

Macquarie Lightstation



Harbour Trust



Australian Government
Sydney Harbour Federation Trust

Environment Protection and Biodiversity Conservation Act 1999

MAKING OF THE MACQUARIE LIGHTSTATION HERITAGE MANAGEMENT PLAN 2020

I, MARY DARWELL, Executive Director, Sydney Harbour Federation Trust of the Department of the Environment, acting pursuant to section 341S of the *Environment Protection and Biodiversity Conservation Act 1999*, hereby make the Macquarie Lightstation Heritage Management Plan, to protect and manage the Commonwealth Heritage values of the Macquarie Lightstation Commonwealth Heritage place.

Dated this 9th day of October, 2020.

.....
Mary Darwell
Executive Director
Sydney Harbour Federation Trust

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Authors

Staff of the Sydney Harbour Federation Trust.

A list of supporting studies is available at Appendix C of this Plan.

Acknowledgement

The Harbour Trust acknowledges the Traditional Owners of this land the Birrabirragal people, and pays its respects to elders past and present.

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Harbour Trust Management Plans for Macquarie Lightstation

Date Commences	Date Revoked	Plan Name	Comments
20 December 2007	8 October 2020	Macquarie Lightstation Management Plan	Made and adopted in accordance with the Harbour Trust's Comprehensive Plan.
9 October 2020		Macquarie Lightstation Management Plan 2020	Made and adopted in accordance with the Harbour Trust's Comprehensive Plan and section 341S of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> . This Plan includes updates to site conditions and relevant NSW and local plans. The Plan commenced on the day after it was published on the Federal Register of Legislative Instruments.



1. INTRODUCTION

Macquarie
Lightstation



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1. Introduction

Section 1 sets out the requirement for and the purpose of this Management Plan and provides an introduction to the land to which this Management Plan applies.

On 21st August 2003 the Minister for the Environment and Heritage (now the Department of the Environment and Energy) approved a Comprehensive Plan for the then seven harbour sites managed by the Sydney Harbour Federation Trust. The plan, which was prepared in accordance with the requirements of the *Sydney Harbour Federation Trust Act 2001*, sets out the Harbour Trust's vision for the harbour sites under its control.

A requirement of the Harbour Trust's Comprehensive Plan is that more detailed management plans are prepared for specific precincts, places or buildings. In addition to this the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* also requires the Harbour Trust to make plans to protect and manage the Commonwealth Heritage values of Commonwealth Heritage Places that it owns. Macquarie Lightstation (which refers to the Lighthouse and ancillary buildings) is identified on the Commonwealth Heritage List as one of these places.

Accordingly, the purpose of this Management Plan is to guide the outcomes proposed in the Harbour Trust's Comprehensive Plan and to satisfy the requirements of Schedule 7A and 7B of the *EPBC Regulations 2000* and to be consistent with the Heritage Management Principles.

The Macquarie Lighthouse is a working maritime safety structure. It is this function which gives it such significance, reminding us that this is a harbour city which from its colonial infancy has relied on its links to the

outside world. The Comprehensive Plan proposes to continue this working function, enhance the landmark qualities of the site and to improve its relationship with the adjacent coastal walk and cliff top parkland. It also proposes to continue and improve public access and to interpret the many phases of history of the site.

The vision for the site is a place where the Macquarie Lightstation's position as an important attraction along the coastal walk and as a prominent harbour landmark is preserved and enhanced. The site's rich cultural heritage, including its early Aboriginal occupation will be protected and interpreted.

1.1. Commencement Date

This plan was reviewed by the Australian Heritage Council at its meeting on 7 June 2019. The Council agreed that the plan as drafted is not inconsistent with the Commonwealth Heritage Management Principles and the requirements of the *Environment Protection and Biodiversity Conservation Act 1999*. The Plan was adopted by the Harbour Trust Board on 17 September 2019 and came into force the day after it was published on the Federal Register of Legislative Instruments.

1.2. Land to which the Management Plan Applies

The land covered by the Management Plan is shown by broken black edging on the plan at *Figure 1*, described as Lots 1, 4, 5 and 6 in DP 801240 and Lots 1 and 2 in DP 811578. All of the land is owned by the Sydney Harbour Federation Trust.

The Australian Maritime Safety Authority (AMSA) has a lease over Lot 4 in DP 801240 until 2023, and is responsible for the operation of the Lighthouse.

Lot 1 in DP 801240 and Lot 1 in DP 811578 (the Assistant Keepers' Quarters) and Lot 5 in DP 801240 (the Head Keeper's Quarters) are leased as private residences with leases expiring in 2116 and 2119 respectively.

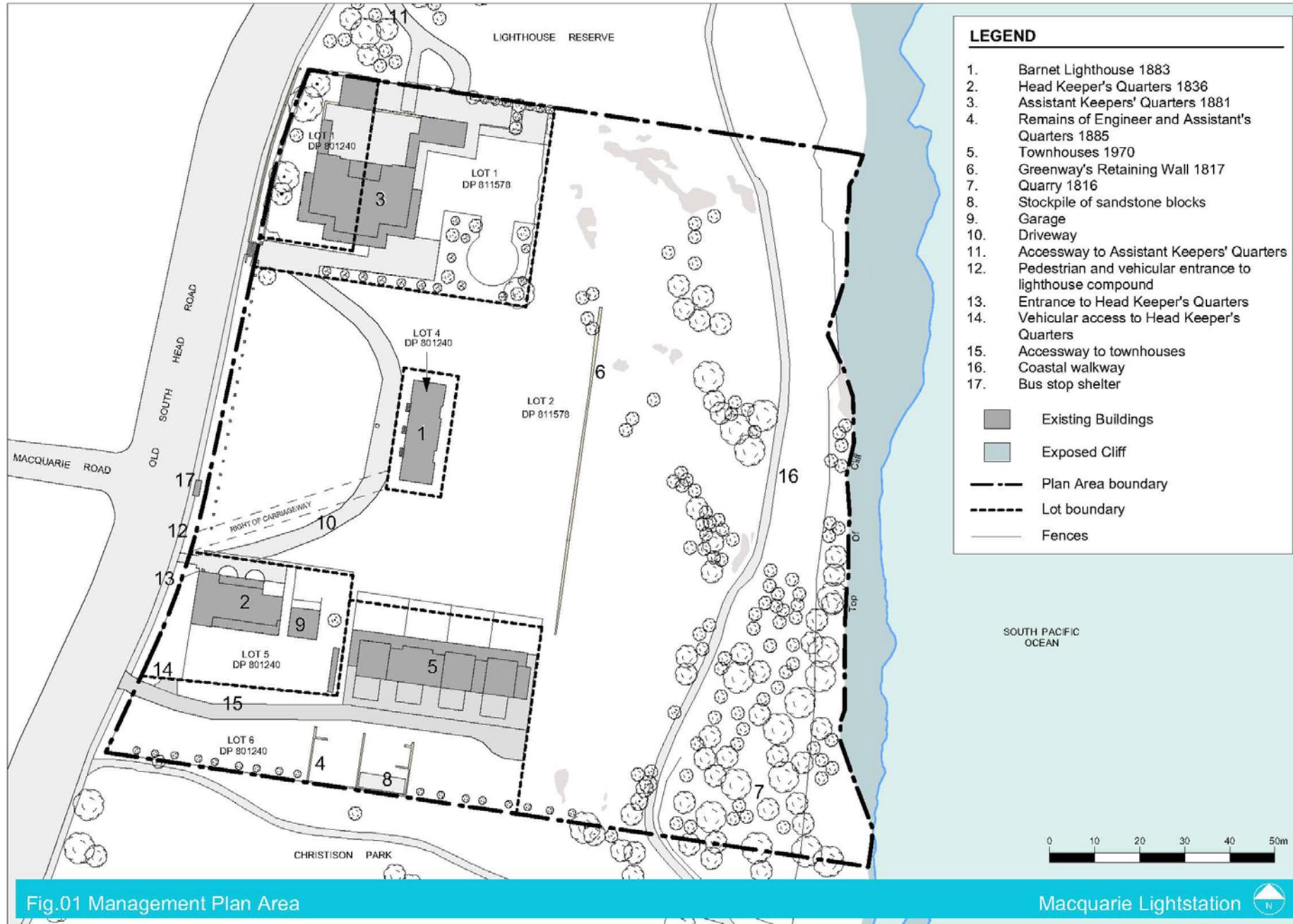


Fig.01 Management Plan Area

Macquarie Lightstation 



2. AIMS OF THIS PLAN

Macquarie
Lightstation



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2. Aims of this Plan

Section 2 outlines the aims of this Management Plan.

The aims of this Management Plan are to:

- Maintain the continuing operation of the Lighthouse as a navigation beacon;
- Conserve and interpret the Commonwealth Heritage values of the Macquarie Lightstation and to facilitate its interpretation and appreciation as a landmark historic place in Sydney; and
- Maximise public access.

In doing this it also aims to:

- Be consistent with Commonwealth Heritage management principles;
- Conserve and enhance the landmark qualities of the site and important views to and from the site and retain historic visual connections to the lighthouse lantern;
- Improve the relationship of the site with adjoining public open space and coastal walk;
- Interpret the original Greenway Palladian-style Lightstation and compound, and the quarry;
- Retain the open windswept character of the site and ensure that plantings and vegetation do not obstruct important historical sightlines;
- Improve vehicular access to the Head Keeper's Quarters;
- Provide visitor facilities and amenities including toilets, interpretation and gathering areas;
- Improve the reticulation of existing services on the site including stormwater, water and power;

- Appropriately manage any remnant site contamination and hazardous materials;
- Improve the management of stormwater runoff;
- Apply the principles of Ecologically Sustainable Development (ESD); and
- Address any potential consequences of climate change.



3. PLANNING FRAMEWORK

Macquarie
Lightstation



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3. Planning Framework

Section 3 outlines the planning framework that will guide the future use of the Macquarie Lightstation Precinct.

3.1. Sydney Harbour Federation Trust Act 2001

The objects of the Harbour Trust are set by the *Sydney Harbour Federation Trust Act 2001* (SHFT Act), which are to:

- *Ensure that management of Trust land contributes to enhancing the amenity of the Sydney Harbour region*
- *Protect, conserve and interpret the environmental and heritage values of Trust land*
- *Maximise public access to Trust land*
- *Establish and manage suitable Trust land as a park on behalf of the Commonwealth as the national government*
- *Co-operate with other Commonwealth bodies that have a connection with any harbour land in managing that land*
- *Co-operate with New South Wales, affected councils and the community in furthering the above objects.*

The SHFT Act defines land that is vested in the Harbour Trust as ‘Trust land’ and surrounding land as ‘Harbour Land’. The SHFT Act requires the Harbour Trust to prepare a Plan (the Comprehensive Plan) for *Trust land* which may also cover *Harbour land*. The Comprehensive Plan, prepared in 2003, recognises the strategic value in its lands by allowing the Harbour Trust to take an holistic approach to its planning through the development of objectives, policies and outcomes to be implemented across its sites. This Management Plan furthers these objects.

3.2. Harbour Trust Comprehensive Plan

The Harbour Trust’s Comprehensive Plan, which commenced in 2003 and was amended in 2009, is a broad strategic plan which sets out the vision for all of the Harbour Trust’s sites and includes a process for preparing more detailed Management Plans for specific places, such as Macquarie Lightstation.

The Comprehensive Plan provides a framework for maintaining the site’s position as an important attraction along the Coastal Walk, and as a prominent landmark for all to see. It also seeks to preserve and enhance the site into the future, by removing intrusive structures and interpreting and conserving significant archaeological remains.

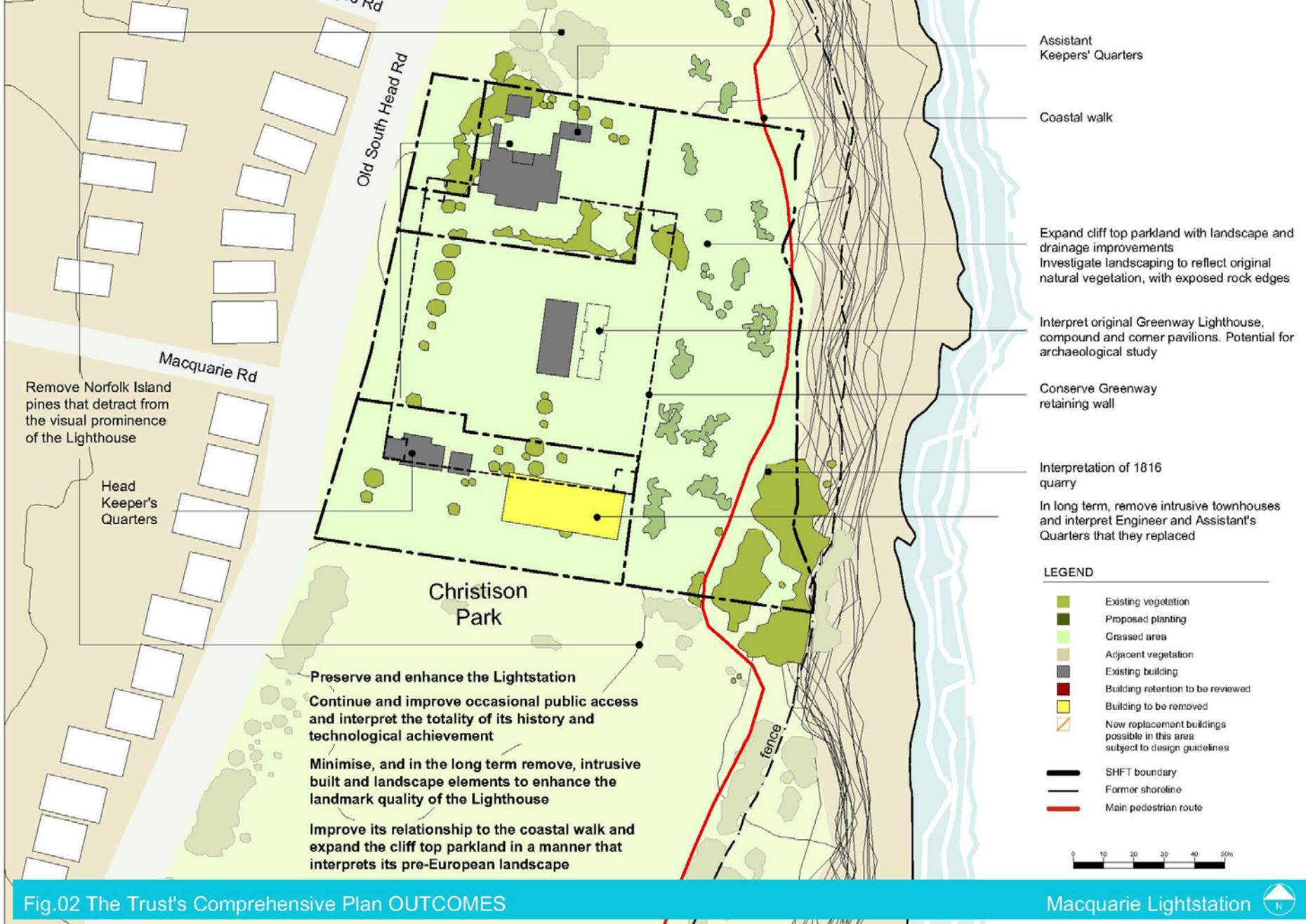


Fig.02 The Trust's Comprehensive Plan OUTCOMES

The *Outcomes* diagram in *Part 10* of the Harbour Trust's Comprehensive Plan for Macquarie Lightstation is reproduced at *Figure 2*.

The Comprehensive Plan sets out overarching Objectives and Policies for all of its sites (Part 3). Those that are most relevant to this Management Plan are: Ecologically Sustainable Development (ESD); cultural heritage; adaptive re-use of places and buildings; removal of buildings; design approach; tourism; contamination; water quality and catchment protection; access, open space and recreation; funding and management of leases; consultation and communities. The ways in which these objectives and policies will be implemented are covered throughout this Plan.

Part 3 also sets out Objectives and Policies for Consultation and Communications. Management Plans (including this Plan) will be prepared in consultation with the Harbour Trust's Community Advisory Committee (CAC), the broad community, the Local Aboriginal Land Council, special interest groups, and Local, State and Commonwealth Governments.

The Harbour Trust's Comprehensive Plan is available on the Harbour Trust website: <http://www.harbourtrust.gov.au/>

3.3. Harbour Trust Management Plans

Harbour Trust Management Plans are site-specific plans that refine and detail the site objectives and outcomes established in the Comprehensive Plan. They identify desired outcomes, suitable land uses, and how a site's environmental and heritage values should be protected and interpreted.

This Management Plan describes specific outcomes for the Macquarie Lightstation. It interprets the Harbour Trust's Comprehensive Plan and guides its implementation by providing more explicit detail about the way the site is used, interpreted and conserved.

This Management Plan is to be read in conjunction with the SHFT Act and Comprehensive Plan, in particular the Outcomes identified in Part 10 (see Figure 2 of this Plan), and the Objectives and Policies in Part 3 of the Comprehensive Plan.

