised in boilermaking and then expanded into producing a wide range of structural and mechanical steel structures for use in industry. His company became a leading Scottish civil engineering business and was responsible for building some of the most famous bridges in the United Kingdom, including the Forth Bridge (for which Arrol was knighted) and Tower Bridge, mostly using their steelwork. Arrols was significant in the construction of steel framed buildings for large industrial workshops. The firm also supplied a vast amount of engineering equipment and British technology across the empire and beyond.

The company developed its own mechanised engineering department to design and build a variety of items including complex machine tools, concrete structures and cranes for which Sir William Arrol was particularly well known. Arrols constructed the first titan or giant cantilever crane at the John Brown Shipyard in 1907; but with the acquisition of Appleby Crane and Transporter Co., Arrols acquired a design and manufacturing capability which allowed them to design and manufacture a wide range of cranes. The Sydney Hammerhead or Giant Cantilever Crane was the third last of its type built by Arrols.⁵⁵ The Japanese actively sought their technology and three Arrol hammerhead cranes were erected there.⁵⁶

2.2.5 Use of the Hammerhead Crane: 1951–1996

Since construction, the high capacity of the crane has rarely been required as the new postwar ballistic missile technology rendered large naval guns, for which the crane was designed, obsolete. When the last of the heavy battle cruisers, *HMAS Australia*, was decommissioned in August 1954, further naval use for the crane became problematic. However, from the mid-1950s the crane was engaged in lifting various heavy and not so heavy items as part of both naval and civilian duties. For the navy the crane played a key role in moving guided missile launchers from ships for

maintenance. From the mid-1950s to the mid-1970s it was used intermittently to discharge heavy machinery from ships to road transport bound for the Snowy Mountains Hydro-Electric Scheme.⁵⁷

Between 1966 and 1991 the crane was used in the repair and maintenance of the hydrofoils which ran between Sydney and Manly. These boats needed to be lifted out of the water about every 12 weeks to clean off the growth that slowed their progress and for their constant repairs (they were prone to break down). The Hammerhead Crane was the only crane capable of lifting these boats.⁵⁸ The crane was also capable of lifting whole tug boats out of the water for repairs. The crane's last big lift was for Greg Norman's 88 ton cruiser *Aussie Rules*. It had been constructed in Queensland and sailed to Garden Island where it was lifted by the crane and washed with fresh water, then lowered into a container to be shipped to the USA.⁵⁹

While used infrequently, the crane was still important to support the aircraft carriers HMA Ships *Vengeance*, *Sydney* and *Melbourne*, the last of which remained in service until June 1982. The crane was again used in 1988 to lift stators going to power generating plants.⁶⁰

Having a lifting capacity of around 250 tonnes, it has rarely had to lift more than 200 tonnes. The cost of operating the main motors is substantial and, for this reason, the travelling and auxiliary cranes were mostly used.⁶¹

Despite these factors, the Hammerhead Crane was undeniably a major asset for Australia. In 1983, the navy considered scrapping the crane; however, the view prevailed that it was a 'potentially crucial national resource' and, as such, should be maintained regardless of cost.⁶²

In 1989, the management of Garden Island changed. Since World War II, the island had been centralised through the navy and deemed a Defence site operating under Commonwealth Government jurisdiction, even though many civilians worked on the dockyard. In 1989, partly as a result of the increasing unionisation of the workforce (over 5000 people were employed on the dockyard at its peak, representing 16 major trades), the Commonwealth Government formed Australian Defence Industries (ADI) as a separate company with a number of existing Defence establishments. The Captain Cook Graving Dock and the Hammerhead Crane came under the control of ADI at this time. As part of their cost cutting activities, the ADI reduced

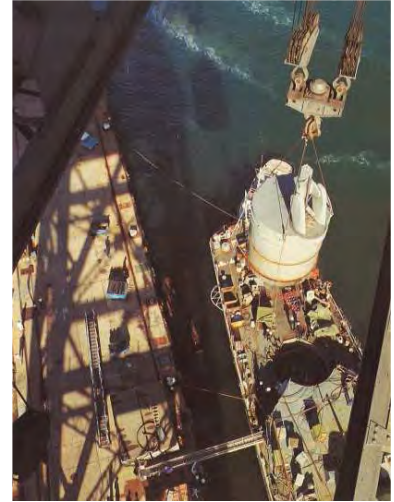


Figure 2.29 1990 view of the HHC lifting the Mk 13 guided missile launcher off HMAS Hobart. (Source: *Pursuit* for people of ADI July August 1990, p 8)



Figure 2.30 The HHC lifting the hydrofoil out of the water for repairs. (Source: Naval Historical Society)



Figure 2.31 The HHC's last big lift. Greg Norman's boat *Aussie Rules* being lifted into a container ship to be sent to the US. (Source: Naval Historical Society)

staff considerably—from this time on, no major maintenance was carried out on the Hammerhead Crane.

The safe working load of the crane was downgraded to a maximum 174 tonnes following an inspection in 1991, when a range of maintenance requirements were identified. In 1995, the jigger hoist was withdrawn from service owing to the runway being heavily corroded.

A study into the future use of the crane was made by Sinclair Knight Merz Pty Ltd for the Department of Defence in 1995 and the report stated that: 'In recent years the crane has been used occasionally...'⁶³ In 1996, the crane was tested and again downgraded to a safe working load of 70 tonnes. It is believed that it has not been used since that time.

In 1999, ADI was privatised and in 2006 it was sold to Thales Australia which now leases and operates the Captain Cook Dockyard.

The decline in use of the crane is a reflection of the changes in ship technology over the last fifty years as well as a change in the management of the dockyard facilities. During this time, the size and construction of naval warships has changed so that there are no heavy assemblies (such as gun turrets) to be lifted. Currently, the RAN's requirement is for a 70 tonne lift to move a guided missile launcher, but even this technology is being superseded by vertical launchers. Other heavy lifting duties have been superseded by the development of specialist ship types such as RORO ships and heavy lift ships.

2.2.6 The Crane as a Recognised Sydney Icon

Since its construction, the crane has been a recognised landmark of Sydney Harbour. An article in the *Sunday Mirror* in 1965 describing Garden Island stated: 'Towering over all is the 250 ton crane, the chief landmark of modern Garden Island'.⁶⁴ Historian PR Stephenson in his *History and Description of Sydney Harbour*, states that the contrast of the heavy industrial look of Garden Island (to which the Hammerhead Crane makes the largest contribution) with its residential and picturesque surrounds is what makes the naval base so impressive and that:

*Like the Harbour Bridge, it is a reminder that Australia has moved strongly and boldly beyond the pastoral and agricultural phases into the Age of Steel. That gigantic crane – its girders etched against a background of new ferro-concrete apartment buildings reaching in cubes for the sky at Potts Point is a symbol of modernity, ugly to the eye of the nature lover, beautiful to the eye of an engineer.*⁶⁵

2.2.7 After Closure 1996–Present

The Garden Island Hammerhead Crane has not been used since June 1996; in 2005 a catch platform (scaffolding) had to be constructed underneath the jib to capture any object that might fall from the crane due to its deteriorating condition.

In 2005 the navy stated that the Hammerhead Crane was no longer a strategic asset as its lifting capacity was no longer required and its position at the edge of the Fleet Base North wharf compromised the full use of available wharf space needed to support the future generation of naval ships entering service. There were also occupational health and safety and security issues if the crane was considered for other non-naval uses.⁶⁶ The navy stated that their preferred option was to remove the crane to avoid ongoing maintenance costs.⁶⁷

All these issues were addressed in the 2006 Defence sponsored report conducted by consulting engineers Worley Parsons⁶⁸ who recommended that the Hammerhead Crane be removed.

In 2012, Defence commissioned Parsons Brinkerhoff and Brookfield Multiplex to prepare an EPBC Act Referral for the removal of the Hammerhead Crane. Defence determined that the proposed removal of the Hammerhead Crane was necessary to allow Garden Island to provide training and logistic support, maintenance facilities and berths for major current and future Royal Australian Navy (RAN) ships home-ported in Sydney, as well as additional berths for other visiting RAN and foreign warships.

On 13 May 2013, Defence released the response to the public submissions regarding the proposed removal of the Hammerhead Crane from Garden Island. The report recommended the removal of the crane as the most practical and cost effective of the eight options considered for the future use of this structure.⁶⁹

Approval for the removal of the Hammerhead Crane located at Fleet Base East, Garden Island, New South Wales (EPBC 2012/6430) was given on 17 July 2013 from the then Minister of DSEWPaC.

2.3 Comparative Study

2.3.1 Introduction

This section provides a comparative study of hammerhead/giant cantilever cranes worldwide, both existing and demolished cranes. It is not a definitive study given the scope and budget of this project; it draws mostly from desktop research and the initial research provided in the 'Proposed Removal of the Hammerhead Crane from Garden Island, Sydney: Public Consultation Summary Report' by GML Heritage for the Department of Defence, 2013.

A Youtube video made in 2007 (<<http://www.youtube.com/watch?v=IH0E85mAVmk>>) states that at that time, there were 14 hammerhead cranes left in the world out of the original 60; five on the Clyde, Scotland, three in England, two in Japan, two in the United States, one at Rosyth Dockyard in Scotland (but this was known to have been scrapped in 1992) and one at Garden Island, Sydney. Thirteen cranes are still known to be in existence as of January 2014.

A summary of the existing cranes is recorded in Table 2.1 below. A more detailed description of known hammerhead and giant cantilever cranes, both existing and demolished, is provided in Sections 2.3.2 and 2.3.3.

Table 2.1 Hammerhead Cranes Still Standing in January 2014.

Location	Quantity	Name	Date of Construction
Clyde, Scotland	4	Titan Crane, Clydebank	1907
		Greenock Crane, James Watt Dock, Clyde River	1917
		Barclay Curle Crane, Clyde River	1919
		Fenneston (Stobcross) Crane, Clyde River	1932
England	2	Cowes, Isle of White Crane	1912
		Walker, River Tyne Crane, Newcastle	1930
USA	2	Norfolk Naval Shipyard Crane , Portsmouth, Virginia	1939
		Bremerton Washington State Crane	1933
India	1	Netaji Subhas Dock Crane, Calcutta	
Japan	3	Mitsubishi Nagasaki Shipyard Crane (built in 1904 and installed at Nagasaki shipyard in 1909)	1904
		Yokohama Crane	1913
		Sasebo Crane	1912
Australia	1	Garden Island Crane, Sydney	1948–1951
TOTAL	13		

2.3.2 Hammerhead Cranes Still Standing in January 2014

Name	Date of Construction	Current Use	Location	Background	Image
Titan Clydebank	1907	Restored and currently used as a tourist attraction.	Clyde Scotland, UK	Once part of the world leading John Brown & Co. shipyard in Clydebank, this crane was designed and built by Sir William Arrol & Co. Its design was copied worldwide with almost 30 built, including five on the Clyde River, Scotland. Four of these remain with the titan being the oldest. Originally designed for a 160 tons lift capacity, the crane was upgraded to 200 tons during World War II when it became apparent that the original specification would be insufficient to lift new long-range gun barrels onto ships.	
Greenock Crane at James Watt Dock	1917	Not operational but still existing.	Clyde Scotland, UK. On the south bank of the Clyde.	Built by Sir William Arrol & Co. for Scotts Shipbuilding and Engineering Company, which was established in 1711. It was the oldest shipbuilding business in the world. One of four remaining examples on the Clyde.	

Name	Date of Construction	Current Use	Location	Background	Image
Barclay Curle Crane	1920	Not operational but still existing in a very poor state of repair (Source: Scotland Meccano, March 2011).	Clyde Scotland, UK. Old Barclay Curle Shipyard, Whitechurch. Adjacent to the engine works at the Clydeholm Yard.	Part of Barclay Curle Engineering Works Establishment, established at Whitechurch in 1876. Built by Sir William Arrol & Co. at their Dalmarnock Ironworks in Dunn Street and Parkhead Crane Works in Rigby Street. It remains one of four examples on the Clyde. Built for the North British Diesel Engine Works and used to lift maritime diesel (Scotland Meccano).	
Finneston (or Stobcross) Crane	1932	Not operational but still existing. Fell into disuse in the early 1990s. Now used for occasional charity abseils and zip crossings of the Clyde.	Clyde Scotland, UK. Former Stobcross Quay. Stobcross Quay is now filled in. Owned today by the Clydeport Authority.	The crane was commissioned in 1926 by the Clyde Navigation Trust, the operators of the port and dock facilities in Glasgow. It was built on foundations built by Sir William Arrol & Co. Completed in 1932, the crane's tower was constructed by Cowans, Sheldon & Company of Carlisle and the cantilever by the Cleveland Bridge & Engineering Company. It cost £52,351. Measuring 50.24m (165ft) and with a 77m (253ft) cantilever jib, it has a lifting capacity of 175 tons. When completed it was the largest crane in Europe and its services were always in demand. Its principal use was lifting boilers and engines into ships. More recently, it was used for loading railway locomotives, tanks and guns for shipping all over the world. (Source: Scotland Meccano).	

Name	Date of Construction	Current Use	Location	Background	Image
Cowes, Isle of White	1912	Not operational but still existing though in a poor state of repair. Located in a disused shipyard.	Isle of White, UK.	Designed by Babcock and Wilcox and engineered at their Renfrew plant. It was the only giant cantilever crane they ever built. Build for J Samuel White & Co. at their shipyard for the production of naval warships for the Royal Navy. Designed with a lifting capacity of 80 tons.	
River Tyne Crane at Newcastle's Walker Quay, UK	1930	Still operational. Refurbished in 2012.	Newcastle, UK. Former Walker Naval Yard, now the Technology Park.	Built in 1930 as part of the Walker Naval Yard, this crane was refurbished to support the new businesses of the Technology Park, including the off-shore oil and gas sector companies. The crane was refurbished in 2012 (£3.2M) which included increasing its load capacity to 325 tons (the weight of over 90 elephants). It is currently the largest crane in England. (Source: < http://www.bbc.co.uk/news/uk-england-tyne-19311558 > and < http://www.newcastle.gov.uk/news-story/council-investment-boost-walker >)	

Name	Date of Construction	Current Use	Location	Background	Image
Norfolk Naval Shipyard	1939		Portsmouth, Virginia, USA.	Built by the American Bridge Company who won the contract to build two giant cantilever cranes, one at the Brooklyn Naval Yard (demolished in 1965) and one at the Norfolk Naval Yard, Virginia. (Source: < http://bldg92.org/blog/yard-guardian-the-350-ton-hammerhead-crane/ >)	
Bremerton (also called Puget Sound Naval Dockyard)	1933	Re-built by Rauch International.	Washington State, USA.	A different design for the Hammerhead Crane.	
Netaji Subhas Dock		Still in use.	Calcutta, India.	200 tonne crane. (Source: < http://www.kolkataporttrust.gov.in/cargofacility.html >)	

Name	Date of Construction	Current Use	Location	Background	Image
Sasebo Crane	1912	Still operating.	Japan.	Sir William Arrol supplied the design and the roller path and jib to the imperial Japanese Navy for their base at Sasebo in 1912. (Source: Dr Iain Stuart, 2013)	
Yokohama Crane	1913		Japan.	Capacity unknown. Erected at the naval base. (Source: Dr Iain Stuart, 2013)	
Nagasaki Crane	1906 (earliest Japanese)	Still operating.	Japan. Mitsubishi Nagasaki Shipyard.	Built by Glasgow Electric Crane and Hoist Co. (who also constructed the Dalmuir crane for William Beardmore & Co on the Clyde in 1903 (now demolished) for the Mitsubishi Shipyard. This 150 ton crane was relocated from the Motherwell Bridge Company of Scotland to Japan in 1909 and installed alongside the Mitsubishi Shipyard. It is still currently in use. It is the only giant cantilever crane to survive a nuclear blast. The crane is part of Japan's World Heritage nomination sites— <i>Japan's Meiji Industrial Revolution: Kyushu-Yamaguchi and Related Areas</i> . (Source: Dr Iain Stuart, 2013)	

Name	Date of Construction	Current Use	Location	Background	Image
Garden Island, Sydney	1944–1951	Not operational but still existing.	Sydney, Australia.	Built between 1944 and 1951 as part of the navy's Captain Cook Graving Dock at Garden Island in Sydney Harbour. Designed by Sir William Arrol using the plans for the crane erected at the Singapore Naval Base just prior World War II. Its main function was to lift heavy items onto warships—it had a lifting capacity of 250 tons and stands 61m high. World War II ended when only its foundations had been installed. It was later used to lift other structures such as tug boats and hydrofoils.	

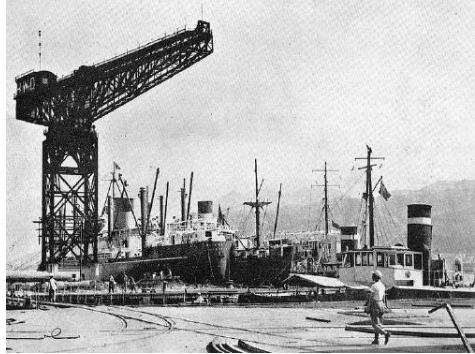
2.3.3 Hammerhead Cranes Demolished

Name	Date of Construction	Current Use	Location	Background	Image
Dalmuir Crane	1903	Demolished in the 1970s.	Clyde, Scotland. William Beardmore and Co's Naval Construction Works in Dalmuir, UK.	Built as part of William Beardmore & Co's Naval Construction Yard established in 1900 at Dalmuir on the Clyde. It was the UK's most advanced shipyards at this time. The two oldest cranes on Clydeside were the Dalmuir and Govan Cranes, both built by Glasgow Electric Crane & Hoist Company under licence from the German Company, Benrather Maschinenfabrik. (Source: Iain Stuart 2013). It cost £3352. Dalmuir Crane was the first one to be built. The Glasgow Electric Crane & Hoist Co. was short lived and their works were taken over by Arrols in 1911. The Dalmuir Crane was the only true hammerhead crane of the six on Clydeside, although the others were often called hammerheads. Dalmuir Shipyard closed in 1936. The crane was used by Babcock & Wilcox Ltd of Renfrew when they occupied part of the former Dalmuir Shipyard in the 1960s.	
Govan (Fairfield Shipyard)	1911	Demolished in 2007.	Clyde, Scotland. Fairfield's Shipyard in Govan, UK.	In 1900 William Beardmore & Co. took over the shipyard of Robert Napier in Govan. The Govan Crane was built in 1911 by Sir William Arrol & Co and was the largest crane in the world when erected. In 1912 Beardmore sold the shipyard to Harland & Wolff. The crane was demolished in 2007 to make way for construction of the Queen Elizabeth class aircraft carriers at the BAE Systems Surface Ships (ex-Fairfield) yard.	

Name	Date of Construction	Current Use	Location	Background	Image
Devonport Dockyard, Plymouth, UK	1909	1980s.	UK.	Designed by Cowan Sheldon & Company of Carlisle, UK. (Source: <i>The Engineer</i> , p 534, Dec 1909)	
Brooklyn, Navy Yard, New York	1939	Demolished 1965.	USA.	Built by the American Bridge Company who built one crane in Brooklyn and one in Norfolk, Virginia. Built prior to Japanese attack on Pearl Harbour during a program to modernise the US Navy. This crane played an integral role on the assembly of America's most storied warships and had a lifting capacity of 350 tons. Treated as a mascot, the crane appeared on Christmas cards and postcards. The crane saw little use in the postwar years and was sold for scrap in 1965. (Source: < http://bldg92.org/blog/yard-guardian-the-350-ton-hammerhead-crane/ >).	

Name	Date of Construction	Current Use	Location	Background	Image
League Island Crane, Navy Yard, Gibraltar	1919		USA. Philadelphia Navy Yard.	Built just after World War I, this 350 ton capacity hammerhead crane was manufactured in 1919 by the McMyler-Interstate Company in Bedford, Ohio. The crane was called the League Island Crane by its builder. Weighing 3500 tons, the crane was shipped to the yard in sections, and it was the world's largest crane at the time. The League Island Crane was for many years the navy's largest crane. (Source: Wikipedia) The crane was 245ft tall and constructed to place the turrets, ordnance armour plates, boilers, machinery, etc, on the big ships being constructed in the yard. It cost £2M and took eleven months to construct During World War II, the yard employed 40,000 people and built 53 ships and repaired 574. During this period, the yard built the famed battleship <i>New Jersey</i> and its 45,000 ton sister ship, <i>The Wisconsin</i>.	 League Island Crane in 1923 (Source: <http://en.wikipedia.org/wiki/Philadelphia_Naval_Shipyard>)
Rosyth Dockyard, Fife		Scrapped 1992.	Fife, Scotland, UK.	The naval base erected this 254 ton crane to serve the Grand Fleet.	
Woolwich Arsenal			London Naval Dockyard, UK.	203 ton crane.	

Name	Date of Construction	Current Use	Location	Background	Image
Singapore Naval Base	1934	Destroyed in 1942 during the fall of Singapore.	Singapore.	Erected as part of the British Naval Base in Singapore in 1934 to designs by William Arrol & Co. The crane was fabricated in the UK and then shipped to Singapore. It had a lifting capacity of 250 ton. It was demolished in 1942 just prior to the Japanese takeover of Singapore.	
DND Halifax Harbour, Canada			Canada.		
Barrow in Furness, Buccleuth Dock	1942	Last used in 2001. Condemned in 2007. Demolished in 2010.	UK.	This crane replaced an earlier one which was destroyed during a bombing raid in 1941, killing two workmen. Work began to dismantle the crane in July 2011 and it took three months. (Source: < http://news.bbc.co.uk/local/cumbria/hi/people_and_places/history/newsid_9369000/9369182.stm >)	

Name	Date of Construction	Current Use	Location	Background	Image
Taiwan, Kowloon Dock	1950s	Demolished.	Kowloon Dock, Hong Kong.	This 100 ton crane at Kowloon Docks was a landmark to seafarers entering Hong Kong Harbour. At one time the crane stood on the bank of the Humber as part of the equipment of Errol & Co Ltd of Hull. When Errol's shipyard was closed down, the Hong Kong and Whampoa Dock Company purchased the crane. Despite attempts to blow it up, the crane survived the Japanese occupation during World War II, apart from slight damage to the tip from a bomb splinter.	
Pearl Harbour	1935	Scrapped in 1980.	USA.	200 ton capacity.	
Yokosuka Naval Shipyard	1911	Demolished by 2007.	Japan.	Built by Cowans Sheldon & Company of Carlisle, UK. 350 ton capacity. The largest in the world until 1960.	

Name	Date of Construction	Current Use	Location	Background	Image
Kure Naval Shipyard	1912	Demolished.	Hiroshima, Japan.	Built by Cowans Sheldon & Company of Carlisle, UK. The Kure Naval District was established at Kure, Hiroshima in 1889, as the second of the naval districts responsible for the defence of the Japanese home islands. Along with the establishment of the navy base, a ship repair facility was also constructed and Kure developed into one of the largest shipbuilding facilities in the empire of Japan.	

2.4 Statement of Significance

The Heritage Assessment of the Hammerhead Crane prepared by GML in November 2005 contains the following summary statement of identified Commonwealth Heritage values:

The Hammerhead Crane is important to Australian history as part of the Captain Cook Dockyard at Garden Island. The facility, planned from 1938 in direct expectation of the war in the Pacific, was a strategic facility designed to maintain and repair capital ships and allow a major fleet to be based in Sydney Harbour. The construction of the dockyard and crane reflected British Imperial military planning and represented a subtle change in the Government's hitherto declared 'Singapore Strategy' for national defence. The construction of the dockyard was a major wartime project and the Hammerhead Crane was the final major component of that development.

The Hammerhead Crane in itself has heritage values as a specialist item of equipment constructed to allow the removal of heavy items of equipment from capital ships of the early twentieth century. Its size and design made it a rare item in the Australian context, yet it was representative of major dockyard cranes across the world, especially those designed by Sir William Arrol and Sons. The crane used the same plans as were used for the crane built at the Singapore Naval Base.

Since its completion, the Hammerhead Crane has undertaken a wide range of naval, government and civil work lifting heavy items, and the crane has strong associations with the maritime use of the harbour over forty years.

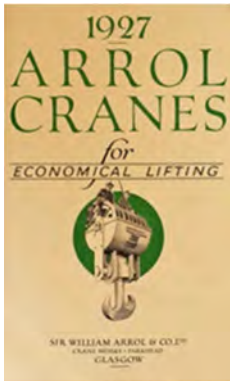
The crane is a prominent landmark of Sydney Harbour and, as a dockside facility, is a visible reminder of the former role of Sydney Harbour as a major transportation hub for Australia (where few others remain). It is valued by a range of people and organisations in Sydney for its historic, aesthetic and technological qualities.⁷⁰

2.5 Key Historic Themes

In preparing to interpret cultural places, it is important to present them in an informative, interesting and easily accessible way. This is achieved through communicating the history and significance of the site using key historical themes and stories.

The following table considers the Hammerhead Crane in relation to Australian historic themes identified by the former Australian Heritage Commission, and state historical themes developed by the NSW Heritage Branch of the Office of Environment and Heritage. The themes have been identified as relevant for presenting the history and significance of the Hammerhead Crane. A short commentary relating the site to each of the historical themes has been provided.

Table 2.2 Former Australian Heritage Commission and Heritage Branch Historical Themes and Their Relation to the Hammerhead Crane.

Australian Historic Theme	<i>Developing Local, Regional and National Economies: Industry</i>
NSW State Theme: Industry	
	Sydney's Hammerhead Crane represents important aspects of dockside industry and defence facilities. The crane is one of around 60 hammerhead or giant cantilever cranes constructed worldwide as specialist equipment for the removal and installation of heavy items of equipment for large-scale battleships. A form of giant crane, they were constructed in major dockyards throughout the world from 1910 to 1960. As large-scale battleships were phased out, their capacity to lift 250 ton weights made them useful for the general lifting and loading of heavy machinery with several remaining in operation today. Constructed as part of the Captain Cook Dry Dock during World War II, the crane was an important part of the overall Garden Island Dockyard facility built for the construction and repair of warships.
Australian Historic Theme	<i>Developing Local, Regional and National Economies: Technology</i>
NSW State Theme: Technology	
	The Hammerhead Crane is associated with the technical achievements in engineering and shipping undertaken at Garden Island during World War II. The construction of the Captain Cook Dockyard and the Hammerhead Crane was considered one of Australia's most outstanding engineering achievements of the period. The crane, when constructed, was the largest crane in the southern hemisphere in terms of load capacity and reach, and remains the largest fixed dockside crane in Australia today. The facilities provided a southern hemisphere base for the construction and repair of warships, and made Garden Island one of a small group of dockyards globally with this capacity. The crane is also associated with two eminent engineering firms, Sir William Arrol (Glasgow) and Sir Alexander Gibb and Partners (London), both of whom undertook major civil engineering projects in Europe and Australia during the nineteenth and twentieth centuries.
Australian Historic Theme	<i>Building Settlements, Towns and Cities: Remembering significant phases in the development of settlements, phases and cities</i>
NSW State Theme: Labour	
	The Hammerhead Crane is an important part of the Garden Island Dockyard and Naval Facility. At its peak, the dockyard employed over 5000 dockyard workers. Specialist trades on the site included crane operators responsible for working the site's cranes. Although not regularly used, the Hammerhead Crane is able to demonstrate important aspects of the nature of working on the docks and the variety of tasks undertaken on the site. The crane has undertaken a wide range of naval, government and civil work and has strong associations with the maritime use of the harbour for over 40 years. As a prominent feature of Sydney's skyline since its construction in the 1940s, the crane demonstrates Sydney's important history of dockyard industry.

Australian Historic Theme**Governing: Defending Australia****NSW State Theme: Defence**

The Hammerhead Crane and Captain Cook Dry Dock represent British imperial military planning during World War II and the subtle change in Australia's defence planning towards more independence.

The facility was planned in direct expectation of a war in the Pacific and was strategically designed to provide a facility for the maintenance and repair of battleships and allow a major fleet to be based in Sydney Harbour. The construction of the Dry Dock and Hammerhead Crane represented a major investment in Defence infrastructure during World War II and the strategic importance of Garden Island as a southern hemisphere naval base.

Australian Historic Theme**Governing: Establishing Regional and Local Identity****NSW State Theme: Defence**

The Hammerhead Crane is a visually dominant and prominent landmark in Sydney Harbour. It is an iconic structure which can be seen from many vantage points in and around Sydney Harbour; from harbourside locations, on the water, and even from some buildings in the city.

It is symbolic of the industrial maritime industry and the working docks that once lined much of Sydney Harbour and were an integral part of establishing and constructing Sydney as a capital city.

It is a visual reminder of Australia's continuing naval history, operations and presence at Garden Island.

All of the above themes together contribute to the cultural significance of the crane and provide an important basis for understanding its history and significance. The next step is to develop key stories for interpretation based on these identified themes.

2.6 Key Stories for Interpretation

The historical themes link the assessed cultural significance of the Hammerhead Crane to broader historical movements to provide the main topics for interpretation. The key stories for the interpretation of the Hammerhead Crane are:

Defending Australia—The Hammerhead Crane is an important part of the development of the Garden Island Naval Base and specifically the Captain Cook Dry Dock. Constructed as part of Australia's defence facilities, the Captain Cook Dry Dock and the Hammerhead Crane were designed to maintain and repair battleships and other capital ships used by the Royal Navy and other allied fleets. The facilities were rushed into use before they were fully completed to support the British Pacific Fleet in 1945. They provided the only allied battleship repair facility in the South Pacific.

Naval technology changed soon after the crane was completed, reducing the need to lift such heavy loads; however, the crane was utilised for a variety of purposes related to the ongoing functions of

the naval facility, including playing a key role in moving guided missile launchers from ships for maintenance.

Heavy Lifting—The Hammerhead Crane is one of a number of giant cranes developed in the early twentieth century for the dockside lifting of up to 250 ton weights. The giant cantilever crane, a more stable form of the Hammerhead Crane, was developed by Scottish engineering firm Arrols around 1905. The Garden Island crane is one of around 60 hammerhead/giant cantilever cranes constructed worldwide during a period of major naval ship construction. Once located in most of the major shipyards around the world, with the changing technologies after World War II, the type of crane became redundant and only a few of its type survive today.

Working Docks—Owing to changing technology, the crane only played a peripheral role in the repair of battleships; however, as the only crane with this capacity in Sydney it played an important role in the loading and unloading of heavy goods. The crane provides tangible evidence of the scale of works undertaken at the Garden Island Dockyard and Sydney's maritime industries more generally.

Harbour Landmark—The Hammerhead Crane has been a prominent feature of Sydney Harbour since its completion in 1951. Its large-scale and industrial character is a visual reminder of Sydney's naval and maritime industries. The Hammerhead Crane is a visual landmark of Sydney Harbour and is an embodiment of the (gradually reducing) industrial maritime heritage of Sydney.

Each of these key stories embody the historical themes and different aspects of Garden Island's maritime significance and, within this, the specific significance of the Hammerhead Crane. Combined they will enable important heritage values to be communicated to visitors via interpretation.

2.7 Endnotes

- ¹ Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol 34, No. 2, p 1.
- ² Frame, TR 1990, *The Garden Island*, Kangaroo Press.
- ³ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 58–59.
- ⁴ Currey, CH, Bent, E (1783–1815), Australian Dictionary of Biography, National Centre of Biography, Australian National University, <<http://adb.anu.edu.au/biography/bent-ellis-1772/text1985>>, viewed 3 December 2013.
- ⁵ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 64–65.
- ⁶ *ibid*, pp 110–115.
- ⁷ Australian Heritage Places Inventory, Garden Island Precinct.
- ⁸ Australian Heritage Places Inventory, Garden Island Precinct.
- ⁹ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 168–186.
- ¹⁰ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 168–186.
- ¹¹ Jeremy, J 1998, *Cockatoo Island: Sydney's Historic Dockyard*, UNSW Press, Kensington.
- ¹² Australian Heritage Places Inventory, Garden Island Precinct.
- ¹³ All Islands ASHET self-guided tour brochure.
- ¹⁴ Godden Mackay Logan Pty Ltd, Hammerhead Crane Garden Island Sydney Heritage Impact Statement, report prepared for the Department of Defence, October 2012, p 15.
- ¹⁵ Frame, *op cit*, p 188.
- ¹⁶ Goldrick, J 1996, 'Australian Naval Policy 1939–45' in Stevens, D (ed) *The Royal Australian Navy in World War II*, Allen and Unwin, Sydney, pp 1–17.
- ¹⁷ Tewes, A, Rayner, L and Kavanaugh, K 2004, 'Australia's Maritime Strategy in the 21st Century', Research Brief Parliamentary Library Canberra, p 10.
- ¹⁸ Notably Generals Chauvel and Lavarack.
- ¹⁹ The term capital ship refers to the principal type of warship of an era. In Nelson's day this meant a first rate ship such as HMS *Victory*. In the twentieth century, the term referred to battleships or battlecruisers (as per the Washington Treaty of 1922). The battleship was seen as the major warship in a navy capable of easily destroying all other ships (except another battleship) by the power of its guns and defeating attacks by speed and armour. Aircraft carriers were not seen as capital ships until post-World War II and, in fact, during the Cold War the nuclear submarine was also seen as a capital ship.
- ²⁰ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 168–186, pp 187–188.
- ²¹ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 168–186, p 188.
- ²² Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 168–186, pp 188–189.
- ²³ Tewes et al, *op cit*, Brown, G 1993, 'The 1942 Singapore Disaster: Assessing Recent Claims', Background Papers, Parliament of Australia, Canberra.
- ²⁴ Frame, TR 1990, *The Garden Island*, Kangaroo Press, pp 168–186, pp 190–191, Mellor, DP 1958, *The Role of Science and Industry*, Official History of Australia in World War II, Australian War Memorial.
- ²⁵ Reproduced in Frame, *op cit*, p 189.
- ²⁶ Brown, D 1996, 'The Forgotten Bases: The Royal Navies in the Pacific 1945' in Stevens, D (ed) *The Royal Australian Navy in World War II*, Allen and Unwin, Sydney, pp 100–110.
- ²⁷ Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol, 34, No. 2, p 3.
- ²⁸ Godden Mackay Logan Pty Ltd, 'Hammerhead Crane Garden Island Sydney Heritage Impact Statement', report prepared for the Department of Defence, October 2012, p 16.
- ²⁹ Most of the information in this section comes from unpublished notes produced by Dr Iain Stuart on the history of the Hammerhead Crane, 2013.
- ³⁰ Stuart, I 2013 (unpublished), 'Sydney's Giant Cantilever Crane, Its History and Importance'.
- ³¹ Thomas, RD and Patterson, B 1998, *Battleships in Camera: Building the Dreadnoughts*, Royal Naval Museum Publications, p 101.
- ³² *ibid*, p 107.
- ³³ *ibid*, p 86.
- ³⁴ Stuart, I 2013 (unpublished), 'Sydney's Giant Cantilever Crane, Its History and Importance'.
- ³⁵ Stuart, I 2013 (unpublished), 'Sydney's Giant Cantilever Crane, Its History and Importance'.
- ³⁶ Much of the information in this section is taken directly from the Register of the National Estate (non-statutory archive) Listing for the Hammerhead Crane, Gore Road, Garden Island.
- ³⁷ Register of the National Estate (non-statutory archive) Listing for the Hammerhead Crane, Gore Road, Garden Island.
- ³⁸ Notes on the Hammerhead Crane by Iain Stuart, 2013.

- 39 'Removal of the Hammerhead Crane from Garden Island, Sydney Public Consultation', submission by Warwick Stuart, whose family owned Sydney Steel, dated 4 February 2013.
- 40 Davies, S 1984, *The Islands of Sydney Harbour*, Hale and Iremonger, p 44.
- 41 *ibid.*
- 42 Register of the National Estate (non-statutory archive) Listing for the Hammerhead Crane, Gore Road, Garden Island.
- 43 Notes on the Hammerhead Crane by Iain Stuart, 2013.
- 44 Register of the National Estate (non-statutory archive) Listing for the Hammerhead Crane, Gore Road, Garden Island.
- 45 *ibid.*
- 46 *ibid.*
- 47 *ibid.*
- 48 *ibid.*
- 49 *ibid.*
- 50 *ibid.*
- 51 Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol. 34, No. 2, p 3.
- 52 *ibid.*
- 53 Shaw, AB October 1951, *Port of Sydney Journal*, Vol. 3, No. 6.
- 54 See in particular 'Captain Cook Graving Dock Sydney—The Electrical and Mechanical Installation', by EC Gardiner in *The Journal of the Institution of Engineers Australia*, April–May, 1952, pp 97–109.
- 55 McDonald MR and Oglethorpe M 2000, *The Sir William Arrol Collection: A Guide to the international material held in the National Monuments Record of Scotland*. Edinburgh RCAHMS.
- 56 <http://urbanglasgow.co.uk/archive/the-cranes-of-sir-william-arrol__o_t_t_1893.html>.
- 57 Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol. 34, No. 2, p 1.
- 58 Naval Historical Society, Garden Island.
- 59 Oral History Interview with Steve Petras, the Hammerhead Crane's last driver, dated 6 February 2013.
- 60 Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol. 34, No. 2, p 2.
- 61 Davies, S 1984, *The Islands of Sydney Harbour*, Hale and Iremonger, p 44.
- 62 *ibid.*
- 63 Sinclair Knight Merz Pty Ltd, January 1995 'Garden Island Future Crane Usage, Preliminary Study', report prepared for ADI Marine, Department of Defence.
- 64 *Sunday Mirror*, 5 December 1965, p 51.
- 65 Stephenson, PR, *op cit*, p 76.
- 66 Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol. 34, No. 2, p 4.
- 67 Strategic Requirements of Fleet Base East Hammerhead Crane, internal Defence minute from DG, cited in Hammerhead Crane Heritage Impact Statement by Godden Mackay Logan for Department of Defence Corporate Services and Infrastructure Group November 2005, p 23.
- 68 Worley Parsons, November 2006, Hammerhead Crane–Garden Island–Determination Report.
- 69 Burroughs W (Editor) 2013, 'The Hammerhead Crane' *Naval Historical Review* Vol. 34, No. 2, p 4.
- 70 Godden Mackay Logan, Hammerhead Crane, Heritage Assessment, November 2005.

3.0 Approach to Interpretation

3.1 Interpretation as a Conservation Process

Interpretation is an essential part of the heritage conservation process. As important as authentic restoration and regular maintenance, the active interpretation of heritage supports community recognition, enjoyment and understanding of an item's values and significance.

The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013 (the Burra Charter), explains:

Interpretation means all the ways of presenting the cultural significance of the place. Interpretation may be a combination of the treatment of the fabric (eg maintenance, restoration, reconstruction), the use of and activities at the place, and the use of introduced explanatory material. (Article 1.17)

Significant associations between people and a place should be respected, retained and not obscured. Opportunities for the interpretation, commemoration and celebration of these associations should be investigated and implemented. (Article 24.1)

The Charter notes that 'for many places, associations will be linked to use' and continues:

The cultural significance of many places is not readily apparent, and should be explained by interpretation. Interpretation should enhance understanding and enjoyment and be culturally appropriate. (Article 25)

In 2004, the Heritage Branch of the then NSW Department of Planning prepared materials to encourage good practice in the interpretation of heritage items across New South Wales. This HIP reflects the standards set by the Heritage Interpretation Policy and Guidelines, as endorsed by the Heritage Council of NSW, August 2005.

Removal of the Hammerhead Crane was identified in the 2012 Heritage Impact Assessment as having a significant impact on the historic heritage environment of the CHL listed Garden Island precinct. That report provided a range of mitigative measures to offset the identified impacts, including interpretation of the crane's heritage values. The report noted that mitigation measures should be proportionate to the impacts being offset.

The development and implementation of a comprehensive interpretation program focused on the crane will assist in offsetting the impacts associated with its removal by enabling the history and significance of the crane to be understood, enjoyed and appreciated by current and future audiences.

3.2 Interpretation Principles for the Hammerhead Crane

The key interpretation principles for the Hammerhead Crane are:

- focus on the history and significance of the crane and the identified themes and stories;
- use a combination of retained components of the crane, documentary research and graphic material to convey and interpret the history and significance of the crane;
- ensure that interpretive devices are accessible and compatible with the significance of the crane;
- involve people with significant social attachments to the crane;

- ensure that stories and devices can engage identified audiences and stimulate interest, offering a variety of means to engage different audiences;
- integrate the proposed interpretive initiatives with the key interpretive and publically accessible spaces at Garden Island;
- make the key stories accessible to people who value the crane both on and off site; and
- plan for continuing maintenance and regular review of interpretive media.

3.3 Site Analysis

3.3.1 Garden Island Naval Base

Garden Island Naval Base, also referred to as the Fleet Base East (FBE) of the Royal Australian Navy (RAN) is the main naval base on the east of coast of Australia. It has the largest repair and refitting dockyard in Australia. In building the dockyard, land was reclaimed to connect the former Garden Island with Potts Point.

The island was dedicated as a Royal Navy depot in 1866, and many of the buildings subsequently erected still stand. The island developed slowly with the greatest spurt occurring during World War II, which saw the construction of new wharves and the Captain Cook graving dock in 1945 (the largest of its kind in the southern hemisphere at that time). It was during this period that land reclamation was used to connect the Island to the mainland. Along the western side of Garden Island (the eastern edge of Woolloomooloo Bay), there is a long dock and a complex of naval buildings on the reclaimed land.

The Garden Island Naval Base is an integral part of the Sydney Harbour landscape. It is both a Sydney landmark and a major influence on the wider character of Sydney Harbour. The long-standing naval presence on the island demonstrates Sydney Harbour's historic role as a place of industry and labour (the 'working harbour'). Further, it demonstrates the former role of the harbour as a place central to the maritime defence of the colony and nation (the 'naval harbour'), together with related sites at Cockatoo Island, Fort Denison, Middle Head and North Head School of Artillery. The ongoing RAN operations on Garden Island contribute substantially to the naval heritage significance of Sydney Harbour.

While the Hammerhead Crane is located outside of the Garden Island Precinct, a place included in the Commonwealth Heritage List, the crane has identified heritage values in its own right and contributes to the heritage values of the whole Garden Island Naval Base.

3.3.2 The Hammerhead Crane

Since the completion of its construction in 1951, the Hammerhead Crane has dominated the skyline of Garden Island. It has come to symbolise the function and role of the naval dockyard, and is a landmark of Sydney's 'working harbour'.

The height of the crane is 61m and the large covered area of the main motor room and counterweights box, along with the thick beam structure, means that the crane is visible from a great distance (Figures 3.1–3.6 show images from 2005 and 2012).

The Hammerhead Crane occupies a length of 52.1m (171ft) on the fitting-out wharf, about two thirds along the Captain Cook graving dock, beyond the CHL boundary of the Garden Island

precinct. Although the crane is incorporated into the wharf, it is disconnected from it by expansion joints on either side of its abutment with the wharf.

In 1966 the crane was the largest crane in the southern hemisphere and it remains the largest dockside crane in Australia today. It was engineered to fit the extremes of likely demand and represented the contingency approach to naval support planning in the aftermath of the two world wars.

Owing to Garden Island's function as an operational naval base, access to the Hammerhead Crane is restricted. The public cannot access the Hammerhead Crane.

3.3.3 Future Site Use

In the 2012 EPBC Act referral for the removal of the Hammerhead Crane, Defence stated that the proposed removal of the Hammerhead Crane was necessary to allow Garden Island to provide training and logistic support, maintenance facilities and berths for major current and future RAN ships homeported in Sydney, as well as additional berths for other visiting RAN and foreign warships.

As stated in the *Australian Defence Force Posture Review* (30 March 2012), FBE remains a highly effective homeport location for Navy vessels (particularly the Hobart class Air Warfare Destroyer (AWD) and the specific industry support requirements of its Aegis Combat System) and the Captain Cook Graving Dock remains a fundamental component of Navy ship repair and maintenance on the east coast and a driver for an enduring Navy presence at FBE.

In 2009, Defence engaged Worley Parsons to provide a technical engineering basis for determining the most appropriate option for addressing the environmental, health, safety and operational issues arising from the Hammerhead Crane and a cost benefit analysis of each option.

The EPBC Act referral application explained that the size, location and condition of the Hammerhead Crane imposes operational restrictions at FBE1N and adjacent berths, adding complexity to maintenance activities and impacting on the berthing of larger vessels. Further, the deteriorating condition of the Hammerhead Crane presents a range of ongoing costs and risks to the work health and safety (WHS) of personnel in its vicinity.

Defence has noted that in 2007 metal debris fell from the Hammerhead Crane, which resulted in a Comcare investigation and the subsequent issue of both prohibition and improvement notices that restricted access to both the Hammerhead Crane and adjacent wharf areas, pending works to stabilise the Hammerhead Crane and make the surrounding area safe.

The 2009 Defence White Paper identifies a number of new naval capabilities entering service including the Canberra class Landing Helicopter Dock (LHD) and the Hobart class AWD vessels, both significantly larger than the capabilities they will replace. The LHDs will be introduced from late 2013. These proposed new capabilities will impact on already limited berthing capacity and flexibility at FBE. The location of the Hammerhead Crane further compounds the berthing availability problem at FBE as it will require the LHDs to berth further south of the Hammerhead Crane, resulting in impact on the berth availability and flexibility for other ships.

3.3.4 Existing Interpretation

There is no existing interpretation specifically related to the Hammerhead Crane or the Captain Cook Graving Dock facility at Garden Island, although some information related to these elements is on display in the Royal Australian Navy Heritage Centre boatshed building.

The Royal Australian Navy Heritage Centre is located at Garden Island and includes a comprehensive display of material related to the history and functions of the RAN. Displays include components of significant equipment with supporting interpretive information.

The public access area of Garden Island includes a range of plaques, a memorial sculpture and the bow of the ship *Parramatta* as a commemorative element.

3.3.5 Visual Catchment

The visual catchment of the Hammerhead Crane extends from the top of the Sydney Harbour Bridge stairs in The Rocks, across the Harbour Bridge and generally around the northern shores of the harbour to Bradleys Head. A line between Bradleys Head and Point Piper is the approximate area where the Crane becomes legible for someone entering the harbour (or, for example, travelling on the Manly Ferry). It is prominent at water level (for ferries, commercial vessels and private watercraft) from several vantages to its north and northwest.

The visual catchment along the southern shore of the harbour is more restricted. There are notable areas of dead ground from which the crane cannot be seen, which include parts of Farm Cove and Circular Quay. The crane is highly visible from offices in the high rise buildings along the eastern edge of Sydney's CBD.

As part of the 2012 HIA, a visual impact assessment was undertaken to illustrate the visual catchment of the Hammerhead Crane from within and around Sydney Harbour. Twenty-six vantage points were selected (Figure 3.1), photography undertaken from the harbour and on land. The results are tabulated in Appendix A.

3.3.6 Landmark Qualities

The Hammerhead Crane has, in addition to its prominence within the above visual catchment, other visual qualities which need to be recognised. These relate to the size, scale and design of the crane itself. The crane dominates the Garden Island Dockyard and it is the tallest structure on the island and the surrounding foreshore area. The design of the crane, which is bulkier at the top of the structure and larger than other cranes (which also get thinner as they get higher), means that it is easily 'read' as a crane to most observers. Therefore, the Hammerhead Crane is a prominent part of Sydney's maritime landscape.

Association with Garden Island and its naval dockyard means that the Hammerhead Crane has become a visual referent for dockyard industry or, more vaguely, 'the working Port of Sydney'.

The Hammerhead Crane is also associated with the headquarters of the RAN on Sydney Harbour and symbolises the defence of the Australian continent from wartime invaders. In a more subtle way, through its associations with warships and British dockyards, the crane is also a symbol of the British Empire and the mainstay of its power, the Royal Navy; it reinforces a direct lineage from the Garden Island Naval Base to the British Navy (and highlights Sydney as the leading administrative settlement of this outpost of the empire). Like the Dreadnought battleships themselves, the 'might and power' inherent in the structure of the crane is a direct symbol of the power of (and security

provided by) the RAN. The 'might' of the crane is a visual statement about Australia and its position on the world stage.

The Hammerhead Crane is visually prominent within an extensive visual catchment around Sydney Harbour; it has landmark qualities and values and a distinctive visual appearance that give rise to aesthetic values. Therefore with the removal of the Hammerhead Crane, the opportunity to appreciate it from these vantage points around the harbour is lost. Interpretive initiatives at other locations not limited to vantage points must be considered to mitigate this loss, such as the RAN Heritage Centre at Garden Island, other museums, repositories and online.

Hammerhead Crane, Fleet Base East, Garden Island, Sydney—Heritage Interpretation Plan—Revised Draft Report—September 2014

3.4 Audiences

In order to develop effective and engaging interpretation, there must be a good understanding of the available and potential audience, their needs and level of understanding of the proposed content. A detailed study of the existing and potential audience, either on or off site, has not been undertaken. However, it is possible to identify broad existing and potential audiences.

3.4.1 Existing and Potential Audiences

The Hammerhead Crane is a large-scale, prominent and iconic element within the Sydney skyline. There is likely to be a wide audience of people interested in its removal and interpretation, broadly consisting of:

Onsite:

- visitors to the Royal Australian Navy Heritage Centre;
- participants on the Garden Island walking tours organised by the Naval Historical Society of Australia;
- visitors to Garden Island during open days/special events such as the International Fleet Review;
- Royal Australian Navy and other (eg Thales) personnel working on Garden Island;
- former workers from the Garden Island Naval Base and those with a personal connection to it;

Offsite:

- individuals with a special interest in cranes and industrial structures; and
- patrons embarking on or disembarking from cruise ships which may berth off Fleet Base East.

Later stages of interpretation planning should include further analysis of the various audience groups who either use or work at Garden Island, people viewing the crane from the public domain, and those more dispersed but likely to engage with off-site material. Quantitative and qualitative data about visitation should be sought from the Royal Australian Navy Heritage Centre.

Interpretation should be multilayered and varied in order to respond to the varying audience needs and enhance understanding and enjoyment of the place with as wide an audience as possible.

3.4.2 Opportunities Associated with Identified Audiences and Locations

As an operational naval base, access to Garden Island is restricted. The public are not able to physically access the Hammerhead Crane. Interpretation would give the public an opportunity to access and engage with the Commonwealth heritage values attributed to the Hammerhead Crane.

Interpretation allows audiences to engage with and experience the Hammerhead Crane in a way that is not possible while the crane is in situ on Fleet Base East. The interpretation of this unique industrial structure can allow the general public to learn about the history, operations and

capabilities of Garden Island and, more specifically, the Hammerhead Crane and its association with the Captain Cook Dry Dock.

3.4.3 Constraints Associated with Identified Audiences and Locations

A constraint with interpreting the crane at the RAN Heritage Centre, which is located within the Public Access Precinct on the northern end of Garden Island, is the arrangements for access and reliance on public transport. Owing to security requirements, there is no pedestrian access or private vehicle access to or from the RAN Heritage Centre. Visitors to the RAN Heritage Centre and the Garden Island Public Access precinct must use Sydney Ferries or organise a private bus tour.

- Pedestrian visitors to the RAN Heritage Centre arrive by Sydney Ferries, using the Circular Quay to Watson's Bay route. The ferry stops at the Garden Island Wharf during RAN Heritage Centre opening hours only. Ferries depart Circular Quay approximately every 30 minutes.
- Bus tour groups that visit the RAN Heritage Centre are permitted to transit Garden Island Dockyard in their own bus, with prior arrangements with authorities.
- Private vessels are not permitted to enter or anchor within the buoyed area marking the extent of Naval Waters around Garden Island. Private vessels are not permitted to land passengers or tie up at the Garden Island Wharf.

Another constraint with interpreting the crane at the RAN Heritage Centre on Garden Island is the limited opening hours. The RAN Heritage Centre is open from 9:30am to 3:30pm daily, except for Australia Day, Good Friday, Christmas Day, Boxing Day, New Year's Eve and New Year's Day.

With the removal of the Hammerhead Crane, the opportunity to view it from vantage points around the harbour will be lost. Therefore other interpretive initiatives at other locations not limited to vantage points must be considered.

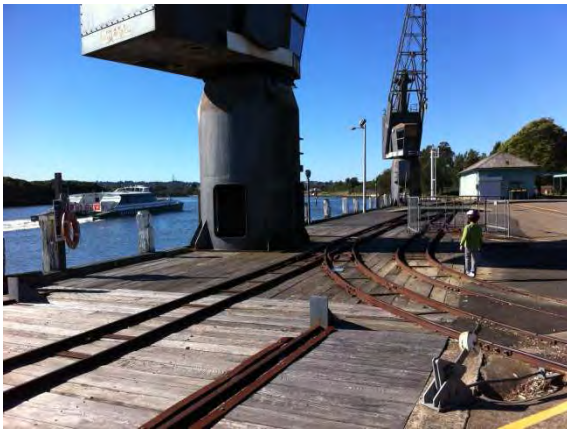
The wide variety of audiences who have an interest in the Hammerhead Crane, and would have an interest in the interpretive initiatives, means that the initiatives need to cater for various age groups, with differing levels of technical knowledge about the crane's operations and its role at Garden Island, with different expectations of media used to convey information, and different engagement requirements.

3.5 Precedents of Interpretation for Redundant Industrial Structures

Advice from heritage industry experts about local and international examples of interpreting large scale industrial elements, and a targeted web search, returned few results. Most involved the interpretation of large scale, complex sets of buildings and structures across a landscape, rather than a single structure such as the Hammerhead Crane. However, the precedents did provide some useful and inspiring concepts for interpreting the Hammerhead Crane.

The following table identifies a range of comparable large scale, redundant industrial precincts or structures and how they have been interpreted through the celebration of their heritage values.

Project	Description	Image
Clydebank Waterfront	Located at the John Brown shipyard at Clydebank, Scotland, this 1907 Titan Crane has been repurposed as an observation deck during a major regeneration of the former shipyard precinct.	 A large, illuminated steel crane structure at night, repurposed as an observation deck, with city lights and water in the background.
Mighty High Aerial Adventure Park, Cockatoo Island, NSW (never built)	The planned attraction on Cockatoo Island was to feature a reconstruction of the ship's bow interpreting the former ship building industry at Cockatoo Island. The proposal also utilised a remnant crane and included high ropes courses, suspension bridges, parachute-style drops and zip lines.	 A large, curved, metallic structure resembling a ship's bow, with a crane and other industrial elements in the background, set against a blue sky.
Coal Loader, Waverton, NSW (now the Centre for Sustainability)	Located on the western side of the Waverton peninsula, the former industrial site operated from the early 1920s to the early 1990s. Following decommissioning, the site was transformed into the centre which allows the community to have hands on learning about sustainability in everyday life. Interpretation and education programs exist. Tours are also conducted.	 A long, narrow, arched tunnel with rough, textured walls, illuminated by warm lights, showing the interior of a coal loader.
ACI Grissell Building, Waterloo, NSW	As part of the redevelopment of the former ACI site in Waterloo for residential development, the structure was deconstructed, relocated and reconstructed as the key visual element and focus in a park area. The reconstruction deliberately left some parts unfinished to reveal the original fabric, and new fabric was carefully distinguished from original fabric. Interpretation signage is provided on site.	 A modern, glass-enclosed structure with a grid-like frame, situated in an urban park area with buildings in the background.

Project	Description	Image
Carriageworks, Redfern NSW (now known as Carriageworks Performing Arts Centre)	The Eveleigh Rail Yards were built on the site between 1880 and 1889. From the 1970s, production declined and the site was closed in 1988. Adaptive re-use of the workshop site began in 2003 with the housing of numerous contemporary arts practitioners, and Carriageworks officially opened in 2007. The vision for Carriageworks was as an artistic hub where creative work could be explored, developed, commissioned and presented. Interpretation signage with buildings and remnant machinery assist visitors in understanding the history and significance of the site.	
Newington Armory, Sydney Olympic Park (former Royal Australian Naval Armament Depot)	This site features over 100 heritage buildings of various ages and types, set amidst a 52 hectare riverside landscape of undulating hills and woodlands. This precinct now forms part of the evolving parklands of Sydney Olympic Park and has been adaptively re-used as an arts precinct. Interpretation signage, tours, interpretive working life displays and a heritage train assist in conveying the history and significance to visitors.	

3.6 Available Resources

In preparing this report, resources available to inform the interpretation of the Hammerhead Crane, including archival recordings, oral histories, historic photographs, drawings and plans and 3D imagery, were identified and collated. These are detailed in Appendix B of this report.

4.0 Interpretation Opportunities

4.1 Introduction

A wide range of interpretive initiatives are available for heritage places—from simple pedestal interpretative signage to audio soundscapes; and from art installations to public open or commemorative events.

The recommended interpretation initiatives below have been identified following consideration of the significance of the Hammerhead Crane, the identified key interpretive themes and stories (Section 2.0), the site analysis and the varied needs of potential audiences (Section 3.0).

The recommended interpretation initiatives respond to the conditions of consent for the removal of the Hammerhead Crane and the particular functions of interpretation as a mitigative measure for the crane's removal.

The 2012 Heritage Impact Assessment identified the crane's removal as resulting in a significant loss of original fabric and a reduced ability to appreciate significant aspects of the Garden Island precinct. The recommended interpretation initiatives below have been identified in order to offset some of the identified impacts by presenting the history and significance of the crane to a wide audience through a variety of media.

The following recommended interpretation initiatives are intended to help resolve the key approaches and specify initiatives to commemorate the heritage values of the crane, before proceeding to detailed development of design and content. The initiatives have been discussed with the Department of Defence and the Royal Australian Navy Heritage Centre. Liaison with other relevant institutions, including the Powerhouse Museum, Australian National Maritime Museum and the Sydney Harbour Federation Trust, and industry partners has also been undertaken.

4.2 Recommended Interpretive Initiatives

Based on the preceding information the following opportunities for interpretation of the Hammerhead Crane have been identified:

Stipulated by Conditions of Consent	Additional Recommended Initiatives	
	Defence Preferred	Defence Considered
A. Public Exhibition	1. In-ground Markers	i. Sculpture/Artwork
B. Display of High Heritage Value Components	2. Publication	ii. Card Kit Model
C. Expression of Interest Components		iii. Farewell Event
D. Website (only required for the duration of the deconstruction works)		

The public exhibition commemorating the Hammerhead Crane, display of high heritage value components, donation of EOI components and the website are conditions of consent and must be undertaken.

The recommended interpretive initiatives were provided to Defence for review and consideration. Consultation with Defence about these recommended initiatives occurred in a meeting in May 2014. Of the initiatives recommended for Defence's consideration, in-ground markers and the publication

were selected as Defence's preferred additional initiatives. The sculpture/artwork, the card kit model and the farewell event were considered to be unsuitable for the following reasons:

- The sculpture/artwork is not a condition of consent and not regarded as a suitable use of the recovered material from the Hammerhead Crane. Specific high significance components are being salvaged for exhibition/display and donation as part of the EOI process.
- The card kit model was deemed unsuitable for the predominant demographic of visitors to the RAN Heritage Centre. Defence also advised that from previous experience with other card kit models (eg RAN AWD), there is often a surplus supply.
- The deconstruction of the crane has commenced and the farewell event is no longer feasible.

Each stipulated and preferred interpretation initiative is further detailed in the following tables. The tables identify the potential location, audiences, themes and stories, and resources utilised; and provide precedents of similar initiatives.

The tables for interpretive initiatives which were considered but deemed not preferred/unsuitable are included as Appendix D.

4.2.1 Interpretive Initiative A—Public Exhibition

Description

A public exhibition has been identified as a key initiative in the conditions of consent related to the crane's removal (Consent Condition 10).

Would be accessible to the public for a period of no less than one month (CC 10f).

Displays and signage combining text and images.

Could include interactive engagement such as fly-throughs, crane driver's perspective and top of jib panoramic view simulators.

Resources Utilised

Incorporates archival material (photography, time-lapse, video and a 3D model) (CC 10a).

Incorporates a collection of personal accounts/stories and oral histories from people (CC 10b).

Presents extensive details on the lift history of the Hammerhead Crane (CC 10c).

Use of historic images and drawings to present a technical description of the crane (CC 10d).

Displays some salvaged high heritage value components (CC 10e).

Potential Locations

Royal Australian Navy Heritage Centre at Garden Island (preferred location)

- RAN Heritage Centre is in discussions with Defence to design and host the exhibition as part of the RAN's annual Navy Week celebrations in October 2015.

Powerhouse Museum (alternative location)

Australian National Maritime Museum (alternative location)

Audience

Broad audiences with varying existing knowledge, engagement levels and needs. It should provide for regular visitors to the RAN Heritage Centre as well as special interest engagement (industrial heritage fans) and educational audiences.

Themes and Stories

Defending Australia.

Heavy Lifting.

Working Docks.

Harbour Landmark.

Indicative cost estimate*

\$150,000 to \$300,000

(2D exhibition, no interactive components)

Examples



Brisbane Airport Corporation Experience Centre.



Interpretive Timeline Glasshouse, Port Macquarie.



Wilderquest Installation, NSW National Parks and Wildlife.



The Wiggles Exhibition, Powerhouse Museum.



Macquarie the Governor Exhibition, GPO Sydney.



Port Botany Expansion Project.

4.2.2 Interpretive Initiative B—Display of High Heritage Value Components

Description	Utilising the identified High Heritage Value Components of the Hammerhead Crane as a medium to convey information about the history, heritage and operations of the crane. Supported by interpretation signage to explain the component, former use, etc.
Resources Utilised	Use of historic images and drawings. Salvaged high heritage value components. Archival material (photography, time-lapse, video, oral history and a 3D model).
Location	Royal Australian Navy Heritage Centre at Garden Island (preferred location) - RAN Heritage Centre (via Cmdr Alex Hawes) has provided in principle agreement to obtain and display the driver's cabin, winding drum (and associated machinery), the slew ring segment, the hook blocks plus hook and hook platform trolley in an open setting. Powerhouse Museum (supplementary location) - Powerhouse Museum (via Desmond Barrett) has been consulted and owing to the lack of suitable storage facilities, transport costs, and the general pressures on the Museum's finances, the Museum is unable to assist with the acquisition or display of this material. Australian National Maritime Museum (supplementary location) - Australian National Maritime Museum (via Michelle Linder) has been consulted and owing to cost implications, ANMM are unable to assist in the acquisition or display of this material. Sydney Harbour Federation Trust (supplementary location) - SHFT (via Libby Bennett) has been consulted and owing to location restrictions and other priorities, SHFT are unable to assist in the acquisition or display of this material.
Audience	Workers, visitors, education groups. <i>Indicative cost estimate*</i>
Themes and Stories	Heavy Lifting. <i>\$25,000 to \$45,000</i> <i>(Signage creation, manufacture and installation)</i>
Accession into Institutions' Collections	Meeting the criteria for donations as set out in the respective institutions' collections policy: - Naval Heritage Collection Policy. - Australian National Maritime Museum Collection Development Policy 2011. - Museum of Applied Arts and Sciences Registration and Collection Management Department Policy. Consultation with curators and/or institution representatives. Defence representatives would vest all rights and ongoing responsibilities with the institution. Components would be given an asset number/ID and become part of the institution's collection, and managed in accordance with their respective heritage conservation and exhibition policies.
Storage of Remaining High Heritage Value Components Until a Future Use can be Found	In accordance with Condition of Consent 5, Defence must store in an appropriate location and maintain the high heritage value components until such time as they are required for use in accordance with conditions 1, 3 and 6 of this approval (up to at least five years in the case of components to be used by third parties). Storing the remaining high heritage value components on Garden Island is an acceptable short term/interim measure, until a permanent future use can be determined for the components. If a permanent use cannot be found for the remaining high heritage value components within five years, Defence will then investigate alternative options at that time. The risk associated with this option is that the components are likely to be forgotten over time with little or no opportunity for public appreciation, and may be disposed of without due regard to their heritage significance in the future.