All of the Harbour Trust's management plans are available on the Harbour Trust website: <http://www.harbourtrust.gov.au/>

3.4. Related Harbour Trust Policies and Guidelines

There are a number of overarching Policies and Guidelines foreshadowed in the Harbour Trust's Comprehensive Plan that will be developed over the lifetime of the Harbour Trust and that will also guide the development of the Macquarie Lightstation. Current relevant policies are:

- The Harbour Trust's *Corporate Plan*;
- The Harbour Trust's *Reconciliation Action Plan*;
- The Harbour Trust's *Rental Subsidy Policy for Contributory and Delivery Partners*;
- The Harbour Trust's *Leasing of Land and Buildings to Community Users Policy*;
- The Harbour Trust's *Event Policy*; and
- The Harbour Trust's *Heritage Strategy*; and
- The Harbour Trust's *draft Access Policy*.

This Management Plan has regard for these existing policies. If or when other Harbour Trust Policies and Guidelines are developed this plan will be reviewed to ensure that they do not impact adversely on the Commonwealth Heritage values.

3.5. Environment Protection and Biodiversity Conservation Act 1999

All 'actions' on Trust land, undertaken by either the Harbour Trust or on behalf of the Harbour Trust, are controlled by the *Environment Protection and Biodiversity Conservation (EPBC) Act, 1999*, as amended.

Section 26 of the EPBC Act protects all aspects of the environment on Trust land from actions taken either on the Harbour Trust's land or on adjoining land that may have a significant impact on it, while Section 28 protects the environment from any actions of the Harbour Trust that may have a significant impact. The environment is defined to include:

- (a) ecosystems and their constituent parts, including people and communities; and
- (b) natural and physical resources; and
- (c) the qualities and characteristics of locations, places and areas; and
- (d) heritage values of places; and
- (e) the social, economic and cultural aspects of the matters mentioned in (a), (b), (c) or (d) above.

Section 341S of the EPBC Act requires the Harbour Trust to prepare a management plan for Commonwealth Heritage Places. This Plan is prepared in accordance with this requirement.

3.6. Heritage Strategy

Section 341ZA of the EPBC Act requires the Harbour Trust to prepare a written heritage strategy for managing Commonwealth Heritage Places to conserve their heritage values. The Harbour Trust's heritage strategy was prepared in 2006 and amended in 2016.

The heritage strategy complements the Comprehensive Plan and describes how the Harbour Trust will protect and communicate the Commonwealth Heritage Values of its sites, integrate heritage management with its core business responsibilities, and monitor and report on the progress in the implementation of the strategy. It is available on the Harbour Trust's website: <http://www.harbourtrust.gov.au/>

3.7. Assessment of Actions

The Harbour Trust is the planning authority for actions on its lands and assesses actions in accordance with the SHFT Act, Comprehensive Plan and EPBC Act.

The Harbour Trust will consult with the community about significant proposals. In some exceptional circumstances, proposed actions that are considered to potentially have a significant impact on the environment or heritage values will also be referred to the Minister for the Environment for further assessment and approval under the EPBC Act.

Section 341ZC of the EPBC Act requires the Harbour Trust to have regard for the Commonwealth Heritage values of a place before it takes an action and to minimise the impact that the action might have on those values. The Commonwealth Heritage Values section of this Plan describes the values of the site.

3.8. State and Local Legislation

The *Sydney Harbour Federation Trust Act, 2001* specifically excludes any land owned by the Harbour Trust from the operations of state planning law. This includes State Policies (SEPPs) and Regional Environmental Plans (REPs) prepared by the State Government and Local Environmental Plans (LEPs) prepared by councils.

Notwithstanding this the Harbour Trust aims to follow State legislation in order to ensure consistency and best practice. This Plan has been prepared so that it is consistent with both State and local plans.

Relevant state and local instruments are:

Eastern City Plan

In 2018, the Greater Sydney Commission released a District Plan for the Greater Sydney's Eastern District. The Eastern District is set to become more innovative and globally competitive. The plan aims to improve this District's lifestyle and environmental assets with a key objective being to ensure that environmental heritage is conserved and enhanced.

The Eastern District includes a significant part of the inner suburbs of Sydney, including the CBD, airport and eastern suburbs including Macquarie Lightstation and surrounding suburbs. The District Plan is a plan to manage the next 20 years of growth as part of a 40-year vision for Greater Sydney. It is a guide for implementing the *Greater Sydney Region Plan, A Metropolis of Three Cities* at a district level and is described as "a bridge between regional and local planning".

Of particular relevance to Macquarie Lightstation are the District Plan's priorities relating to delivering Sydney's "Green Grid" of parks and open spaces, ensuring services and infrastructure meet communities' changing needs, and fostering healthy, creative, culturally rich and socially connected communities. This occurs through a range of measures including identifying, conserving, interpreting and celebrating Greater Sydney's heritage values. In addition, the District Plan highlights the Great Coastal Walk, which passes by Macquarie Lightstation. This aligns with the Harbour Trust's aim of maximising public access to its sites, and creating a network of paths that is integrated with adjoining lands.

Sydney Regional Environmental Plan – Sydney Harbour Catchment 2005

The *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*, (Harbour REP), covers all the waterways of the Harbour, the foreshores and entire catchment.

The Harbour REP includes a range of matters for consideration by consent authorities assessing development within the Foreshores and Waterways Area of the Plan. These are aimed at ensuring better and consistent development decisions and include such issues as ecological and scenic quality, built form and design, maintenance of views, public access and recreation and working harbour uses. The REP includes provisions relating to heritage conservation and wetlands protection and provides planning controls for strategic foreshore sites.

State Environmental Planning Policy (Coastal Management) 2018

The Coastal Management State Environmental Planning Policy (Coastal Management SEPP) establishes the strategic land use planning framework for managing NSW's coastal areas. The framework responds to existing and emerging coastal challenges and opportunities, with the aim of having thriving and resilient communities living and working on a healthy coast now and into the future. It supports implementation of the management objectives set out in the *Coastal Management Act 2016* (NSW).

The Coastal Management SEPP seeks to better equip coastal communities to plan for and effectively respond to coastal challenges such as major storms, coastal erosion and climate change impacts, through better strategic planning around coastal development and emergency management. Its aims include managing development in the coastal zone, protecting the environmental assets of the coast and establishing a framework for land use planning to guide decision-making. It does this by establishing controls to ensure development in the coastal zone does not increase risk of coastal hazards.

[Woollahra Local Environmental Plan 2014](#)

The Macquarie Lightstation site is located within the Woollahra Local Government Area. Under the Woollahra Local Environmental Plan 2014, the site is zoned RE 1 Public Recreation. The adjacent Lighthouse Reserve and Christison Park are also zoned RE 1 Public Recreation, while to the north the Signal Station site is zoned SP2 Infrastructure.

The Macquarie Lightstation, buildings and grounds are listed as Heritage Items in Schedule 5 of the Woollahra LEP 2014.

There are a number of non-statutory plans that are relevant to the Macquarie Lightstation, as follows:

[Macquarie Lightstation Plan of Management 1993](#)

This plan was prepared for the Department of Administrative Services in 1993 to provide conservation policies and a management framework for the site. The 1993 Plan included information from a previous study, the 1979 *Macquarie Lighthouse* Report by Davies & Wilson prepared for the Commonwealth Department of Construction.

The 1993 Plan of Management has been effectively superseded by this, the Harbour Trust's Management Plan for the site. The 1993 Plan, which is referenced in the Lease for the Head Keeper's Quarters, it still has some validity for the site.

[Woollahra Municipal Council Development Control Plan](#)

The Macquarie Lightstation is located within the Vaucluse East Residential Precinct (Part B, General Residential of WDCP 2015)

This objectives of this section of the DCP seeks to:

- To ensure development reflects the desired future character of the precinct.
- To preserve the significant features of individual precincts which contribute to their unique character.
- To ensure that the design and siting of development suitably responds to the surrounding built form and natural features.
- To limit impacts on the amenity of adjoining and adjacent development.
- To ensure the preservation of significant view corridors and ridgelines.
- To retain and reinforce tree canopies and landscape qualities.
- To ensure that streetscape and scenic quality is preserved

It is noted in the character statement for the Vaucluse East Precinct that a spectacular feature of the precinct is the public foreshore land on the eastern side of Old South Head Road which contains the Macquarie Lighthouse, a prominent harbour landmark and parkland.

Consequently, the desired future character statement for the precinct is to ensure the built form does not detract from the unique features of the natural landscape, or be of such a scale that it dominates adjoining development, or is visually intrusive when viewed from the streetscape or the harbour.

In particular development is to retain views of the harbour from public spaces and provide for view sharing from private properties; these can be achieved by providing suitable side boundary setbacks and fencing, roof forms and thoughtful distribution of building form across the site.

3.9. Plans Prepared for Neighbouring Lands

Plans and policies prepared by neighbouring land managers provide a context for this Management Plan. The following are particularly relevant:

Woollahra Council Plan of Management for Christison Park 1996

The Plan establishes the values and significance of Christison Park and details management issues that need to be addressed. Issues relevant to the Harbour Trust's plans for Macquarie Lightstation include:

- Encourage continuity in signage, landscaping and planting throughout the coastal cliff parks to reinforce links between coastal areas and the Coastal Cliff walk;
- Protect and improve views where possible by tree lopping or replacement;
- Preserve the Park's skyline;
- Maintain protective fencing along the cliff top;
- Provide adequate lighting to ensure the safety of park users;
- Explore options for improving wheelchair access;
- Conserve items of heritage significance in accordance with Woollahra LEP 1995;
- Alleviate threats to the survival or condition of heritage items; and
- Future plantings should provide park users with some protection from prevailing winds.

Woollahra Council Plan of Management Natural Area (Foreshore) 1996

This Plan is a generic document which covers several areas of foreshore land with harbour access within the Woollahra Municipality, including Lighthouse Reserve directly to the north of the Macquarie Lightstation.

The Plan contains similar objectives to the plan for Christison Park, including preservation and enhancement of public access and views to and from the Harbour.

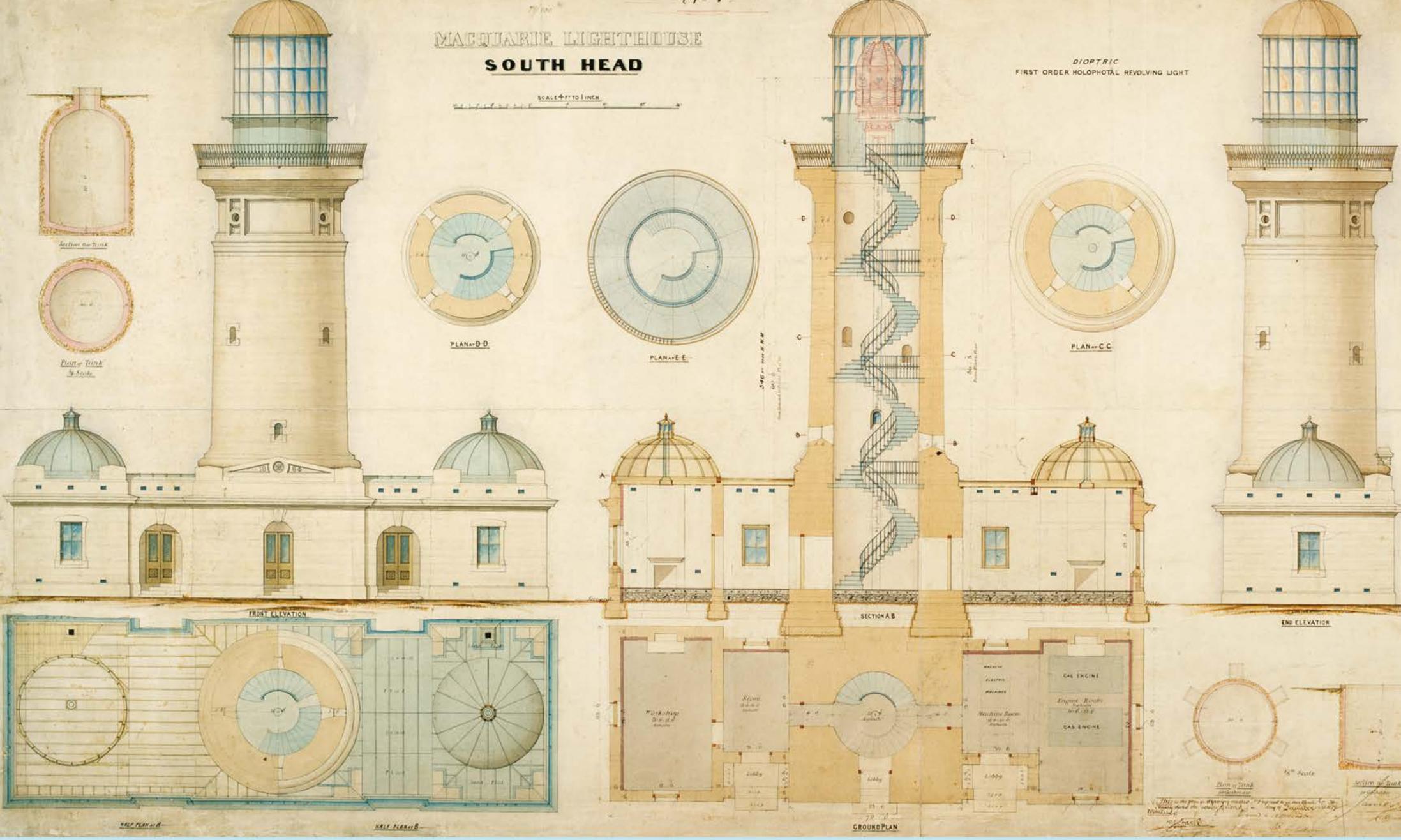
Recreational Needs Assessment and Strategy 2006

The strategy provides Woollahra Council with planning direction to further develop and expand sporting and recreational resources and to improve efficiencies across the local government area. Christison Park is identified within this study as an active multi-purpose recreation reserve within the linear (coastal) reserve. The strategy proposes and recommends a number of improvements including improving path surfaces, installation of additional flood lighting, and undertaking measures to improve casual surveillance.

MACQUARIE LIGHTHOUSE SOUTH HEAD

DIOPTRIC
FIRST ORDER HOLOPHOTAL REVOLVING LIGHT

SCALE 1" TO 10' INCH



4. SITE DESCRIPTION AND HISTORY

4. Site Description and History

Section 4 describes the history and environment of the Macquarie Lightstation Precinct and surrounding lands.

4.1. Macquarie Lightstation

Situated on Sydney Harbour's southern headland, Macquarie Lighthouse is a prominent regional landmark. The property is located on Old South Head Road, Vaucluse, within the Municipality of Woollahra, 10km by road from the central business district of Sydney.

The Lightstation covers an area of approximately 2.2ha in total. It is in a prominent position near the cliff top at the high point of the ridge. To the east sheer cliffs drop away to the Tasman Sea. To the west, bounded by Old South Head Road and residential development, the land slopes towards the harbour with excellent views to the city. Open parkland lies on the northern and southern boundaries.

The Lighthouse is one of a few prominent landmarks on Sydney Harbour and is representative of the vital link with and dependence of Australia on the sea. It is still used as a guiding light for ships.

The site has a strong maritime/institutional quality about it. Despite the lighthouse being a well known landmark, visually accessible around the harbour, on the ground the site itself feels 'special' and 'off-limits' as it is largely a fenced-off compound. The elevated, open and windswept character of the place reinforces this character and enhances the bold white, stoic appearance of the lighthouse.

The site represents over 200 years of European settlement and contains many remnants of structures associated with European occupation of the site, including part of the 1816 Greenway compound wall; the Head

Keeper's Quarters dating from 1836; the Assistant Keepers' Quarters of 1881; Barnet's 1883 Lighthouse; a World War II observation post on the cliff face and a (since obscured) associated shaft and tunnel; remnant garden walls; and numerous other significant archaeological remains. A pile of stone blocks was located east of the Greenway wall. These blocks are thought to have been left on the site after the demolition of the Engineer and Assistant's Quarters, although this has not been confirmed. A townhouse complex occupies the south-eastern part of the property. This is the largest of the residential buildings, (consisting of four dwellings) and was constructed in stages from 1970.

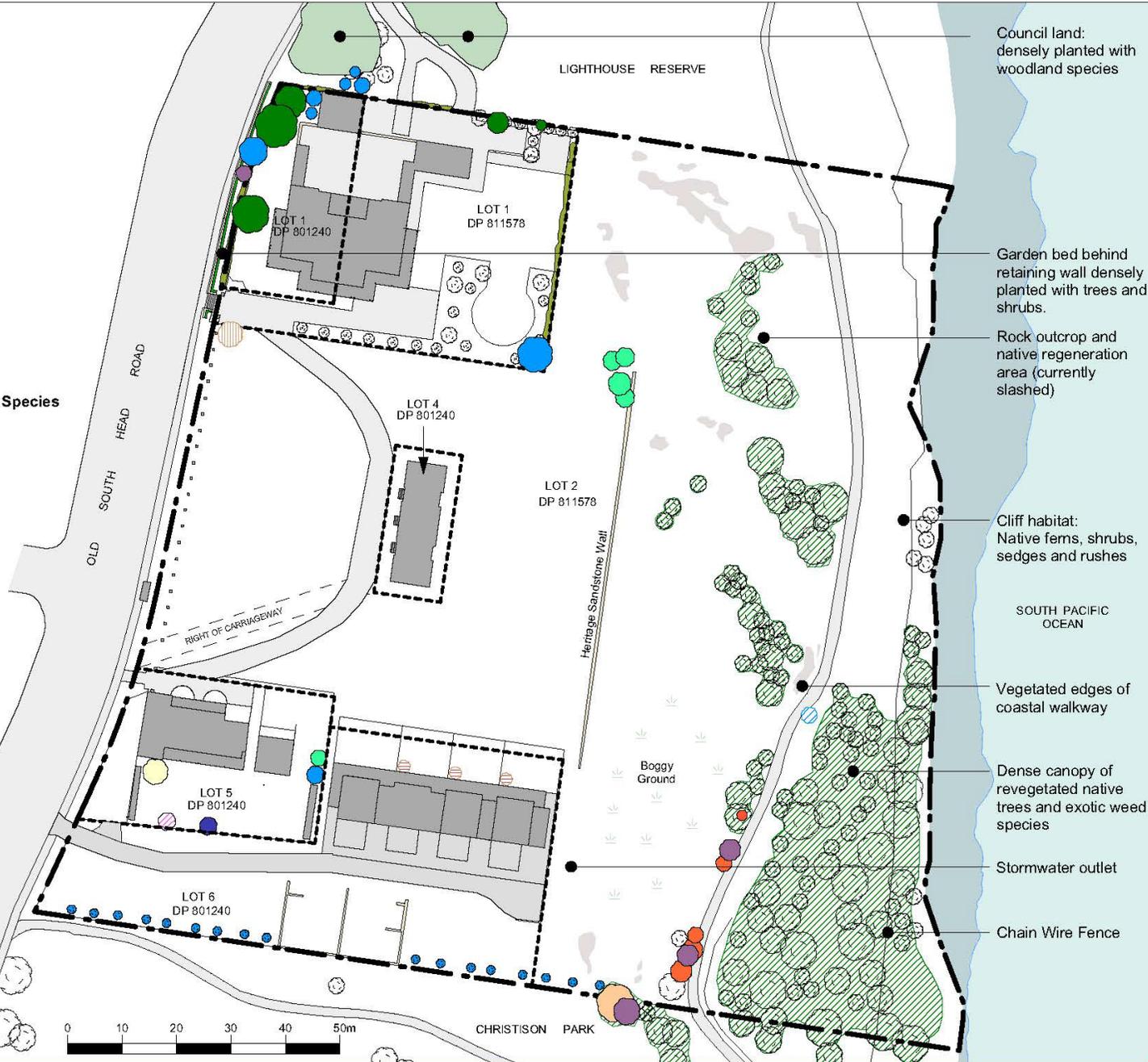
The area is highly exposed and has very shallow soil interspersed with rock outcrops. The Lightstation and adjacent areas have been cleared with some open heath and scrub vegetation being replanted in limited areas. The open areas are grassed and exotic species, of which the Norfolk Island pines are the most obvious, have been planted in the grounds of the Assistant Keeper's Quarters.

LEGEND

-  NZ Christmas Tree - *Metrosideros excelsa*
-  Norfolk Island Pine - *Araucaria heterophylla*
-  Coastal Banksia - *Banksia integrifolia*
-  Swamp Mahogany - *Eucalyptus robusta*
-  Bracelet Honey Myrtle - *Melaleuca armillaris*
-  Mirror bush - *Coprosma repens*
-  Coastal Tea Tree - *Leptospermum laevigatum*
-  Coastal Wattle - *Acacia sophorae*
-  Bottlebrush - *Callistemon*
-  Hop Bush - *Dodonea viscosa*
-  Tick Bush - *Kunzea ambigua*
-  Dwarf NZ Christmas Bush - *Dwarf Metrosideros*
-  Box Hedge - *Buxus*
-  Viburnum - *Viburnum odoratissimum*
-  Existing Building
-  Plan Area Boundary

Remnant Coastal Scrub & Quarry Area - Native Species

-  Sydney Golden Wattle - *Acacia longifolia*
-  Coastal Wattle - *Acacia sophorae*
-  Dwarf Apple Gum - *Angophora hispida*
-  Coastal Banksia - *Banksia integrifolia*
-  Crimson Bottlebrush - *Callistemon citrinus*
-  Narrow-leaf Bottlebrush - *Callistemon linearis*
-  River She Oak - *Casuarina cunninghamiana*
-  Scurvy weed - *Commelina cyanea*
-  White Correa - *Correa alba*
-  Crinum Lily - *Crinum pedunculatum*
-  Tuckeroo - *Cupaniopsis anacardioides*
-  Blue Flax Lily - *Dianella caerulea var producta*
-  Gynea Lily - *Doryanthes excelsa*
-  Swamp Mahogany - *Eucalyptus robusta*
-  Knobby Club Rush - *Ficinia nodosus*
-  Scrambling Lily - *Geitonoplesium cymosum*
-  Happy Wanderer - *Hardenbergia violacea*
-  Guinea Flower - *Hibbertia scandens*
-  Cottonwood - *Hibiscus tiliaceus*
-  Tick Bush - *Kunzea ambigua*
-  Coastal Teatree - *Leptospermum laevigatum*
-  Spiny Mat Rush - *Lomandra longifolia*
-  Bracelet Honey Myrtle - *Melaleuca armillaris*
-  Hillock Bush - *Melaleuca hypericifolia*
-  Snow-in-Summer - *Melaleuca linariifolia*
-  Coastal Rosemary - *Westringia fruticosa*
- Quarry Area - Weed / Non-Native Species**
-  Asparagus Fern - *Asparagus aethiopicus*
-  Coastal Morning Glory - *Ipomea indica*
-  Indian Hawthorn - *Rhaphirolepis indica*
-  Mirror Bush - *Coprosma repens*
-  Kurnell Curse - *Hydrocotyle bonariensis*
-  Canary Island Date Palm - *Phoenix canariensis*
-  NZ Christmas Bush - *Metrosideros excelsa*
-  Yucca - *Yucca sp*



Council land:
densely planted with
woodland species

Garden bed behind
retaining wall densely
planted with trees and
shrubs.

Rock outcrop and
native regeneration
area (currently
slashed)

Cliff habitat:
Native ferns, shrubs,
sedges and rushes

SOUTH PACIFIC
OCEAN

Vegetated edges of
coastal walkway

Dense canopy of
revegetated native
trees and exotic weed
species

Stormwater outlet

Chain Wire Fence

Fig.03 Environmental Considerations

Macquarie Lightstation 

4.2. Surrounding Lands

A section of the popular 'Coast Walk' is located on the eastern portion of the site. The 'Coast Walk' extends from Christison Park immediately south of the Lightstation, past Gap Park to Inner South Head.

Christison Park is extensively used by walkers with and without dogs and for active recreation. North of the Lightstation is Lighthouse Reserve, a passive recreation area used for walking and exercising. Both these areas were formerly used by Council for landfill, which has resulted in their being more elevated than the Macquarie Lightstation site.

Signal Hill is located just north of Lighthouse Reserve and contains the historic Signal Station built in 1842 which is on the site of the "Lookout Post" and flagstaff established in 1790. Just beyond the Signal Station are the Signal Hill fortifications dating from 1892 and upgraded during WWII.

The site is situated close to residences on Old South Head Road and Clarke Street.



Views from the City and the Heads
- Retain landmark quality



View to the City and Harbour
- Cluttered with power poles and cables
- Retain historic visual connection
- Bus shelter detracts from visual quality



Internal fences to be realigned to reinforce symmetry around Lighthouse



Garage and shed intrude on view of lighthouse



Retain clear historic sightline to Signal Station



Juvenile pines will grow and obstruct view to Lighthouse



Views to the ocean horizon to remain generally unobstructed by vegetation



Ensure views to Lighthouse from ocean are kept clear of vegetation



Townhouses obstruct & detract from views to and from Coastal Walk and Lighthouse



Existing Buildings
Plan area boundary



Fig.04 View Analysis

Macquarie Lightstation



4.3. Site History

The Macquarie Lightstation precinct is recognised as being of great heritage importance. Its significance is derived from its:

- Longstanding role as navigational beacon and landmark on Sydney Harbour;
- Historical associations with Governor Lachlan Macquarie and colonial architects Francis Greenway and James Barnet;
- Significant archaeological remains and potential;
- Technical achievement of the construction of the lighthouse and operation of the beacon.

Aboriginal Heritage

In February 2006 the Sydney Harbour Federation Trust commissioned the Australian Museum Business Services to carry out an Archaeological Survey of the Macquarie Lightstation. This was undertaken in conjunction with the La Perouse Aboriginal Land Council.

The survey found no Aboriginal sites or objects on the surface and that the previous disturbance to the site made it highly unlikely that any Aboriginal material was present. The report does note that the shell material found in the mortar of the remaining Greenway wall is likely to have come from an Aboriginal midden and appears to contain at least one possible artefact within it. It recommends that no further survey work is necessary or warranted. However, due to the shell midden material it recommends recording the wall as an Aboriginal site. It also recommends that any work to the east of the Greenway wall that will result in the exposure of the sandstone platforms will require monitoring and detailed recording conducted by a qualified archaeologist.

In 2018, as part of the CMP, LSJ engaged Dr Dominic Steele, archaeologist to prepare an *Aboriginal Archaeological & Historical Assessment: Macquarie Lightstation*, June 2018. This assessment was prepared in consultation with the La Perouse Local Aboriginal Land Council in accordance with the *National Parks and Wildlife Act 1974* (NSW).

This assessment includes a detailed examination of the Aboriginal history of the place and the locality, and examined early records dating from pre-1788.

Dr Steele's assessment noted that no Aboriginal archaeological sites have previously been recorded within the lands that are managed by the Harbour Trust at the Macquarie Lightstation, or have been recorded in locations nearby. However, a large number of sites, and in particular rock engravings, have been recorded on South Head as a whole and the place has recognised Aboriginal heritage sensitivity.

The assessment states it is unclear whether the shells making up the mortar in the sandstone retaining wall are reused Aboriginal shell midden materials or derive from a natural stand. Because the evidence is unequivocal and mindful that conservation works on the wall are needed, it is reasonable to conclude that there are no obvious Aboriginal archaeological heritage constraints to the stonework repairs and replacements proceeding as planned.

However, while it is unlikely that the continued use and management of the place (Lightstation building and grounds) that would proceed in a similar low-key fashion (with minimal change) will expose as yet undetected Aboriginal objects or deposits, there exists the potential for intact buried soil profiles containing archaeology to survive below present grassed levels and for sandstone bedrock that was exposed and engraved in the past to be now buried below ground. Caution is therefore recommended

in all future works where 'new ground' is to be disturbed by a proposed activity.

European Occupation

The Macquarie Lightstation Precinct and surrounding lands were dedicated to navigational and communication activities from the very early years of the colony and remarkably continue to be associated with these uses today. These phases of development are shown at *Figure 5*.

Early History of South Head (Pre-1816)

As early as 1788, South Head was being used as a look-out point for boats entering and leaving the harbour. Prior to 1816 South Head was the site for a manned flagstaff, a fire beacon, a navigation column and a signal station.

In 1790, Captain Arthur Phillip directed a party of seamen from the *Sirius* to erect a flagstaff *"... on a high bluff... at the entrance to the harbour..."* in order to communicate the arrival of ships into the harbour back to the colony at Sydney Cove. The first signal from here was displayed in February of that year. It is believed that the present Signal Station is the site of the 1790 flagstaff.

Later that year, Phillip also commanded that a column be erected near the flagstaff. It should be *"... of a height sufficient to be seen from some distance at sea, and the stonemasons were sent down to quarry stone upon the spot for the building..."* The column was erected on a raised base measuring 16 foot square and had its own base of 4 foot square. The signalling activities at South Head were now two-fold, communicating news about the arrival of ships to the colony at Sydney Cove via semaphore, and informing ships of the location of the entrance to Port Jackson. By the end of 1790 the site was known as the 'Look-out Post'. Huts and vegetable gardens were established for the eleven men stationed there.

The column was destroyed in September 1792 by a major storm. It was reportedly re-erected using bricks from Bennelong's disused hut on Bennelong Point as there were not enough bricks available from the kilns in the Brickfields. Figure 5 below is an artist's impression of the column from the water in 1810.



Figure 5 – 1810 illustration of Camp Cove
Shows the flagstaff and column on South Head. The Pilot's House and Watson's Bay are in the foreground.

During this period, access to the site was via a walking track which was approximately in the same location as the present Old South Head Road. In 1803 surgeon John Harris offered to construct a road 15 feet wide for 100 pounds. By 1811 the eight miles of road and 11 bridges of Old South Head Road was completed. It terminated at the Signal Station with a walking track leading down to Watsons Bay.

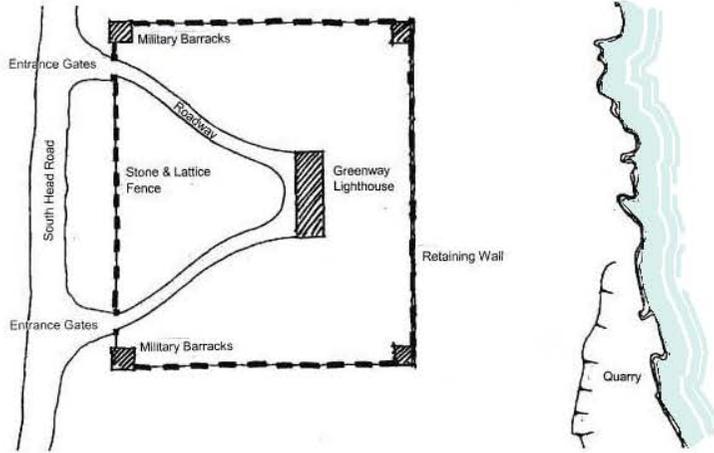


Figure 6 – View of the first Macquarie Lighthouse in 1829

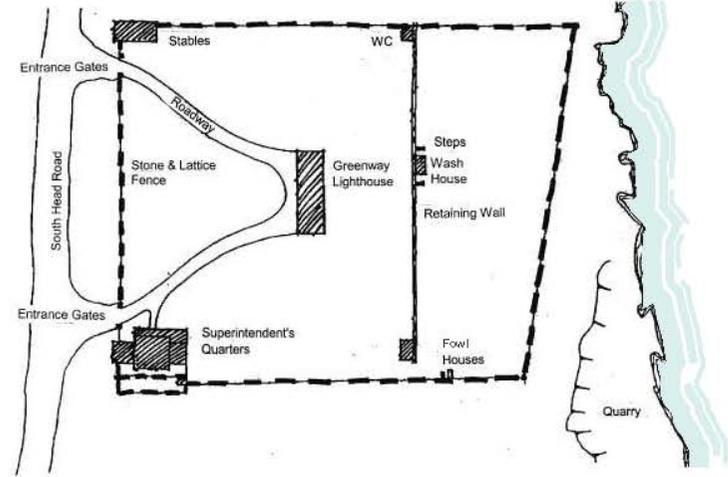
The lighthouse tower was essentially completed by December 1817 when Macquarie wrote to Lord Bathurst, the British Secretary of State to inform him of the 'Very Elegant and Strong Stone Tower and Light House' erected at South Head. At this time the lantern was yet to be completed as they were waiting for the arrival of the plate glass from England. Bathurst responded favourably to Macquarie despite the fact that work on the lighthouse had commenced without obtaining official approval from Britain.

On 16 December 1817, the Governor and Mrs Macquarie and a party of their friends went to inspect the tower. On the same day, before breakfast, Francis Greenway received his emancipation papers at the Lighthouse.