Examples



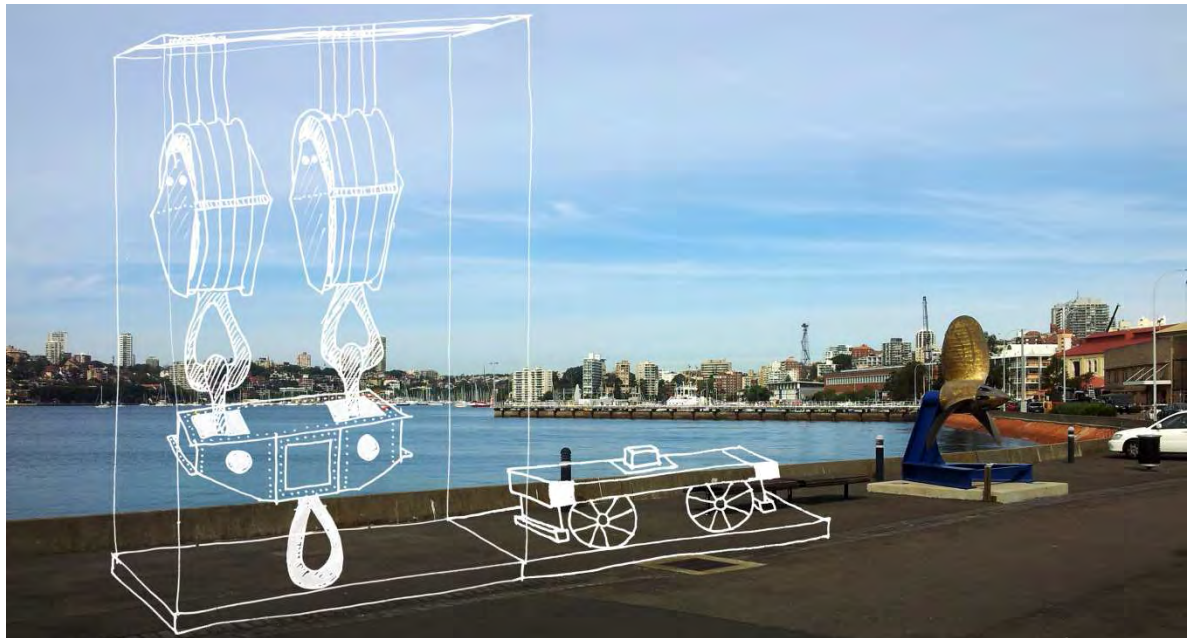
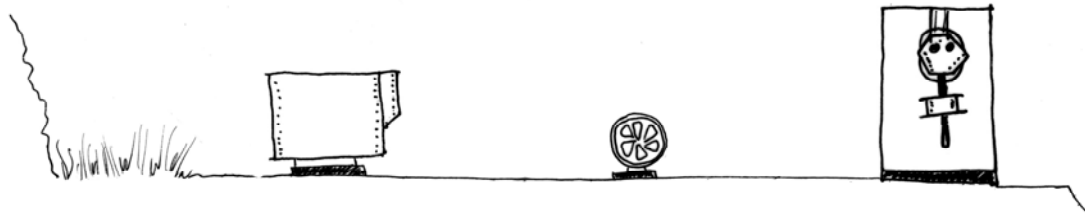
Ballast Point Park, Birchgrove, NSW



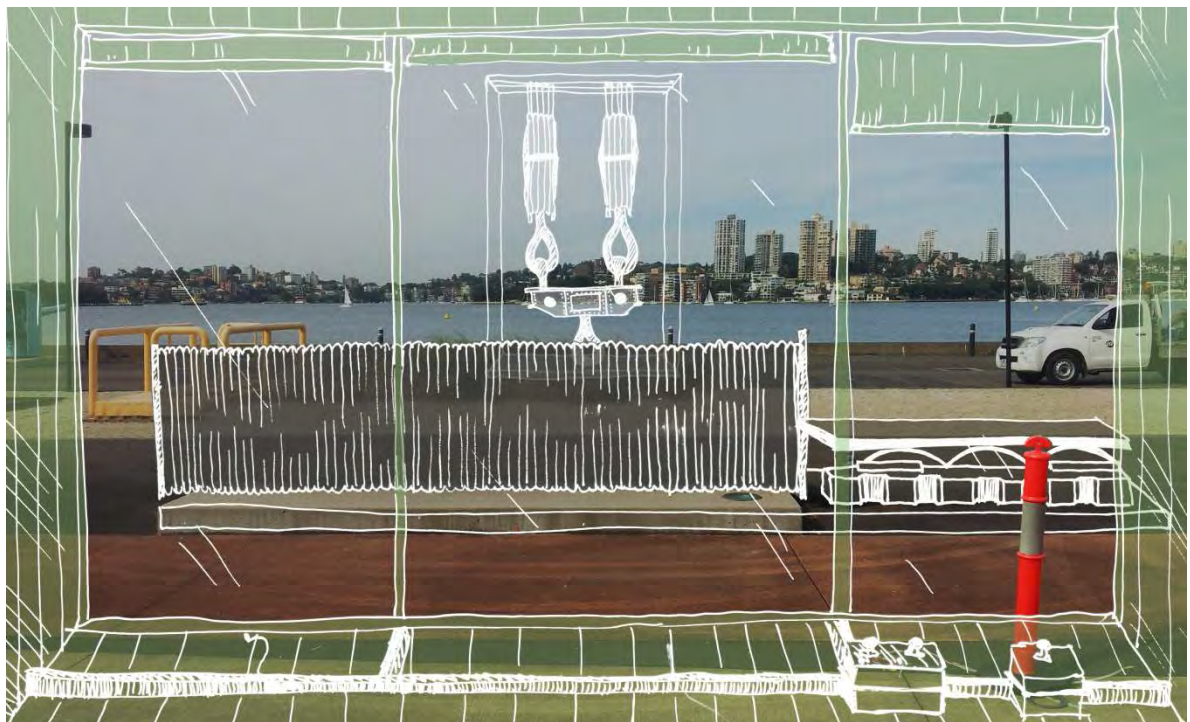
ACI Grissell, Waterloo, NSW



Eveleigh Markets, Sydney



Indicative sketch of display of hook block and hook and hook platform trolley at the RAN Heritage Centre.



Indicative sketch of view from within the Driver's Cabin looking through window to the winding drum and slew ring segment and towards the hook and trolley display.

4.2.3 Interpretive Initiative C—Expression of Interest Components

Description	As part of the removal process, small sections of steel plate with rivet heads will be cut up, remediated and repainted. An interpretive plaque with provenance information and historic photograph will be attached to each piece. These pieces will be donated to individuals who were successful in the EOI process and Defence stakeholders.		
Location	Becomes the property of those individuals and/or organisations.		
Audience	Individuals who were successful in the EOI process and other recipients.		
Themes and Stories	Heavy Lifting.	Indicative cost estimate*	
Resources Utilised	Salvaged component from the crane—small steel plate with rivet heads.	\$10,000 to \$15,000	
	Historic photograph	(Content creation and manufacture)	

Examples



Example of a three-dimensional commemorative item. Donated item would include interpretive plaque.



Example of a commemorative item framed and with commemorative plaque and photograph.

4.2.4 Interpretive Initiative D—Website

Description

Utilising current project webpage (<http://www.defence.gov.au/id/gardenisland/default.asp>) to:

- Provide background to the Hammerhead Crane removal project; why it is necessary and the process it has gone through (ie EPBC Referral, public consultation).
- Act as a repository for reports required to be displayed for the duration of the removal project—eg Salvage and Reuse Plan, HIP Support Document and archival material.
- Display information on the history and heritage significance of the Hammerhead Crane.
- Display historic material—drawings, photographs.
- Provide updates on the progress of the removal project.
- Advertise when and where the public exhibition will take place.

Archival material will be accessible in perpetuity on the Defence Media Archives <http://www.defence.gov.au/media/download/archive.htm>, and at repositories (RAN Heritage Centre, National Archives, local library and the State Library of NSW) – as stipulated by Consent Condition 9.

Location

Online only for the duration of the deconstruction works. Hosted off the Department of Defence's website.

Audience

Audiences and interaction with web based content can be substantially increased by the inclusion of links to the national curriculum and providing opportunities for making connections with associated on-site material. Website content should be family friendly and include activities, the visual presentation of information and layered content.

Themes and Stories

Defending Australia.

Indicative cost estimate*

Heavy Lifting.

(N/a webpage created and hosted by Defence)

Working Docks.

Harbour Landmark.

Resources Utilised

Web based interpretive content including the use of archival recording resources; time-lapse footage of the crane's removal, oral history recordings and animations of the 3D scan, historic imagery.

Examples

COCKATOO ISLAND

Time to share dock memories

SYDNEY HARBOUR FEDERATION TRUST SEEKS PHOTOS FROM FORMER SHIPYARD WORKERS

James Gorman

FORMER Cockatoo Island workers are being asked to share their stories in a special exhibition highlighting the site's distinguished history.

The Sydney Harbour Federation Trust which manages Cockatoo Island will present an exhibition, Shipyard Stories, celebrating the history of the Cockatoo Island Dockyard and the people who worked there.

To help compile this exhibition, the Harbour Trust is asking all former Cockatoo Island workers and their families to share their photos, memorabilia and stories about working on the island when it was a dockyard.

On Saturday, January 25, the Harbour Trust is holding a Scan-a-thon on Cockatoo Island where participants can share their photos in person with staff. These photos will then be scanned in high resolution to be included in the exhibition.

Harbour Trust deputy executive director Nick Hollo said the exhibition would highlight and honour the vital role Cockatoo Island and its workers played in Sydney's history.

"It's the Sydney Harbour Federation Trust's responsibility to conserve and help improve people's understanding of these heritage sites around the harbour and Cockatoo Island is a site that is very important," Mr Hollo said.

■ Details: cockatooisland.gov.au/shipyardstories



A worker at Cockatoo Island's machine shop.



Female apprentices.



Dock workers celebrating the launch of HMAS Warrego in 1940.

'Time to share dock memories' by James Gorman, *Central Sydney Magazine*, 15 January 2014, p 7.


Cockatoo Island


 Australian Government
Sydney Harbour Federation Trust

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Share your story & help write history

SHIPYARD Stories

Shipyard stories

The Sydney Harbour Federation Trust is building a long-term exhibition on Cockatoo Island that documents the history of the island's dockyard workers – and we need your stories. The exhibition will focus on the hard-working men and woman who made Cockatoo Island a powerhouse of industry for over a century. From photos of dockyard life to yarns of larrikin mateship, we'd love to document your experience. Are you a former dockyard worker? Did you complete your apprenticeship on Cockatoo Island? You can share your story and help write history.

What's your story?

Photos. These could be photos of you working on the island, of machinery, buildings or day-to-day working life.*

Oral Histories. We want to hear your story in your own words. Leave us your details and we'll organise a time to come & speak with you.

Memorabilia. Momentos you have of your time working on the island. Tell us about your memorabilia and we'll be in contact to record the details of your item.

How can you share your story?

- Mail your photos or stories to P.O. Box 607, Mosman, NSW 2088*
- Email us your scanned photos or stories at info@harbourtrust.gov.au
- Post your photos on the Cockatoo Island Facebook page: www.facebook.com/CockatooIslandSydneyHarbour
- Drop your photos or leave your details on our feedback form at the Cockatoo Island Visitor Centre.
- Attend the Cockatoo Island 'Scan-a-thon' on Friday 10th or Saturday 25th January. You can bring your photos along and they will be scanned in at high quality. RSVP by emailing info@harbourtrust.gov.au

*Please note, we can't return photos. If you would like to keep your photos we suggest scanning and emailing to info@harbourtrust.gov.au or attending our scan-a-thon days in January 2014.

How can everyone share in the story?

Are you a Sydney history buff? A maritime enthusiast? A shipyard super-sleuth? We need your help to put the pieces, and the people, of the Cockatoo Island dockyard together again. Follow us on the [Cockatoo Island, Sydney Harbour Facebook page](#) as we post the photos we receive and help us identify workers, machinery, ships and buildings.

Sydney Harbour Federation Trust is building a long-term exhibition on Cockatoo Island that documents the history of the island's dockyard workers – and we need your stories. The exhibition will focus on the hard-working men and woman who made Cockatoo Island a powerhouse of industry for over a century. From photos of dockyard life to yarns of larrikin mateship, we'd love to document your experience. Are you a former dockyard worker? Did you complete your apprenticeship on Cockatoo Island? Did your relative work on Cockatoo Island? You can share your story and help write history. (Source: <<http://www.cockatooisland.gov.au/events/shipyard-stories.html>>)



Australian Government
Department of Defence

Defence Infrastructure Division - Hammerhead Crane Deconstruction Project Garden Island

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Hammerhead Crane Deconstruction Project

Garden Island Defence Precinct, Sydney

The Hammerhead Crane (HHC) is located on Fleet Base East (FBE) wharf FBE1 North (FBE1N). The FBE wharves together with the other wharves in the wider Garden Island Defence Precinct (GIDP) provide the homeport for the Royal Australian Navy (RAN) major fleet units based on the east coast of Australia. The GIDP is an enduring base supporting RAN operations and the projection of Australia's maritime power throughout the region.

The HHC was constructed between 1944-51 and is thus a relatively late addition to the much older heritage of Garden Island. It was originally constructed to assist with the fitting and removal of battleship turrets. It has not been used since 1996 and there is no present or future requirement for the HHC as Navy's heavy lifting requirements are fulfilled by commercial hire mobile cranes providing greater cost efficiency, lifting capacity and mobility/practicality.

Since 1996, the disused HHC has had only reactive maintenance, and its condition is deteriorating. Its continued existence in its present site, straddling Wharf FBE1, presents risks to the Work Health and Safety (WHS) of personnel in its vicinity and causes restrictions on the operational use of the FBE wharves. This results in significant impacts on the time, personnel effort and cost required to conduct various tasks affected by the obstruction and safety risks caused by the HHC.

Existing project webpage <http://www.defence.gov.au/id/gardenisland/default.asp>

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Media Gallery

[Home](#) > [Media Galleries](#) > [Archive](#)

You can also search for imagery at [Australian Defence Image Library](#)

Archive

2010	2009	2008
January	January	January
February	February	February
March	March	March
April	April	April
May	May	May
June	June	June
July	July	July
August	August	August
September	September	September
October	October	October
November	November	November
December	December	December

Existing Defence Media Archives webpage <http://www.defence.gov.au/media/download/archive.htm>

4.2.5 Interpretive Option 1—In-ground Markers

Description

Marking out the location of the tower legs and the extent of the hook reach (ie the end of the jib) of the Hammerhead Crane; in order to indicate the size and scale of the crane.

Inlays (not painted lines) will be flush with the concrete wharf surface, no/low maintenance, non-slip and not be an impedance to wharf side operations.

Acts as a commemorative plaque to detail what the inlay signifies.

Location

Fleet Base East, in the location of the Hammerhead Crane.

Audience

Predominately Garden Island wharf personnel, and visiting warship personnel berthed at FBE.

Occasionally cruise ship tourists and associated persons using FBE for disembarking and embarkation activities.

Themes and Stories

Heavy Lifting.

Working Docks.

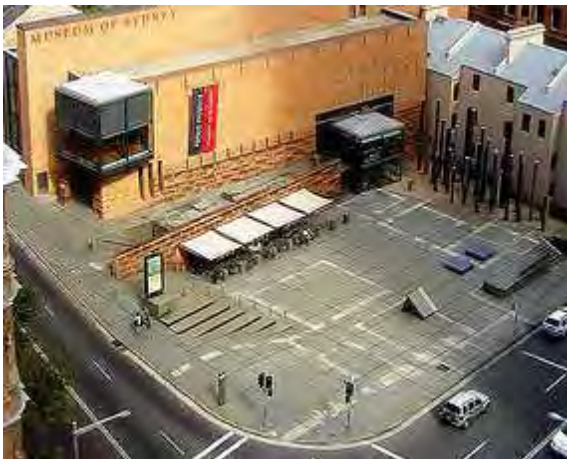
Harbour Landmark.

Indicative cost estimate*

\$5,000 to \$10,000

(Designer expertise, manufacture and installation)

Examples

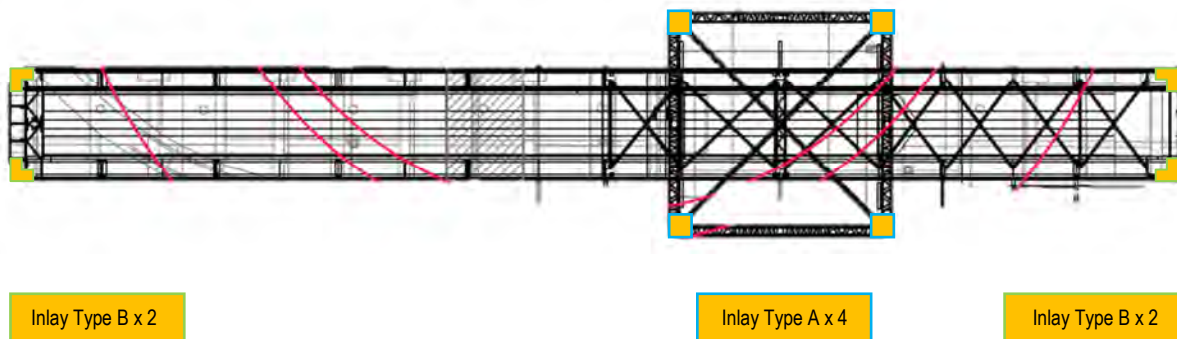


Building outline of Australia's first Government House, in the forecourt of the Museum of Sydney.



In-ground marker displaying material from excavation in 2009 at Darling Walk in Sydney.

Proposed Locations of In-ground Markers/Inlays



Inlay Type A—Tower Legs**Size:** 1100mm x 1100mm. 5mm thick (min.)**Quantity:** 4**Material:**

- Engraved bronze, marine grade stainless steel or mild steel discs
- Minimum 5mm thick
- Engraved text - 3mm deep 2D CNC router engraving
- Cast in concrete

Finish:

- Discs to be set flush with wharf apron

Installation:

- Disc pin fixed into precast rebate

*Crane Height 61.8 metres (from wharf level to top of machinery house)**Foundations consist of four concrete cylinders: each is 4.6 metres in diameter, 39.9 metres long and weighs 144.5 tons*

Tower Footprint of the...

HAMMERHEAD CRANE

Designed by Sir William Arrol and Co Ltd

Erected 1944—1951

Removed 2014

Inlay Type B—Jib Extent**Size:** 1100mm x 1100mm. 5mm thick (min.)

Cut out 550mm x 550mm

Quantity: 4**Material:**

- Engraved bronze or marine grade stainless steel or mild steel discs
- Minimum 5mm thick
- Engraved text - 3mm deep 2D CNC router engraving
- Cast in concrete

Finish:

- Discs to be set flush with wharf apron

Installation:

- Disc pin fixed into precast rebate

Jib length 83.3 metres and 7.76 metres wide
Maximum Lifting Capacity of 250 tons
Operating Radius from 14.6 metres to 38.5 metres

Jib Extent of the...

HAMMERHEAD CRANE

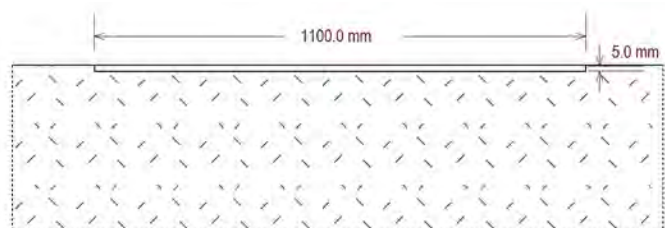
Designed by Sir William Arrol and Co Ltd

Erected 1944—1951

Removed 2014

Sectional View of Inlay

- Discs to be set flush with wharf apron

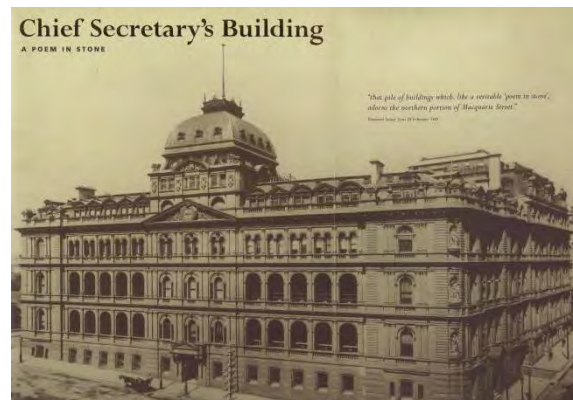


4.2.6 Interpretive Option 2—Publication

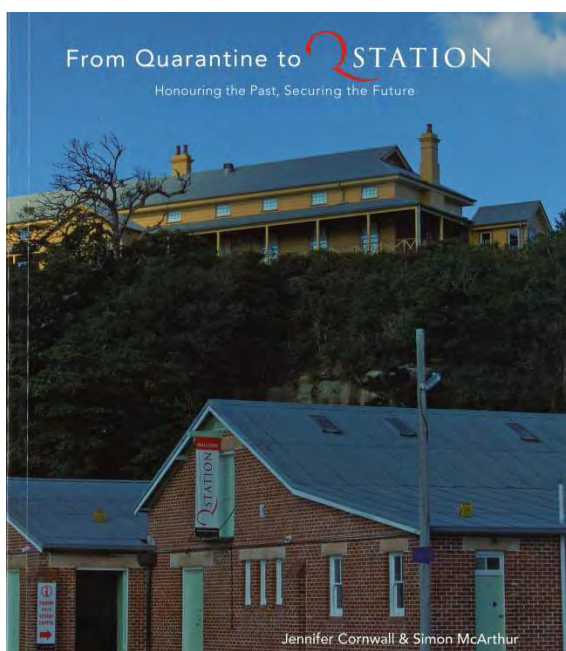
Description	Commemorative publication on the history, operations, construction, dismantling, people associated etc of the Hammerhead Crane. A beautifully illustrated and evocative collection of resources and imagery to record and rejoice about this iconic Sydney industrial structure.	
Audience	General public and collectors.	
Themes and Stories	Defending Australia. Heavy Lifting. Working Docks. Harbour Landmark.	Indicative cost estimate* \$30,000 to \$50,000 <i>(Author and graphic design expertise. Does not include copyright acquisition, publication or advertising costs)</i>
Resources Utilised	Historical information. Use of historic images and drawings. Archival material (photography, time-lapse, oral history quotes and a 3D imagery).	
Examples		



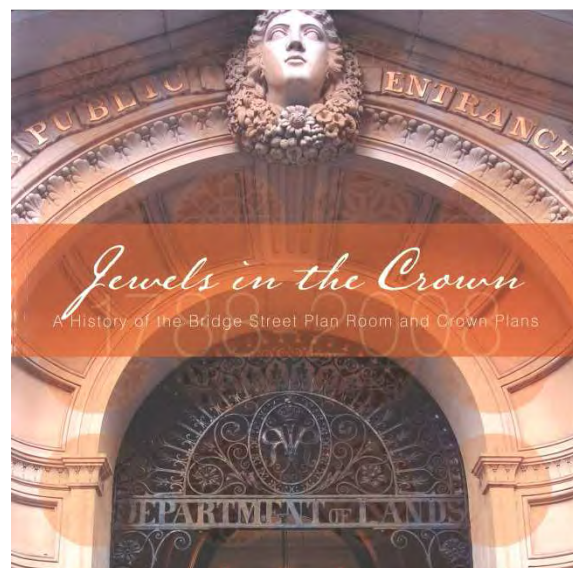
'Introducing Darling Quarter'



'Chief Secretary's Building – A Poem in Stone'



'From Quarantine to QStation – Honouring the Past, Securing the Future'



'Jewels in the Crown – A History of the Bridge Street Plan Room and Crown Plans'

4.3 Tasks and Responsibilities

For each interpretive initiative required as a condition of consent and the Defence preferred initiatives, an indication of the additional tasks required to deliver the initiative are set out below, as are the responsible party/parties. These initiatives need to be further developed in collaboration with specialists (exhibition designers, graphic designers, manufacturers, etc) and with stakeholder consultation in Stage 2 of the HIP (Content Development) before being manufactured/implemented as part of Stage 3 of the HIP.

Interpretive Initiative A	Tasks	Responsibilities
Public Exhibition <i>Indicative cost estimate*: \$150,000 to \$300,000 (2D exhibition, no interactive components)</i>	Commission an exhibition designer with expertise in utilising large-scale componentry.	Defence
	Develop a brief for digital media content including photography (static and time-lapse), audio (oral history), video and 3D scan data.	Exhibition designer with media specialist
	Prepare a concept design in consultation with and consideration of the exhibition location, audience requirements, etc.	Exhibition designer with specialist input (structural, electrical, heritage)
	Client review and comment.	Defence and RAN Heritage Centre
	Prepare a draft exhibition content including the proposed text and imagery.	Exhibition designer/Interpretation specialist
	Client review and comment.	Defence and RAN Heritage Centre
	Develop detail design documents for exhibition, including consultation with manufacturers.	Exhibition designer
	Seek copyright clearances and reproduction rights	Interpretation specialist
	Manufacture and quality assurance.	Exhibition designer and manufacturers.
	Installation and post-installation survey/review.	Exhibition designer
Interpretive Initiative B	Tasks	Responsibilities
Display of High Heritage Value Components <i>Indicative cost estimate*: \$25,000 to \$45,000 (signage creation, manufacture and installation)</i>	Commission a graphic designer.	Defence
	Generate signage aesthetics: layout, fonts, colours, imagery and specifications.	Graphic designer
	Prepare content (text and imagery) for signage.	Graphic designer
	Design signage with consideration of materiality, durability, connections/supports and legibility.	Graphic designer
	Consult with stakeholders for proposed location.	Graphic designer and/or Defence
	Client review and comment.	Defence
	Develop detail design documents for signage, including consultation with manufacturers.	Graphic designer
	Seek copyright clearances and reproduction rights	Interpretation specialist
	Manufacture and quality assurance.	Manufacturers
	Transport and locate decontaminated components.	Defence or contractor
	Install signage.	Manufacturers

Interpretive Initiative C	Tasks	Responsibilities
Expression of Interest Components <i>Indicative cost estimate*: \$10,000 to \$15,000 (content creation and manufacture)</i>	Receive decontaminated EOI components.	Defence or contractor
	Prepare interpretative plaque content (text and imagery).	Graphic designer
	Client review and comment.	Defence
	Design framing, mounting and hanging system (considering weight and durability).	Manufacturer
	Create prototype (EOI component, text, imagery, mount and frame).	Manufacturer
	Client review and comment.	Defence
	Manufacturing and quality assurance.	Manufacturer
	Delivery.	Defence or contractor

Interpretive Initiative D	Tasks	Responsibilities
Website <i>Indicative cost estimate*: (N/a webpage created and hosted by Defence)</i>	Utilise existing webpage architecture and hosting capabilities.	Defence

Interpretive Option 1	Tasks	Responsibilities
In-ground Markers <i>Indicative cost estimate*: \$5,000 to \$10,000 (Designer expertise, manufacture and installation)</i>	Location and design of inlays.	Designer
	Liaison with Naval personnel, operations, Chief of Navy, etc.	Defence
	Specification and manufacture of inlays.	Designer and Manufacturer
	Installation of inlays with resurfacing works following removal of the Hammerhead Crane.	Contractor

Interpretive Option 2	Tasks	Responsibilities
Publication <i>Indicative cost estimate*: \$30,000 to \$50,000 (Author and graphic design expertise. Does not include copyright acquisition, publication or advertising costs)</i>	Content development—copy, graphics, layout.	Author and contributing stakeholders
	Consultation with stakeholders.	Author and Defence
	Editing.	Editor
	Graphic design.	Graphic Designer
	Consultation with publisher.	Defence (or representative)
	Consultation with stockists.	Defence (or representative)
	Publication and printing.	Publisher
	Advertising and/or book launch.	Defence (or representative)

*Indicative cost estimates are for guidance only. No quotation process has been undertaken.

5.0 Public Consultation

5.1 Introduction

As part of the preparation of this HIP, a requirement of consent condition 6 was to invite public comments on the HIP for a period of no less than one month.

The public consultation period occurred over 20 business days. It commenced on Monday 22 September 2014 and concluded on Monday 20 October at 5.30pm EST. One submission was received via online (Survey Monkey) with some supporting documentation submitted via email.

5.2 Public Notification and Access to Material

5.2.1 Newspaper Advertisements

The notice was published in accordance with EPBC Act Regulation 16.03(2b); in a national or state daily newspaper that circulates in the state or territory in which the action occurs.

- a notice was published in the nationally circulating newspaper *The Australian* on Monday 22 September 2014;
- a notice was published in the state circulating newspaper *The Sydney Morning Herald* on Monday 22 September 2014; and
- a notice was published in the locally circulating *NewsLocal Central Magazine* on Wednesday 24 September 2014.

The notice was prepared in accordance with EPBC Act Regulations 16.03(6), 16.04(5) and 16.04A. Copies of these notices are included as Figures 5.1 and 5.2.

5.2.2 Documentation

The material that was approved by DoE and made available during the public consultation was the '*Hammerhead Crane, Garden Island, Sydney—Heritage Interpretation Plan—Revised Draft Report*', prepared by GML Heritage in September 2014.

5.2.3 Webpage

A webpage created and hosted at an appropriate location on the internet, linked to the GML website (<<http://www.gml.com.au/hammerhead-crane-public-consultation/>>) displayed information on the:

- project background—information on the project to date;
- public consultation process—duration, commencement and conclusion;
- documentation—download options for the material;
- submission options—via online, email or post;
- contact details—for enquiries and people with special needs; and
- media release—link to Media Room of the Department of Defence website, though a media release was not prepared for this aspect of the project.

A representation of the project webpage is included as Figure 5.3.

5.3 Public Submissions

One submission was received on 6 October 2014 via online (Survey Monkey) with some supporting documentation submitted via email on 7 October 2014.

The respondent contacted GML via telephone on 7 October to discuss her submission and was advised to make a written submission.

A copy of the submission and its attachments is included as Figures 5.4-5.6.

5.4 Key Issues from Submissions

Following a review of the submission, the key issues and comments the respondent provided on the HIP have been summarised below.

- The respondent is an artist who has created a series of paintings and drawings of the Hammerhead Crane before and during its removal.
- She would like them to be incorporated in the catalogue of resources available for future interpretation initiatives.
- She would also like the opportunity to exhibit these as part of the proposed exhibition.

5.5 Addressing Comments Received

A new section; B.7 Artworks, has been included in Appendix B – Available Resources of the HIP, which details artworks and artists who have created paintings, sculptures, drawings etc of the Hammerhead Crane.

The respondents contact details and an example of her work have been included in this section for future reference and possibly inclusion in future interpretive initiatives.

MONDAY, SEPTEMBER 22, 2014 **THE SYDNEY MORNING HERALD 27**

Administration and Public Notices

 **Australian Government**
Department of Defence

INVITATION FOR PUBLIC COMMENT
HERITAGE INTERPRETATION PLAN FOR
THE HAMMERHEAD CRANE AT GARDEN
ISLAND, SYDNEY

EPBC NO. 2012/6430

This notice is published pursuant to the Conditions of Consent, attached to the Approval of the proposed removal of the Hammerhead Crane at Garden Island, by the (then) Department of Sustainability, Environment, Water, Population and Communities (SEWPaC).

Department of Defence is in the process of removing the Hammerhead Crane from the Garden Island Naval Base in Sydney, NSW.

In accordance with the conditions of consent, a Heritage Interpretation Plan which commemorates the heritage values of the Hammerhead Crane, has been prepared. The Heritage Interpretation Plan will be on public display from Monday 22 September 2014 to Monday 20 October 2014.

The Heritage Interpretation Plan can be downloaded from <http://www.gml.com.au/hammerhead-crane-public-consultation>.

GML Heritage Pty Ltd (GML) has been engaged by Defence to prepare the Heritage Interpretation Plan and conduct the public consultation process.

Written comments can be submitted via:

Website: www.gml.com.au/hammerhead-crane-public-consultation

Email: hammerhead.inquiries@anz.brookfieldJCI.com

Post: Hammerhead Crane Heritage Interpretation Plan
c/o GML Heritage Pty Ltd
78 George Street REDFERN NSW 2016

Submissions must be received no later than 5:30pm EST on Monday 20 October 2014. Comments received after this time will not be accepted.

Persons with special needs (i.e. for whom English is a second language or who have vision impairment) may contact GML on (02) 9319 4811 or hammerhead.inquiries@anz.brookfieldJCI.com to arrange assistance in accessing the material.

Figure 5.1 Advertisement appearing in Sydney Morning Herald on Monday 22 September 2014.

Public notices



Australian Government

Department of Defence

INVITATION FOR PUBLIC COMMENT

HERITAGE INTERPRETATION PLAN FOR THE HAMMERHEAD CRANE AT GARDEN ISLAND, SYDNEY

EPBC NO. 2012/6430

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Figure 5.2 Advertisement appearing in Sydney Central Magazine on Wednesday 24 September 2014.

News

News big and small about things happening both at GML and in the heritage industry. Exhibitions, guides, stories, awards and more.

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+ Achievements

+ Community

+ Events

Hammerhead Crane—Heritage Interpretation Plan—Public Consultation
(EPBC No. 2012/6430)

+ Archives

August 2014

July 2014

May 2014

Project Background

The removal of the Hammerhead Crane from Fleet Base East at Garden Island was approved by the then Minister of Sustainability, Environment, Water, Populations and Communities on 17 July 2013. As part of the conditions of consent, Defence was required to prepare a Heritage Interpretation Plan (HIP) to commemorate the heritage values of the Hammerhead Crane, Garden Island, Sydney. The HIP must include (but not necessarily be limited to):

- a) details of specific elements or vantage points of the Hammerhead Crane which were identified in accordance with condition 7(a) of this approval and how they have been captured by the archival recording required under condition 8 of this approval;*
- b) details of how the heritage values of the Hammerhead Crane (including its life history) will be commemorated both on and off site (on a temporary and permanent basis);*
- c) identification of the themes and stories that will be explored through the measures required under condition 6(b) of this approval;*
- d) details of the salvaged high value components of the Hammerhead Crane, identified in accordance with condition 7(b) of this approval;*
- e) how, where and by whom any high value components of the Hammerhead Crane salvaged for conservation and / or public display will be used (following consultation with the relevant stakeholders); and*
- f) (in the final version only) a summary of any submissions received in response to public consultation on the HIP.*

Prior to providing the HIP to the Minister for approval, the person taking the action must invite public comment on the HIP for a period of no less than one month.

The HIP must be approved by the Minister within two years of the date of this approval and must be implemented.

GML Heritage Pty Ltd (GML) prepared the HIP on behalf of Defence. GML has an extensive knowledge of the Hammerhead Crane having provided heritage assessments, expert reports, input into the EPBC Act Referral and specialist and strategic heritage advice regarding the crane to Defence since 2000.

GML's project team included highly experienced heritage consultants with a depth of knowledge about the Hammerhead Crane and its industrial heritage significance and interpretation specialists with extensive experience in interpretation planning and implementation.

Public Consultation Process

In accordance with the conditions of consent, Defence is required to invite public comment on the Heritage Interpretation Plan.

The period of public consultation is 20 business days from Monday 1 September 2014 to 5:30pm EST on Friday 26 September 2014.

Documentation

To view the Heritage Interpretation Plan, please click this [link](#).

Submission

Written comments can be submitted via:

Website: [Click here to take survey](#)

Email: hammerhead.inquiries@anz.brookfieldJCI.com

Post:

Hammerhead Crane Heritage Interpretation Plan
c/o GML Heritage Pty Ltd
78 George Street
REDFERN NSW 2016

Submissions must be received no later than 5:30pm EST on Friday 26 September 2014. Comments received after this time will not be accepted.

Persons with special needs (i.e. for whom English is a second language or who have vision impairment) may contact GML to arrange assistance in accessing the documentation.

Contact Details

Phone: +61 2 9319 4811

Email: hammerhead.inquiries@anz.brookfieldJCI.com

Media Release

[Click here](#) for media release

Figure 5.3 Representation of the project webpage.

Hammerhead Crane Heritage Interpretation Plan - Public Consultation

#1		COMPLETE Collector: Hammerhead Crane HIP (Web Link) Started: Monday, October 06, 2014 5:28:53 PM Last Modified: Monday, October 06, 2014 5:46:42 PM T i m e S p e n t: 0 0 : 1 7 : 4 8 I P A d d r e s s:
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PAGE 1: Submission

Q1: Your written comments on the Hammerhead Crane Heritage Interpretation Plan

My name is Jane Bennett, & I am an artist, who has specialized in the recording & interpretation of disappearing industrial & maritime heritage for the past 30 years.

I created a series of paintings & drawings of the Hammerhead Crane 'en plein air' on the Garden Island site itself until the start of demolition in February 2014. These range in size from miniature studies to extremely large scale paintings. Several of these have already won major art awards. Some of the paintings show the Hammerhead Crane from unusual vantage points, which were normally off limits to the public, such as from the bridge of a ship in the Captain Cook drydock. Other paintings were painted from directly underneath the crane & show the immense size & scale of the Hammerhead Crane

As demolition proceeded, I also painted several canvases of the dismantling of the Crane from Mrs Macquarie's Chair opposite.

I would like to exhibit these to give another dimension to the Heritage Interpretation Plan.

I will email a couple of examples of my Hammerhead Crane paintings & drawings.

PAGE 2: Background Information

Q2: Have you completed this survey as an individual or on behalf of an organisation?

Individual

Q3: Contact Details

Name:

Jane Bennett

Figure 5.4 Survey Monkey submission from respondent.

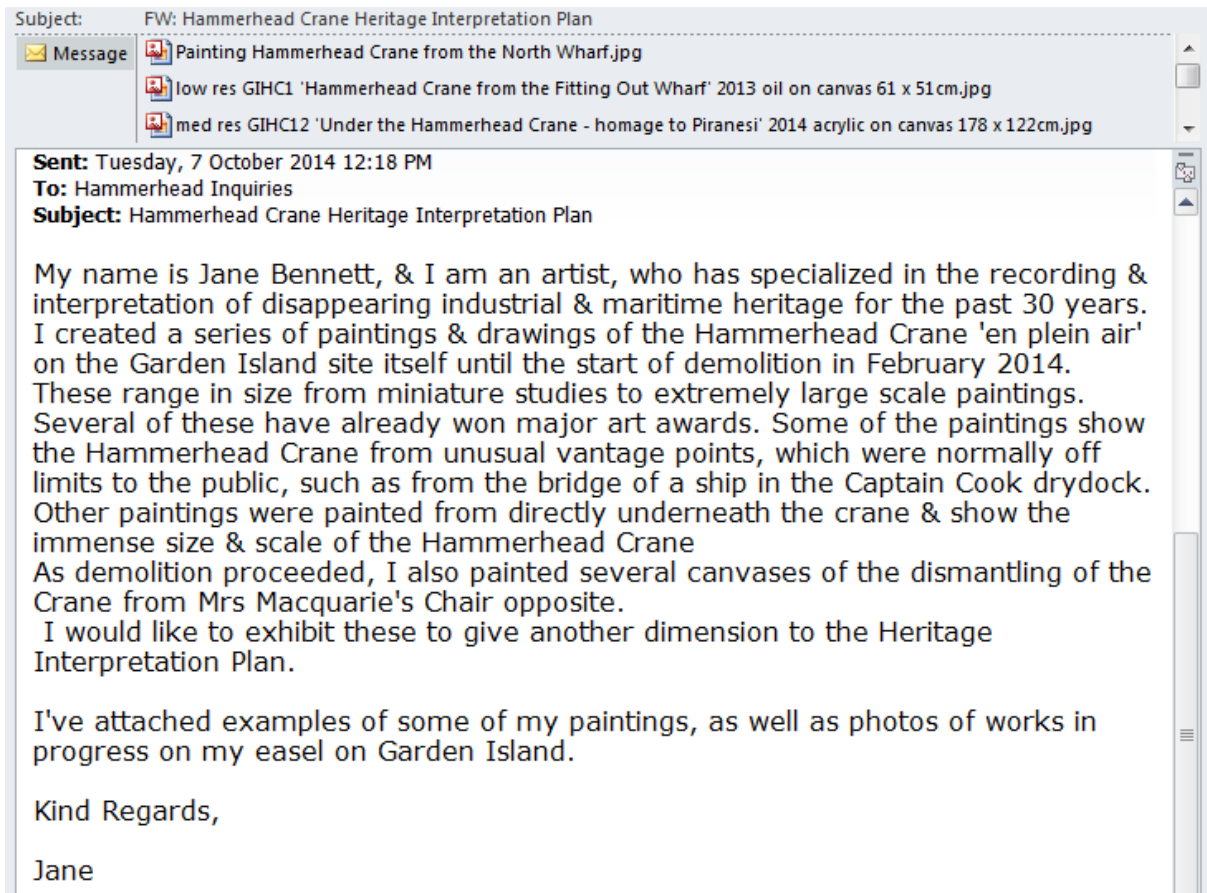


Figure 5.5 Email with attachments to support submission from respondent.



Figure 5.6 Example of the respondent's artwork sent as attachments in an email.



Figure 5.7 Example of the respondent's artwork sent as attachments in an email – 'Hammerhead Crane from the Fitting Out Wharf' 2013.

6.0 Appendices

Appendix A

Visual Catchment Assessment

Appendix B

Available Resources for Interpretation

Appendix C

Oral History Transcripts and Permissions Forms

Appendix D

Other Considered Interpretive Initiatives

Appendix A

Visual Catchment Assessment

Appendix A—Visual Catchment Assessment

A.1 Introduction

As part of the 2012 HIA, a visual impact assessment was undertaken to illustrate the visual catchment of the Hammerhead Crane from within and around Sydney Harbour.

Twenty-six vantage points were selected (Figure 3.1), photography undertaken from the harbour and on land. The results are tabulated below.

View A1—From the deck of the Sydney Harbour Bridge



Vantage Point

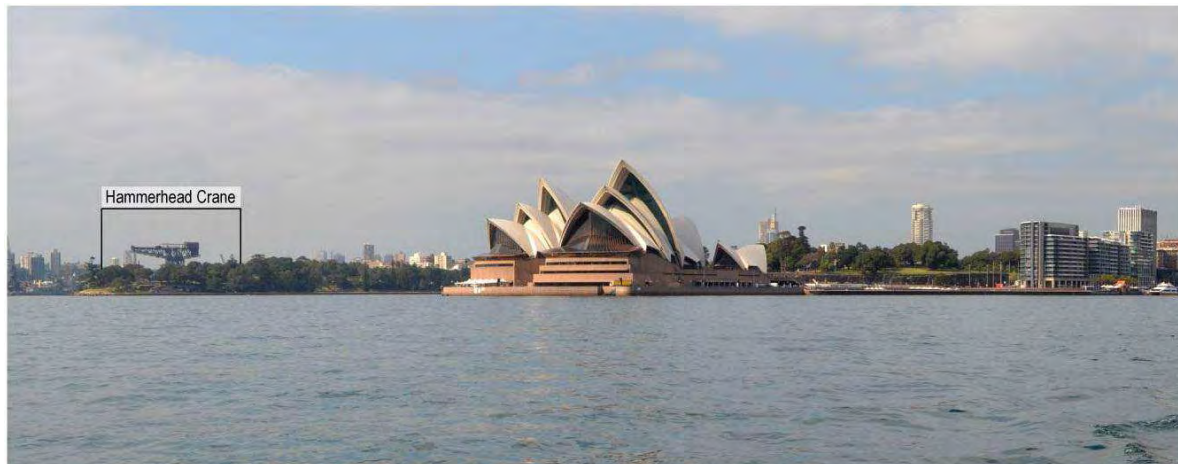
The view from this vantage point is taken from the middle of the pedestrian walkway on the Sydney Harbour Bridge. Substantial numbers of tourists and locals access and view the city from this location. The main focus for viewers is usually the Sydney Opera House, CBD cityscape and the harbour.

View to the Hammerhead Crane

The Hammerhead Crane can be seen above the tree canopy of Mrs Macquarie's Chair and the Domain—between Farm Cove and Woolloomooloo Bay, and against the building skyline of Point Piper and Darling Point.

While the Hammerhead Crane, its form, structure and details of the steel truss boom and tower are moderately discernible, the focus of viewers' attention is the Sydney Opera House.

View A2—under the Sydney Harbour Bridge—image taken at water level



Vantage Point

The view to the Hammerhead Crane is taken at water level, under the Sydney Harbour Bridge.

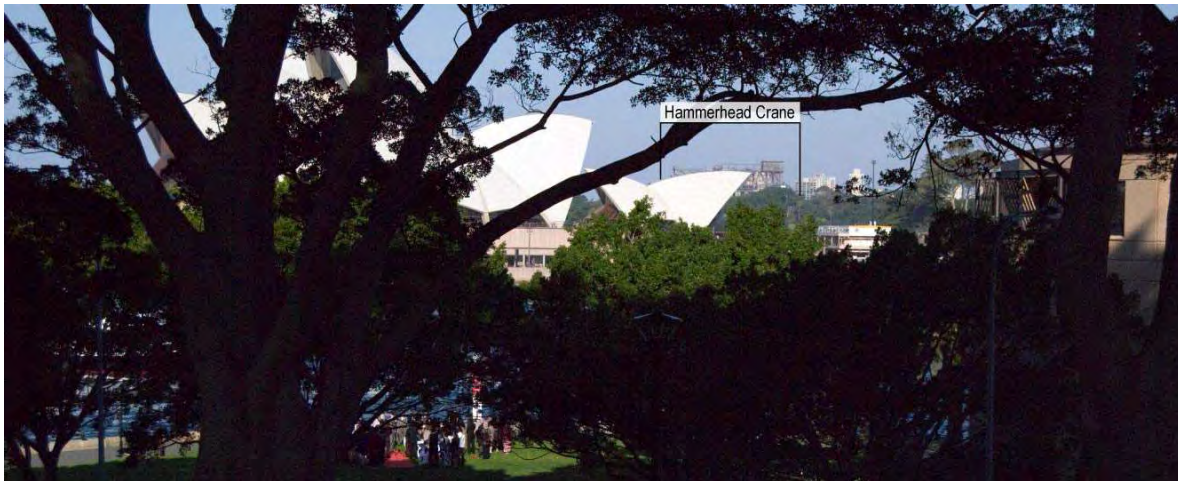
This vantage point is accessed by ferry passengers travelling to/from Circular Quay, as well as other private and public water crafts.

Hammerhead Crane

The Hammerhead Crane is silhouetted against the sky. It can be seen clearly above the tree canopy of Mrs Macquarie's Chair and the Domain.

The 'hammerhead' form and structure of the steel truss, boom and top of the tower are legible.

View B1—Dawes Point Park



Vantage Point

This vantage point is at the top of Dawes Point Park, under the southern end of Sydney Harbour Bridge. The view is obscured by mature fig trees.

This vantage point is publicly accessible and regularly populated for viewing fireworks and other events in Sydney Harbour.

View to the Hammerhead Crane

The Hammerhead Crane can be seen in some select views through the tree branches, and in the background between the Sydney Opera House and the Royal Botanic Gardens.

View B2—Dawes Point Reserve— image taken at water level**Vantage Point**

This vantage point is at water level, in Campbell's Cove, between the Park Hyatt Hotel and the Overseas Passenger Terminal at Circular Quay West. The focus of the view is the Sydney Opera House.

This vantage point is accessible to ferry passengers travelling to/from Circular Quay, as well as other private and public water crafts.

A similar view is attainable from the publicly accessible waterfront promenade Circular Quay West—the Rocks.

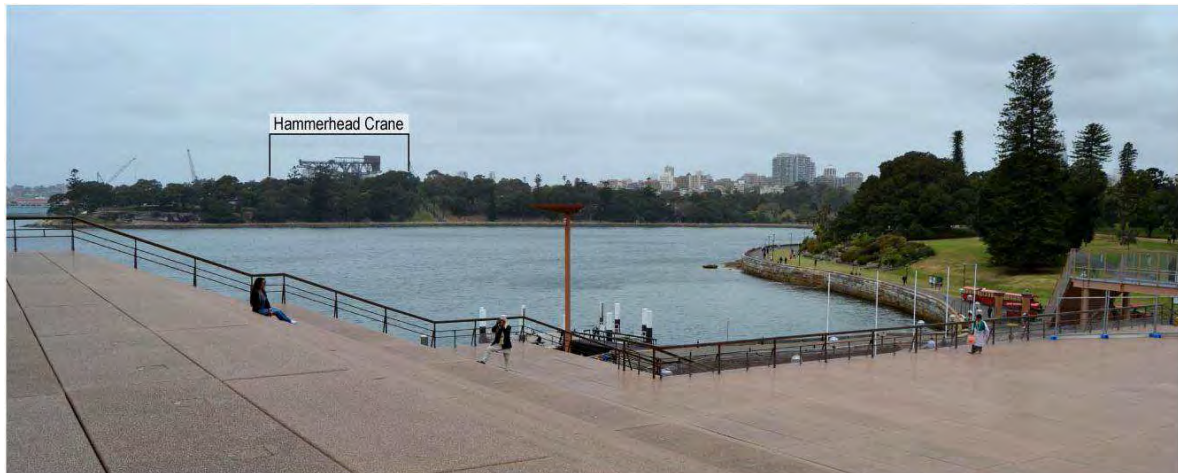
It is an iconic view of the Sydney Opera House and is sought after by tourists. However, the Hammerhead Crane is generally not the focus of the viewers' attention.

View to the Hammerhead Crane

The Hammerhead Crane can be seen in the background from this view, between the Sydney Opera House and the Royal Botanic Gardens, viewed against the sky.

The steel truss boom is discernible; however, the tower of the crane is obscured by the tree canopy at Mrs Macquarie's Chair and the site shed at the Sydney Opera House (Note: this is a temporary site shed in the Sydney Opera House forecourt).

View C—Sydney Opera House Forecourt



Vantage Point

This vantage point is at the top of the Sydney Opera House steps. The view includes the trees at Mrs Macquarie's Chair, the waters of Farm Cove and some trees from the Royal Botanic Gardens.

The Sydney Opera House steps are publicly accessible and are often used for performances and events and by tourists to photograph the Sydney Opera House and the CBD. The focus of the view is dominated by Farm Cove and its surrounding landscape of the Royal Botanic Garden and the Domain.

View to the Hammerhead Crane

The steel truss boom of the Hammerhead Crane is visible against the sky, but the tower is obscured by the tree canopy of the Domain.

View D—view from the Royal Botanic Gardens



Vantage Point

The view from this vantage point is from the Royal Botanic Gardens (Palace Gardens Precinct) adjacent to the Sydney Conservatorium of Music and easily accessible from Macquarie Street. The views of the Hammerhead Crane from the Gardens change throughout.

This site is publicly accessible and frequented by locals, tourists and visitors, plus students and staff from the Sydney Conservatorium of Music.

View to the Hammerhead Crane

The steel truss boom of the Hammerhead Crane is visible against the sky but the tower is obscured by trees from the Gardens.

View E—Farm Cove—image taken at water level**Vantage Point**

The view from this vantage point is taken from the water in Farm Cove. A similar view is obtainable from the foreshore walk of the publicly accessible Royal Botanic Gardens.

The foreshore walk is used by locals, tourists and joggers. The view from this side of Farm Cove is of Mrs Macquarie's Chair but also Garden Island.

View to the Hammerhead Crane

The steel truss boom of the Hammerhead Crane is visible against the sky but the tower is obscured by the tree canopy at Mrs Macquarie's Chair.

The focus of this view is the tree canopy and the ships at Garden Island Fleet Base.

View F—Mrs Macquarie's Chair



Vantage Point

This vantage point is from the northern end of the Domain (Yurong Precinct), on the eastern side of Mrs Macquarie's Chair.

The area is part of the Royal Botanic Gardens and Domain, is publicly accessible, and is frequented by locals, tourists, and visitors to the Art Gallery of NSW and Andrew (Boy) Charlton Pools.

Views of the Hammerhead Crane and the northern extent of the Fleet Base are obtained through the overhanging tree branches along the cliff edge adjacent to Mrs Macquarie's Road (the road runs the length of the Domain).

View to the Hammerhead Crane

The steel truss boom and tower of the Hammerhead Crane are clearly visible from this vantage point against the sky. This view is the closest the public can get to the crane without being on a boat. The sheer scale and detail of the steel structure is highly discernible.

View G—Andrew (Boy) Charlton Pool



Vantage Point

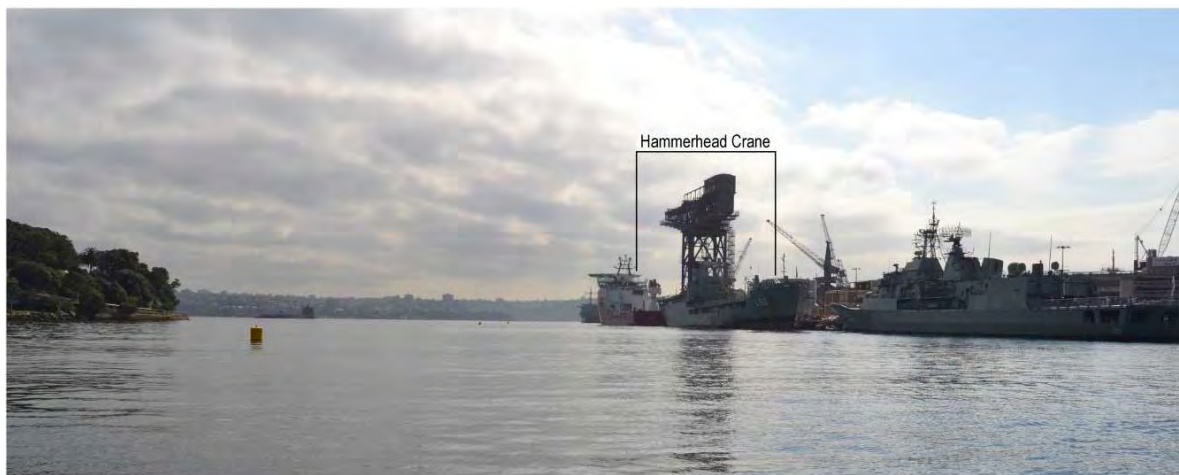
This vantage point is the footpath adjacent to Andrew (Boy) Charlton Pool. A similar view is obtained from within the pool complex (pool and café). There are unobstructed views of the Hammerhead Crane and the Fleet Base.

The path is publicly accessible along Mrs Macquarie's Road and in regular use. The pool is accessed by members only, while the café is publicly accessible.

View to the Hammerhead Crane

The steel truss boom and tower of the Hammerhead Crane are clearly visible from this vantage point against the sky. The sheer scale and detail of the steel structure is highly discernible.

View H—Woolloomooloo Finger Wharf—image taken at water level



Vantage Point

This vantage point is taken from the water level at the northern end of Woolloomooloo Finger Wharf. The focus of the view is the Hammerhead Crane, Woolloomooloo Bay and the Fleet Base Precinct.

The finger wharf is publicly accessible via the promenade but this view is also obtained by residents of the Woolloomooloo Finger Wharf.

View to the Hammerhead Crane

The steel truss boom and tower of the Hammerhead Crane is clearly visible from this vantage point against the sky. The sheer scale and detail of the steel structure is highly discernible.

View I—Harry's Café de Wheels, Woolloomooloo



Vantage Point

This vantage point is in front of Harry's Café de Wheels. The focus of the view is the Hammerhead Crane and the ships in Woolloomooloo Bay docked at the Fleet Base.

This space is publicly accessible and frequented by patrons of Harry's Café de Wheels, as well as tourists and locals.

Views to the Hammerhead Crane

The steel truss boom and tower of the Hammerhead Crane is clearly visible from this vantage point against the sky. The sheer scale and detail of the steel structure is discernible to the viewer.

View J—Wylde Street, Potts Point

Hammerhead Crane



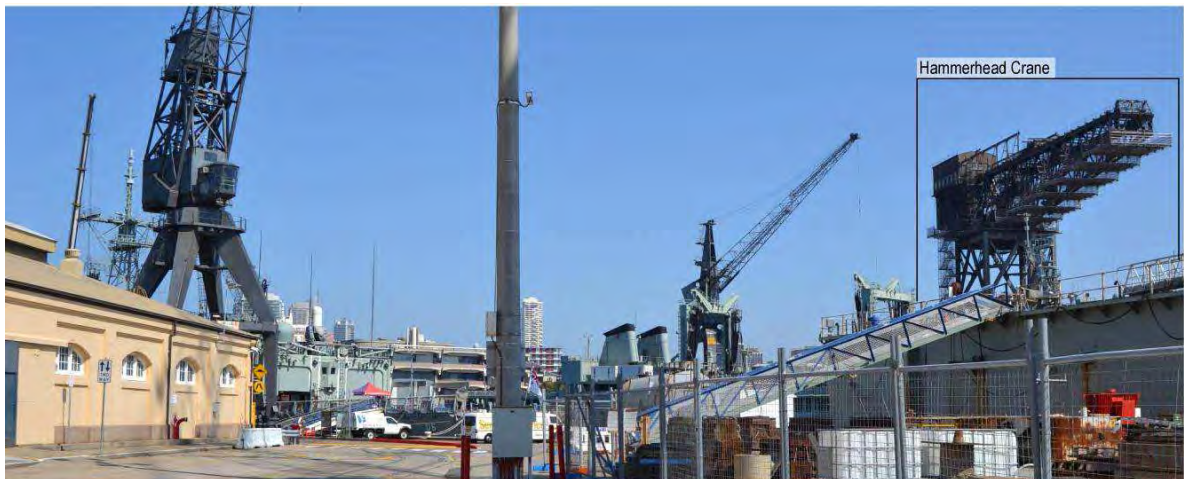
Vantage Point

This vantage point is taken on Wylde Street, Potts Point, between the Garden Island Naval Base and HMAS Kuttabul. The footpath is frequently used by Defence personnel who walk between the bases.

View to the Hammerhead Crane

There is limited opportunity (from publicly accessible locations) to see the Hammerhead Crane due to the prevalence of tall buildings and the steep topography.

The steel truss boom of the Hammerhead Crane is clearly visible from this vantage point above Bomera at 1 Wylde Street.

View K—view from within the Commonwealth Heritage Listed ‘Garden Island Precinct’—Western Wharfage**Vantage Point**

This vantage point is from the western wharfage area of the Garden Island precinct, looking south. This view is dynamic and changes with activities along FBE and of the docked RAN and commercial ships.

This vantage point is not publicly accessible and only accessed by Defence personnel and contractors.

View to this Hammerhead Crane

The steel truss boom and a portion of the tower of the Hammerhead Crane are clearly visible from this vantage point against the sky. The detail of the steel structure, its size and scale is easily discernible from this view.

View L—McKell Park, Darling Point—image taken at water level**Vantage Point**

This vantage point is from the water-level in the vicinity of McKell Park, Darling Point.

McKell Park is a popular location for wedding photographs and for tourists who access water-craft from the public wharf.

This view is available to ferry passengers waiting at the wharf and travelling on the Darling Point Wharf.

View to the Hammerhead Crane

The steel truss boom and a portion of the tower of the Hammerhead Crane are clearly visible from this vantage point against the sky.

The sheer size and scale of the Hammerhead Crane, compared to the scale of the Garden Island Precinct and other individual CHL buildings, is considerable.

View M—Clark Island—image taken at water level



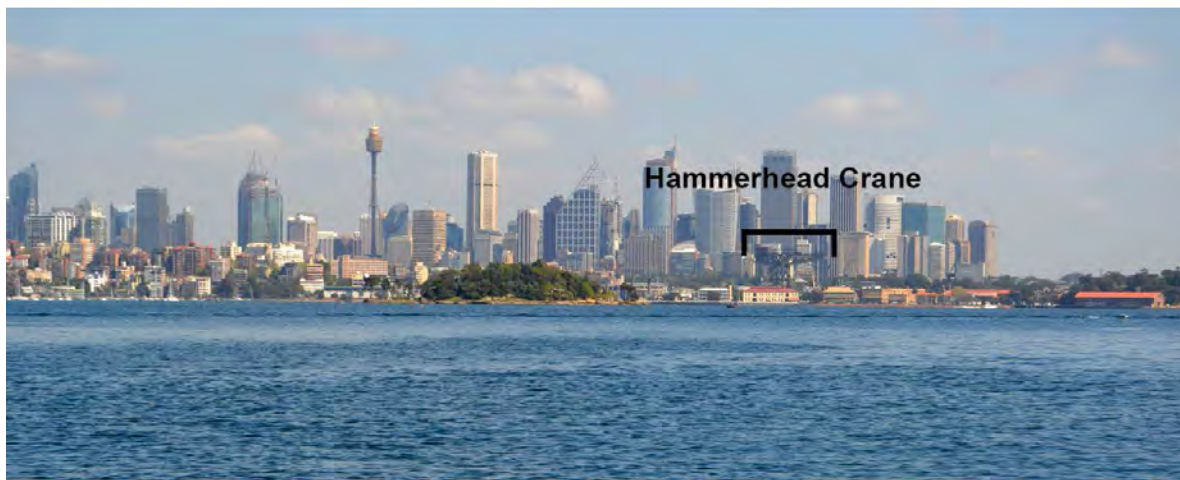
Vantage Point

This vantage point is from the wharf at Clark Island (at water level). A similar view is available from on Clark Island itself. Clark Island is a popular National Parks destination for public recreational use and private functions.

View to the Hammerhead Crane

The steel truss boom and a portion of the tower of the Hammerhead Crane are visible from this vantage point as it contrasts with the CBD skyline. At this distance, the form is visible, rather than the detail of the crane.

View N—Rose Bay to Double Bay ferry path—image taken at water level



Vantage Point

This vantage point is from the ferry route—Rose Bay to Double Bay, near Bradley's Head. This view is available for ferry commuters as well as people aboard ships coming into Sydney Harbour.

View to the Hammerhead Crane

The steel truss boom and a portion of the tower of the Hammerhead Crane are visible from this vantage point against the CBD skyline; however, due to the distance, it is difficult to distinguish the detail.

View O—Shark Island—image taken at water level**Vantage Point**

The view at this vantage point is taken on the water in the vicinity of Shark Island. A similar view is available from on Shark Island itself.