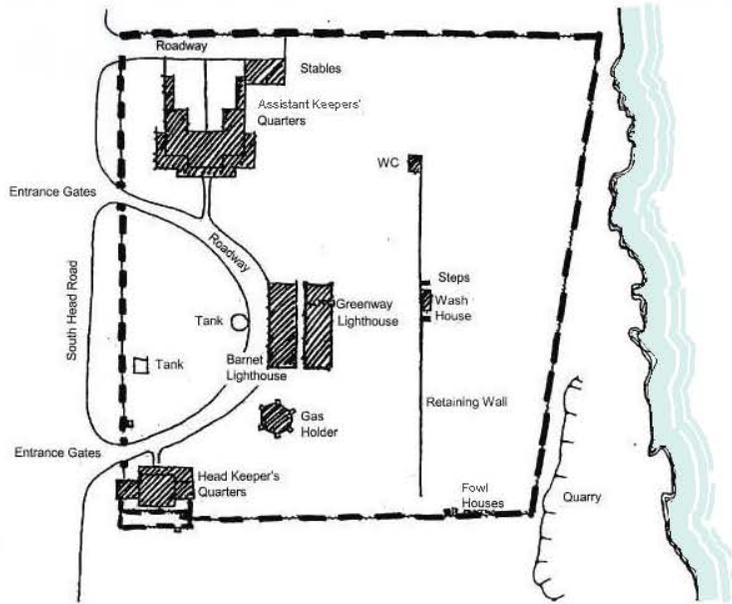
1821



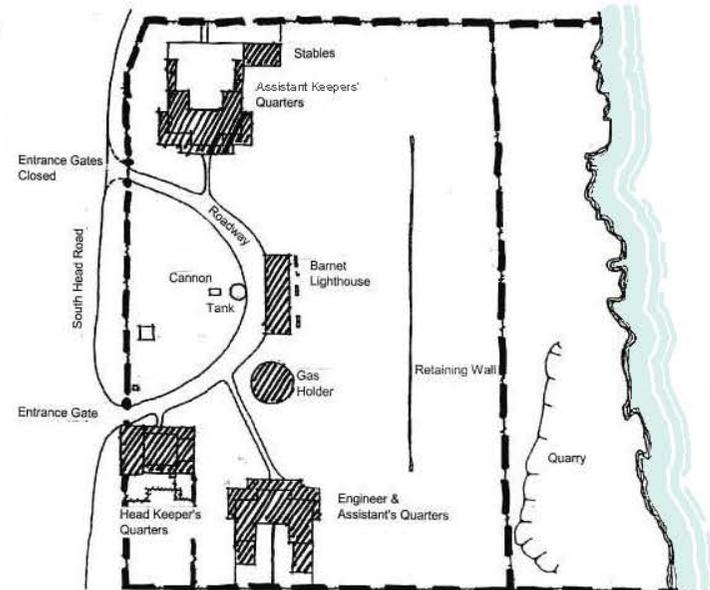
1837



1883



1900

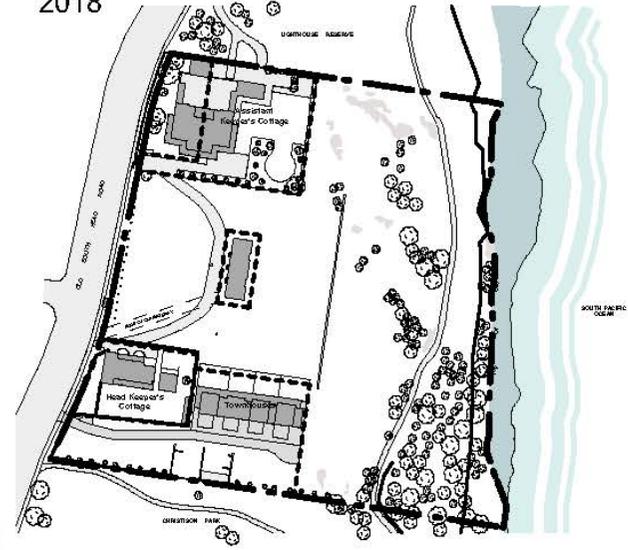
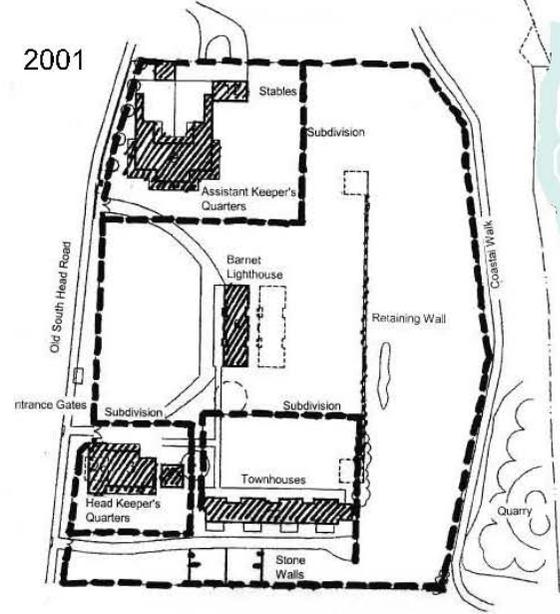
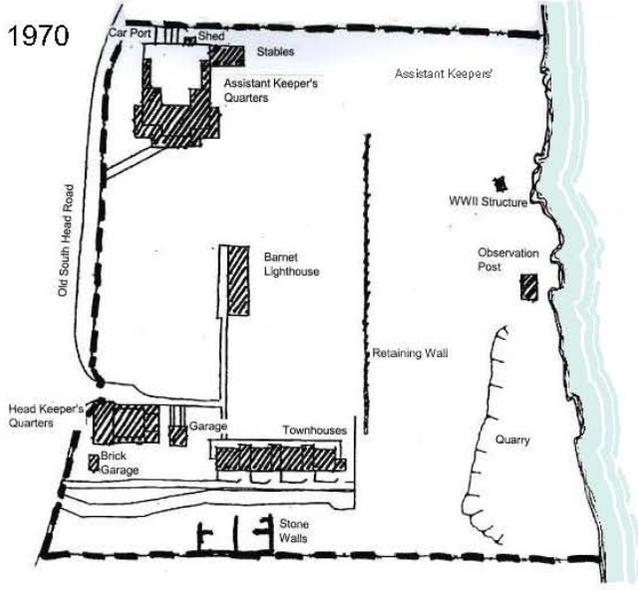
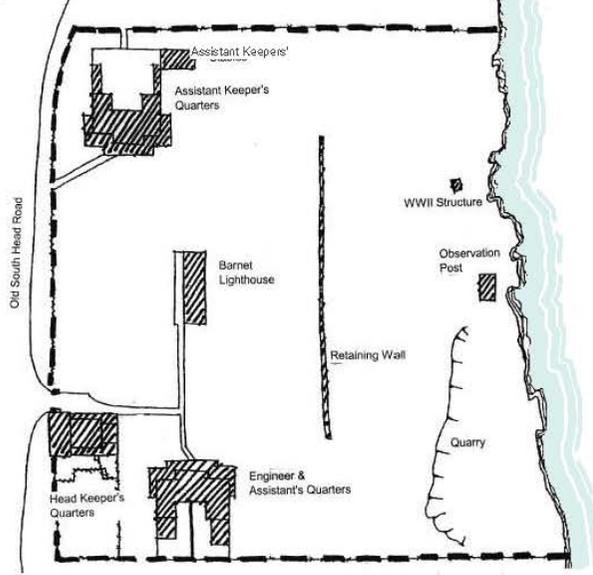
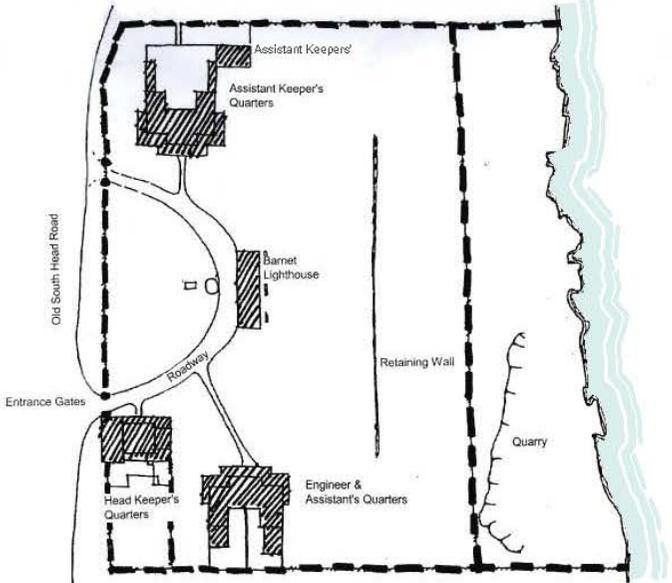


--- Compound fence

Fig.05 Phases of Development - Sheet 1

Macquarie Lightstation





--- Compound Fence

Fig.05 Phases of Development - Sheet 2

Macquarie Lightstation

The first Macquarie Lighthouse (1816 - 1878)

Following the end of the Napoleonic war in 1815, many more convicts were sent to New South Wales, with over 1000 arriving in 1818. The impending arrival of ships transporting convicts and an increase in the volume of shipping led to the commencement of a series of building projects in Sydney.

Governor Macquarie gave instructions that a lighthouse, the first in Australia, be constructed at the entrance to Port Jackson on South Head. Francis Greenway was appointed as architect and Captain John Gill as supervisor. Numerous people criticised the appropriateness of the site because of its distance 2 miles from the actual opening into the harbour. Greenway suggested North Head as an appropriate location, but this was dismissed by Governor Macquarie as being too remote. The foundation stone was laid on the 11th July 1816.

The lighthouse sat in an area compounded by four stone retaining walls with originally two corner lodges intended for the ‘keepers of the Signals’. The construction of the tower was probably one of the most difficult constructions undertaken in the colony to date. The colony had a shortage of quality building materials and skilled labour which despite the skills of Greenway and Gill, proved to make the construction very difficult. In addition, Greenway and Gill often disagreed on best methods of construction leading to design and engineering compromises.

The lighthouse was operational permanently from 1818 and was under the supervision of the former quartermaster for the first Fleet and retired harbourmaster, Robert Watson.

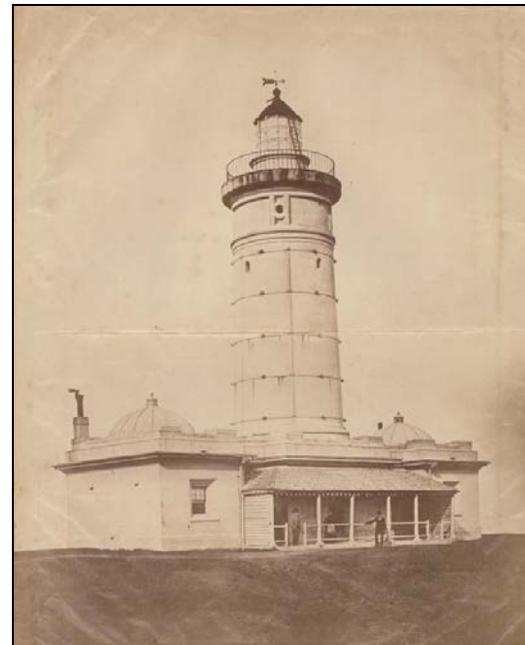


Figure 8 – The first Macquarie Lighthouse c1870

Shortcomings in the construction of the tower became evident early on. By 1822 it was deemed necessary to carry out emergency structural repairs as some stones had fallen from the arches during that year. This work included the reconstruction of the supporting arches, the repointing of stones, and the introduction of a large iron hoop to support the base of the tower. Further repairs were undertaken in 1830 and a verandah was added on the western face of the building. In 1836 new quarters were built in the south-west corner of the site for the Head Keeper. In 1866 further structural repairs were required to the lighthouse including the addition of more iron straps around the tower.

In 1857 the *Dunbar* was wrecked on South Head, and the *Catherine Adams* on North Head. These tragedies highlighted the need to more clearly define the entry to the harbour. The wreck of the *Dunbar* in particular showed the deficiencies of the Macquarie Light, as it appeared that Gap Park may have been mistaken for the harbour entry. As a consequence the Hornby light was constructed at the extreme northerly end of South Head in 1858.

In 1878, approval was given to replace the Greenway-built tower with a new tower.

The Barnet Lighthouse (1878 – 1937)

James Barnet was the architect responsible for the project and his design was clearly based on Greenway's original, a mark of the respect held for Greenway's work. Although the building is seen as a replica of Greenway's design, Barnet incorporated other changes in the appearance of the building, particularly in the proportions of the elements, and, notably, in the larger domes and ventilators over the side wings and the projecting gallery of bluestone at the top of the tower. See *Figure 9 below*.

The light commenced operation in 1883 and had a range of twenty five miles. The technology used in this lighthouse (it was one of the first electrically powered lighthouses in the world) was such that a higher level of expertise in the maintenance was required and hence a larger number of staff. This led to the construction in 1881 of two semi-detached cottages for the assistants to the Head Keeper. In 1885 new quarters were built for the Engineer and his assistant. See *Figure 10 below*.

The Head Keeper's Quarters were modified in 1887 after complaints about the standard of accommodation. The western wing of this building was added in 1899.

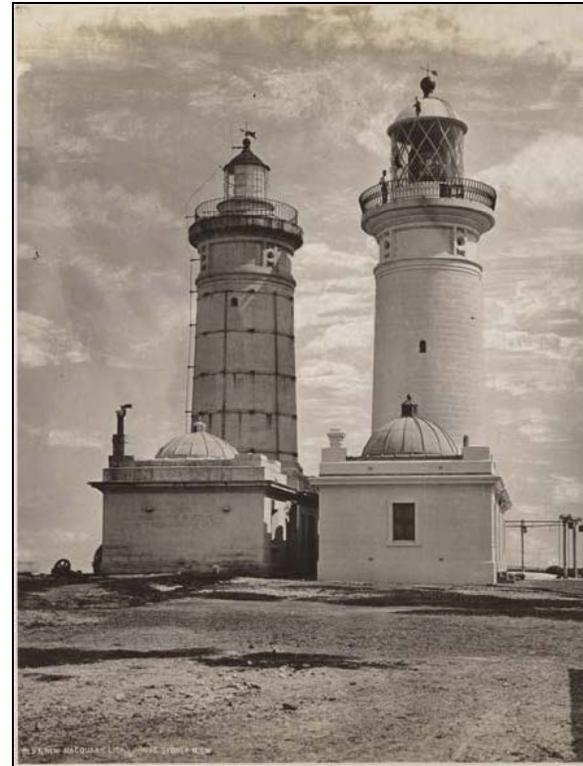


Figure 9 – 1883 Greenway Lighthouse
The Greenway Lighthouse (left of photo) was only demolished upon completion of the Barnet Lighthouse

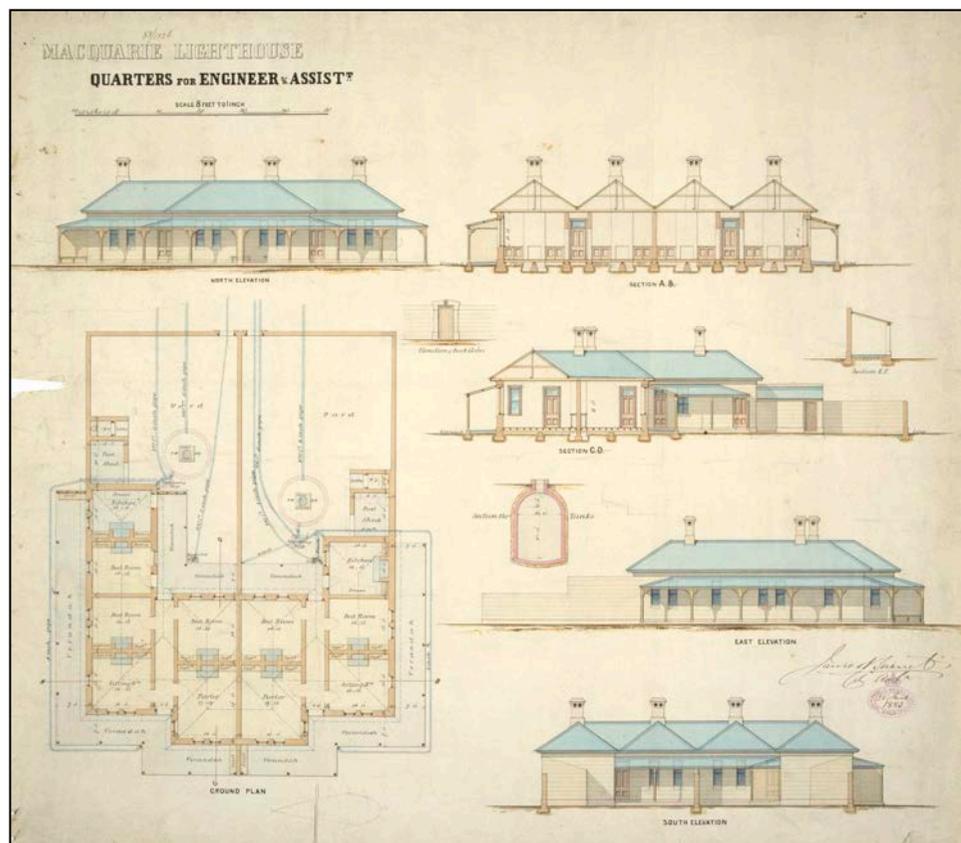


Figure 10 – Plan of the Engineer’s Quarters

Despite having once been thought to be the ‘most efficient light in the world’, by 1909 it was deemed to be obsolete, unable to cope with the heavy winter fogs. In 1912, following a call to standardise all lighthouses, the electric light at the Macquarie Lighthouse was replaced with a

kerosene system. The new fuel was cheaper to run and required just two men to operate.

On 1st July 1915 all the ocean lighthouses were transferred to the control of the Commonwealth Lighthouse Service.

World War II to 2001

The fortifications at South Head were upgraded during World War II. At the lightstation, this included the construction of an observation post, one east of the lighthouse and another some way down the face of the cliff, accessed by a shaft and tunnel, the location of which has since been obscured. After the war there was a rapid development in other navigational systems, and the lighthouse became simply one of a number of aids which enabled the mariner to determine his exact position. The importance of manned lighthouses such as Macquarie also decreased with the advent of integrated air systems for surveillance, search and rescue.