Shark Island is a popular National Parks destination for public recreational use and private functions.

This view is available for people aboard passenger ships arriving into Sydney Harbour.

View to the Hammerhead Crane

The Hammerhead Crane is visible from this vantage points against the CBD skyline At this distance, the form is visible, rather than the detail of the crane.

View P—Bradley's Head, Mosman**Vantage Point**

This vantage point is from Bradley's Head Amphitheatre.

It is publicly accessible and frequented by locals and tourists.

View to the Hammerhead Crane

The Hammerhead Crane is visible from this vantage point against the CBD skyline.

View Q—Taronga Zoo Wharf—image taken at water level



Vantage Point

This vantage point is at water level in the vicinity of Taronga Zoo Ferry Wharf. A similar view is available from the wharf itself and at certain locations within Taronga Zoo.

It is publicly accessible and frequented by locals and tourists.

View to the Hammerhead Crane

The Hammerhead Crane is visible from this vantage point against the CBD skyline.

View R—Cremorne Reserve—image taken at water level



Vantage Point

The view at this vantage point is taken on the water in the vicinity of Cremorne Reserve. A similar view is available from Cremorne Point and the ferry wharf.

It is publicly accessible.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage point against the backdrop of buildings in Potts Point and the sky. The detail of the steel structure, its size and scale is discernible.

View S—Fort Denison—image taken at water level**Vantage Point**

The view at this vantage point is taken on the water in the vicinity of Fort Denison. A similar view is available from Fort Denison itself.

Fort Denison is publicly accessible and often hosts private functions.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage point against the backdrop of buildings in Potts Point and the sky.

View T—Kurraba Point Reserve, Neutral Bay—image taken at water level**Vantage Point**

The view at this vantage point is taken on the water in the vicinity of Kurraba Point Reserve, Neutral Bay. A similar view is available from Kurraba Point Reserve and the Kurraba Point Wharf.

This site is publicly accessible.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage point against the backdrop of buildings in Potts Point and the sky. The detail of the steel structure, its size and scale is discernible.

View U – Kirribilli Wharf—image taken at water level



Hammerhead Crane

Vantage Point

The view at this vantage point is taken on the water in the vicinity of Kirribilli Wharf.

This site is publicly accessible.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage point against the backdrop of the sky. The detail of the steel structure, its size and scale is highly discernible.

View V—location of Admiralty House—image taken at water level



Hammerhead Crane

Vantage Point

The view at this vantage point is taken from water level in front of Admiralty House, Kirribilli. There are clear views to Garden Island, Mrs Macquarie's Chair, Royal Botanic Gardens, Farm Cove, the Sydney Opera House, Circular Quay, the CBD and the Sydney Harbour Bridge.

This site is not publicly accessible, but is often hosts dignitaries and acts as a backdrop for publicity photographs.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage point against the backdrop of the sky. The detail of the steel structure, its size and scale is highly discernible.

View W—Luna Park, Milsons Point—image taken at water level**Vantage Point**

The view at this vantage point is taken on the water adjacent to Luna Park. The view includes the Sydney Harbour Bridge, the CBD, Sydney Opera House, and Darling Harbour and Pyrmont (to the west).

This site is publicly accessible.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage points silhouetted against the sky. It is difficult to distinguish the detail of the crane at this distance.

View X—Lavender Bay between Milsons Point and Blues Point—image taken at water level**Vantage Point**

The view at this vantage point is taken on the water in Lavender Bay. It has views to the Sydney Harbour Bridge, the CBD, Sydney Opera House, and towards Darling Harbour and Pyrmont.

This site is publicly accessible from the foreshore.

View to the Hammerhead Crane

The steel tower and boom of the Hammerhead Crane are clearly visible from this vantage points silhouetted against the sky. It is difficult to distinguish the detail of the crane at this distance.

View Y—Blues Point Reserve



Vantage Point

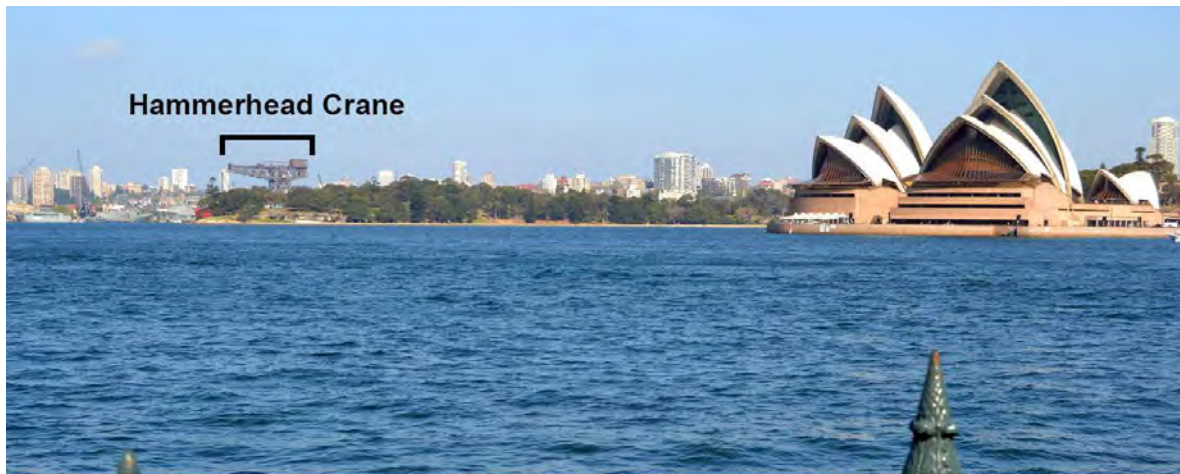
The view at this vantage point is taken from the southern end of Blues Point Road, which has views to the Sydney Harbour Bridge, Sydney Opera House and CBD.

This site is publicly accessible for the foreshore of Blues Point Reserve.

View to the Hammerhead Crane

The Hammerhead Crane is obscured from view by the Sydney Opera House; however, further north, from Blues Point Reserve, the Hammerhead Crane becomes more legible.

View Z—Bradfield Park, Kirribilli



Vantage Point

The view at this vantage point is taken from the southern end of Bradfield Park. It has views to the Sydney Harbour Bridge, the CBD, Sydney Opera House, and towards Darling Point and Point Piper.

This site is publicly accessible from the foreshore of Bradfield Park.

View to the Hammerhead Crane

The steel truss boom of the Hammerhead Crane is clearly visible from this vantage point above the horizon and against the sky.

Appendix B

Available Resources for Interpretation

Appendix B—Available Resources for Interpretation

There are a number of resources available to inform the interpretation of the Hammerhead Crane. The resources include the physical elements of the crane; the wider Garden Island site; historic records such as photographs, drawings and plans; published histories and unpublished research and reports.

The next stages of the interpretation process should involve more detailed study of these resources and the identification of material suitable for use in the proposed interpretive devices and content development.

B.1 Retained Components of the Crane

The following section identifies the high heritage value components of the Hammerhead Crane which will be salvaged for conservation and/or potential public display/exhibition/interpretation purposes. Ancillary items which contribute to the historic significance and operations of the Hammerhead Crane have also been identified and assessed as being of moderate heritage significance.

B.1.1 Identification of High Heritage Value Components

A key aspect of managing heritage values is an understanding of how the heritage values are embodied in and expressed through the fabric of the heritage item/place. With this understanding, conservation strategies, policies and actions can be determined with the aim of managing and interpreting these heritage values.

The following discussion reflects on how heritage values are expressed in the fabric of the Hammerhead Crane and provides context in regards to the selection of high heritage value components.

The selected high heritage value components, along with appropriate interpretation, are sufficient to convey the following themes for the Hammerhead Crane. The use of ancillary items could supplement the interpretation.

'Giant' Characteristics

In considering the Crane's heritage values, a key element that comes through is the size of the Crane. It is after all a "Giant Crane" and, in contrast with other cranes, this is expressed not only by its size but also through its bulk. This unique sense of 'giantness' encompasses the ability of the fabric of the Crane to demonstrate key aspects of its heritage values such as its role and association with the Captain Cook Dockyard (Graving Dock) and its aesthetic qualities.

Location

A critical historical element of the Crane is its location as part of the Captain Cook Dockyard and in its own right (as it did lifting apart from Dockyard work). This is why it is difficult to separate the Crane from its location without significantly diminishing its heritage values.

Technology

The Crane is an important example of industrial technology and its fabric demonstrates this.

The Crane is asymmetric but balanced so that the forces are transmitted down through the live ring and roller track; this is the critical technology at the heart of the Crane.

The hoist, hook platform and hook system are important in demonstrating the capacity of the Crane; and the auxiliary hook also assisted in slewing or angling loads so that they could be manoeuvred into confined spaces. The stamp of “William Arrol” on the sheaves of the hook blocks reinforces the association with Sir William Arrol & Co., the designers of the Crane and a significant engineering firm worldwide – a reflection of the global reach of Scottish engineering.

The Machine House contains a series of electric motors, brakes, cables and cable drums as well as a small travelling bridge crane (used for moving components of the Crane for maintenance purposes).

There are two Slew Houses (North and South) which contain electrical motors used for slewing (traversing) the Crane around the lifting ring by driving on the external rack. Slew House South also contains electrical motors for lifting the hook block.

The Driver's Cabin is important as it was the heart of the Crane's operations. From the Cabin, the driver controlled the slewing of the Crane, the movement of the hook platform along the jib and the raising and lowering of loads. The Cabin was sited to provide maximum visibility for the operator. The fabric of the cabin demonstrates the importance of the skilled operator in keeping the Crane within safe working load limits and in communicating with those outside in the placement of heavy loads. There are several layers of equipment representing different generations of communication technology in the cabin.

B.1.2 Heritage Assessment 2013

A Heritage Assessment was undertaken, as part of the 2005 Heritage Assessment investigations by GML.

The components of the Hammerhead Crane were reassessed for their heritage significance in April 2013 owing to the lapse in time, changes in fabric condition and with an aim to develop a clearer understanding of the intended future for the Hammerhead Crane. This reassessment was undertaken by Julian Siu and Prof Richard Mackay, AM of GML with industrial expertise provided by Dr Iain Stuart of JCIS Consultants.

The reassessment was undertaken so that significant heritage components of the Hammerhead Crane could be identified, salvaged during the removal process, retained and conserved (as required) and used in future interpretation and/or public display.

In the context of understanding the potential heritage impacts of the removal or alteration of specific components on the overall integrity of the Crane, the relative significance of each of the major components was ranked as being of High, Moderate or Little significance, with comments explaining the nature of their importance.

The highlighted areas on Figure B.1 identify the locations of specific components recognized to have High heritage significance which are to be salvaged in keeping with the conditions of consent. Ancillary components that could be salvaged; such as jib truss members, arch portals and steel struts, are not identified in this report, as these can be sourced from various locations on the Crane.

A representative collection of these ancillary components should be salvaged to allow sculptural interpretation of fabric from the Crane.

It is imperative that these components are clearly identified to the demolition contractor and that the methodology and requirements for their removal are carefully considered. Also requiring consideration is the comprehensive labelling, tracking and storage of these components after removal, during the decontamination process and transferral into storage and/or public display.

Table B.1 Summary List of High Heritage Value Components Following Reassessment.

Component Name	Heritage Significance Grading
Hoist drum set (representative set of machinery)	High
Hook Platform and Trolleys	High
Hook Blocks and Hook	High
Driver's Cabin	High
Slew Ring (representative segment) (aka Live Ring)	High
Slew Motor Room North (representative set of machinery)	High
Jib Tip Cable Anchorage Frame	High
Mid Jib Cable Anchorage Frame	High

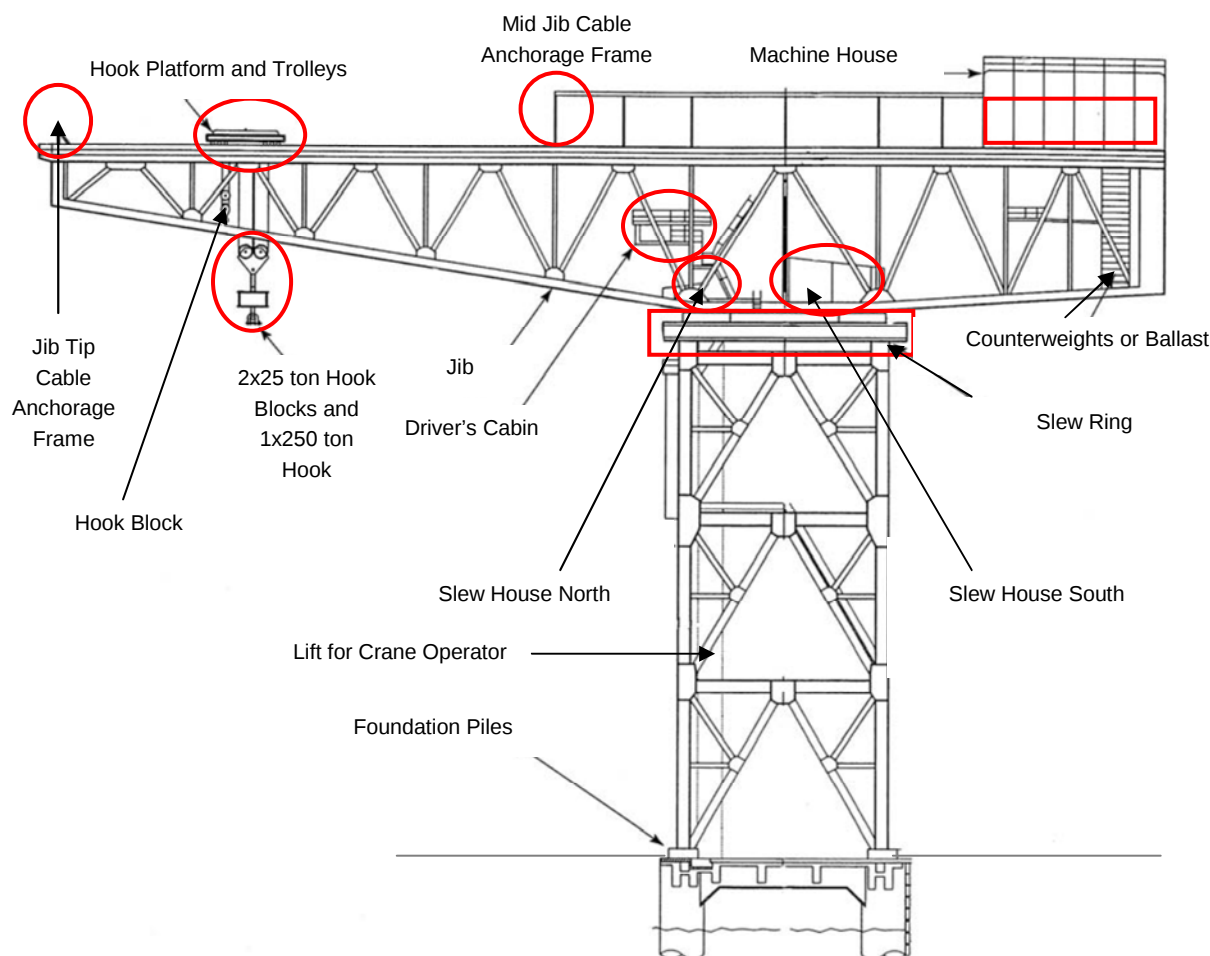


Figure B.1 Terminology and location of components on the Hammerhead Crane recommended for salvage. (Source: Graphic from Hammerhead Crane—Heritage Assessment Report, GML, November 2005, p31).

Table B.2 Table of High Heritage Value Components Following Reassessment.

Component Name	Hoist drum set	
Description	The Machine House contains a series of electric motors, brakes, cables and cable drums as well as a small travelling bridge crane (used for moving components of the crane for maintenance purposes). The first set of cable drums moved the hook platform back and forth along the jib while the other two moved the hook and its load up and down. The main cable drums for the two 125 ton hooks (No.1 and No.2) weigh 18 tons each and are located at the rear of the Machine House. There are brakes attached to all the drums. The winders are remotely controlled from the Drivers Cabin. Each cable drum has its own electric motor, brake, mechanical gears and cable, therefore sets of machinery for each cable drum can be identified. The electrical fit out was designed by British firm Thomson Huston Co., a well-known and important manufacturer of electrical equipment.	Cable drums and cables 
Heritage Significance Grading	High—Original Operating Equipment	Indicative set – cable drum, cable, motor, brakes, gears
Removal Requirements	Salvage and retain (at least) one set of the main winch machinery including the cable drum, cradle, cable, motor, brakes and gears. These components will be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the machinery's operations/function. It is critical that all the machinery in the Machine House is recorded precisely (possibly using the 3D laser scanner) and fully described in situ to ensure that reassembly is possible and accurate and that interpretation has as much information as possible. It is important to salvage the manufacturer's plaques from the machines for use in interpretation. The Machine House sheet metal cladding and steel structure does not embody enough significance to warrant its full retention. Some sheets may be retained for re-use.	 Electric motor  Gears and cradle

Component Name	Hook Platform and Trolleys
Description	The hook platform runs along four tracks attached to the top of the top chords of the jib. The movement of the hook platform along the jib was limited by the trolley stop and the jib head, both of which were provided with dumb buffers. The hook platform facilitated the lifting and moving capability of the crane. It allowed very precise movements of the load.
Heritage Significance Grading	High—Original Operating Equipment
Removal Requirements	These components may be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the machinery's operations/function. It is critical that the machinery is recorded precisely (possibly using the 3D laser scanner) to ensure that reassembly is possible and accurate.



Hook Platform

Component Name	Hook Blocks and Hook	
Description	The hook consists of the two main blocks which are suspended from the hook platform and are attached to the crosshead or load block of the crane. The hook platform moves along the jib on tracks and the hook lifts and carries the loads. The outside sheaves of No.1 and No.2 blocks are inscribed with 'Sir W Arrol & Co', 'Glasgow 1943', 'max load 125 tons'. This is an important reference to the role of Arrol & Co. in the construction of the crane and to the broader role of Scottish engineering in the industrial development of Australia. Therefore these elements have high interpretive value. The lifting capacity of the hook system is marked on the block sheaves, reinforcing the fact that this is a heavy lifting crane. The auxiliary hook also hangs off the hook platform. It can support a 40 ton load.	 Hoists No.1 and No.2 above the 250 ton crosshead
Heritage Significance Grading	High—Original Operating Equipment	
Removal Requirements	May be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the machinery's operations/function. It is critical that the machinery is recorded precisely (possibly using the 3D laser scanner) to ensure that reassembly is possible and accurate. These components can be disconnected from each other and removed separately.	 Auxiliary hook  No.1 Hook

Component Name	Jib Tip Cable Anchorage Frame
Description	This structure provided the anchor point and return for the cables that allowed the hook platform to move up and down the jib. The jib head was provided with a set of dumb buffers in the form of substantial wooden blocks to prevent the hook platform running off the end of the jib.
Heritage Significance Grading	High -Original Operating Equipment
Removal Requirements	May be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the mechanism's operations/function. May be removed in sections (unbolted, unscrewed etc.) and catalogued to allow reassembly.



Jib Tip Cable Anchorage Frame

Component Name	Mid Jib Cable Anchorage Frame
Description	This structure supported the cable at the central point of the jib.
Heritage Significance Grading	High -Original Operating Equipment
Removal Requirements	May be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the mechanism's operations/function. May be removed in sections (unbolted, unscrewed etc.) and catalogued to allow reassembly.



Mid Jib Cable Anchorage Frame

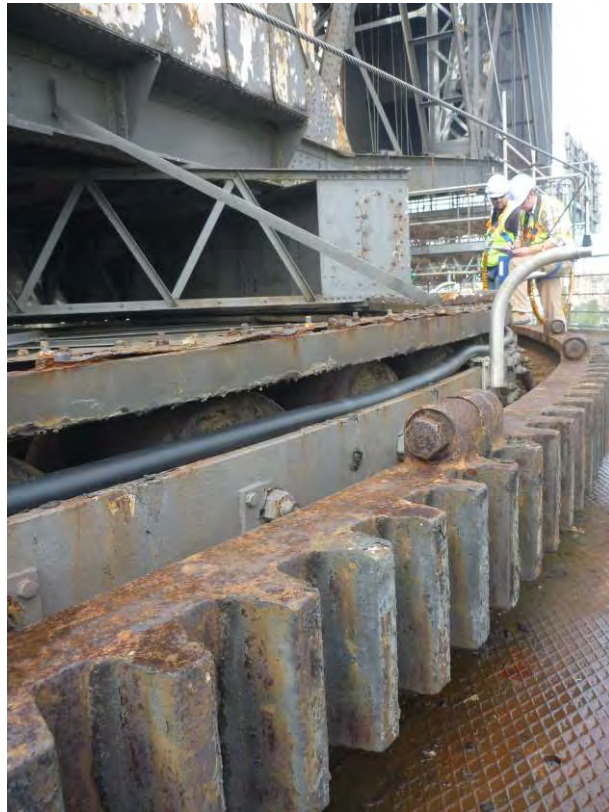
Component Name	Slew Room North Machinery	 Interior detail featuring slewing drive located in Slew Room North  The crown wheel is connected to the pinion by a vertical shaft.
Description	The Slew Rooms contain electric motors that drove gears articulated with the rack allocated on the outside of the live ring. This allowed the crane to slew or rotate on the tower. There would also have been a device for breaking the slewing motion. The precision of the slewing allowed for heavy loads to be placed with great accuracy. Slew Room South was inaccessible during the inspection. In addition to slewing machinery, Slew Room South contains the machinery for operating the jigger hoist.	
Heritage Significance Grading	High—Original Operating Equipment	
Removal Requirements	May be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the machinery's operations/function. It is critical that the machinery is recorded precisely (possibly using the 3D laser scanner) and fully described in situ to ensure that reassembly is possible and accurate.	

Component Name	Driver's Cabin	
Description	The Driver's Cabin is located within the jib structure of the Crane above the bottom chord and Slew House North. The Driver's Cabin is important as it was the heart of the crane's operations. From the cabin, the driver controlled the slewing of the crane, the movement of the hook platform along the jib and the raising and lowering of the loads. The cabin was sited so as to provide maximum visibility for the operator. The operator had views to the main hoists and hook platform above, and to the ground. The fabric of the cabin demonstrates the importance of the skilled operator in keeping the crane within safe working load limits and in communicating with those outside in the placement of heavy loads. There seems to be several layers of equipment representing different generations of communication technology in the cabin. The walls and floor of the control cabin contain numerous indicators, panels, switches, signs etc. which operated different functions of the crane. The walls are lined with stained timber but have been painted.	Underside of the Driver's Cabin  Interior of the Driver's Cabin  View of some of the indicators in the Driver's Cabin
Heritage Significance Grading	High—Original Operating Equipment	
Removal Requirements	The Driver's Cabin should be removed as a whole. The sunroof can be removed separately. Preferably, the indicators, panels, switches etc. would remain attached to the walls. It is critical that the machinery is recorded precisely (possibly using the 3D laser scanner) and fully described in situ to ensure that reassembly and interpretation is possible and accurate. The Driver's Cabin will be used to present and interpret the operations of the Hammerhead Crane. Specific components must be salvaged to ensure comprehensive interpretation of the Driver's Cabins function. The cabin is particularly suited for a AV based interpretation of the Crane's operation	

Component Name	Slew Ring (aka Live Ring)
Description	The crane is asymmetric but balanced so that the forces are transmitted down through the live ring and roller track. This is the critical technology at the heart of the crane and what makes it different from the German Hammerhead Crane. The Slew Ring allowed the jib to rotate on the tower. Ninety-six 16inch (41cm) diameter solid steel rollers fit together to make the Slew Ring. There is also a large steel pin capable of taking the weight of the crane if the roller track fails in some way. Components also include the gear rack located on the outside of the Slew Ring (which is engaged by the slew motors above).
Heritage Significance Grading	High—Original Operating Equipment.
Removal Requirements	Salvage a segment (approximately 1/6 of the live ring) of the Slew Ring including the spur wheel, rollers, trusses, spokes, cradles and the centre pin. May be used to present and interpret the operations of the Hammerhead Crane. Specific components should be salvaged to ensure comprehensive interpretation of the machinery's operations/function, however identical elements in other segments of the Slew Ring may be substituted for salvage depending on accessibility and the sequence of removal. It is critical that the machinery is recorded precisely (possibly using the 3D laser scanner) and fully described in situ to ensure that reassembly is possible and accurate.



Slew Ring – central pin



Slew Ring - cogs

B.2 Collections

Information related to the development, construction, use and removal of the Hammerhead Crane is held by a number of organisations aside from Defence. This information will provide valuable material from which to develop the future interpretation content of the crane. The following lists the organisations and the material they hold related to the crane. Examples of the historic photographic resources are located in Section 2.0.

B.2.1 State Library NSW

- Numerous images of Garden Island, including the Hammerhead Crane.

B.2.2 Powerhouse Museum

- The engineering drawings for the Hammerhead Cranes built in Sydney and Singapore drawn by Sir William Arrol, Glasgow, and Sir Alexander Gibb and Partners, London. Powerhouse Museum Collection 2003/217/1. Gift of Mrs Helen Spicer, 2003.
- A 1948 Meccano instruction book for Outfit No. 6 for the Hammerhead Crane, made by Meccano Ltd, Liverpool, England. Powerhouse Museum collection. Gift of Malcolm Booker, 2013
- Meccano giant block setting Hammerhead Crane model, in the original nickel-plated Meccano pieces, on display at the Powerhouse Discovery Centre. Powerhouse Museum Collection 2012/108/1.
- Photographic prints (35), Hammerhead (Giant Titan) crane made by Sydney Steel Company at Captain Cook Graving Dock, made by Colin Stuart, Marrickville, New South Wales, Australia, 1948-1951. Powerhouse Museum Collection 2014/39/1. Donated by Warwick Stuart.

B.2.3 State Records

- Twenty-five images of Garden Island, including the construction of the Captain Cook Graving Dock and the Hammerhead Crane.
- Photo album of the construction of the Captain Cook Graving Dock 1941–1945 Series No. 15327.
- Photo album of the construction of the Fitting Out Wharf, Garden Island, 1941–1945 Series No. 15339

B.2.4 National Archives of Australia

- Images of Garden Island, including the Hammerhead Crane.

B.2.5 Naval Historical Society, Garden Island

- A series of photographs relating to the construction of the Hammerhead Crane.
- Two DVDs which relate in part to the construction of the Hammerhead Crane:
 - History of the Captain Graving Dock.

- Garden Island Historical Tours—Naval Base Dockyard.

- Garden Island Magazine (June 1952), article by Colin Stuart from the Sydney Steel Company on the construction of the Hammerhead Crane.
- Naval Historical Review (Vol. 34, No. 2, June 2013) article called 'The Hammerhead Crane'.

B.2.6 Sydney Water Archives

- A series of images on the construction of the Captain Cook Dry Dock including some images showing the construction of the Hammerhead Crane.

B.2.7 Australian National Maritime Museum

- The Australian National Maritime Museum actively collects material related to Sydney Harbour, particularly the working harbour, and holds associated information.
- Hammerhead Crane—only a handful of images of the actual crane, but the crane appears in the background of many, possibly hundreds of images in the collection.
- Captain Cook Graving Dock—Collection of c2001, B&W John Reid images of work at the graving dock; the crane appears in various other photos.
- Garden Island—Quite a bit of material, mostly photographic images, some early maps and plans and a collection of Garden Island workers' tools.

B.2.8 Former Sydney Steel Company

Warwick Stuart is associated with the Sydney Steel Company, the company responsible for the crane's construction. Stuart produced the publication 'Sydney's Titan: The story of the construction of the Hammerhead Crane'. Stuart has also given an album of photos showing the construction of the crane to the Powerhouse Museum Curator, Des Barrett.

B.3 Interest Groups

Interest groups and people with special knowledge or collections related to the history of the crane are a potential resource for interpretation. People with an interest in giant cranes or similar industrial structures are another resource that might be utilised for development of interpretation of the Hammerhead Crane.

A number of people with special knowledge of the crane have been identified to be interviewed as part of the oral history recording component of the site's archival recording. These are:

- Warwick Stuart;
- Steve Petras;
- David Stockman; and
- Jeff Norton.

The following other individuals have been identified as having knowledge of important aspects of the crane and its functions and are a potential resource for future interpretation:

- Warwick Stuart of 'Sydney Steel', the company responsible for the construction of the Hammerhead Crane was a family company started by Warwick Stuart's grandfather. His father, Colin Stuart, was responsible for the construction of the Hammerhead Crane.
- Andrew Tompson has a strong family connection with the Garden Island Crane. His grandfather, Colonel Ron Tompson, was Technical Director of the Commonwealth Department of Works and was heavily involved in its construction. Andrew's father is Malcolm Tompson. The crane was referred to by his peers as 'Ron's Crane'.
- Sid Hill—one of the last crane drivers of the Hammerhead Crane.
- Neville Brown—Curator of RAN Heritage Collection. He worked in the periscope workshop in a building adjoining the crane from 1983 to 2009. He saw the crane in operation, including guided missiles launching in and out of ships.
- David Glasson—Curator of RAN Heritage Collection. He was a rigger who has worked on all the big cranes in Sydney Harbour, including at one point operating the Hammerhead.
- David Stockman—a former dockyard worker at Garden Island, he currently leads the Garden Island walking tour, organised by the Naval Historical Society of Australia.

B.4 Archival Recordings

As part of the collection of resources available for future interpretation purposes, extensive archival recording is being undertaken of the Hammerhead Crane, preparation for and the actual removal process.

The archival recording material to date is contained in the *'Hammerhead Crane, Garden Island, Sydney—Archival Recording Report—Stage One (Prior to Removal)', prepared by GML Heritage in October 2013.*

B.4.1 Archival Photography

Archival photography has been undertaken prior to removal to provide an accurate record of the Hammerhead Crane as it exists prior to demolition.

Targeted photography is being undertaken during the removal to provide an accurate record of the physical dismantling of the Hammerhead Crane.

B.4.2 Time-lapse Photography

Timelapse photography will also be undertaken during the removal works, providing a constant perspective of the removal works so that the imagery can be spliced together to form an animation over the jib and tower being dismantled.

A time-lapse camera is located at the northwestern corner of the Andrew (Boy) Charlton Pool to capture the easterly perspective of the removal works.

B.4.3 Video

Video footage is being taken of aspects of the removal works, such as the lowering of high heritage value components. It may contain interview footage from on-site personnel, and can capture aspects of the crane (prior to demolition) that are referred to by oral history interviewees.

B.5 3D Laser Scan

Three dimensional (3D) laser scan of the Hammerhead Crane is being undertaken by RPS Group. The first stage of scanning captured the majority of the Hammerhead Crane as it stands, including some of the surrounding context. The second stage of scanning will capture elements that could not be accessed in the initial capture stage due to Work Health and Safety restrictions or existing crane components prohibiting clear vision and making scanning at the time not viable.

B.6 Oral History

As part of the collation of resources available for future interpretation purposes, oral histories with persons associated with the fabrication, construction and operation of the Hammerhead Crane were identified as an important resource which would assist in the understanding of the function and significance of the crane.

The criteria for selecting the oral history candidates, a description of each candidate and transcripts of the interviews can be found in Appendix C of this report.

B.7 Artworks

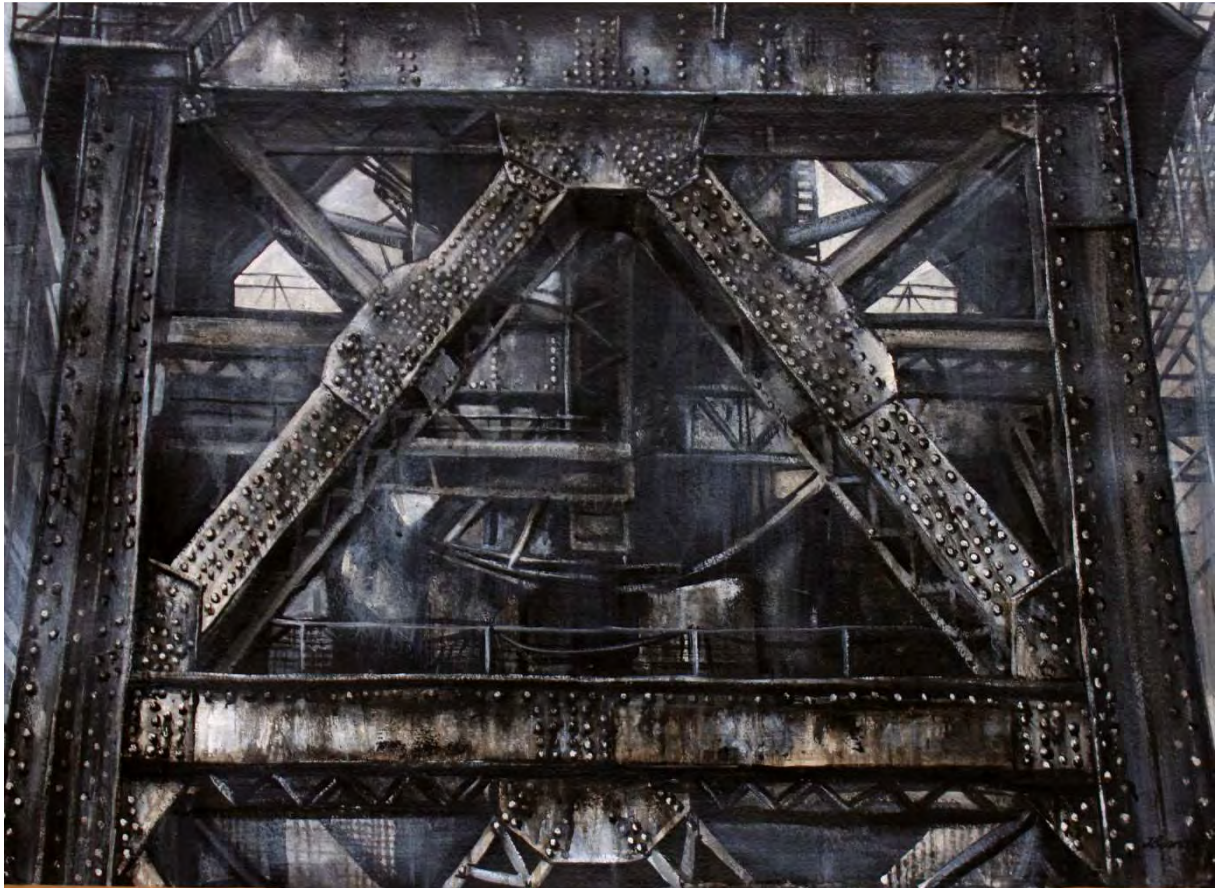
Artworks of the Hammerhead Crane are another type of record of the crane; a personal representation of a subject which the artist feels strongly about.

As part of the public consultation process, a respondent suggested the inclusion of artworks in the HIP and in future interpretation initiatives (eg the exhibition) to “give another dimension” to the Hammerhead Crane.

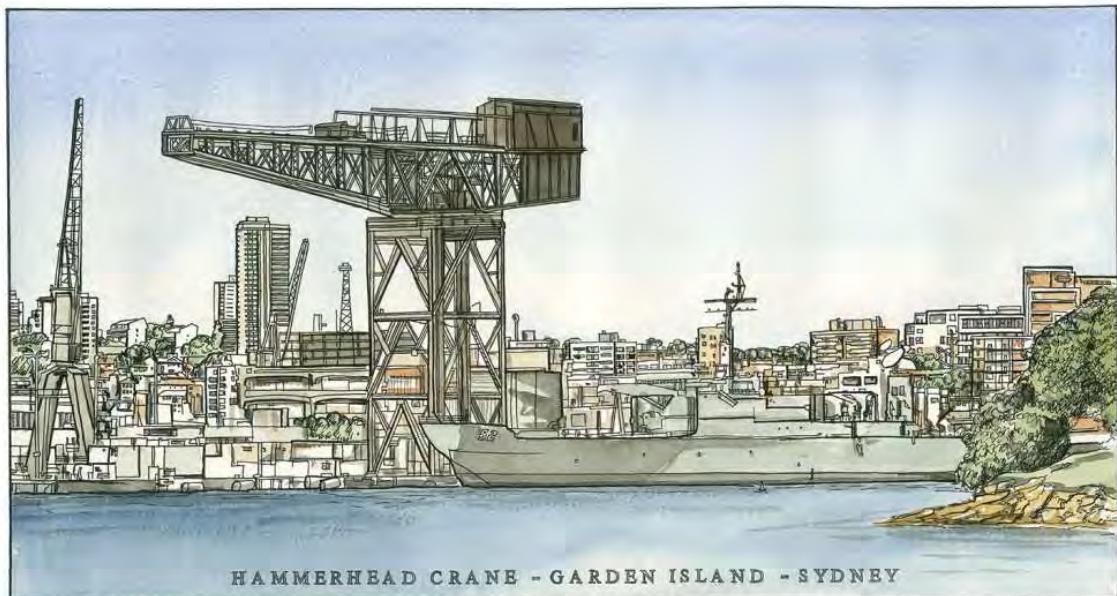
A search of internet resources identified a few artists who have used the Hammerhead Crane as the subject of their artwork. These include:

- Jane Bennett – an artist who specialises in the recording and interpretation of disappearing industrial and maritime heritage for the past 30 years. Her website and works on the Hammerhead Crane can be viewed here: <http://janebennettartist.blogspot.com.au/2014/01/hammerhead-crane.html>
- Simon Fieldhouse – an established artist who lives and works in Sydney and mainly paints historic architecture. His website and work on the Hammerhead Crane can be viewed here: <http://www.simonfieldhouse.com/sydney-architecture/city/hammerhead-crane-garden-island-simon-fieldhouse1/>
- Nick Hollo – a local artist (and Deputy Executive Director of the Sydney Harbour Federation Trust) whom has created a series of works that depict the vanishing (and potentially vanishing) landmarks around Sydney. This series also includes a picture of the Hammerhead Crane during its removal, as well as Gore Cove, Berry's Bay, the Maritime services Tower, Lennox Bridge and Glebe Island Bridge.

Examples of their work are included below.



Artwork by Jane Bennett entitled 'The Hammerhead Crane – homage to Piranesi' 2014 ink gouache on paper (56 x 76cm). (Source: public consultation submission, October 2014).



Artwork by Simon Fieldhouse entitled 'Hammerhead Crane – Garden Island'. (Source: <http://www.simonfieldhouse.com/wp-content/uploads/2011/12/Hammerhead-Crane-Garden-Island-Simon-Fieldhouse1-1024x572.jpg>)



Artwork by Nick Hollo – oil pastel. (Source: Nick Hollo, June 2014).

Appendix C

Oral History Transcripts and Permissions Forms

Appendix C—Oral History Recordings

C.1 Introduction

As part of the collation of resources available for future interpretation purposes, oral histories with persons associated with the fabrication, construction and operation of the Hammerhead Crane were identified as an important resource which would assist in the understanding of the function and significance of the crane.

This was also undertaken to satisfy part of consent condition 10b which required the collection of personal accounts/stories and oral history from people associated with the Hammerhead Crane as a means of preserving the aural record for future generations.

The oral histories were undertaken according to the principles and approaches set out in the *Talking History: Oral History Guidelines* published by the then Department of Environment and Conservation (NSW) in June 2004.

Interviews were undertaken by Michelle Richmond, Senior Consultant and Historian at GML, in conjunction with Dr Iain Stuart, Industrial Heritage Specialist, JCIS Consultants. The interviews were transcribed by Pat Francis of Bespoke Transcripts.

Interviewees were identified during the Expression of Interest (EOI) program or from consultation with the Naval Historical Society, Garden Island. The selected interviewees fit the criterion of persons associated with the crane because they:

- have an association with the design, fabrication and/or construction of the Hammerhead Crane, such as employees and relatives from the Sydney Steel Company;
- have actually been working on the Hammerhead Crane, such as the driver and dogman, and can provide first-hand experiences of the crane's operations; or
- have been working at the Fleet Base East and the Captain Cook Dry Dock at Garden Island and can provide information about working beneath/near the crane.

Transcripts for each interview are included below. A CD with the actual recordings is also included.

Permission forms from each interviewee, stating that they are aware of the potential future use of these interviews in interpretive initiatives, are also included at the end of this section.

C.2 Interviewees

C.2.1 Interviewee 1—Warwick Stuart

Mr Stuart's family owned the Sydney Steel Company which fabricated the steel and built the Hammerhead Crane (twice; firstly at Marrickville and then at Garden Island) between 1948 and 1951.

His recollection of his grandfather, Douglas Stuart, who volunteered the family company, Sydney Steel Company, to build the dock's two floating caissons/gates as a service to the nation. That scope of work soon expanded to include the steelwork for the dock's machine shop, the fabrication and erection of its three dockside cranes and the William Arrol designed 250 ton cantilever wharf crane.

His father, Colin Stuart, built the Hammerhead Crane. In May 1948, Colin and a team of six from Sydney Steel Company started erecting the crane's tower at the fitting-out wharf, Garden Island. By the time the crane was handed over to the navy in March 1951, that team had grown to 35 and included boilermakers, fitters, riggers and electricians.

C.2.2 Interviewee 2—Steve Petras

Mr Petras was the last crane driver who operated the Hammerhead Crane. He served in this role for 13 years. He has first-hand knowledge of operating the crane, working with the dogman, the lifts the crane made and the political/union climate the crane operated in. Steve shares stories about his time as the crane driver from an operational and personal perspective.

C.2.3 Interviewee 3—David Stockman

Mr Stockman worked on the dockyard for forty years. He has knowledge about the context (physical and political) in which the crane operated and its role in the wider Garden Island operations, in particular with the Captain Cook Graving Dock.

C.2.4 Interviewee 4—Jeff Norton

Mr Norton was the last dogman who operated the Hammerhead Crane. He served in this role in 1990 and 1991. He has first-hand knowledge about operating the crane, working with the crane driver, how they communicated with each other (via hand signals) and the last lifts the crane undertook.

Hammerhead Crane Oral History—Transcript 1

Date: Wednesday 5 February 2014

Time: 10:00am

Duration:

25mins

Interviewee: Warwick Stuart (WS)

Interviewers: Michelle Richmond (MRi) and Dr Iain Stuart (DS)

Time Stamp Speaker Transcript

Interview
begins

- | | | |
|------|-----|--|
| 0.00 | MRi | Well hello. Warwick, it's lovely. Thank you very much for having us here. Today is Wednesday, the 5th of February 2014 and we're here in the home of Warwick Stuart, interviewing him about his family's involvement in the construction of the Hammerhead Crane at Garden Island. So, Warwick, tell us a little bit. You are obviously connected with Sydney Steel, the company responsible for the Hammerhead Crane. Tell us a little bit about the company, Sydney Steel. |
| | WS | O.K. All right, Sydney Steel was started by my great-grandfather back in 1910 primarily to supply structural steelwork to buildings in Sydney. The family company went through three generations; my grandfather worked there and my father and then I worked there for a time. So the company came to an end in 1979 when it was sold but over that ensuing seventy-odd years they were involved in a large number of building projects but it was the building of the Captain Cook graving dock during World War II that probably was, I think, the highlight and the last aspect of that job was the hammerhead crane which came post-war but certainly that was something that my father remembered and he worked on that project. |
| | MRi | How were they involved in the Garden Island graving dockyard? |
| | WS | O.K. They were contracted by the Commonwealth Government to build the floating gates that seal actual dry dock itself and then they were issued additional work to provide the steelwork for the machine shop which was a very big machine shop and then they also were subcontracted to build three dockyard cranes different to the hammerhead but the three dockyard cranes. So that project started for them in 1941 and was completed, including those three cranes, by 1945. So with war over there was a great debate then about whether they actually needed this huge two hundred and fifty tonne crane so by the time the Water Board had finished the foundations - - - |
| 2.10 | MRi | When was that? |
| | WS | They were finished in '47. I think they were awarded the contract in '44, the foundations were pretty much completed in '47, then there was this great debate about 'Do we need it, do we don't?' and the decision was made to go ahead with the crane and that's how Sydney Steel ended up building it. |
| | MRi | You told us a lovely story about Lord Mountbatten. |
| | WS | Well, according to my research was that by the end of the war the British Admiralty had realised that the primary vehicle that this crane services, the battleship, it wasn't viable any more. You know, you had the light aircraft carriers and much lighter surface vessels so that Admiralty really didn't have a great deal of interest in building this gigantic crane in the antipodes; war was over. But at the graving dock they'd spent four years building this massive foundation with a great hole and the story that I found about was Louis Mountbatten was out on his way returning to England and he came out as Viceroy of India at that stage and visited the dockyard and he was shown around and obviously he was shown this hole, this vast hole into the harbour and he asked 'Well, what's it for?' And apparently the engineer said 'Well, it's for the crane, the crane that the Admiralty's holding up'. So obviously he had a bit of pressure so he headed back to the UK and lo and behold the next thing Sydney Steel gets a contract to continue building it and that's how that happened. So that's why it occurred so late after the war in 1948 that the actual building started, |

Time Stamp	Speaker	Transcript
		delays with the foundations but also the war was over and then just delays in whether they actually need this crane. So Sydney Steel had started back in '47 but officially it was '48 and they finished the crane in 1951.
4.01	MRi	Now just going back a little bit of the Sydney Steel, you were telling me lots of the interesting relationships about these Stuart brothers that came out and it wasn't just Sydney Steel that your great-grandfather's started but his brothers were also major building contractors in Sydney.
	WS	O.K. Well, if we step back in time to my great-grandfather – so we're talking about Alexander Stuart – he arrived in Australia in 1883. He was with his mother and father and nine other siblings so there were six boys, four girls. Is that right? Anyway, the three eldest boys – that's Alexander, William and James – were all craftsmen; they'd done their trade in Aberdeen in Scotland. So when they came out it was post the Gold Rush, great demand for houses, no skills. So they came out of a cold, hard life into the sunshine of Australia and they had so much work that they didn't know what to do, so much so William and James started a partnership called Stuart Brothers in 1886 and that became Stuart Brothers Building Company. So they were, I guess, my great great-uncles or something. So that part of the family, they ended up employing all the other brothers and two or three of the daughters' husbands. So Stuart Brothers was the builder. Alexander, on the other hand, he was a builder but he became more interested in the supply of stuff so he ended up starting up New South Wales Brickworks which worked in conjunction with Stuart Brothers and that's how Sydney Steel came about. And if you look at the structure of those companies the major shareholders were William, James and my great-grandfather and other associated people that were builders, big, large builders in those days. So it seems to have worked pretty good because, you know, you had someone supplying the bricks and someone supplying the steel.
6.01	MRi	And they had a huge number of contracts in Sydney at the time between them.
	WS	They did, yeah, but there's always those issues in those family relationships and I guess over time they drifted apart. When I worked at Sydney Steel Stuart Brothers was still in existence at that stage and they were quite independent; I didn't have a great deal of dealing with Stuart Brothers; they were just another builder at that stage.
	MRi	Now, how did Sydney Steel get the contract for the hammerhead crane?
	WS	Look, I think to some degree I'd have to say that when Sydney Steel took on the work for the graving dock, because it was not possible to tender for it – the Japanese had just bombed Pearl Harbor and were down the Malay Peninsula – so my grandfather, Douglas, volunteered the company to build it, just said 'We'll build it. Doesn't matter what it costs. If you provide the material we'll build it at cost'. So I think that engendered a little bit of goodwill with the government so possibly to some degree the big crane was sort of the reward at the end of the project. Yeah, by then the government realised that if they were going to build this crane Sydney Steel was ideally suited for it: they had the infrastructure at Marrickville, they had the skills so there was really nobody else that could touch them. The only other organisation that might have had a go would have been Cockatoo Island Dockyard and they really didn't have anywhere to set this crane out so that's why it went to Sydney Steel.
	MRi	Now, did Sydney Steel know that the Sydney hammerhead crane was a direct copy of the crane which had been constructed in Singapore?
	WS	Yeah, yes. In fact, the engineer from Arrol sent out was the same engineer that supervised the construction of the Singapore crane and he was a Scotsman and my family were all Scots so they knew.
	DS	So can you remember his name next?
	WS	Yes, I can remember it; I think I've got it here. Just let me check that I put that in for you.
8.01	MRi	Warwick is just looking through this beautiful book that he's created on the construction of the crane.
	WS	No, I didn't. I can check it. I'll come back to you with that. I just can't remember it at the moment.
	DS	No, just because I know people who are interested or actually created the Arrol Collection in

Time Stamp	Speaker	Transcript
		Scotland. The name might ring a bell with them.
	WS	Yes. One, I can give you the name. I just can't remember it offhand.
	MRi	Did you have the plans, the Singapore plans to work from?
	WS	No, I didn't have the actual plans. They were from the Powerhouse Museum and I don't know how they got them but, yeah, when I went through our archives at Sydney Steel we have the photographs of the construction but none of the detail working drawings were kept on it.
	MRi	And who else was involved – BHP?
	WS	Yeah. The steelwork, a little bit came from Newcastle, BHP Newcastle, and a lot from BHP in Wollongong so they provided the structural steel, standard sections. The bolts and rivets were done by Sydney Steel. They set up a separate organisation which was called the Commonwealth Bolt and Rivet Company – very imaginative name.
	MRi	Why did they have to set up a separate company at this time?
	WS	Well, at that stage the thing had changed. Post World War II you're seeing a great expansion of welded products on the market – ships were being welded – and this crane, I think, dated back to about 1900 and the design was a riveted structure. It was an antique when it was being built so they just couldn't get the rivets and bolts in the quantities they wanted so they set up a small business at Marrickville and basically its total function was to make the rivets and bits and pieces for the crane and then the remainder of the stuff, the wire ropes, all of the winching mechanism, came out from Arrol in Scotland, the Glasgow works.
	MRi	And came out by ship from Arrol?
	WS	Yep, that was shipped out.
	MRi	So did Sydney Steel both build and erect the crane?
	WS	Yes, yeah. The contract was to build and erect the crane under Arrol supervision and so apart from the equipment – that's the mechanical and lifting equipment that was imported – everything else was locally procured or manufactured.
10.13	DS	So the roller track was manufactured here?
	WS	Yes.
	DS	But the electrics were all British, weren't they?
	WS	Yes. The electrics, the cabling for instance. When I was talking about wire rope I mean the nine miles of steel rope to lift, that all came out from Glasgow as did the motors and the gear wheels.
	MRi	So how many people worked on the construction of the crane and sort of what kind of industries were they? Boilermakers, fitters?
	WS	O.K. Well, look, basically if you look at it as two aspects of it there's the fabrication of the crane and then there's the erection of the crane and they're two separate activities. With the fabrication, because Sydney Steel had quite a large area and at that stage they had something like three or four hundred employees, they could apply quite a lot of people to building sections of it and the issue that they ran into, though, was that they'd trained this workforce to weld, in welding procedures as part of the dockyard project and then they had to turn around and retrain them to work on rivets. So that part of it at any time, I think, might have been fifty or sixty people involved in that aspect of it. When it came to, I guess, building it or erecting it on site they started with four people when they put the first column up and then by 1951 they had about thirty five. So you had riggers who were lifting things, you had boilermakers, you had electricians, you had fitters, turners, so that group of mechanical skills to put it all together. But in all it's only quite a small group to actually build it physically on site, thirty five people, and then so everything was transported through Newtown much to the demise(?) of the council there, complaining about the roads being wrecked so every piece of steel was transported by truck and they used the crane that they'd built during the war on the dock there to build the big crane.

Time Stamp	Speaker	Transcript
12.11	DS	So would the steel sections from BHP have been railed to Marrickville?
	WS	Yeah, they did. They had a siding at that stage and they get the sections on rail wagons into Sydney Steel and unload them directly there.
	MRi	Were there any major problems during the crane's construction?
	WS	Well, yeah. I guess the biggest issue was just the labour force, in trying to get people that had the craft skills. It's not just drilling a hole in a piece of steel. The crane is actually made up of plates and angles and they all have to be cut, drilled and then riveted together so there's quite a lot of skill and craft in that and the biggest issue was just getting enough people with those qualifications and most of the guys that worked on it were probably in their sixties because they were the old boilermakers from the old ilk, not the Fast Eddies, the welders. So that was probably the biggest single issue they had. Steel supply was O.K. It was up and down after the war but I think that was the major issue was just trying to get a consistent labour force for it.
	MRi	Was the labour force mostly foreign immigrants?
	WS	No. Strangely enough you'll find that Sydney Steel at that stage was probably ninety per cent English origins or Scots or of that ilk. We had a number of Greek descendants working in there so Marrickville was starting to change in that early '50s, you know, was starting to become a different structure of society there but primarily I'd say the workforce was of a British descent.
	MRi	Now, when the crane was completed, how did the company celebrate?
14.07	WS	Well, all I know is that there was a function at the Navy but I guess people just seemed to move on fairly quickly after that - my father never mentioned there was a party or anything. I think they had the ceremonial last rivet was punched in, they probably had a beer somewhere and went back to work.
	MRi	You said the building industry was booming so the company was extremely busy.
	WS	Yeah. By the time the crane was finished post-war boom – seems to happen after every war – and so there was a lot of building work going on. A lot of it was places that have disappeared now. Bushells were building a big factory at Five Dock, that was underway. There were several buildings so things were really starting to push ahead so there wasn't a lot of time to sit back and reflect on it.
	DS	I think Bushells' plant's still there in Concord.
	WS	If it is it's another one, yeah. And they were building a number of city buildings and they were gearing up for the high-rise era. That was when I think the authorities got rid of the height restriction issue on Sydney buildings and that's when the skyscrapers started to come in, of which the AMP was the first one and so, yeah, there was a great deal of activity.
	MRi	I know you were only young when the hammerhead – well, not even then – but your father would have been telling you about the story. Did he mention it much and what's your memory as a child with the story of the crane?
	WS	Well, look, to be honest he didn't really talk a lot about it. I guess the two memories for me are that whenever we were on Sydney Harbour it was always referred to, as my sister would say, 'Daddy's crane', right, so it had this sentimental value to him. And although he never talked much about it I just had the impression that it was built during the war and it wasn't till I looked and researched it that I understood it was finished after the war and he'd done a whole lot of things on the graving dock during the war so that that was quite interesting. The other thing that was always a fond memory was that growing up at home, you know, these people would turn up at our house and they were generally old, rustic looking boilermaker types to which my mother would always dismiss and say 'Oh, God, Colin, this fellow's back again' but these were the people that Colin had worked with on the crane.
16.01		And in those days to run a business you didn't necessarily have to be an engineer or have a doctorate, you really needed to know the craft and so he'd spent his time as an apprentice and he'd worked in a dockyard with these guys so these were people that were lifelong associates but he was the boss of the company. So that was the thing that used to amaze me: these strange

Time Stamp	Speaker	Transcript
		guys'd turn up and have a chat and a beer with Colin and head off.
	MRi	And want to have a good old yarn about the crane?
	WS	Yeah, yeah. And, as I say, the people that worked in the business I got to know like the nightwatchman that had worked with Colin and he'd lost his leg in an accident so rather than get rid of him Colin said 'No, you can be the nightwatchman. Here's a house, you stay there. There are the keys' and it's very interesting. Very different business to what it is now; there was not this aggravation that seems to exist between employee and manager so it was very interesting.
	MRi	What do you think is the significance of the hammerhead crane?
	WS	Well, I look at it, as I say, from two things. Being an engineer I look at it and I know that some people see it as ugly but obviously those people never had a Meccano set when they were growing up and to me it's such a simple design. It's just beautiful the way it's structured and I think it's such an elegant foil against the Opera House and the Harbour Bridge. So from that perspective just as an engineer I have always felt that that crane was worthwhile keeping in that format. Then there's the other aspect of it which is just the personal history and the fact that the company and the family were involved in it. It is interesting to say 'Well, wow, that's been built in Sydney by local people' with a bit of help from the English and the Scots but I thought it was quite an achievement for that. So that's where I stand on it and I must admit I'm disappointed that it has to be pulled down because I would have thought that you could have done something better with it and if you see any of these cranes this crane in its setting against Sydney Harbour Bridge, looking down the harbour there is no other crane like this in the world. This is a crane in a Mona Lisa setting in my opinion, it's just totally unique. Everywhere else they're in the industrial wetlands or something but this one it's just gorgeous but anyway.
18.26	MRi	Any other further comments or memories of the crane or anything you wanted to ask, Ian?
	DS	No, no, I think we've got quite a lot of very useful information, I think.
	WS	O.K.
	DS	I think it was good that you've been able to put it into the broader context of Sydney Steel and its contribution to New South Wales' building industry and Australia's building industry and that's really quite important because I guess we've all been coming from a slightly different perspective, which is looking at Arrols and also looking at the sort of geopolitical sort of military side of it whereas this is actually really quite interesting to see it in terms of the overall construction industry in New South Wales.
	WS	O.K. No, I just remembered where that engineer's name is from Arrol.
	MRi	Warwick is just opening his book to the page.
	WS	O.K. So the supervising engineer was an Arthur Creswell, C-r-e-s-w-e-l-l.
	MRi	From Arrol?
	WS	Arrol, yeah. He was in charge of the building of the Singapore crane and then he got seconded out here. So my father never mentioned him but they probably would have known each other very well I would assume.
	DS	Yeah, I imagine he would have been at the works, supervising the fabrication and checking the rivets and things like that.
	WS	Yeah. Well, Creswell was the first guy to drive the crane. When they did the test lift, which was the hundred and fifty six tonnes and then three hundred tonnes it was Creswell who was pulling the levers.
	DS	O.K, that's fantastic.
	WS	There we go.
	MRi	Thank you so much for that. That's been fascinating.
	WS	All right. Well, thank you both for coming out here.

Hammerhead Crane Oral History—Transcript 2

Date: Thursday 6 February 2014

Time: 9:30am

Duration: 25mins

Interviewee: Steve Petras (SP)

Interviewers: Michelle Richmond (MRi) and Dr Iain Stuart (DS)

Time Stamp	Speaker	Transcript
Interview begins		
0.00	MRi	Today is Thursday, the 6th of February 2014. My name is Michelle Richmond. I'm from GML Heritage and I'm here with my colleague, Iain Stuart from JCIS Consulting and we're at Garden Island at the Naval Heritage Centre and we're interviewing Steve Petras who was the last driver of the hammerhead crane here at Garden Island. Steve, so how long did you work as the crane driver on the hammerhead crane?
	SP	The last thirteen years I was on the cranes, on all the cranes, mobile cranes, everything.
	MRi	Mobile cranes, so not just the hammerhead crane you drove?
	SP	No, not just that, all the cranes.
	MRi	And that was for about fifteen years?
	SP	Thirteen years. It was exactly thirteen years crane driver.
	MR	And you came to Garden Island long before that.
	SP	Yeah.
	MRi	So tell us about how you came to be working at Garden Island.
	SP	They were looking for workers to help the fitters. I was just like helping the fitters, carrying the toolbox different places and all that. Then gradually I asked one of the foremen about the rigging, to get on the rigging and he said 'Yep, I'll put you through' and finally I got my(?) ticket and after the years went by when they had the big retrenchment, people were leaving and all that, quite a few left.
	MRi	When was that? Was it in the 1980s?
	SP	It would be about that, yeah. And quite a few people left and all the crane drivers and all that. Because they had superannuation and all that they decide, 'Yeah, that's the best thing'. So a lot of them left and I approached one of the foremen and I said 'I'd like to get on the cranes'. He said 'All right. I'll put you through' and all that and that was it. I started with the mobile cranes, then gradually I got on the portable cranes and then the last one I was on the 250.
	MRi	The hammerhead.
	SP	The hammerhead.
	DS	Did you replace the normal crane driver? Who was the crane driver on the hammerhead before you?
	SP	One of them was Sid Hill and he was a really good driver and I can't remember the other ones and a lot of them just took the package and off they went.
2.12	DS	So you just got a ticket for crane driving?
	SP	Yeah.
	DS	So you didn't get a special ticket for the hammerhead?
	SP	There is a special ticket but when we got it it stated 'Hammerhead: Garden Island' on there. I'll

Time Stamp	Speaker	Transcript
		see if I can bring next time the ticket and show it to you one day.
	DS	Yeah, that'd be fascinating. Actually, there would be people who'd be really, really interested to see just the ticket; it would be very rare.
	SP	Oh, yeah. And the other thing. People they ask 'How deep was the foundations?'
	MRi	The foundations of the crane?
	SP	Yeah. See, all that you see, that's how much was down in the bottom.
	DS	The distance. So it's the same distance to the top of the lifting ring underneath.
	MRi	Same distance above ground as to below ground.
	DS	Yeah.
	MRi	So how long did you work at Garden Island altogether?
	PS	Thirty five years altogether, thirty five.
	MRi	And you were telling me before that in the early days of the crane driving there were four crane drivers and they worked in rotation.
	SP	That's right, three months each of the crane driver; there was only four of them.
	MRi	So tell us how this rotation worked.
	SP	Well, say for instance if I was one of the drivers start from January, February, March, then another driver will come along for the three months and everything but there were only four of us drivers that we work on the 250.
	MRi	And when you were the crane driver, were you the only one who could drive the crane?
	SP	No, there was a couple of more other drivers, Angelo, Angelo Tollini(?) retired and another guy there but he retired too. He got the package deal, yeah.
	MRi	And then there was just you, the last one?
	SP	Yeah.
	MRi	So what was it like driving the crane?
4.00	SP	It was really good. Had to be careful because, you know, it's such a big thing. And people said 'You had a chair to sit down?' I said 'No, we had to stand up like this and at the window to see the dogman down there' and that's for the 250.
	MRi	So are you pointing to a lever?
	SP	Yeah. And then one day the thing got dismantled, you could use(?) independent and all that and the hook was split, you know, and that one here was the forty tonner.
	MRi	So how many levers were there altogether – just the three of these?
	SP	Yeah. And this one here, that's one you had to slew around.
	MRi	What are you pointing to?
	SP	It's a control thing for the slewing the crane.
	DS	So that's a little electric and so that went around?
	SP	Yeah, just start slowly, slowly and all that.
	MRi	That was to turn the actual jib around, was it?
	SP	Yeah, whichever way, left or right. And this one here with the big trolley, big trolley up here, that's the control of the trolley.
	DS	And that went that way?
	SP	Yep.