By 1965 the existing garage to the east of the Head Keeper's Quarters had been constructed and in 1970 the 1885 Barnet-designed Engineer and Assistant's Quarters were demolished to make way for the existing row of four townhouses. These originally accommodated the Workshop Supervisor and the Mechanics (Maritime Aids). The road access on the southern side of the site was also constructed during this time.

The station was fully automated in 1976 but the residences remained occupied by staff. In 1980 the Commonwealth Department of Construction carried out a series of works to return the Head Keeper's Quarters to its 1899 form in anticipation of it opening as a museum; however the decision to set up a museum was never taken.

In 1989 all staff associated with the Commonwealth Department of Shipping and Transport left the site.

The Commonwealth leased the Assistant Keepers' Quarters in 1991 and the Head Keeper's Quarters in 1994 as private residences, both for 125 years. The townhouses are now leased as residences on a short-term basis and the lighthouse is leased to AMSA (Australian Maritime Safety Authority) as an Aid to Navigation.



Figure 11 – 1943 aerial photograph of the Lightstation
This aerial photograph shows numerous additional structures on the site associated with the WWII defences. The observation post can be seen close to the cliff edge.

2001 to Present

Under the *Sydney Harbour Federation Trust Act 2001*, certain former defence lands were vested in the Harbour Trust with the objectives of maximising public access, cleaning up contaminated areas and preserving the heritage and environmental values of the sites. Sites transferred included Macquarie Lightstation.

The lighthouse continues to be leased to AMSA (Australian Maritime Safety Authority) as a navigation aid, and AMSA continues to be responsible for the maintenance and ongoing use of the lighthouse.

In 2010, the Harbour Trust remediated contaminated areas within the grounds. The contamination comprised elevated concentrations of lead, zinc and copper, as well as PAH's, TPH and OCP's. The lead was the result of historical use of lead paint on the site's buildings, while other contamination on the site was the result of fill materials, likely imported to re-establish gardens and lawn areas across the site.

The works involved the following:

- Excavation of impacted material in top soil identified in the Remediation Action Plans, to an average depth of 300 mm or until bedrock or fixed archaeological remains is reached;
- Removal of two Norfolk Island Pine trees and smaller shrubs from the site, to facilitate the removal of the contaminated materials;
- Removal of lead paint from the sandstone walls of the Former Engineer Quarters; and
- Reinstatement of all excavated areas with free-draining virgin extracted natural material (VENM), and covering with new turf.

In 2013, the Harbour Trust completed major refurbishment works to the residential townhouses. The purpose of these works was to facilitate their continued use as leased accommodation.

In 2017, the Harbour Trust installed 20 pre-cast concrete bollards along the site's boundary with Old South Head Road. The bollards replaced a dilapidated timber fence, which had been damaged in a storm. The bollards facilitate pedestrian access into the grounds of the Lightstation, while limiting access by vehicles to the southern end of the existing semi-circular driveway.



5. HERITAGE VALUES

Macquarie
Lightstation



Australian Government
Sydney Harbour Federation Trust

5. Heritage Values

Section 5 describes the heritage values of the Macquarie Lightstation Precinct.

5.1. Heritage Listings

Commonwealth Heritage Values

The Commonwealth Heritage List, established under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) comprises natural, indigenous and historic heritage places which are either entirely within a Commonwealth area, or outside the Australian jurisdiction and owned or leased by the Commonwealth or a Commonwealth Authority, which the Minister is satisfied have one or more Commonwealth Heritage values.

The following places at Macquarie Lightstation are on the *Commonwealth Heritage List*:

Place Name	CHL Place ID
Army Cottage with return verandah (<i>described as the Assistant Keeper's Quarters in this Plan and in the CMP 2018</i>)	105404
Cottage at Macquarie Lighthouse (<i>described as the Head Keeper's Quarters in this Plan and in the CMP 2018</i>)	105411
Macquarie Lighthouse	105366
Macquarie Lighthouse Surrounding Wall	105412
The Macquarie Lighthouse Group	105365

The full Commonwealth Listings, including Summary Statement of Significance for the listings and the official Commonwealth Heritage Values is at Appendix F of this Plan.

The Statement of Cultural Significance for Macquarie Lightstation, including where the site satisfies National, Commonwealth, and State/Local criteria, is at Appendix G of this Plan.

The EPBC Act regulates all actions relating to Commonwealth Heritage Places. These controls are described in the section of the plan dealing with the Statutory Planning Context.

NSW State Heritage Register

The Macquarie Lightstation Site is listed on the State Heritage Register (listing number 00677).

Woollahra Local Environmental Plan 2014

The following items within Schedule 5 of the Woollahra Local Environmental Plan 2014 make reference to Macquarie Lightstation:

Item Number and Name	Place Details
343	Bicentennial Coastal Cliff Walk
	Coastal Cliff within Christison Park, Macquarie Lightstation, Lighthouse Reserve, Signal Station, Signal Hill Reserve and Gap Park
372	Macquarie Lightstation buildings, interiors and grounds, being Macquarie Lighthouse, Assistant Keeper's quarters, the stables, Head Keeper's quarters, stone retaining wall east of lighthouse, gate posts, gas tank, four water tanks, remnant semi-circular

Item Number and Name	Place Details
	entry drive, central open grassed lawns, remnant sandstone walls on the southern boundary, vegetation and grounds to the west of Keeper's quarters, the grounds to the east of the stone retaining wall, including the quarry
(not numbered)	Old South Head Road

Register of the National Estate

Cottage at Macquarie, Macquarie Lighthouse, Macquarie Lighthouse Group, and Macquarie Lighthouse Surrounding Wall are listed on the Register of National Estate (RNE).

The RNE was closed in 2007 and is no longer a statutory list. On 19 February 2012, all references to the RNE were removed from the EPBC Act and the Australian Heritage Council Act in 2003.

5.2. Conservation Management Plan

In 2018 the Harbour Trust engaged Lucas Stapleton Johnson & Partners Pty Ltd (LSJ) to prepare a Conservation Management Plan to update the 2001 Conservation Management Plan that was prepared by Clive Lucas, Stapleton & Partners Pty Ltd on behalf of the Commonwealth Department of Finance and Administration.

The 2018 Conservation Management Plan (CMP) incorporates documentary research, and the study of the built fabric to provide an understanding of the cultural significance of the place.

The 2018 CMP summarises the significance of the site as below:

The Macquarie Lightstation is of outstanding significance as an Australian historic and aesthetic landmark containing the rare remains of the early Palladian-inspired design by Francis Greenway and Governor Lachlan Macquarie, a rare replica of the original Greenway lighthouse, the oldest lighthouse keeper's quarters in Australia and a substantial example of a mid-Victorian period NSW lightstation designed by James Barnet.

The Macquarie Lightstation is of outstanding significance for being the first purpose-built lightstation and longest continuously operating navigational beacon in Australia commencing in 1818, well as the first lighthouse in Australia to be lit by electricity in 1883. The place is of outstanding significance for its historic associations with Australia's earliest navigational system starting in 1790 at South Head with a flag staff, beacon, night fire and column and leading to the establishment of the Macquarie Lightstation.

The CMP provides a set of policies to guide the future care of the place, derived from an understanding of the place's significance. Policies and management regimes set out in the CMP should ensure the Macquarie Lightstation heritage values are recognised and maintained into the future.

Conservation policies, which are derived from the 2018 CMP, are at Section 5.4 of this plan.

Archaeological Assessments

In February 2005, The Harbour Trust engaged archaeologists Casey & Lowe to prepare a detailed history and archaeological assessment.

The report concluded that the site has the potential to contain rare archaeological remains of historic, associative and social significance, as

well as a high level of research potential at a National level of significance. These potential remains relate to the continuous use of the highest parts of South Head as the location of a marker and signal beacon from 1790 to the present day – see *Figure 12*.

The report made the following recommendations:

- the impacts from remediation of the site should be minimised;
- the remediation program should be preceded by archaeological testing so as to refine the understanding of the archaeological issues and provide more certainty for the management of the resource; and
- in order to inform the proposed program of remediation, archaeological testing should concentrate on determining the extent of remains and the nature of the fills on-site in areas where remediation is required.

As a result of these recommendations, the Harbour Trust engaged Casey & Lowe to dig archaeological test trenches on the site to answer questions about the site formation and the soil strata. Foundations of the Greenway lighthouse as well as the north and south compound wall were uncovered. Foundations of the western corner pavilions were not located due to extensive soil disturbance; however their location can now be predicted with greater accuracy due to the uncovering of the compound wall footings.

The results of the test trenching indicated that up to 150mm, 200mm in some areas, of current turf and topsoil cover could be removed, if required for remediation and replaced without impacting on archaeological remains. Archaeological monitoring of any soil removal would also be required.

Fabric Assessments

In 2005 The Harbour Trust engaged the NSW Government Architects' Office to undertake a detailed survey of the stone remains on the site, including the Greenway compound wall and the remains of the Engineer and Assistant's Quarters.

The Greenway wall was surveyed by architects, a master mason and a specialist structural engineer. It was recorded stone by stone in a drawn and photographic record. The physical evidence on-site revealed that the eastern portion of the Greenway compound wall had crenellations in the top coursing located between the two corner lodges. This is a typical detail used by Greenway. Other examples of such crenellations existed at Dawes Point Battery and Fort Macquarie. The survey also revealed that the wall is in a fragile state and recommended that for structural stability the stones should be re-pointed. Other conservation works were recommended, including the reconstruction of some of the crenellations for interpretive, structural and conservation value.

The remnant garden walls to the former Engineer and Assistant's Quarters were also surveyed and a recommendation was made to re-point the stones, provide a capping to any un-coped stones, and remove flaky lead-based paints and graffiti.

The 2001 CMP and the 2018 CMP both incorporate comprehensive photographic and written surveys of the fabric following components of the place:

- Macquarie Lighthouse
- Head Keeper's Quarters
- Assistant Keeper's Quarters
- Site and Landscape features

The surveys were carried out by heritage architects and planners of Lucas Stapleton Johnson and Partners. The surveys included the preparation of detailed drawings, identifying each internal and external site feature (including period of installation and its significance); a detailed photographic record was also prepared for each of the components of the place.

5.3. Condition of Values

The cultural significance and statutory heritage values of Macquarie Lightstation are embodied in the fabric of the place, its setting, records, related places, objects, and moveable heritage. Intangible aspects of the site's heritage, including its previous and modern uses, associations and meanings also find expression in the site's physical attributes. For example, the remnants of the Greenway lighthouse helps to tell the story of the original lighthouse at the site. The discussion of the condition of the values therefore focuses on the physical attributes to which the values are inextricably linked.

Despite the demolition of some buildings, the site's initial purpose as an aid to navigation remains. This value is reinforced through the continued operation of the lighthouse, and occupation of the Head Keeper's and Assistant Keeper's Quarters as residences.

The 2018 CMP includes the following assessment of the current condition of the site:

The condition of the components of Macquarie Lightstation are generally good. A 2017 Conservation Action Plan prepared by Lyndon O'Grady (assumed on behalf of AMSA) notes the following issues:¹

- *The sandstone on the upper internal levels of the tower is fretting leaving a fine sand residue on the staircase and landing on level 3 and to a lesser degree on the ground level.*
- *Exterior paint finish is breaking down in some areas (including the lantern).*

The original plaque unveiled by Governor Macquarie on the opening of the first tower in 1818, is of immense significance. The glass is showing some mould growth on the inside.

The Harbour Trust maintains the grounds of the lightstation which is in generally good condition. The sandstone retaining wall, the only visible element on the site from the original Greenway Lightstation era, is in a relatively fragile condition.

AMSA (who are responsible for the care and management of the lighthouse only) has recently repainted the exterior of the lighthouse, removed the paint from the interiors of the lighthouse and undertaken minor restoration works. The lighthouse overall is in good condition.

The two residences are also in good condition and well maintained by their lessees. The Head Keepers Quarters have been added to over time and is currently (May 2018) undergoing restoration work including painting the exteriors of the building. The Assistant Keepers' Quarters has been converted from two attached residences into a single residence and some original features have been removed, however it remains in good condition.

The townhouse group was altered and refurbished by the Sydney Harbour Federation Trust in 2013 and appears to be in good condition.

¹ O'Grady, L., 2017; *Conservation Action Plan Macquarie Lighthouse*

The Harbour Trust's asset management system will provide a description of the physical condition of the site. Detailed inventory sheets for each part of the site, their association and uses, are incorporated in the 2018 CMP.

5.4. Conservation Policies

The following policies have been prepared as required by Division 10.03D and Schedules 7A and 7B of the EPBC Regulations 2000.

The policies seek to protect and conserve the statutory Commonwealth heritage values of Macquarie Lightstation, as identified in the previous sections of this plan.

The policies also aim to provide management guidance and these are reflected in the proposed Outcomes in this plan. The policies have been derived from the 2018 Conservation Management Plan for Macquarie Lightstation. The table presents policies applicable to the Lightstation Precinct, and more specific policies to protect the values of each component of the place. Excerpts from the Commonwealth Heritage Values have been included throughout the table to emphasise the link between the values and the policies.

Note, in the event of any inconsistency between the Conservation Policies, and *Outcomes* described in this management plan, the Outcomes prevail.

Number	Policy	Supporting Policy
General Policies		
Policy 1	The Commonwealth Heritage values of Macquarie Lightstation and its elements are the basis for conserving and managing the fabric of the place.	<ul style="list-style-type: none"> a. Consider the impact of any action on the Commonwealth Heritage values of the place; b. Use the <i>Significant Impact Guidelines 1.1 and 1.2, Department of Environment and Heritage, 2013</i> to assist in reaching a decision about the level of impact; c. Consider the findings and recommendations of the 2018 CMP; d. Consult the Department for informal advice before deciding whether to make a formal referral in accordance with the EPBC Act.
Policy 2	Carry out the future conservation and adaptation of the fabric of the place in accordance with the principles of the Australia ICOMOS Charter for Places of Cultural Significance (the Burra Charter), and any revisions of the Charter that might occur in the future.	<ul style="list-style-type: none"> a. Ensure the Burra Charter (adopted 31 October 2013) is observed in all future works carried out at Macquarie Lightstation
Policy 3	Personnel skilled in disciplines of conservation practice at a professional level should continue to be engaged by the Harbour Trust as appropriate to advise on and implement conservation aspects of the place	<ul style="list-style-type: none"> a. Harbour Trust capital works, leasing, events and communications teams must ensure Heritage Values are protected and conserved
Policy 4	Ensure an integrated approach, and an ongoing commitment to long term conservation of Macquarie Lightstation.	<ul style="list-style-type: none"> a. Harbour Trust capital works, leasing, events and communications teams must ensure that Heritage Values are protected and conserved b. Training will be provided for staff and persons undertaking works at Macquarie Lightstation, to make them familiar with the heritage, natural and cultural values of the place.
Policy 5	The Statement of Cultural Significance and the rankings of significance of the individual components of the place contained in the CMP prepared by LSJ should be accepted as the basis for the ongoing care and use of the place.	<ul style="list-style-type: none"> a. Retain as much original fabric as possible when undertaking works. b. Replacement fabric should be recognisable as new fabric.