Time Stamp	Speaker	Transcript
	MRi	Can you say what 'that way' means?
	DS	Well, up.
	SP	Yeah. Like if you had to take the trolley out there was a deadman up here for safety. What you call a 'deadman', you put your thumb on it and you go forward and the trolley will go forward. You come back and you bring the trolley that way.
	MRi	And what did the trolley do?
	SP	Well, depends what lift you had to do, have the lift.
	MRi	The trolley carried the hook?
	SP	Yeah.
	MRi	And it was located on the top of the jib?
	SP	And somewhere above here - - -
	DS	I can show you a photo, yeah.
	SP	- - - there's a big clock up there, tells you how much radius you were out.
	DS	This little red button which is on top of - - -
	SP	Yeah, an emergency, just in case and there's the telephone, not to make outside calls.
6.02	MRi	What did you use the telephone for?
	SP	Well, they had one downstairs just in case something happening and all that. We had to have an emergency.
	DS	So the phone connected to the Garden Island telephone system?
	SP	Yeah, yeah. I'll tell you, somebody when they're doing repairs and all that they were making calls outside. They said 'Hey, what's going on in here?' So the only thing was the strict, the crane driver and the dogman.
	MRi	Is that all on the phone?
	SP	Yeah.
	MRi	So tell me, you were upstairs being the crane driver?
	SP	Yeah.
	MRi	And you had two dogmen working for you?
	SP	Always there.
	MRi	Always two dogmen?
	SP	Yeah. Like the only time we had extra dogmen when we picked up Greg Norman's <i>Aussie Rules</i> because something was very delicate at that time, had to be done on time because of the high tide. If we were late we had to postpone it the next day but everything was done up right on time.
	MRi	And where did the dogmen work?
	SP	Yeah. The dogman down below and then another dogman will go up there with the people that they're doing work on there.
	MRi	So one dogman was on the boat on the water and one dogman was on the land under the crane?
	SP	Yeah. See, you'll get a better idea once you see those photos.
	MRi	Now, we want you to describe a typical day. So you'd arrive at work and you were going to work on the crane. Tell us about the process from the beginning through.
	SP	Like we came in and a foreman come along, says 'Righto, we need a crane driver for the 250, I need a crane driver for the old cranes, the 50 tonners, mobile crane, the forklift'. And then our foreman was there, Graham Corby(?), he was really good on the job, he was really good, and he

Time Stamp	Speaker	Transcript
		gave everybody share on all the cranes and the forklifts. And the other thing too, once you got up there you had a beautiful view of the harbour. That's one thing that was fantastic
8.09	DS	So how long would a lift take?
	SP	Depends how many lifts we had to do. The dogman will come along and says 'Righto, we got so many lifts to do', electric motors or whatever, and all that. Especially the aerials, that was something that we had to be careful while we picked up the aerials to be connected and all that. And at times the sailors come along and help us and all that - they had the list. So this is still lunchtime. We finish the job, we had to go on another crane and the same procedure, come along with the list, 'This is what we have to do'.
	MRi	Did you do maintenance every day on the crane?
	SP	Not every day, no, but there is sometimes they said they need a crane driver for Saturday, doing a maintenance on the crane and all that, depending on if it was for the fitters or the electricians and we had to look after the cranes because the old 50 tonners were just getting a little bit too much and they break down all the time. Now with the new ones they're really good. I now can sit down, I can see everything because you've got the glass where your feet are so you can see the dogman down there or then when the other dogman got aboard you can see where he's going and all that.
	MRi	That's not on the 250?
	SP	No, no, that's the other.
	DS	That's the modern cranes.
	MRi	It's the modern cranes.
	SP	Yeah. So like I said the same thing with the big one would come along 'We've got so many lifts to do' and it was on a bit of paper what we had to do and all that.
	MRi	You said sometimes you had to come along and take a lot of grease and oil it.
	SP	Yeah. And like the only time they could do it was if there was no work was on a weekend, come in and do a lot of greasing and everything and that's why we used the six tonne over here to lower the safety box with the oil in, all that, so we have enough and check the gearboxes and all that and make sure that there's oil in them.
10.06	DS	And which gearboxes would you be checking, though – the hoist?
	SP	Yeah, right inside here, all the big electric motors in there.
	MRi	When you say 'here', what do you mean?
	DS	The motor room.
	SP	The motor room and a lot of the gearboxes and all that to check for the oil in everything and make sure that the nipples and all that have been greased and everything for the trolleys in there for where the wires run on it and everything; everything had to be greased up there.
	MRi	How did you access the lift?
	SP	It was you open the sliding door, then there was another one like a concertina. You go there and you shut the french door, shut the other one and there was two buttons to go up.
	MRi	So was it a lift?
	SP	Yeah, the lift. And at times if the lift did break down you pressed an emergency and the siren will come along and they come over.
	MRi	So tell us about some of the things that you had to lift on the crane.
	SP	There was a lot of different lifts that we had to do. There was one special thing we had to do for the navy and the for the museum, the F-111 and we had to use the 40 tonner and we had the two dogmen straight on board. They put special straps on it and everything and give me the lift nice and steady, pick it up. Then one of the other dogmen came down and the F-111 we had to pick it up.

Time Stamp	Speaker	Transcript
	MRi	But not with the hammerhead crane?
	SP	Yeah, with the hammerhead, yes.
	DS	But with the 40 tonne hook?
	SP	40 tonne, yeah, hook.
	MRi	O.K, and you lifted it straight out of the water?
	SP	Yeah, the F-111. I think, like I said, if you can access to go up to that office and see there will be a lot of photos.
	MRi	So what else? So you were talking before about the missiles.
	SP	Yeah.
	MRi	Tell us about those.
	SP	The missile launcher they'll be there, our foreman, another foreman Brian Ayers(?) – remember Brian Ayers? – he'll be up there with one of the dogmen and the other dogman will be on top of there, around up there, around the there, and as soon as they got hooked up to give me the lift they'll go like this, like 'Go up steady', go like this.
12.21	MRi	So with their hands, you showed them with your hands?
	SP	Yeah. And once you got out then you go like this, like 'Go a bit faster'. And when you came up to a level the other dogman in the roundhouse will give me 'Bring it over' and he open that special thing.
	MRi	And where was the roundhouse located?
	SP	At the
	MRi	Right next door to the cranes?
	SP	Yeah.
	MRi	And it lowered in through the roof of the roundhouse?
	SP	That's right, yeah.
	MRi	And it was repaired there?
	SP	The dogman will be there and you'll go again, you know, 'Come down steady, steady, steady'. Once they got down and then give me the signal to stop, take the slings off it, up we go and then whatever happens down there, well, the people will tell you all that.
	MRi	And then when it was repaired it was lifted back onto the boat?
	SP	No, I think normally they used to have another one in there and with the <i>Darwin</i> we picked it up, the old one, we put it in the round building, then we picked the other one for the
	MRi	And you said you lifted hydrofoils?
	SP	Yeah, long time, yeah, the hydrofoil there, the <i>Sydney</i> , and the hydrofoil it was exactly 100 tonne and the 250 was just getting on.
	MRi	And what did they do with the hydrofoils when they lifted them?
	SP	Picked up the hydrofoil and the people from Balmain came over with a special guard and once they picked it up they had all that special staging to put it on.
	MRi	And they cleaned the bottom of the boats, did they?
	SP	Yeah. And they still go up to Balmain and do the job. We never did any work on the hydrofoils, they had to go to Balmain in the ferry. And when they are ready they get in touch with us, 'Seven days we're coming in' so one of the drivers will go up there, pick it up and put it in the water and it costs \$10,000 to do the lift
14.17	MRi	Now, the last big lift you did was Greg Norman's boat called <i>Aussie Rules</i> .

Time Stamp	Speaker	Transcript
	SP	Greg Norman's, that's right. Anybody wants to argue with me is going to lose because a gentleman here will show you the kind of photos that they took and all that. I put the slings on it and everything.
	MRi	So the boat was made in Queensland?
	SP	Queensland.
	MRi	Shipped to Sydney or sailed to Sydney?
	SP	Yeah, he brought it over here, he brought it over here and already all the rigging was all done and everything the following day. Soon as it came over slew the crane over, lower the hook down and the guy jumped in the water and they put the special webbing and all that and they said to the dogmen pick up steady. Soon as everything was secure I had to take it right out of the water to make sure the balance and all that. One he was happy I says 'Righto' because it had to be washed to fresh water and took about an hour to two hours to wash it done, everything. And the people aboard the thing they wasn't allowed to wear shoes, they had bare feet.
	MRi	And then where did they put it after they washed it and cleaned it?
	SP	Put it aboard the <i>Christopher Columbus</i> , was a container, and up on the containers they had a special staging so we can put the boat on it.
	MRi	And it was shipped to America?
	SP	From here all the way to America.
	MRi	Tell us a bit about the penthouse on the hammerhead crane.
	SP	You're going to help me too. Funny because it was about a month doing a bit of work for the electricians and all that and everything and the people said 'Oh, by the time you walk down and up again' so they decide – they brought a table with about four chairs and all that and a little oven to warm up the food or a meat pie or something. I mean you can't blame them. To come down and up again and everything you'll be wasting time. So the people just nicknamed it 'The Penthouse'.
16.10	DS	So the penthouse was really a crib room?
	SP	It was just a spare room in there, it was just a spare room. I don't know why they build it for.
	MRi	Christmastime the crane was able to lift children and people?
	SP	I don't remember that one.
	DS	Yes.
	SP	The only one I remember was the 50 tonners.
	DS	They did it on the 250 tonne crane too. They had big baskets there. The general public would get into the basket, they'd pick it up and swing it around and put it back down again and it was part of the Christmas party days.
	SP	To make the children happy. No, I never did that for the kids; that was going back before I started.
	MRi	Before your time. So how did you feel being the crane driver?
	SP	Really good. Nice to do so many heavy lifts and all that and work with the dogmen. The main thing, you've got to work with the dogmen, you know. It's no good arguing because accidents happen. Like I said, Tony Martin was here for forty years and he was 100 per cent good dogman. He loved to work, you couldn't stop him, you know, and he was good on the job. If I had a bit of a problem with something I'll tell him what's happening, we'll try to rectify to do the job a lot easier but we had to communicate with the dogmen for safety; that's the main thing.
	MRi	So any other stories that you wanted to share? And when did you leave, when did you retire?
	SP	I think it was 2004, I'm pretty sure.
	MRi	But the crane hadn't been used for some time before that?

Time Stamp	Speaker	Transcript
	SP	No.
	MRi	You think the last lift in the crane was about '94, did you say, '92, '94?
	(?)	That's what John Townsend(?) thinks.
	DS	Yeah. Let's have a little look at these. So these levers they went backwards and forwards.
	SP	Yeah, for to lower the hook and you bring it up back so you can bring the hook up.
18.09	DS	And this lever here was for when the hook was split into two?
	SP	That's right, that's right. So you could use it independent and all that. Like the inside there's a lot of things in here to have a look.
	MRi	In the engine room?
	SP	Yes, yeah, the engine room. The coupling and all that for the big – then you had to dismantle the coupling so you can use it independent.
	(?)	So let's see what else we have.
	DS	So that button there.
	MRi	We're just looking at some photos and we're explaining ways that things were working and we'll try and use the words as we're explaining.
	SP	That one was - - -
	MRi	When you say 'that one' what are you pointing to, Steve?
	SP	That was the horn so we can get in touch with the dogman down there, give it a couple of blasts like 'What's happening' you know, 'What's going on, what's the next lift' and all that.
	DS	And there's a group of two square things with little buttons on them, these two here. What were they for?
	SP	I'm pretty sure it's a switch like down here.
	DS	O.K, that's an emergency switch?
	SP	Yeah, because emergency buttons they had to be there just in case something happens.
	DS	And those would be emergency buttons as well?
	SP	Yeah.
	DS	Now, we'll have a look at Photo 2 which has this interesting electronic thing.
	SP	That's the computer was switched on, will tell you exactly when you lift it tell me how heavy it is.
	DS	O.K.
	SP	Because if the thing was a big heavy lift and you couldn't go all the way up inside the driver's cabin somewhere above here was the big circle, that thing, will tell you how far you could take the trolley up. That was the new one that we put on. That thing wasn't here years ago.
20.02	DS	When do you reckon it was put in?
	SP	What his name there? The other crane driver up there, we had to go out and talk to people about safety and he says 'Righto, we're going to put a computer on' and it was the best thing that we put it on so we know how much we lift and everything because you started getting a bit of downgrading and then the computer exact will tell you how much you were lifting and all that.
	DS	And that's next to the table of site radius(?) which was the thing before that, wasn't it? So that's Image 2. Image 3, that's the door to come in.
	MRi	In where?
	DS	So into the driver's thing.
	MRi	Cabin.

Time Stamp	Speaker	Transcript
	DS	Cabin. And these are all these things on the back wall here. So that looks like a bell.
	SP	Yeah. And there was another thing that we had because behind it was a 40 tonne crane and we make sure that when the crane, the 40 tonner, had to slew right around for safety and all that.
	(?)	They have an interlock between the two cranes so they couldn't swing that one around when the other crane was within a certain distance.
	SP	That's right, yeah, Yeah.
	DS	O.K, so the two cranes, yeah.
	(?)	Yeah. They couldn't swing it around if the other crane was too close.
	DS	What do you think these were, can you remember. These are all these little electric boxes.
	SP	Yeah.
	DS	Would they be fuse boxes?
	SP	They were for the engine, for the lifts and all that.
	DS	Where did you go to the toilet?
	SP	Well, once you felt like you needed to go you get in touch, you blow the horn.
	DS	The emergency horn?
	SP	Yeah, that the crane driver have for the dogman. 'What's going on?' 'I'm going to the toilet, I'm going to the toilet' and he says 'Yeah. We don't have anything to do'. So I make sure, switch the power off, everything had to be switched off, and I walked down the steps, get on the lift and there will be a toilet somewhere there. When I finished I have a bit of a chat with the dogman, like 'What's going on?', other jobs and all that. He said 'We got a couple more jobs to do' so up we go. We prefer to go and finish the job.
22.15	DS	Yeah. So when you went to the toilet you went right out of the crane?
	SP	That's right, yeah. But you had to make sure you switch all the - - -
	DS	Everything was switched off, yeah. Kids are going ask, aren't they?
	SP	That's right, yeah.
	MRi	Any women work on the crane or was it always men?
	SP	No, no.
	MRi	Always men.

Hammerhead Crane Oral History—Transcript 3

Date: Wednesday 6 February 2014
 Time: 11:30am Duration: 30mins
 Interviewee: David Stockman (DSt)
 Interviewers: Michelle Richmond (MRi) and Dr Iain Stuart (IS)

Time Stamp	Speaker	Transcript
Interview begins		
0.00	MRi	Today is Thursday, the 6th of February 2014. My name is Michelle Richmond, I'm from GML Heritage and I'm here with Iain Stuart from JCIS Consulting. We're here at Garden Island in the Heritage Centre and I'm here interviewing Dave Stockman about his time working at Garden Island and his memories of the hammerhead crane during that time. Hello Dave.
	DSt	Hello.
	MRi	Great to have you here.
	DSt	Thank you.
	MRi	Dave, you worked at Garden Island for many years. How long have you been involved in working there?
	DSt	Full time forty years and as a casual now in my current function for the past three years. Actually, I'm going into my forty-fourth year now so a little while.
	MRi	What's your current function?
	DSt	My official title for Thales Australia is tour guide.
	MRi	And when did you start here at Garden Island?
	DSt	I started on the 5th of January in 1970 as a technician-in-training.
	MRi	Now, just to explain how Garden Island worked while you had the navy working at Garden Island there was the dockyard and most of the people working in the dockyard were civilians. Can you just explain that relationship and how it worked because you were a civilian, you were not in the navy.
	DSt	Back then the dockyard was known as HMA Naval Dockyard Garden Island. It was owned by the government. The civilians were employed by the Department of the Navy as it was called back then; they were not members of the Royal Australian Navy. Our sole function on Garden Island was to serve the ships in the navy and keep the ships at sea. The way things were done then, we used to work on things to basically bring them back to almost like a brand-new state and put them back on the ship which is very different to the way things are repaired and things are done now.
	MRi	And that was always within the dry dock area?
	DSt	Within the dockyard, yes. We didn't really need to send things out to outside contractors because there was just about every trade that you could possibly think of on Garden Island already.
2.07	MRi	Now, how many people were there working about?
	DSt	Well, when I started here there was apparently somewhere between three and a half and four thousand people.
	MRi	And you said every trade that you could think of. Give us an idea of some of those.
	DSt	We had french polishers, signwriters, scientific instrument makers, blacksmiths, copper smiths, engine smiths, fitters. We had joiners, we had shipwrights, naval architects, electronics technicians, watchmakers, just so many it's hard to think of them all.

Time Stamp	Speaker	Transcript
	MRi	And the hammerhead crane, was that part of the dockyard?
	DSt	Yes. Civilians operated the crane. It was not an area where I had any dealings with it whatsoever. I was Weapons Group and that had nothing to do with the crane but it was near where we were located so at times we did see things get lifted but I had no function, nothing to do with the cranes whatsoever.
	MRi	But the crane was part of the dockyard facility?
	DSt	Yes.
	MRi	And you said the dockyard at that time was a very social place, there were lots of clubs.
	DSt	There was. Talking to other people from my vintage they said that Garden Island more like a family in some ways back in those days. A lot of people previous generations; I'm third generation working at Garden Island. My brother also worked here. We had the Garden Island Social and Sporting Club. That club was the basis of many different clubs for different interests. We had the horticultural club there with the Garden Island Gardeners would be teaching people how to do propagation and grafting and potting and this sort of thing.
4.03		We had the Garden Island Rifle Club, then there was the swimming club, there was the cricket clubs and you had the football clubs, you had the photographic club and we had all sorts of different clubs that people could go to with a similar interest. The swimming clubs, we had our own swimming pool back on Garden Island in those early days and that basically all ceased then when things changed and Australian Defence Industries was formed.
	MRi	So just tell us a little bit about that era when Australian Defence Industries formed – when was that?
	DSt	That was in 1989 that happened. A lot of heartache. There was a lot of people very upset about what happened with all of that. A lot of very good people suddenly lost their jobs and just put out, some very good people that were absolutely amazed to think that people could just get rid of people with that experience. So much experience did go and, of course, the life on the island, everything changed from that point on. It just was not the same place, it didn't have the same feeling. Very hard to describe if you weren't here to actually feel it; yes, a big change.
	MRi	And numbers reduced?
	DSt	Numbers were reduced dramatically. I can't think of what they went down to but numbers did drop numerous times. There were quite a few redundancies over the years since that point and there's only a shadow of the people on Garden Island to what used to be here on the island.
	MRi	I understand from around that point there wasn't enough money for maintenance for the crane so the hammerhead crane no more maintenance was carried out.
	DSt	I've heard different reasons. How accurate they are I don't know, obviously, because I didn't have dealings but I do know that when they tested things a lot of things were apparently tested over the limits of what they were normally done to make sure that they did that and you can only keep doing that for so long before things start to wear out because you're doing it more than what it was designed to do all the time and I have heard that that was one of the reasons. And then with rust and corrosion getting into things as well, with all the seagulls and pigeons and that around the place, gradually started to de-rate things then until it came to the point where problems arose and it couldn't be operated any more.
6.31	MRi	Now, what area did you actually work in when you were working at Garden Island?
	DSt	I was in Weapons. I have spent some time in the, originally doing the training, working on the hydraulics of the ICAR and missile launches and teletypewriters and teleprinters, stripping them down and rebuilding them for the ships, the very high speed electric typewriters that they had on board. I'd spent some time in the radar workshop but test equipment was my main field and I ended up moving up into the Navy Calibration Centre and I was calibrating electronic test equipment for the dockyard and for ships. I took over from a previous person when he retired, a large pool of test equipment; I had over a thousand items of test equipment that I used to keep calibrated so that other workshops could borrow it in the dockyard. I started the Fleet Pool, which was the fleet of test equipment that the navy owned and I used to look after two pools then. I looked after the Fleet Pool for the navy and I also looked after the Dockyard Pool for the dockyard and in the end I had a petty officer in there with me and we used to help each other out at peak

Time Stamp	Speaker	Transcript
		times with either pool. And all that happened then until Australian Defence Industries once again and the two pools then split apart.
	MRi	And where you worked, it was quite near where the hammerhead crane was, wasn't it?
	DSt	A bit further away. I was located in Building 67 which is on the southern side of the main entrance to Garden Island and then we moved across into Building 314 which was then opposite the grass triangle which was a much newer building that was put in.
8.08	MRi	So what memories have you got of the crane, what memories have you got of seeing things lifted and so on and so forth?
	DSt	I do remember seeing I think it was a work boat that had been hit by a larger navy vessel. It was partially sinking and they managed to manoeuvre it underneath the crane and they put large straps underneath the hull. The crane was basically stopping it from sinking any further whilst the fire brigade and the naval police could pump the water out of the vessel and just take the weight and slowly raise it as it was being pumped out. It wasn't trying to lift it out of the water but it was just supporting it. That was one of the main things that I remember. Missile launchers, I've seen many a launcher being lifted in and out through the open roof of the roundhouse as we call it.
	MRi	What was the roundhouse?
	DSt	That was the Guided Missile Launcher Facility which was built in the 1980s underneath the crane and it has a big opening roof and it was designed so that the crane could lift a launcher off a ship and then lower it straight through the roof onto its bedding in the workshop so they could repair it and then lift it straight out and put it back on the ship again.
	MRi	Anything else?
	DSt	They're the main ones. I've probably seen other things there but it's just so long ago now.
	MRi	Did you see the hydrofoils?
	DSt	I've seen hydrofoils lifted out. Yes, I have seen the hydrofoils and other small craft lifted out of the water. In front of Building 79 up in that corner there is an area where a lot of boats used to be worked on actually on the wharves and then I've seen quite a few small boats being lifted out.
	MRi	Completely out?
	DSt	Completely out and they used to work on them and sea-air rescue boats I think too they used to lift those out and put them up on the wharf there and they used to work on them. But all that's a thing of the past now; you don't see boats coming out of the water like they used to.
10.06	MRi	You told us a great story about your dad. Can you tell us that story?
	DSt	Yes. In those early days - - -
	MRi	He worked at Garden Island?
	DSt	- - - dad, he was naval police and of course in those days the naval police were first response for any fire-fighting activities and they also maintained all the fire extinguishers and hoses. And he said he had to go up onto the top of the crane there because their extinguisher's out along the jib and he got out to the end of the jib there to work on one and the crane driver's laughing about having naval police wherever you want them and he said 'Now I've got you where I want you' and he started to slew the jib backwards and forwards and of course my dad's hanging on for grim death at the end of the jib which he didn't appreciate.
	MRi	And tell us how the crane was used during the children's Christmas parties that you said were--
	DSt	Well, the children's Christmas parties, they used to have a large basket that was put underneath them. It wasn't fully enclosed or anything; it was just a basket you could stand in; came up about four feet, five feet, and everyone piled into there and they closed the side of it and the crane would pick them up and they'd swing them out over the water and give them crane rides and then put them back down on the wharf again and I've seen that done numerous times. Open days and Christmas parties were the main times for that and they were very popular if you liked heights.
	MRi	Did you ever see the crane used for any recreational activities like abseiling or anything else like that?

Time Stamp	Speaker	Transcript
	DSt	No, No. If it did I never saw it.
	MRi	Do you have any other stories or memories of the crane during your time here at Garden Island?
	DSt	I know coming into Sydney people say 'Where do you work?' and I say 'See that big crane over there?' and I'd point at the big crane as we come across the Harbour Bridge and I say 'That's the dockyard, that's where I work'. And that was what I pointed to. I said 'See that big crane? That's where I work' and that was the quickest and easiest thing to show somebody.
12.02	IS	Otherwise they might have thought you worked at the Opera House.
	DSt	No, I'd point at the crane.
	SP	Sorry, I forgot one thing. You know the ferry we came in today?
	IS	Yeah.
	SP	We built four of them here.
	MRi	But not using the hammerhead?
	SP	No, sorry. But that's one of the other thing that we build it special, the ferries.
	IS	I have a couple of questions and I also need to remind about the photographs, taking photos. One of the things that I wanted to ask you, Dave, was your training and background. It was all in-house apprenticeship sort of stuff?
	DSt	Yes
	IS	They didn't send you off to university?
	DSt	No, technical colleges was as far as we went, I went anyway.
	IS	And the unions for both of you, I assume you were both in the unions.
	DSt	Not to start with. Especially when you were trainees and apprentices you were exempt. You were not expected to go out on strike and this sort of thing if you're apprentices and trainees and that was not expected of you, so you were basically exempt from any of that sort of thing. A lot of the areas where we worked wasn't affected in the same way as where a lot of the wages people were. If we were out at the Calibration Centre – the Calibration Centre wasn't just on Garden Island. It started off at Leichhardt and it was then also at Holt Street Surry Hills, Blues Point Road North Sydney and then on Garden Island and I've worked at all of those locations as part of the dockyard - and a lot of things that happened on Garden Island had no bearing on us whatsoever in those places. In fact, quite often we didn't even know about it out there. It's surprising how many things could happen and nobody knew what was going on because we were just so remote. But a lot of the things that they went on strike about we used to scratch our head in absolute disbelief at some of the things. With my function I could push a trolley on Garden Island because after getting tested weapon calibrated I had a very padded trolley with pneumatic tyres so that didn't jar equipment around after it's calibrated.
14.07		Now, the rest of the people in say the Radar Workshops or the Communications, if they had to take test equipment out to a ship they were not allowed to push their trolley across there. They had to have an ironworker's assistant push the trolley with them walking alongside it to get to the ship and take it back and they couldn't push it but I was exempt from that. That was my function and I used to handle the test equipment so I was allowed to push a trolley around. I was one of the few people who could do that.
	IS	So what union were you in?
	DSt	When I started in the union it was called the Professional Radio and Employees Institute of Australia, DREIA.
	IS	Because I was thinking that one of the things that's happened over time is, of course, the rise of electronics specialists such as yourself might not have really fitted into the union system which is very much trade-orientated.
	DSt	Yeah. Well, they had special ones for the technical people because it was just so out of kilter with the unions that other people were in. And we used to think some of the things – I can give an example of where a problem – actually, my father nearly put people out on strike once on Garden

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		Island – and it was a case of where a dockyard employee had suffered a suspected heart attack. And we had our own ambulance on Garden Island in those days and the vehicles could only be driven by members of the Transport Workers Union and my dad didn't care about that, he just jumped in the ambulance. He was a naval police and he just responded up to the hospital with the person to get them to hospital and of course it really blew up when he got back because they were ready to all go out on strike. But by the way my dad asked the question, basically asking the union people 'So you're quite happy to have a dockyard worker in the back of the ambulance there with a suspected heart attack just staying and hanging around whilst you're running around to find somebody to drive the ambulance?'
16.06		Well, obviously they couldn't answer that question with a yes, otherwise it would put them in a very, very bad light so in the end they just said 'Naval police can drive the ambulance'. Because he wasn't worried about the union, he couldn't care less. Interest was to get that sick person to hospital as fast as he could and because he was navy and nothing to do with unions he just jumped in and went and they realised the sensible thing so they changed it.
	IS	What about you, Steve? What union covered the crane workers?
	SP	The crane drivers. FDFA because I was with the ironworkers but once I left and all that joined the crane drivers, I changed union. And there was a lot of unions in there and the other thing was the demarcation it was a bad word in my case. If it was an electrical thing – there was a big dispute one day because the electrical cable was over there, a gearbox and was only one clip there and we asked for an electrician to come over. Well, the guy says 'Look, this is an emergency. We have to do it quick' so the fitter got a screwdriver and did the screw, took the clip off, put the cable over it and he started dismantling the gearbox. The next thing you know out on strike. That was the one thing that demarcation didn't got along with me.
	DSt	I've heard where there's been a pipe with fluid running through it and because of the fittings on it a plumber had to do it because it had fluids but because of the fitting on it had to be a fitter but the fitter couldn't do it because it had fluids running through it and we just sat back and laughed. My grandfather said 'Everything used to strike on Garden Island except the matches'. And he came out from working for the Admiralty and he came onto Garden Island to start working and that was back in the '50s sometime and they went out on strike for three months.
18.01		And he said 'Look, I come to Garden Island here to work, not to go on strike' and then he promptly left Garden Island again and he said 'No, I came here to work, not to strike' and he left.
	SP	That was the biggest thing. You know, you did something wrong and that was it, everybody out.
	MRI	Everybody on strike.
	DSt	So much time was wasted and they never made up the wages, they would never have made up what they lost.
	SP	The only thing that we benefit from there, the union and management, was the foremen who used to get paid there after lunch. But for the worker, I was going on holidays, I had to line up at the pay office to get me holiday pay and even for lunchtime you don't get your normal pay. So if it's good enough for the foremen to get paid after lunch, what about the workers?' So the management and all that got together, says 'All right, fair enough'. After lunch different section and all that I was there. The paymaster, the navy dockyard police and all that.
	DSt	Yes, yes. I used to get paid at tech. When I went to tech I was in a special Commonwealth class and we had Department of the Navy, the ABC, Department of Civil Aviation, New South Wales Police, TMG, and when it was payday there'd be a knock at the door of the classroom and in would walk the chap from the Pay Office and standing at the door would be armed naval police standing there, watching us get paid in cash in class at tech.
	MRI	Always paid in cash?
	DSt	We were always paid in cash. We had a little building on Garden Island called Canary Cottage which was the Accounts and Pay Office next to the barracks and that was big steel bars everywhere - it looked like a canary's cage inside it as everything as well – and that was the Pay Office; it was all cash.
	IS	So you said before when we were talking before the interview you wore different dustcoats according to salaried and workers. I was just wondering whether both of you could talk a little bit

Time Stamp	Speaker	Transcript
		about what you wore.
20.06	SP	Well, the foremen had the white overall with a blue collar.
	MRi	Were you a foreman - was the hammerhead crane driver?
	SP	No, no, for the workers was a green overall.
	MRi	For the driver?
	SP	Not for all the workers. Like a fitter, plumbers and all that, yeah.
	DSt	Wages personnel, they had green overalls. Unless you were in the boiler shops and some of the very dirty spots and they'd sometimes have blue overalls on in certain filthy areas. Even the salaried staff, occasionally we would put blue overalls on if you were working in an area where you were going to get absolutely putrid. There was white ones, ridiculous in those areas so we'd put blue ones on. But the foremen had blue collars and the apprentices and the trainees, we had a brown collar on the overall so you could tell who was a trainee straight away and who was an apprentice because they had a brown collar on their overalls.
	IS	And the admirals would be the ones with the sort of very, very white.
	DSt	Naval officers wore white overalls as well. Now, this wasn't just out here. This followed British tradition through British dockyards, the white overalls for staff. Even my grandfather said in Hong Kong naval officers and supervisors and that they had white overalls.
	IS	Did they wear hats? Like sort of not hardhats but sometimes you see in pictures that the bosses all wore hats.
	DSt	Yeah. A lot earlier in the 1930s and that, of course, the foreman used to have a bowler hat on and the other workers'd have just a normal sort of hat but it was usually the foreman had the bowler hat on but that was back in the '20s and '30s and prior to that. That had phased out. Hardhats from my research first appeared on Garden Island about 1956 or '55, somewhere around that period I think it was but a lot of areas you didn't see hardhats being worn like you see them now. You know, going down to the dry dock it was common to see no hardhats down at the dry dock in those days and on the cranes.
22.03	IS	And you didn't have to wear a hardhat, Steve, did you?
	SP	Came to wear, I don't know. Like I was when I was with the fitters and all that we had to wear the green ones because we work on the cranes and something like that so you won't go hitting your head and all that but we had to wear the helmet and all that.
	MRi	Did you have to wear a bright vest?
	IS	Just came to an interesting time. When was the first fluoro vest?
	DSt	They weren't worn here, they weren't worn here for a long time. They have not been a natural part of the culture on Garden Island. It's only been the past handful of years that you've really seen those appear; they were not part of the - - -
	SP	The only big issue that we had in there when I started in Garden Island I went to navy dockyard police and they gave me a plastic green disk and all it had on it 'Naval Establishment' with a number on it. When I came in the morning through the gate showed them the disk.
	DSt	And that was it.
	SP	And then that's one we
	DSt	And now we've got these.
	MRi	Security has changed.
	SP	And what happened that time, the management says 'This is Navy Department' and everything, 'you've got to have your photo taken'. So they give us a mass meeting, paid and all that which is something unusual, but gradually we had to get our photos. Quite a few people objected to that and all that. Said 'Look, it's no good just coming in with a pin'.
	DSt	Anybody could come in.