Number	Policy	Supporting Policy
Application of Conservation Policies		
Policy 6	These conservation policies apply to all parts of Macquarie Lightstation, including the social values, built fabric, the landform, landscape and site features, the contents and associated objects and the archaeology.	a. Consider the impact of any action on the desired outcomes for the place, as articulated in this plan, including in the conservation policies applying to the place.
Policy 7	The conservation policies apply to the contents of the place which should be recognised to be all of the following: <ul style="list-style-type: none"> the underground archaeology (Aboriginal and historic); any furniture or fittings historically associated with the place held within the residences and the lighthouse; any architectural remnants removed during building works and held on site; the memorials and plaques located within the lighthouse and in the grounds; and the museum and interpretive displays held within the lighthouse. 	a. Consider the impact of any action on the desired outcomes for the place, as articulated in this plan, including in the conservation policies applying to the place
Policy 8	The conservation policies also apply to objects associated with, but not located at the place, including: <ul style="list-style-type: none"> Arc lamp regulator and switchboard and the magneto-electric generator (located in the MAAS Collection). Lightning conductor, belonging to South Head Lighthouse (located in the MAAS Collection). Holey dollar and dump (located in the ANMM collection) One 1883 alternator and two 1883 gas-powered engines (existence not confirmed). Pre-1873 lighthouse lantern (possibly reused at Crookhaven Heads). Pre-1933 lighthouse optic and chariot pedestal (possibly reused or held by AMSA). Other removed machinery (possibly reused or held by AMSA). 1836 timber chimney pieces from Head Keepers Quarters (location unknown). Two 1883 timber chimney pieces from the Assistant Keeper's Quarters (location unknown) 	a. Consider the impact of any action on the desired outcomes for the place, as articulated in this plan, including in the conservation policies applying to the place

Number	Policy	Supporting Policy
Coordinated decision making		
Policy 9	Given the level of significance of the Macquarie Lightstation and its individual components, it is considered appropriate that a rigorous decision-making process be implemented at the place.	<ul style="list-style-type: none"> a. Ensure the Harbour Trust’s Heritage Strategy allows for, as part of the decision-making process, the exploration of all alternatives to any proposed works and/or activities at the place that could potentially have a negative impact on the cultural significance of an individual component or the place as a whole b. Ensure the Harbour Trust’s Asset Management System and Inspection Reports for the Macquarie Lightstation record decision making processes and responsibilities and that this information is retained for future reference c. The Harbour Trust will communicate regularly with AMSA (the current lease-holder of the Lighthouse) to ensure any proposed works to the Lighthouse has minimal impact on the significance of the building and the place as a whole, including minimising impacts on significant views and archaeology d. Copies of Asset Management Records, Condition Reports and similar for the Macquarie Lighthouse are prepared by AMSA as part of their responsibilities. Where appropriate, these documents will be submitted to the Harbour Trust for inclusion in the Harbour Trust’s Asset Management Systems e. The Harbour Trust will ensure the Head Keeper’s Quarters and the Assistant Keeper’s Quarters are maintained to appropriate standards, and any proposed works (including maintenance and repairs) has minimal impact on the significance of the buildings and the place as a whole, including minimising impacts on significant views and archaeology, through ensuring compliance with lease and the Harbour Trust’s management plan. f. The Harbour Trust will communicate regularly with Woollahra Municipal Council to ensure their assets, such as the Cliff Top Coastal Walk, Lighthouse Reserve and Christison Park are maintained to appropriate standards, and any proposed works or activities to the walking path or on the boundaries of the place have minimal impact on the significance of the buildings and the place as a whole, including minimising impacts on significant views and archaeology

Number	Policy	Supporting Policy
Care of Significant Fabric		
Policy 10	The Harbour Trust should continue to manage the Macquarie Lightstation as a holistic group of significant components.	<p>Significant components include:</p> <ol style="list-style-type: none"> The subsurface remains (Aboriginal and historic archaeology) of former landscapes, vegetation, buildings and site features. The occupational deposits (Aboriginal and historic archaeology) beneath and around the above. The landform of the place. All of the landscape, vegetation, buildings and site features introduced to the place. The contents of the place including machinery, equipment, furniture and fittings, memorials and plaques.
Policy 11	Significant fabric should be retained and conserved.	<ol style="list-style-type: none"> All significant fabric graded 'Exceptional', 'High', 'Moderate' and 'Little' in the significance ranking tables (Section 5.5 in the 2018 CMP). All fabric recorded in this report as previous reconstructions unless replaced by a more accurate reconstruction, based on documentary and/or physical evidence. All fabric reconstructed (in the future) in accordance with these policies. All in-situ deposits and features (Aboriginal and historic period archaeology) will be protected by avoiding excavation where possible. All contents of the place including machinery, equipment, furniture and fittings, memorials and plaques associated with the place
Policy 12	The setting of the place should be recognised as the View Catchment (as shown in Figure 3.11 of the CMP 2018) and the significant aspects of the spatial, visual and historic setting of the Macquarie Lightstation should be retained, protected and conserved.	<ol style="list-style-type: none"> The landmark quality of the place, designed to be seen from all directions throughout Sydney Harbour and from the Tasman Sea to the east; The historic visual and spatial relationships between the place and the Signal Station
Policy 13	Views to and from the place and views within the place that are defined by fabric have been identified as contributing to the significance of the place and should be protected from change or (if the opportunity presents itself) be re-established. This includes:	<ol style="list-style-type: none"> Short range views V1 to V7 and distant range views DV1 to DV8, to and from the place, should be retained, as shown in the 2018 CMP Views between the Lighthouse and the Tasman Sea and the cliffs of South Head should be conserved and retained The visual relationship and available views between the Lighthouse

Number	Policy	Supporting Policy
		<p>and the Head Keeper's Quarters and between the Lighthouse and the Assistant Keeper's Quarters should be conserved and retained</p> <p>d. The visual relationship (historic view corridor) between the Macquarie Lightstation and the (former) Governor's Domain (The Domain and the Royal Botanic Gardens) to the east should be retained</p> <p>e. When the opportunity arises, the Harbour Trust will coordinate with relevant authorities to relocate or remove the bus stop shelter currently located on Old South Head Road (directly in line with the historic view corridor)</p>
Policy 14	Any surviving evidence of Greenway's work is considered to be exceptionally rare and requires special care and management.	<p>a. The stone retaining wall (Item 6 in the 2018 CMP) being of Exceptional significance is to be individually identified within any monitoring programmes and maintained using high standard conservation techniques and specialist input</p> <p>b. Protection measures for the stone retaining wall (Item 6 in the 2018 CMP) will involve the advice of an appropriate conservation consultant and implemented to ensure its long-term conservation</p>
Policy 15	The selection of architectural details, materials and finishes for the interpretation, repair, restoration and reconstruction of the Macquarie Lightstation should be guided by date, style and integrity of the fabric of the individual components of the place.	<p>a. The use of alternative materials in the repair and maintenance of built components ranked as being of 'Exceptional' or 'High' significance is not appropriate.</p> <p>b. The use of alternative materials should only occur for built fabric ranked as being of Moderate significance (or lower) when the effect of the new appearance on the character of the place has been considered and there is a body of experience to the effect that the new materials and details will be technically effective</p> <p>c. The use of alternative forms and designs and non-authentic materials is not appropriate for fabric that is a reconstruction of original (1818/1819, 1836 and 1880s) components</p>
Landscape		
Policy 16	The open, sparse, windswept landscape of the Lightstation is a key component of the aesthetic significance of the place.	<p>a. Maintain the existing landform and landscape character of the place including minimal plantings, exposed rocky outcrops and the windswept character of the place</p> <p>b. New plantings within the open grassed terrace area of the lightstation and across the whole of the site to the west of the Coastal Walk footpath are not appropriate</p>

Number	Policy	Supporting Policy
		<ul style="list-style-type: none"> c. Views of the Tasman Sea to the horizon as seen from ground level (cliff top) from various points throughout the lightstation will, where practicable, be re-established and maintained via the regular pruning and selective tree removal of the regenerated native vegetation along the cliff top on the eastern boundary of the place
Policy 17	Low-scale, domestic gardens within the boundary fencing of each residence are not incompatible with the overall significance of the place.	<ul style="list-style-type: none"> a. New plantings and landscape and site features within the fenced enclosures of the Head Keeper's Quarters and the Assistant Keeper's Quarter are appropriate, so long as they are limited to a maximum of 1 metre in height only b. Existing landscaping at the Head Keeper's Quarters and the Assistant Keeper's Quarters must, in accordance with the lease, be maintained to a maximum of 1 metre in height only, in order to preserve historic views from the residences to the lighthouse, to the Signal Station, to the Tasman Sea and the immediate surrounds
Policy 18	Throughout the lightstation and within internal spaces of the individual buildings are a number of objects (equipment, furniture, fittings) that are historically associated with the place, some with high levels of significance that should be conserved and retained on site.	<ul style="list-style-type: none"> a. Where circumstances permit, identified objects (including those no longer held at the place) directly associated with the history of the Macquarie Lightstation (including furniture, fittings, equipment, machinery etc.) will be conserved and retained on site, should security arrangements allow. b. Where appropriate, objects (including architectural features and building remnants) reused elsewhere at the place will be labelled as to where they originally came from and be conserved and retained on site and reused in the reconstruction of missing built elements when the opportunity arises. c. The stone reused in the barbecue area at the Assistant Keeper's Quarters will, if the opportunity arises, be stored securely on site for use in the possible future reconstruction of the courtyard dividing wall. This work could only be undertaken following removal of the barbecue area, fountain and raised decking. d. Where appropriate, existing memorials and plaques located at the Macquarie Lightstation, including those located within the lighthouse itself, will be conserved and retained at the place
Policy 19	Previous archaeological assessments and investigations undertaken at the Macquarie Lightstation indicate that buried	<ul style="list-style-type: none"> a. The Aboriginal archaeological potential of the whole of the place will be protected by avoiding excavation where possible.

Number	Policy	Supporting Policy
	<p>top soil deposits have the potential to contain Aboriginal objects and buried sandstone surfaces have the potential to contain surviving rock engravings. There is also the potential that Aboriginal shell midden materials has been used to create the shell lime mortar that bonds the sandstone blocks quarried on-site to construct the Greenway wall.</p>	<p>b. Consultation with Indigenous local communities is recommended, in particular with the La Perouse Local Aboriginal Land Council (LPLALC), when considering impacts on Indigenous places and in accordance with the Aboriginal Heritage Objectives and Policies set out in Part 3 of the Harbour Trust’s Comprehensive Plan 2003</p> <p>c. Suitable clauses will be included in all contractor and subcontractor contracts to specify the obligations which need to be met relating to Aboriginal objects or artefacts, such as:</p> <p style="padding-left: 40px;"><i>In the event that Aboriginal objects or artefacts are unintentionally uncovered during the works, work must cease in the area where the objects were found and the Harbour Trust immediately informed. The Harbour Trust will consult with the Local Aboriginal Land Council and arrange for a suitably qualified archaeologist to inspect the site and undertake an assessment before determining the appropriate course of action.</i></p> <p>d. It is recommended that the LPLALC be invited to participate in future heritage site inductions with site contractors for works involving excavation or ground disturbance where there is a risk of discovery of Aboriginal objects or archaeological deposits.</p>
Policy 20	<p>Given the long history of the place, it is likely there is a substantial archaeological resource still preserved within the ground, and around and under the buildings at the Macquarie Lightstation, as well as in close vicinity to the site.</p>	<p>a. The Historic archaeological potential of the whole of the place should be conserved by avoiding excavation where possible.</p> <p>b. If any necessary archaeological works are required, they should be undertaken by a suitably qualified excavation director.</p> <p>c. Proposed works for the introduction of new or upgrading of existing services and infrastructure should be assessed with the view to minimising impacts on the archaeological potential of the place.</p> <p>d. If no current archaeological assessment exists for a particular area of the site, an archaeological assessment by a suitably qualified archaeologist should be carried out prior to the commencement of any works.</p> <p>e. Subsurface disturbance should be restricted where possible to reduce the impact on archaeological remains that may exist at the place.</p> <p>f. Where excavation and subsurface disturbance is unavoidable, those works should be planned to incorporate research objectives to</p>

Number	Policy	Supporting Policy
		<p>acquire specific data related to research objectives and/or themes and incorporating visitor engagement as part of the works plan. An assessment of each proposed work should be prepared that takes into account the potential impacts, methods to minimise impacts and including investigations into alternatives.</p> <p>g. Suitable clauses should be included in all contractor and subcontractor contracts to ensure that on-site personnel are aware of their obligations and requirements in relation unforeseen archaeological discoveries, such as:</p> <p style="padding-left: 40px;"><i>In the event that relics are unintentionally uncovered during the works, work must cease in the area where the relics were found and the Harbour Trust immediately informed. The Harbour Trust will arrange for a suitably qualified archaeologist to inspect the site and undertake an assessment before determining the appropriate course of action.</i></p> <p>h. Where works are proposed to be carried out in close proximity to known or probable archaeological artefacts that are able to be retained in situ, strategies should be put in place to ensure that construction work and/or heavy machinery do not disturb or damage those artefacts.</p> <p>i. Artefacts collected and retained during any future works will need to be catalogued and then securely stored by the Harbour Trust after the completion of the archaeological program, preferably on site.</p>
Policy 21	Investigation to increase knowledge of Australian history and/or to aid conservation work at the place should also be addressed.	<p>a. Investigation of the place for research should be allowed to increase knowledge of Australian history and other aspects of the occupation and construction of the place. Such investigations should only be allowed following appropriate consultation and when guided by specific and scrutinised research goals and when there are adequate resources available to undertake, complete and publish results of the study and leave the place in a stable condition. Investigative works are not to impact the heritage values of the place.</p> <p>b. In the event of unforeseen discoveries of structures, relics or occupational remains during works being carried out for other purposes, work should cease until appropriate consultation has been</p>

Number	Policy	Supporting Policy
		conducted and advice is obtained.
Policy 22	While any significant fabric is in existence it should be maintained, which means continuous protective care. Reconstructed fabric can also be of interpretive value and therefore should be included within any maintenance strategy (Asset Management Plan) for the place.	<ul style="list-style-type: none"> a. The following fabric should be maintained with continuous protective care: <ul style="list-style-type: none"> a. all significant fabric (see limited exceptions) b. all fabric recorded in this report as a previous reconstruction. c. all fabric reconstructed (in the future) in accordance with these policies. b. Periodic maintenance of the original fabric at the place, including the monitoring of the condition of individual elements, should not result in any loss of significant fabric or lessen the integrity of an element. c. Maintenance also applies to the original and early finishes applied to the structure of the place (e.g. external walls). d. In the case where significant finishes have deteriorated due to weathering or use (and resulting in damage to the substrata or surrounding significant fabric), their replacement should only be undertaken with appropriate materials and details. These include: e. For metal roofs, renew in galvanised steel (not zincalume); <ul style="list-style-type: none"> a. for gutters, renew like with like, in material, profile and finish (this is currently either painted galvanised steel or copper); b. for paint to joinery, use oil based enamel paint on fabric ranked as being of Exceptional, High and Moderate significance; c. for paint to masonry and external plasters, renew existing like with like, either limewash or acrylic. Acrylic may be replaced in time with limewash, where limewash was the original finish. f. The general requirement for the maintenance of a significant place is to comply with the Minimum Standards of Maintenance (Heritage Information Series, NSW Heritage Office, 1999).
Changing Fabric Identified to be Conserved		
Policy 23	The higher the significance of the individual components of the place, the greater the level of care and consideration is required	<ul style="list-style-type: none"> a. The authenticity and integrity of the place should be conserved by adopting a cautious approach to any proposed change, “as much as

Number	Policy	Supporting Policy
	<p>in making any decision or action which may affect it. The overall objective for any change to the fabric of the Macquarie Lightstation is to ensure that changes at the place, whether temporary or permanent, will reinforce and not reduce, the identified significance.</p>	<p>necessary but as little as possible” (Article 3: Burra Charter [adopted 31 October 2013]).</p> <ul style="list-style-type: none"> b. For any proposal to change significant fabric, the option involving the least amount of physical intervention at the place should be given preference c. Where the nature of a component of the place is uncertain, it should be further investigated by documentary and physical research, prior to carrying out work or removal d. Work to the fabric identified to be conserved should be avoided, except for: <ul style="list-style-type: none"> a. stabilisation and maintenance. b. adaptation in accordance with the Policy for Adaptation of the Fabric (see below). c. introduction of interpretative devices in accordance with the Policy for Interpretation d. restoration and /or reconstruction in accordance with the Policy for Interpretation
Policy 24	<p>There are sometimes cases where fabric that otherwise should be retained and conserved needs to be altered or removed for good reasons; for example, at most places of heritage value, some parts of the external fabric will eventually need to be replaced for maintenance reasons</p>	<p>The following fabric should be retained and conserved with the qualification indicated:</p> <ul style="list-style-type: none"> a. All fabric identified to be conserved graded ‘Exceptional’: Except where alteration or removal is brought about by extraordinary or major “historic” events, or essential for the maintenance of the heritage values of the place. b. All fabric identified to be conserved graded ‘High’: Except where alteration or removal is important for continuing historical use connected with marine navigational aids or private residences, important to introduce a compatible new use or important for the maintenance of the heritage values of the place. c. All fabric identified to be conserved graded ‘Moderate’: Except where alteration or removal is necessary for continuing historical use connected with marine navigational aids or private residences, necessary to introduce a compatible use or necessary for the maintenance of the heritage values of the place. d. All fabric identified to be conserved graded ‘Little’: Except where alteration or removal is wanted for the use of the place or wanted

Number	Policy	Supporting Policy
		<p>for the maintenance of the heritage values of the place</p> <p>e. Fabric other than that listed above could be removed without reducing the cultural significance of the place</p>
Fabric Identified to be Removed		
Policy 25	At some places of significance recent developments have introduced fabric that detracts from the significance of the place.	<p>The following fabric will, when circumstances permit, be removed:</p> <p>a. The Townhouses located to the south of the lighthouse and directly to the north of the remains of the former Engineer's & Assistant Engineer's Quarters.</p> <p>b. Retaining wall and stormwater channel located to the east of the Townhouses.</p> <p>c. Garage to Head Keeper's Quarters.</p>
Interpretation of the Place		
Policy 26	The cultural significance of many places is not readily apparent, and should be explained by interpretation. Interpretation should enhance understanding and engagement, and be culturally appropriate. To achieve this, interpretation should be founded on an understanding of the knowledge, expectations and desires of audiences, and by developing authentic and engaging stories for the Macquarie Lightstation that are based first on a combination of historical and archaeological research.	<p>a. Co-ordinated historical and archaeological research should continue to be carried out to gather the information that will form the basis of authentic interpretation.</p> <p>b. Interpretation should present the place holistically, connecting the lighthouse with the adjacent residences, the site features, the landscape, the archaeology and the setting of the place. Interpretation could include access to the site to enable Indigenous peoples to maintain cultural traditions.</p> <p>c. Interpretation should be sensitive to audience needs and cater to the widest possible range of visitors.</p>
Policy 27	Interpretation should address the following aspects of the place included in the Statement of Significance	<p>a. Site generally: Aboriginal peoples' cultural values associated with the Macquarie Lightstation and South Head, recognising that Aboriginal people are the rightful interpreters of their cultural heritage.</p> <p>b. Site of rare early colonial archaeological remains. The historic associations with historic persons of note including: Governor Macquarie, Francis Greenway, Mortimer Lewis, James Barnet and Robert Watson. Associations with the historic colonial development of South Head as a look out and signal station dating from 1790.</p> <p>c. The terrace, Greenway stone retaining wall and known locations of</p>

Number	Policy	Supporting Policy
		<p>the sites of the corner lodges: Remnants of the Palladian style composition of the 1818 lightstation by Francis Greenway and Governor Macquarie.</p> <p>d. Barnet lighthouse: An historic, aesthetic and symbolic landmark. Rare replica of the Greenway 1818 lighthouse and an uncommon example of Barnet's lighthouse work while Colonial Architect. The first lighthouse in Australia to be electrified. Rare Victorian period Trinity style Chance Bros. lantern</p> <p>e. The Head Keeper's Quarters: Rare early government built residence dating from 1836 and an example of the work of Mortimer Lewis. Archaeological remains of Greenway's 1819 southwest lodge</p> <p>f. Assistant Keeper's Quarters: Fine example of mid-Victorian government-built duplex residence by Colonial Architect Barnet. Rare, mid-Victorian (1883) period government-built 2 stall stables still associated with a lightstation. Archaeological remains of the c1836 stables Archaeological remains of Greenway's 1819 northwest lodge.</p> <p>g. Engineer's & Assistant Engineer's Quarters: Remnant of Barnet's full complement of lightstation buildings.</p> <p>h. Quarry: Early to late 19th century stone quarry directly associated with the construction of both lighthouses (1818 and 1883).</p>
Policy 28	As the place is of exceptional significance there are many opportunities to interpret it to visitors	<p>a. The place will be interpreted utilising a combination of:</p> <ul style="list-style-type: none"> a. restoration and reconstruction works to the fabric; b. continuing to allow occasional, escorted access for the public and specialists to the interior of the lighthouse; c. continuing public access to the exterior of the lighthouse and the grounds of the lighthouse; d. making publicly available collected documentary material regarding the history and heritage values of the place (e.g. published works, website, or other media); e. where practical, actively engaging the public in excavation

Number	Policy	Supporting Policy
		<p>and conservation projects;</p> <ul style="list-style-type: none"> f. where possible displaying artefacts in a location appropriate to their archaeological context; g. introduced interpretive devices (displays, signs, artefact collections, landscape designs, models etc.); h. plaques and memorials to commemorate historic events and previous employees of the working lightstation. <ul style="list-style-type: none"> b. New interpretation elements should obscure as little as possible of the significant fabric. c. A single, unified design language should be developed for the form, materials, graphics and colours of any signage (either interpretation or directional) to be introduced at the place. d. Aboriginal peoples' cultural values associated with the Macquarie Lightstation and South Head should be incorporated into any interpretation strategy or plan developed for the place, recognising that Aboriginal people are the rightful interpreters of their cultural heritage. Any proposed interpretation of Aboriginal peoples' cultural heritage at Macquarie Lightstation should involve relevant stakeholder (for example, the La Perouse Local Aboriginal Land Council) consultation and involvement.
Policy 29	<p>Another way to interpret the place is to carry out selected restoration and reconstruction works.</p> <p>Where components of the place are not selected for restoration /reconstruction, the place should if possible be managed in a way that will not preclude restoration/reconstruction of the component at a future date.</p> <p>All restoration/reconstruction works introduced pursuant to these guidelines should be identifiable on close inspection by method and/or style of construction as being introduced.</p>	<p>If circumstances arise, , selected components of the place will be restored/reconstructed to the date/configuration indicated, subject to the qualifications indicated:</p> <ul style="list-style-type: none"> a. Lighthouse (1883) <ul style="list-style-type: none"> External wall vents could be reconstructed in cast iron (based on documentary and physical evidence). Timber internal door between Spaces 6 and 7 in the Pavilion Internal paintwork to stone walls based on evidence of original/early decorative scheme. b. Head Keeper's Quarters (1836) <ul style="list-style-type: none"> Chimney piece to Space 3 c. Assistant Keeper's Quarters (1883) <ul style="list-style-type: none"> Internal dividing walls and courtyard dividing wall to restore building as two attached residences (based on documentary and physical

Number	Policy	Supporting Policy
		<p>evidence). Utilise stones currently in the barbecue area for reconstruction works to courtyard dividing wall. Timber chimney pieces to Space 1 in both the East and West wings (based on documentary and physical evidence).</p> <p>d. Engineer's and Assistant Engineer's Quarters (1883) To be based on original form, design and materials (based on documentary and physical evidence). Works should respect existing mid-Victorian hydraulic systems (cisterns).</p> <p>Works should not impact views to or from the lighthouse or amenity of the Head Keeper's Quarters.</p>
Use of the Place		
Policy 30	The cultural significance of the place is also embodied in its continuing historical use. For the Macquarie Lightstation which has been in use as a lightstation since 1818. The place should continue to function as such.	<p>Lighthouse</p> <p>a. The Macquarie Lighthouse should continue to be used as an Aid to Navigation as long as AMSA determines there is a requirement for it to support the safe passage of ships.</p> <p>b. Associated, secondary uses of the Lighthouse for interpretation, education, public visitation or other reasons are appropriate, so long as these secondary uses are managed in coordination with AMSA, are compatible with the continued operation of the lighthouse and are consistent with this Management Plan.</p> <p>Head Keeper's Quarters and Assistant Keeper's Quarters</p> <p>c. The Head Keeper's Quarters should continue to be used as a single residence.</p> <p>d. The grounds of the Lightstation should continue to be used for shared, public visitation and low impact recreation.</p> <p>e. The Assistant Keeper's Quarters should continue to be used as a residence (no more than 2 attached residences).</p> <p>f. The Stables for the Assistant Keeper's Quarters should continue to be used for vehicles, storage and workshop.</p> <p>g. The townhouses should continue to be used as private residences</p> <p>h. The grounds of the Head Keeper's Quarters, the Assistant Keeper's Quarters and townhouses should continue to be used as private</p>

Number	Policy	Supporting Policy
		<p>domestic garden spaces</p> <p>The Lightstation Grounds</p> <p>i. The grounds of the Macquarie Lightstation should continue to be open to the public and used for low impact, passive recreation.</p>
Policy 31	<p>Given that the Macquarie Lightstation is a public amenity, it is not unreasonable to expect requests for occasional use of the grounds of the site for one-off special events and/or functions. Such a use is considered appropriate only on short term basis and as long as disruption to the existing, unregulated public access of the place is temporary and minimal and there is no impact on the heritage values of the place.</p>	<p>a. The use of the open grounds around the Lighthouse for occasional, short term one-off events and functions is appropriate.</p> <p>b. The Greenway stone retaining wall should be protected prior to the use of the place for any event or function within the open grounds around the Lighthouse.</p> <p>c. Events held in the open grounds around the Lighthouse should involve as minimal infrastructure as necessary and all traces of the event should be removed as quickly as possible, leaving the place and the fabric without damage.</p> <p>d. Events that may be considered visually intrusive or disruptive to public access to the place may be acceptable if they occur only infrequently and for short periods of time.</p> <p>e. Events that involve the introduction of semi-permanent structures such as marquees, stalls, lighting, stages and associated facilities may be acceptable if they occur only infrequently and for short periods of time.</p> <p>f. All leases and hiring agreements should include provisions that the lessee or hirer is responsible for any damage or adverse impacts on the fabric of the place. Adherence to lease and other contract conditions should be regularly monitored by the Harbour Trust and corrective actions taken if required.</p>
Policy 32	<p>When organising or allowing activities within the place, components of the place and its setting, care needs to be taken not to obscure or confuse its significance.</p>	<p>Uses and activities within the place, components of the place and within its setting, which lessen, obscure or confuse its historical associations and meanings, should be discouraged.</p>
Adaptation of the Fabric Identified to be Conserved		
Policy 33	<p>Most extensive intervention at a place will occur during adaptation work. Depending on significance, different types of alteration may be appropriate.</p>	<p>a. Where appropriate, adaptation works introduced pursuant to this Management Plan and conservation policies will be identified as new work by introduced interpretive devices or by method and/or style of construction.</p> <p>b. As the Head Keeper's Quarters, Assistant Keeper's Quarters and</p>

Number	Policy	Supporting Policy
		<p>townhouses are used as private residences, there is no need to facilitate public access into these buildings.</p> <ul style="list-style-type: none"> c. Changing fabric identified to be conserved to facilitate public access is not generally appropriate. The addition of small items such as grab rails to improve safety is appropriate, so long as the works are reversible and impacts on fabric of 'Exceptional', 'High' and 'Moderate' significance are minimal. d. Excavations and adjustments of the landform are appropriate only for the construction of buildings and other features introduced in accordance with the remainder of these guidelines. e. Where circumstances permit, adaptation of the landform will be preceded by appropriate archaeological assessment and investigation.
Policy 34	Because the Macquarie Lighthouse is a landmark structure, visible from all directions and is historically and aesthetically significant, appropriate adaptation of the exterior of the lighthouse is limited. In addition, as all elevations of the lighthouse are intact, any changes should be very minimal.	<ul style="list-style-type: none"> a. Adaptation of the exterior of the lighthouse in accordance with the following is appropriate: Retain and conserve fabric as per relevant policies. Fabric identified in relevant policies may be altered or removed. Restoration and reconstruction as per relevant policies is desirable. Very minor adaptation to allow the ongoing historic use of the place is appropriate. Surfaces should not be covered or concealed to view from a distance. No new finishes (other than paint) should be applied. Additions are not appropriate. Missing elements may be replaced with new fabric of either reconstruction or new configuration of sympathetic design. b. Limited adaptation of the interior fabric of the lighthouse may be appropriate. Refer to the CMP 2018 for details.
Policy 35	Generally, the Head Keeper's Quarters has reached its full potential in terms of development and landscaping. Introducing new, additional features within the fenced boundaries of the residence has the potential to impact on historic views to and from the residence and detract from the overall aesthetic and historic significance of the place. As such, adaptation of the Head Keeper's Quarters is not considered to be appropriate	In accordance with this Plan and the CMP 2018, adaptation of the interior, exterior and grounds of the Head Keeper's Quarters is not considered appropriate.

Number	Policy	Supporting Policy
Policy 36	The Assistant Keeper's Quarters has reached its full potential in terms of development and landscaping. Introducing new, additional features within the fenced boundaries of the residence has the potential to impact on historic views to and from the residence and detract from the overall aesthetic and historic significance of the place. As such, adaptation of the Assistant Keeper's Quarters is not considered to be appropriate.	In accordance with this Plan and the CMP 2018, adaptation of the interior, exterior and grounds of the Assistant Keeper's Quarters is not considered appropriate.
Policy 37	The introduction of temporary and mobile structures for good reason is acceptable, provided they are capable of easy and quick removal and there is no impact on the heritage values of the place.	<ul style="list-style-type: none"> a. The installation of temporary or mobile structures as part of any event organised by or agreed to by the Harbour Trust is appropriate, provided they are capable of being removed, and any impacts are reversible. b. The erection of temporary structures within the place for ceremonial and other compatible uses of the place identified in this Management Plan is appropriate, provided they are capable of being removed, and any impacts are reversible. c. The introduction of mobile or temporary structures for the purpose of distributing information relating to the place or selling light refreshments is appropriate, provided they are capable of being removed, and any impacts are reversible.
Installation of Outdoor Furniture, Rubbish Bins, Signs and Other Facilities		
Policy 38	At most places the introduction of small features relating to public visitation is acceptable, provided they are of suitable design. In this case, the addition of small site features has the potential to clutter the landscape and detract from the overall character of the place and are not considered appropriate.	<ul style="list-style-type: none"> a. The introduction of lighting and vehicle barriers in association with existing pedestrian and vehicular accessways into the site are appropriate provided they are designed and located to provide minimal visual intrusion. b. Outdoor seating, garbage receptacles, fixed cooking facilities, picnic pavilions, amenity blocks and other large outdoor facilities are not appropriate (except where in accordance this Management Plan). c. Signage for interpretation and information purposes only is appropriate at limited locations across the site. Commercial advertising signage for any purpose is not appropriate. d. New roads, car parking facilities and pathways within the place are not appropriate. e. Works and activities within the setting of the place and at associated places, particularly on the boundary of the place should, if possible, be controlled to minimise visual intrusion and misunderstandings

Number	Policy	Supporting Policy
		about the associations and meanings embodied at the place.
Community Consultation		
Policy 39	Ongoing consultation with the community should take place during the implementation and review of Management Plans (made under section 341S of the EPBC Act) and supporting studies such as Conservation Management Plans.	Community and stakeholder consultation, including the Local Aboriginal Land Council, should be undertaken in the Management Plan and supporting adoption process and the monitoring and review of the Management Plan and supporting studies, particularly where actions are likely to impact on the heritage values of the place.

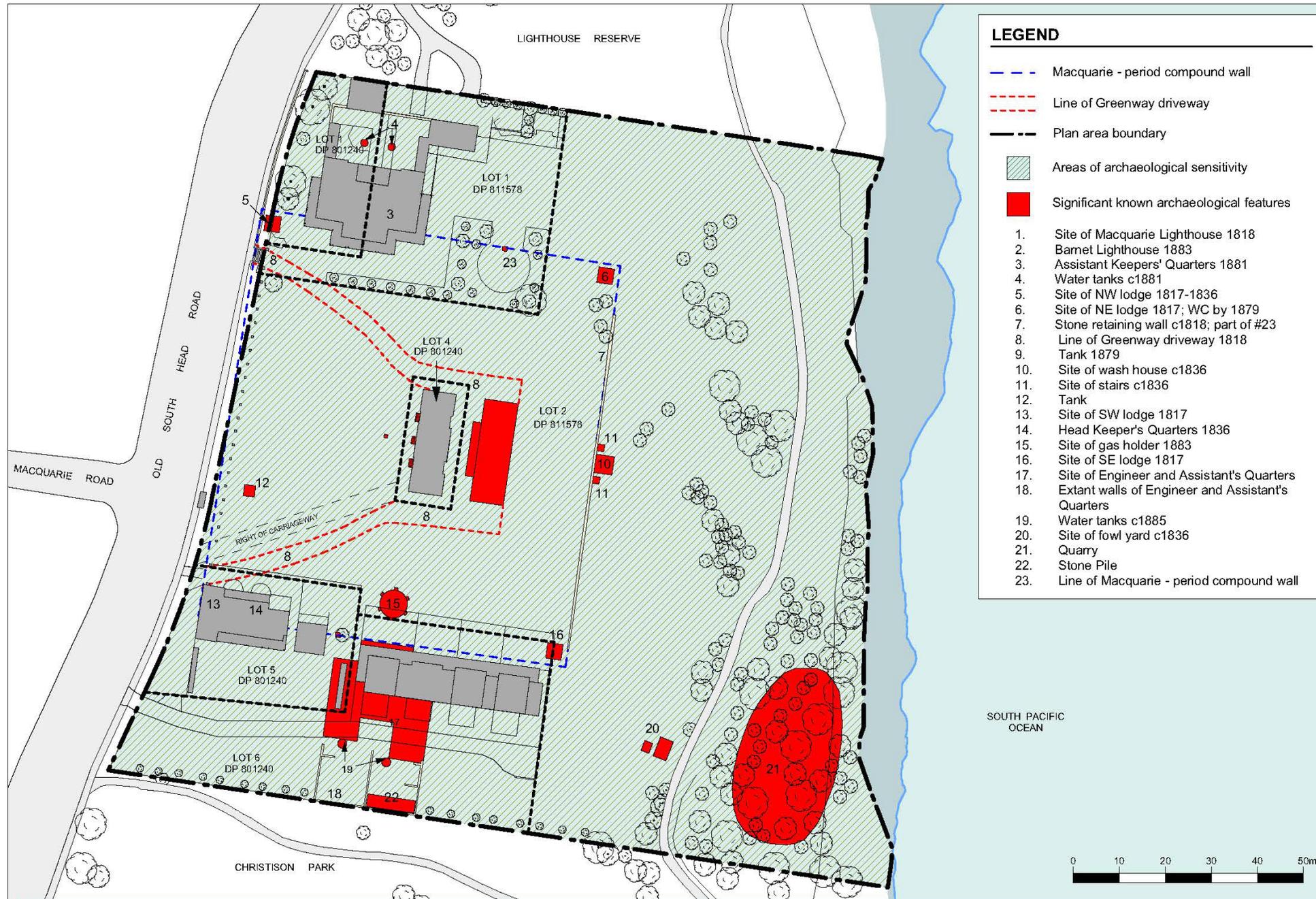


Fig.12 Areas of Archaeological Sensitivity Macquarie Lightstation



6. SITE ANALYSIS

Macquarie
Lightstation



Australian Government
Sydney Harbour Federation Trust

6. Site Analysis

Section 6 provides an analysis of the site's environment and issues.