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	SP	Yeah. And anyway said 'What we're going to do, different sections will go, take your photo and you can keep the negative and put it through the shredder yourself. And there was quite a lot of people that left and all that. Gradually that's what we end up with.
	IS	One of the questions, one of the issues raised about the position of a crane was mooring aircraft carriers next to it.
23.59	DSt	Yes. With the aircraft carriers, because there is so much overhang past the sides of the hull, especially where you've got your island on the one side, we had very large timber fenders that had to be placed along the fitting-out wharf to push the aircraft carrier some distance away from the wharf just so that they could clear where the crane was, which meant then you had to have – we had a thing called a 'Bailey bridge' which we used to put onto the carriers so that you could actually drive onto the flight deck from the wharf for loading and unloading. But it was getting to be such a complicated effort to try and get gangways put up onto a ship because of how far the ship had to be pushed away and you had to use very long gangways at funny angles to do all this and so if you can bring the ship in a lot closer it makes life a lot easier.
	IS	So they'd moor at No. 2 Berth rather than – is it No. 1 Berth opposite?
	MRi	The fitting-out wharf, is it?
	DSt	Well, back then we didn't have numbers like that; that's only a more recent thing. It was just known as the fitting-out wharf. That's where the carriers went because it had the deepest draught.
	IS	Oh right. And so that was where you'd normally find HMAS Melbourne and HMAS Sydney?
	DSt	That's where HMAS Melbourne, Sydney. Sydney used to go occasionally up onto the cruiser wharf, ended up there as well, but Melbourne was normally on the fitting-out wharf.
	IS	Right. O.K, well that's my questions.
	MRi	Terrific. Well, thank you very much to Dave.
	SP	Thank you.
	MRi	And thank you very much to Steve for our interviews today.

Hammerhead Crane Oral History—Transcript 4

Date: Friday 7 February 2014

Time: 8:30am

Duration:

35mins

Interviewee: Jeff Norton (JN)

Interviewers: Michelle Richmond (MRi) and Dr Iain Stuart (DS)

Time Stamp Speaker Transcript

Interview
begins

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| 0.00 | MRi | Well, good morning. Today is the 7th of February 2014 and my name's Michelle Richmond. I'm from GML Heritage and I'm here with Iain Stuart from JCIS Consultants and we are at Sydney TAFE today in Johnson Street Annandale because we're here to interview Jeff Norton who worked as a dogman on the hammerhead crane but now lectures in that here at the TAFE. Welcome, Jeff. Thank you very much for agreeing to be interviewed today. |
| | JN | It's a pleasure. Thank you for having me. I hope I can relay a bit of my information to you. |
| | MRi | Just tell us briefly what you do here at the TAFE. |
| | JN | I'm a full time teacher here. I've been here twenty two years. I teach basic construction skills in relation to rigging, dogging, scaffolding, cranes, hoists, elevating work platforms, etcetera, in relation to teaching people that come off the street or who have had a little or no experience in the construction industry and basically relay that to them in order for them to get what's known as now a high risk ticket allowing them to go onto a construction site, working as either a dogger, a rigger, scaffolder, etcetera. |
| | MRi | So you have actually worked as a dogman on the hammerhead crane at Garden Island? |
| | JN | Yes. I was employed at Garden Island for about fifteen months, from around about the 1990 to 1991 era. I was employed as a rigger out of the rigging loft at Garden Island but I also did scaffolding work and worked with cranes. Yes, and one of the jobs that I was allocated was to dog the hammerhead crane when jobs had to be done with that crane, which was not all that often but that's what I did. |
| 2.01 | MRi | Now, just to tell us what a dogman is – it's a very unusual word – just explain to people like me what is a dogman and where did the name come from? |
| | JN | Well, we're not allowed to call them 'dogmen' any more because there are women in the industry now so they are called now 'doggers' and a person working with a crane, specifically on the end or what we call the 'end' of a crane – in other words on the hook end of the crane – he is the person or she is the person that is involved in the application of slings to a load and in then directing the crane to actually lift, move and place that load. So that's generally the role of a dogger. And whether it's a hammerhead crane or tower crane, a mobile crane, a overhead crane it's irrelevant but any person doing that type of work is labelled in Australia a 'dogger'. |
| | MRi | But different name in other countries? |
| | JN | Yes. In England they are called 'banksmen', in the United States they are just called a generic term of 'ironworker' but, yeah, in my capacity of rigging in New Zealand and Australia we call ourselves doggers now. |
| | MRi | And you were telling me that the role of the dogger is they have special signals and they direct the cranes through a quite strategic role, yes? |
| | JN | Yeah. Three methods of directing a crane or communicating with the crane operator are one with hands so basically you have to be totally in view of the crane operator at all times for him to see what you are doing. Or you could use a whistle signal which is safer now and more the go nowadays, especially on city working sites with two-way radios to talk directly to the operator in relation to what had to be done. |

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4.11	DS	So at Garden Island you would have used hand signals?	
	JN	Hand signals and whistle signal, yes.	
	DS	With the hammerhead crane because of the distance could the operator actually hear the whistles?	
	JN	If you blew really loud and with the hand signalling it had to be very, very visual for him to see so as opposed to just doing a small hand signal type of thing you would use your whole arm so he could see what had to be done.	
	DS	Was there a standard set of signals?	
	JN	There is always, yes.	
	DS	Was that specific to Garden Island or was that generally across the industry at that time?	
	JN	Across the industry, yep. Every dogman has his own little kind of quirks as a signalling method type of thing but it's generally fairly set that you have to talk to the operator first and say 'If I want you to do this, this is what I'm going to do'. Like for travelling in or travelling out or hooking up or hooking down or slewing left or right it's a pretty set system and signalling method that is used, yes.	
	DS	So you didn't use radios at Garden Island?	
	JN	No. We were using radios once. It was quite funny actually. The crane boss at the time actually interrupted what we were doing and he was talking about what he was doing for lunch or something and basically I couldn't get onto the crane operator because he had jumped into our signal so basically I had to just go like this and say, you know, 'Stop, stop, stop'. So, yeah, quite often it was safer at the time just to use – well, we only use hand signals here.	
6.11	MRi	And you said in the past people used to ride the hook before all the safety methods came in.	
	JN	Yeah.	
	MRi	Tell us a bit about what that involved.	
	JN	I never rode the hook and I never saw it. I'm not sure if it actually – well, it wasn't done at Garden Island when I was there, it had finished by the time I got there. But riding the hook involved, as opposed to having a dogman down at the ground and a dogman on ship or up twenty-odd flights of a multistorey building, to save money and time, etcetera, well the dogger used to sling the load on the ground and then he used to hop in his sling type of thing which was attached to the hook and he would hop on the load in this sling and pull the bell rope. And that bell rope gave the crane signals up into the operating cabin. The operator could hear and just lift the load with the dogger and slew the crane with the load, etcetera, to where it had to go and the dogger would then stop the load just before it landed where he wanted it and he would hop off the load and then position the load in order then to land it when he was off the load, of course.	
	MRi	So obviously he had to have no fear of heights.	
	JN	Basically, no, and he had to have confidence in what he was doing and the crane operator, of course, yes.	
	MRi	Absolutely.	
	JN	Yeah. So that's now illegal now for the last twenty or thirty years.	
	DS	I'm not surprised.	
	JN	No.	
	DS	It does look from the photos we were just looking at from the construction of the crane that at least Sydney Steel had people riding the materials going up.	
	JN	Riding the hook, yeah.	
	DS	Yeah, riding the hook.	
	8.09	MRi	Now, tell us a bit about a day in the life of being a rigger and coming to Garden Island, how you

Time Stamp	Speaker	Transcript
		got your jobs and what you had to do to prepare for the hammerhead crane jobs.
	JN	O.K. Well, every day we used to get there. I was employed as a rigger at the rigging loft, as I said.
	MRi	You said there was about eighty riggers?
	JN	At the time, yes, there were eighty riggers in the loft type of thing and every rigger would have their task allocated for the day and generally in groups of two, three or four, sometimes more, depending on the size of the job, the duration of the job. So each group would be allocated their job or jobs for the day and we would have to go and suss out the jobs, etcetera, either in the dry dock, on board or in the various parts of Garden Island and determine what gear was needed for the task. We'd go back to the rigging loft and access that equipment, chain blocks, slings, cranes, etcetera, and then go about doing the job or jobs over the course of the day and that was our lot as a Garden Island rigger, basically.
	MRi	So how often was the hammerhead crane used during that time?
	JN	Not every day. In actual fact when I was there over the period of let's say a year and a half type of thing I may have dogged the crane maybe ten times or so. So it was only for specific, you know, heavy work that had to be done because that crane was on that set wharf type of thing. And I had the job quite often of lifting the JetCats, the hydrofoils, out to be put on barges because they used to break down quite often at that time.
	MRi	So they would lift the hydrofoils out of the water and then put them on a barge?
	JN	Yes. Yeah, we'd have to sling up the hydrofoils in the water. We'd have to position the crane with the slings that were already determined. We didn't have to think about the slinging method; that was a set slings and equipment that had to be used for specific jobs so we'd use those slings and primarily they were soft synthetic slings that would have to be slung under and around the JetCat - - -
10.28	MRi	Or the hydrofoil.
	JN	- - - or the hydrofoil, yes, and slowly lifted up and slew it around and put it onto the barge which would then go to Cockatoo and they'd do their business about fixing the boat up and weeks or a month or so later when it had been fixed, well, we had to do the same job again but taking off the barge and back into the water, back into service again.
	DS	So how did you get the slings 'round underneath the boat?
	JN	We had divers.
	DS	They had a diver who took it under there?
	JN	Yes, yeah.
	MRi	What else do you remember lifting for the hammerhead crane when you were at Garden Island?
	JN	One job there on a Sunday, I remember it very well it was a Sunday. We had to lift the periscope out of the shed where it had been having work done on it for a couple of weeks previous.
	MRi	You said that was that round building next to the crane with the open roof.
	JN	Yes, it was within radius of the crane. It was a very high tech maintenance shed type of thing and we had to lift a periscope horizontally out of the shed and then move that to the vertical position when we'd sling it around to where the submarine was moored in the water and then position this periscope very gingerly down into its little slot.
	DS	I can imagine.
	JN	And it took maybe a couple of hours because a Sunday afternoon there's people on the water and there's wake going past and the sub's going up and down. Luckily it wasn't too bad a day, actually, and that was one of the longer jobs that we've done.
12.11	DS	Yeah. But I imagine the periscope probably wouldn't have been heavy but you probably needed the height.
	JN	Yeah. It was like threading a needle, actually, into a slot and if the ship went off vertical type of

Time Stamp	Speaker	Transcript
		thing or the periscope went off vertical once it was in the slot, well, you'd damage the periscope again. So once it was positioned type of thing we had to wait for the movement on the harbour to kind of subside a bit and say 'Right. O.K, now let's go down' and get it into where we had to.
	DS	So that would have required quite a lot of work between you and the crane operator.
	JN	Absolutely, yes. It was pinpoint positioning with the radius, etcetera, and then once we had it basically set exactly over the shaft, over the hole, the slot type of thing, then down we went.
	DS	So it was all done by eye and guessing.
	JN	Purely by eye.
	DS	So there wasn't any lasers or anything to sort of check?
	JN	No, no, certainly not, no.
	DS	So that really highlights the skill level involved which most people wouldn't really understand.
	JN	Of a dogger, yes, and the crane operator for that matter.
	DS	Well, it's a whole team, isn't it?
	JN	It is, it's a team job, yes.
	DS	And the really interesting thing is that it's hand signals so it's not sort of instant sort of there and there's not a computer program in predicting the
	JN	Certainly not, No. Where cranes these days have computers and you are using two-way radios so you've got absolute contact with the operator back then, no, it was just communication.
	DS	So just backtracking, you qualified as a rigger?
14.02	JN	Yes. I'm a rigger, dogger, crane driver.
	DS	So how long had you been qualified before you started working at Garden Island or was that your first job?
	JN	Back in the days when I first started rigging licenses, hand watch(?) certificates, tickets, weren't actually asked for, it was just experience that was required. So when I started working on construction sites I just looked, listened and learned and I found my way, you know, looking at rigging, scaffolding, cranes, etcetera, I really liked that particular type of work so I just went into that avenue of work and started doing rigging and working with cranes, etcetera. And it would have been ten years later, actually, that I was first asked to get a rigging ticket because quite a long time I was working as a rigger but I was always working under experienced people and that's how we got our experience. You wouldn't be just immediately classified as a rigger or a crane driver; you would have to prove your worth for a start-off and then 'O.K, now we'll start teaching you'.
	DS	So when you joined at Garden Island did you need to show a certificate or join a union?
	JN	Yes, yes. I had my tickets then, I had quite a few tickets actually and, yes, we had to join a union being at Garden Island.
	MRi	Which union was that?
	JN	It wasn't the Painters & Dockers, it was the other union there – I was just trying to remember earlier, actually. It was the other union there. You either had to be a P&D or the Ironworkers.
	MRi	Ironworkers?
	JN	Yes. Anyway, I was in the other one.
	MRi	You could choose?
	JN	You could choose, yes, and I chose that one for no specific reason.
16.02	MRi	Because when you were there it was past the era when Garden Island had been so highly unionised, wasn't it?
	JN	Well, it was still in that era but was coming to the close of it and I think around about that era

Time Stamp	Speaker	Transcript
		that's when - - -
	MRi	ADI took over?
	JN	Yeah. And that's one of the reasons why I actually left Garden Island, one because I got the chance to work here as a TAFE teacher but two because the rumours were about that Garden Island was kind of closing down at that time and, yeah, jobs were being lost. So I think at the time initially there were eighty-odd riggers in the rigging loft. It was down to about forty or so, they were whittling away, so I thought 'Well, you know, I've done me time here and so it might be a good time to get out'.
	MRi	We've got some photographs here of some of the hooks and there were different hooks for different weights on the crane and we just might do a couple of these and we'll try to explain for the benefit of the tape what we're actually having a look at just so that Jeff can explain a couple of the images here.
	DS	I'll call this Image 10 because I can't remember what the last image was from the previous interview. This is the 40 tonne crane because it's got 40 tonnes.
	JN	Forty tonne safe working load, yep.
	DS	Safe load, which is one of the tricks that we Industrial Heritage people use, is we look at the
	JN	Well, that's exactly what pictures are for, actually. Depending on who you were working with and where you came from, etcetera, and then the companies, of course, they call various things their little kind of signature type of thing but generally on a crane you have a main hook which does the heavy lift, depending on the crane capacity.
	MRi	So for the hammerhead that would be the 250?
	JN	Yes, for lifting the big, heaviest loads, yeah, but that would take an extremely long time for the hook to go up and down.
18.05	MRi	How long did it take for the hook to go up and down?
	JN	Was it twenty-odd minutes or so for the crane hook to go from top - - -
	DS	That's because we told you, isn't it?
	JN	Yes, it is.
	MRi	Steve told us that yesterday.
	DS	We need to make sure when we're doing these things that we're not - - -
	JN	Well, I said it was 'round about five minutes but anyway from the go to whoa we had a bit of time between top and bottom. But the smaller hook, the 40 tonne hook, had less parts of rope on it which enabled a faster ascending and descending time and that was used for smaller, lighter lifts and also to get the beak(?) lifting gear on and off the larger hook because some of that lifting gear was quite big and heavy and cumbersome so the smaller hook was used for the smaller loads, of course, and it's just the rigging of the crane itself. Photo 11 is the main hook, yes.
	MRi	It looks really big.
	JN	Well, it is.
	MRi	And you were talking about how many.
	JN	Yes, the hook itself – well, we can't see the hook here because it's hidden by the plywood but the hook is what's called a fishbone hook which has two hooks on it opposite each other so that when slings or shackles and lifting equipment and loads are actually hanging from the hook hopefully it's balanced correctly so each part of the load is equal to each side of the hook. But that hook goes up through the actual lifting beam or a spreader beam if you want and the hook goes through the centre of the spreader beam through which the hook swivels in the spreader beam. On each side of the spreader beam lifting points which the lifting sheaves go and those sheaves are basically wheels in which the wire ropes go through from the hook sheaves, of course, and then up to the top of the crane boom and then onto the actual winch.
20.11		O.K, so from the winch the rope comes through the top sheaves, through the bottom sheaves

Time Stamp	Speaker	Transcript
		quite a number of times and in this case there are three sheaves per whatsaname and so there's six sheaves on the bottom, six sheaves on the top so there would be in total twelve parts of rope lifting the main hook. On the auxiliary hook I think there are four parts of rope.
	DS	And that's so that your rope doesn't have to be strong enough, each bit of wire rope doesn't have to be strong enough to lift 250 tonnes, otherwise the rope would be hugely - - -
	JN	No.
	MRi	When you say 'rope', is it rope?
	DS	Wire rope.
	JN	Wire rope, yes, FSW wire rope, yeah, coming from the winch. And that number of parts of rope we call wire rope, yeah, in that system, in that sheave system which is called a purchase system, is called the 'mechanical advantage'. So if one part of rope is good for let's say ten tonnes and in this case having twelve parts of rope it would be good for – what's twelve times ten – is a hundred and twenty tonnes. So if the rope had a safe working load of twenty tonnes or whatever, well, depending on how many parts of rope were reeved in a purchase system, well that would divide the load into each of those parts of rope and that basically is operating system of a crane and that's what enables cranes to lift quite heavy loads, by dividing the loads into those parts of rope.
	DS	When we talked to Steve yesterday - - -
	MRi	Steve being the crane driver.
	DS	- - - yeah, he said that he could actually on the 250 tonne use an auxiliary lever to slightly slew the lift so that one set of sheaves could lift slightly higher than the other to try and slew the load around when it's like that, does that sound sort of – you're looking at me very puzzled. He's got the sort of 'Iain is an idiot' look.
22.24	JN	No, no, no, no, no, No. No. As a dogman I'm just doing what I have to and I direct the crane.
	DS	So you weren't aware that they - - -
	JN	No, I didn't know that, actually. But, yeah, there's different anomalies for every crane and if that was one of the things, well, that's what he did. So 'Go ahead, crane driver. You drive your crane'.
	DS	I just wanted to show you a photo out of Warwick Stuart's book which is from the Naval Historical Society and it shows them lifting out a Tartar missile launcher from Brisbane. But have a look at that. That doesn't look like a fish hook, does it? So I was wondering whether maybe they had different setup systems.
	JN	Right. Well, they certainly could have. Maybe they took the main hook off that lifting device, the main lifting beam, and attached a specific ring.
	DS	Yeah, because that looks like a couple of sheaves there. That shows a different setup again. That looks like a totally different setup again, doesn't it? That's that, isn't it?
	MRi	When you say 'that's that', what do you mean?
	DS	We're not going to tell you.
	JN	Well, we're looking at Picture 11 here but we're also looking at the - - -
	DS	Lifting out of the launcher from HMAS Hobart which is in the ADI newsletter of August 1990.
	JN	On page 8. O.K, we're looking at this picture here. You've got three actual spreader beams. You've got two at the top with the main sheaves and the parts of rope and underslung from that is another lifting beam and underslung that beam is the actual lifting apparatus. But again there is no hook on it, they are just massive shackles or lifting rings, yes.
24.22	DS	So it is interesting that the two photos which this photo here is of the removal of HMAS Brisbane – it's dated 1985 – and this one is five years later so I'm sort of assuming that there are different setups for whatever reason.
	JN	Well, yeah. Either there is or they had just modernised that actual lifting hook and arrangement itself. I'm not sure, actually.

Time Stamp	Speaker	Transcript
	DS	Yeah, which makes sense. We don't know that but it raises a question for historians to go the archives and find out.
	JN	Look, with all cranes, irrelevant of hammerheads, etcetera, they can all be rigged to a specific purpose and they have to be rigged for a specific purpose. So in this case here maybe that hook or sling or arrangement had gone out of date and they'd brought in a new, more modern, safer method or whether it was just a different lifting method for the load that had to be lifted I am unaware.
	DS	Yeah, right.
	JN	You'd have to ask the crane blokes, yeah. I'll have a look at my reference names and see if I can get back to you with the few people I can remember that I worked that maybe if they're still alive give you names, blokes that were on the crane side of things rather than the rigging side of things.
26.07	MRi	Now we're just going to move onto stories that you know about the crane from your time working there. Tell us any stories that you know about the hammerhead crane.
	JN	Well, stories I've heard. I went up there one day just basically to take photos and we weren't not not allowed but, you know - - -
	MRi	Not encouraged.
	JN	- - - we weren't encouraged to go up there but I think during lunchtime or so we'd get some great photos up there and I did take a couple of photos from the operator's cabin looking down onto the hook below which was down onto a ship - I can't remember what it was that we had been working on - and some quite great photos up there. But right at the top of the crane in the winch - what did we call it? I think it was known as the 'penthouse' - where all the workings and the goings-on of the crane were, well it used to be quietly often frequented by workers at Garden Island for a quiet snooze. Or maybe on a night shift or whatever 'O.K, we've done our work. We might just go up and have a little sherbet or two just to while away the night'. So, yeah, basically it was a good hidey-hole type of thing for some people.
	MRi	Did they have to light the crane up at night so that it was visible?
	JN	I'm not sure actually. With cranes in the city these days over a certain height they do have to have, yeah, lights for aviation safety type of thing. I'm not sure if the crane was that high enough on its own.
	DS	I would have thought that would have been a prohibited zone around Garden Island.
28.04	JN	Well, within the whole of the centre of Sydney itself you can't fly over it type of thing but certainly out Botany way where you're nearer the airport where construction is going on and cranes are poking up into the sky, yeah, there has to be lights on it.
	DS	Yes, obviously. It's more, I think, for the helicopters because if you ever go around there when there's something like a big ship coming in or something the number of bloody helicopters whizzing around, you do wonder why there haven't been more crashes.
	MRi	So do you think anybody did anything like abseiling or anything off the crane? Did you ever see anything like that?
	JN	I didn't see any but, crikey, these days you get lots of not looneys but people wanting to do, you know, exciting stuff.
	MRi	Jumping off the crane into the water.
	JN	Yeah. Well, that'd be a good dive, wouldn't it? I've been known to do silly things like that but, no, I didn't and I haven't heard of anyone abseiling or whatever but just the climb itself was a decent climb, you know.
	MRi	Did you climb it? You can go up in the lift?
	JN	No, I climbed it in the stairs because, crikey, you wouldn't trust the lift, actually.
	MRi	Now, Jeff, any other stories, anything else that you haven't told us that you wanted to tell us about the crane?

Time Stamp	Speaker	Transcript
	JN	I just used to work on the crane, I used to enjoy it.
	MRi	Did you enjoy the experience of the crane?
	JN	Absolutely, yeah. Like number one crane on the site and number one dogger, etcetera, I was quite chuffed in actually being asked to dog it.
	MRi	So it was definitely considered the number one?
	JN	Well, I don't think it was then but I remember back on it and I remember back on it and I think 'Well, yeah, I was the dogger' and I was asked to do that stuff so, yeah, I was pretty chuffed, yeah.
	MRi	Fantastic.
	DS	And you worked on pretty much all the other cranes as well?
	JN	Yeah, all the other portable cranes, the mobile cranes across the whole Garden Island, yes, and various wharves in the dry docks, etcetera. But the hammerhead crane being on the – I'm not sure what number wharf it is - - -
30.15	MRi	The fitting-out wharf, wasn't it?
	JN	Is it the fitting-out wharf? Again, I should be telling you this.
	MRi	It's got a name now.
	DS	No, I think its name's changed. I think it's now No. 1 Fleet Base East.
	JN	O.K. Well, being number one you'd assume it to be No. 1 having the heavy crane there, yeah.
	DS	'Don't park your aircraft carriers here'.
	MRi	Terrific. Well, thank you so much for that, Jeff, that's been fantastic. Really appreciate you giving us your time today.
	JN	It's a pleasure.
	DS	Thank you.
	JN	Cheers.

Permission Form for Interviewee 1—Warwick Stuart



Date: 17.2.2014

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The information that GML is collecting from you would be considered personal information under the Privacy and Personal Information Act 1998

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- GML Heritage

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Please sign and date this form to show your understanding and agreement to the collection and use of your personal information as indicated above.

Name: Warwick Stuart

Address: 11 Stuart Close, Illawong 2234

Signature: Warwick Stuart

Date: 17.2.2014

Yours faithfully

Michelle Richmond
Historian/Senior Heritage Consultant
GML Heritage

Permission Form for Interviewee 2—Steve Petras

GML Heritage

Date: 6/2/14

Privacy Notification Form

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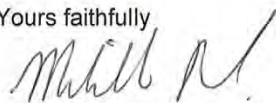
Name: STEVE PETRAS

Address: 21-B GLENHAVEN CL UMINA

Signature: [Signature]

Date: 6-2-14

Yours faithfully



Michelle Richmond
Historian/Senior Heritage Consultant
GML Heritage

Permission Form for Interviewee 3—David Stockman

GML Heritage

Date: 6/2/14

Privacy Notification Form

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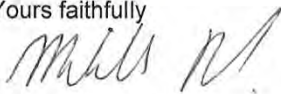
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Please sign and date this form to show your understanding and agreement to the collection and use of your personal information as indicated above.

Name: DAVID STOCKMANAddress: 3 FOREST PL GALSTON NSWSignature: Date: 6/2/2014

Yours faithfully



Michelle Richmond
Historian/Senior Heritage Consultant
GML Heritage

Permission Form for Interviewee 4—Jeff Norton

GML Heritage

Date:

7/2/2014

Privacy Notification Form

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Please sign and date this form to show your understanding and agreement to the collection and use of your personal information as indicated above.

Name:

JEFF NORTON

Address:

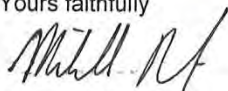
17 SUNDARE AV, TERRIGAL, NSW

Signature:

Date:

7.2.14

Yours faithfully



Michelle Richmond

Historian/Senior Heritage Consultant

GML Heritage

Appendix D

Other Considered Interpretive Initiatives

Appendix D—Other Considered Interpretive Initiatives

Interpretive Option i)—Sculpture/Artwork

Location	Harbourside location, RAN Heritage Centre, Garden Island Naval Base, Sydney.
Audience	Visitors to the RAN Heritage Centre, personnel at Garden Island, observers from the harbour and the general public.
Themes and Stories	Heavy Lifting. Working Docks. Harbour Landmark.
Potential Interpretation Initiatives	Commission an artist to create a sculpture/artwork which utilises salvaged pieces from the Hammerhead Crane (steelwork, machinery, etc) to create an industrial work of art which conveys the industrial nature, size/scale and importance of the crane.

Examples



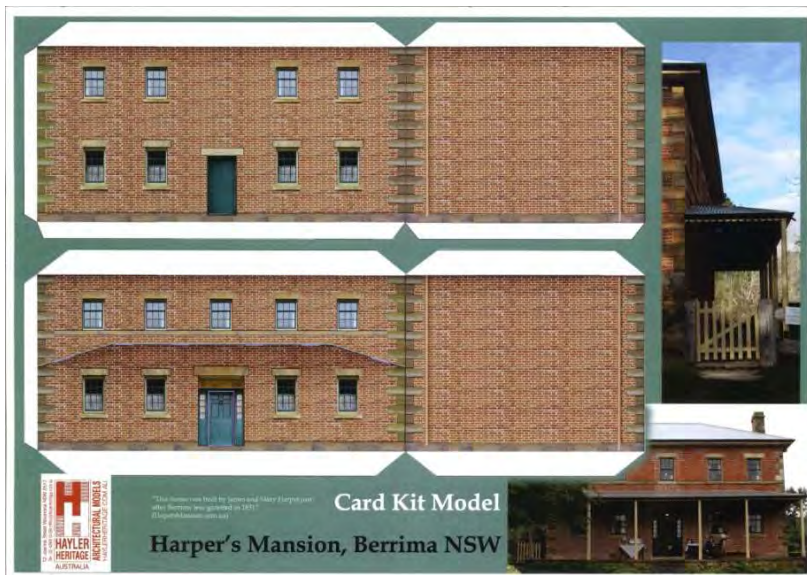
'SubWharfyeen' by Braddon Snape in 2008 is a sculpture located on the end of Piers 8 & 9 at Pyrmont.



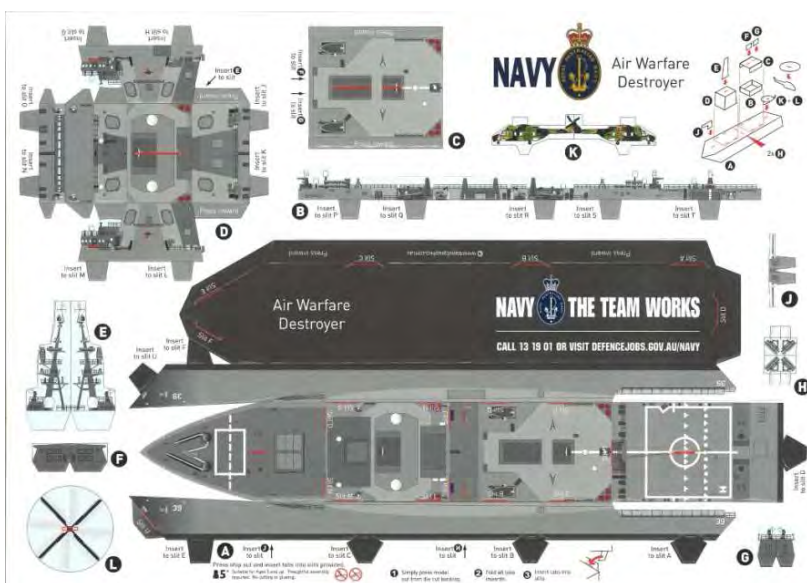
Re-use of the former 1888 Carriage Workshops original trusses, as entry signage for the CarriageWorks Contemporary Arts Centre in Sydney.

Interpretive Option ii)—Card Kit Model

Description	A 3D card kit model that is created to be a novel representation of the Hammerhead Crane, evoking memories and sparking interest in the Hammerhead Crane. Used for promotional material, collectors' items or educational purposes.
Location	At the RAN Heritage Centre, as a handout at the farewell event and in any media publication related to the Hammerhead Crane removal project (eg newsletters and newspaper articles).
Audience	General public, collectors.
Themes and Stories	Defending Australia. Heavy Lifting. Working Docks. Harbour Landmark.
Resources Utilised	A 3D model of the Hammerhead Crane to form a simple geometric model of the crane.
Examples	



Example card kit model of the Harper's Mansion in Berrima, NSW. (Source: Hayler Heritage Australia)



Example card kit model of the Air Warfare Destroyer. (Source: RAN)

Interpretive Option iii)—Farewell Event

Description	A farewell event to allow the public and stakeholders a final experience of the crane in situ. The on-site experience should include information and exhibitions about the Hammerhead Crane and its role at Garden Island.
Location	Fleet Base East at Garden Island Naval Base, Sydney.
Audience	General public.
Themes and Stories	Defending Australia. Heavy Lifting. Working Docks. Harbour Landmark.
Resources Utilised	Use of historic images and drawings. Archival material (photography, time-lapse, video, oral history and a 3D model).
Examples	



Town Hall burial sites public open day.



Sydney Opera Open Day publicity material.



Snowy Hydro SouthCare Helicopter Base open day.



Breakfast on the Bridge, Sydney Harbour Bridge, 2009.