6.1. Landscape Character

The Macquarie Lightstation is located on the exposed ridge top of the South Head peninsula, with an 85 metre high elevation providing panoramic views of Sydney Harbour and the city to the west, and the Pacific Ocean to the east. On the Lightstation's eastern aspect, a gentle slope leads down to Hawkesbury sandstone cliffs with a breathtaking drop of 80 metres to sea level. On the western aspect, Old South Head Road separates residential areas on the western side, and open parkland to the east. The parkland is characterised by flat open terraces of mowed grassland with scattered plantings of ornamental trees surrounding the residential buildings, and remnants of formal hedges along picket fences. A few Norfolk Island Pines stand out in competition with the stature of the Lightstation, in what is predominantly a treeless landscape.

Natural regeneration of bush remnants can be observed around sandstone outcrops on the lower slopes of the site and along the cliff edge. Seepage downslope of the rock outcrops has created a boggy soil profile supporting patches of native sedges and rushes.

To the east of the site, the Coastal Walkway skirts the cliff edge providing views of the Lightstation, cliffs, ocean and the surrounding landscape. The historic stone quarry at the south eastern corner of the site is marked by a dense canopy of planted and self-seeded native trees and shrubs, surrounding what has become an ephemeral wetland. The quarry is actively managed for persistent weed species and provides habitat and refuge for native birds and frogs. See *Figure 3*.

6.2. Landmark Value

The Lightstation is visible from many locations around Sydney with the most prominent and evocative views gained from the Tasman Sea and Sydney Harbour. There also remains a strong visual connection between the lighthouse and the former Governor's Domain in Sydney, the Sydney CBD, and the Signal Station at Observatory Hill. To the north, the important historic visual connection to the nearby Signal Station is still strong.

The landmark qualities are also reinforced through the design on the ground. The institutional perimeter fencing; the inherent and still-evident symmetry around the lighthouse; the elevated position of the compound; and the non-axial points of arrival to the lighthouse all contribute to the landmark presence of the site. See *Figure 4*.

6.3. Natural Values

Flora

Most of the Lightstation and its surrounds was progressively cleared of native vegetation from 1791 onwards; subsequent development and landfilling further reduced habitat for native flora and fauna. The mowed grassland is low in floristic diversity, however patches of regenerating coastal sandstone heath and scrub are found on the lower slopes, sandstone outcrops and along the cliff edge east of the Light Station. Regenerating species include *Banksia integrifolia* (Coastal Banksia), *Banksia ericifolia* (Heath Banksia), *Leptospermum laevigatum* (Coastal Tea Tree), *Acacia longifolia* var. *sophorae* (Coastal Wattle) and *Kunzea ambigua* (Tick Bush). In boggy areas clumps of the native sedge *Ficinia nodosus* and the rush *Juncus usitatus* are typically found. Natural regeneration is suppressed in areas that are regularly slashed and where weed species have become dominant.

South-east of the Lightstation, an ephemeral wetland habitat has resulted from the excavation of the sandstone quarry. The quarry receives stormwater runoff and has been partially filled with sediment and building waste. Bush regeneration works have been carried out by Woollahra Council in this area with the aim of removing weed species while retaining habitat for native birds and frogs.

The former sandstone quarry receives stormwater runoff from pipes and surface flow from hard surfaces above and has been partially filled with sediment and building waste. The quarry contains a mixture of planted and self-seeded native tree species including *Banksia integrifolia* (Coastal Banksia), *Casuarina cunninghamiana* (River She-Oak), *Eucalyptus robusta* (Swamp Mahogany), and *Melaleuca armillaris* (Bracelet Honeymyrtle). The area also contains a number of introduced weed species, including *Ipomea cairica* (Coastal Morning Glory), *Hydrocotyle bonariensis* (Kurnell Curse), *Delairea odorata* (Cape Ivy) and *Parietaria judaica* (Asthma Weed). Bush regeneration works have been carried out by the Harbour Trust in this area with the aim of removing weed species while retaining habitat for native birds and frogs.

An area alongside the Coastal Walkway has been also revegetated with local provenance native trees, shrubs, grasses and groundcovers including *Westringia fruticosa* (Coastal Rosemary), *Acacia suaveolens* (Sweet-scented Wattle), *Lomandra longifolia* (Spiny Mat Rush), *Correa alba* (White Correa), and *Dianella caerulea* (Blue Flax Lily).

Various exotic and native tree species have been planted adjacent to surrounding buildings on the site, including specimens of *Araucaria heterophylla* (Norfolk Island Pine), *Banksia integrifolia* (Coastal Banksia), *Melaleuca armillaris* (Bracelet Honeymyrtle), *Lagunaria patersonii* (Norfolk Island Hibiscus) and *Metrosideros excelsa* (New Zealand Christmas Tree). Densely planted native trees surround the north western corner of the Assistant Keeper's Cottage and adjacent Council reserve.

Refer to *Figure 3* for names of species and their distribution across the site.

Fauna

The remnant vegetation and revegetated areas along the coastal walkway and cliffs provide limited habitat for native bird, frog, reptile and invertebrate species due to its narrow linear configuration, limited floristic and structural diversity and exposed topography. However, the ruggedness of the cliff face and its associated remnant vegetation along the cliff edge provides a wildlife corridor extending along the coastal fringes of Sydney.

Native bird species include Welcome Swallows, Red Wattle Birds, Blue Wrens and New-Holland Honeyeaters that are found in dense undergrowth of the cliff edges and the stone quarry. Introduced bird species include Pigeons and Indian Mynas. The area is frequented by walkers and domestic dogs.

The area of the stone quarry contains populations of Eastern Water Skink (*Eulamprus quoyii*), the Striped Marsh Frog (*Limnodynastes peroni*) and Common Eastern Froglet (*Crinia signifera*). These species are relatively common and resilient in the urban environment.

6.4. Climate Change

Nothing in this plan will increase the risk of climate change in the coastal zone. Development that will enhance coastal hazards will not take place at Macquarie Lightstation. Risk assessments will be carried out for activities that may have potential adverse impacts to the coastal zone.

6.5. Remediation of Macquarie Lightstation

In 2002, the Department of Finance and Administration engaged Dascem Holdings Pty Ltd (Dascem) to undertake a Hazardous Materials and Dangerous Goods Survey.

The Dascem reports found the following hazardous materials in the Head Keeper's Quarters and Assistant Keepers' Quarters:

- Asbestos containing materials in the downpipes, roof sheeting and eaves of the garage behind the Head Keeper's quarters; and
- Lead-based paints on the external walls of the Head Keeper's Quarters, the Assistant Keepers' Quarters and on the rear courtyard walls of the former Engineer and Assistant's Quarters.

The hazardous materials audit was updated by Dascem in 2006 (Dascem, 2006a) with an additional inspection, sampling and report. This audit further confirmed the presence of lead paint on external surfaces, as well as 'potential' asbestos materials as part of the lighthouse building fabric.

The remediation work was undertaken between 2010 and 2011 by the Harbour Trust in accordance with the Remediation Technical Specification and Remediation Action Plan (RAP) prepared by GHD.

In August 2011, the site was signed off by an accredited site auditor as suitable for residential, parks and recreational open space (Site Audit Statement, prepared by Dr Ian Swane and dated 22 August 2011). Overall comments from the site auditor are detailed below:

1. *This site audit statement should be read in conjunction with the site audit report.*

2. *The soils at the Macquarie Lightstation precinct were contaminated by the weathering of lead-based paint from the external surfaces of heritage structures and operations at the site that resulted in fill being impacted by lead, zinc, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons and dieldrin.*
3. *The unsealed areas of the site were remediated by excavating 2,187m³ of contaminated soil and disposing at suitably licensed waste depots.*
4. *Some localised contamination may remain in the remediated and unremediated areas. However, the available data indicate the levels and extent are not significant.*
5. *Some capped areas remain in unsealed areas of the site. These areas are where large Norfolk Pines remain in the north-western corner of the Assistant Keeper's Quarters and a strip of the soils remaining between the eastern side of the present lighthouse and the footings of the original lighthouse. All contaminated soils that could be removed from these areas were then capped with a geotextile marker fabric, clean topsoil and grassed.*
6. *An old gas supply pipeline is likely to remain in the unremediated south-western portion of the lighthouse area along the alignment shown in the 1883 site plan.*
7. *Sealed areas of the site were not investigated or remediated because of the need to preserve the heritage structures and/or there is no exposure pathway while these areas remain sealed. These areas include buildings, bitumen driveways and hard-surface landscaped areas.*

8. *The contamination that remains capped in these sealed areas is to be managed by means of the Coffey EMP.*
9. *Care should be taken when excavating near property boundaries because contaminated fill is likely to be present on adjacent sites (eg. Christison Park to the south, Lighthouse Reserve to the north, and the nature strip along Old South Head Road).*
10. *Groundwater at the site should not be extracted unless testing is undertaken to confirm its suitability for the proposed beneficial uses.*

6.6. Residual Site Contamination

The residual contaminated soil and fill is located in relatively small areas of the site. It remains in situ to protect the site's significant heritage structures, or where full removal of the contamination was not practicable, or where the soils are already adequately capped by existing sealed surfaces such as pavements or buildings. This remaining contamination is relatively inert and was caused by the use of lead-based paint on the external surfaces of heritage structures and past operations at the lighthouse precinct.

In 2011, Coffey Environments Australia Pty Ltd (Coffey) prepared a site-specific Environmental Management Plan (EMP) for management of localised residual contamination. The purpose of the EMP is to provide guidance on the management of remnant contamination so that health and environmental risk is minimised.

Figure 13 depicts the areas of remnant contamination. Refer to Section 7 Outcomes of this Plan for ongoing management of site conditions.

LEGEND

- Area 1
- Area 2
- Area 3
- Area 4
- Area Townhouses
- Potential contaminated soils under pathway
- Contaminated soils under geofabric and >300mm clean cap
- Contaminated soils under decking
- Building footprints
- Contaminated soils on boundary (Protected with geofabric)
- Driveway and concrete Hardstand
- Plan area boundary

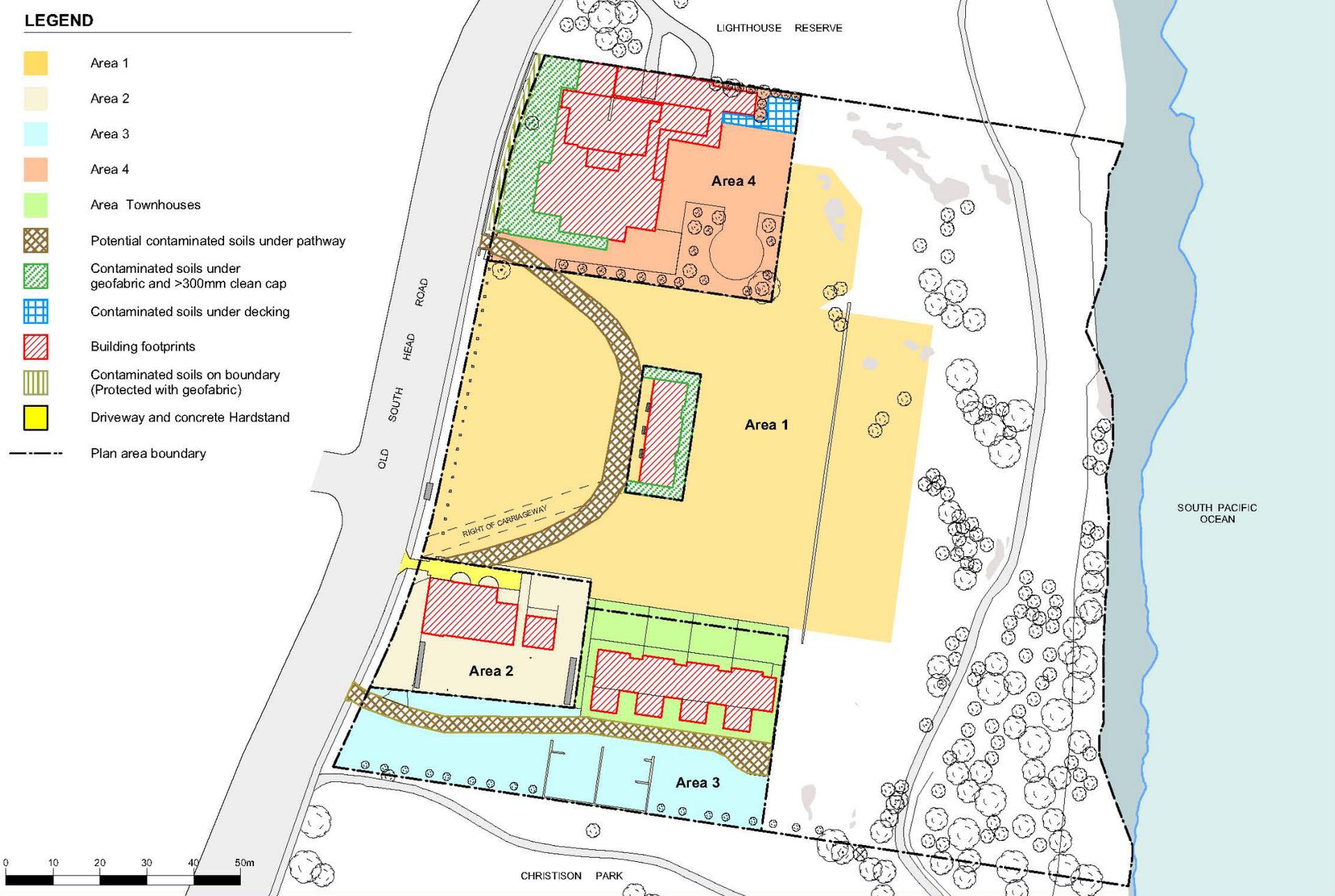


Fig.13 Remnant Contamination Management

Macquarie Lightstation



6.7. Stormwater and Services

The site is located on a ridge and stormwater drains to the east towards the ocean and to the west towards Old South Head Road.

Following the transfer of the site to the Harbour Trust, a licensed plumber was engaged to audit the extent and condition of the hydraulic services on the site. This included the sewerage, stormwater and water services. While hydraulic site services were generally found to be adequate, the following upgrades and alterations were completed in 2011:

- Repairs to broken and undersized stormwater lines and pits;
- Installation of new stormwater lines and overflow pits;
- Connection of Lighthouse to the stormwater service; and
- Provision of water meters to individual properties.

The electricity supply to the site was initially provided via an aerial feed to a power pole located in the rear yard of the Head Keeper's Quarters. The main board and meters for all power usage on the site, with the exception of the Assistant Keepers' Quarters, were also located here. Electricity was originally supplied underground from this point to various buildings on the site; this arrangement required upgrading to provide improved power supply to the lighthouse, Head Keeper's Quarters and townhouses. It was unsightly as the aerial feed, pole and board across the Head Keeper's Quarters obstructed views from Christison Park to the lighthouse.

The Outcomes section outlines how the issues raised will be addressed.

6.8. Compliance with the National Construction Code (NCC)

Given the significance of the site, the Harbour Trust commenced public tours of the site in 2002 under a short-term tourist license agreement with AMSA. Prior to commencing the tours, a BCA assessment of the building was undertaken by Trevor Howse & Associates in order to determine any shortfalls in compliance with the BCA.

The Harbour Trust is progressively upgrading the publicly-accessible areas of the site to enhance public safety. These works included the installation of a temporary steel handrail, chain barriers, safety signage and the installation of a fire protection system at the Lighthouse.

Despite being temporary, all these works were undertaken in consultation with heritage architects and are fully reversible.

Any further permanent long-term upgrading works to the lighthouse would only be carried out in consultation with AMSA.

6.9. Traffic, Parking and Access

Due to the existing and proposed low-intensity use of the site, traffic and parking generation is not a significant management issue.

The site is easily accessed by public and private modes of transport. Pedestrians are able to access the site from Old South Head Road or from the Coastal Walk. The driveway from Old South Head Road provides an accessible entrance to the Lightstation site. The site is located on a bus route providing a regular and convenient service to the city.

Vehicular access for the residents of the townhouses and Head Keepers Quarters is available from the southernmost entry to the site. The

southern end of the former semi-circular driveway also provides access to the Head Keeper's Quarters; service vehicles may access the lighthouse and grounds from this location.

Vehicular access to the Assistant Keepers' Quarters is from a driveway across Lighthouse Reserve, which is Crown land managed by Woollahra Council. There is no indication that a right of way across this land exists. The Harbour Trust will investigate formalising these access arrangements with Woollahra Council.

Harbour Trust rangers and other staff undertake regular patrols of the site, and are on site during scheduled special events.

6.10. Leasing Arrangements

In the early 1990s, the Commonwealth subdivided and began leasing components of the Macquarie Lightstation site. The current leasing status for each of the lots is shown below:

Assistant Keepers' Quarters

The Assistant Keepers' Quarters (Lot 1 in DP 801240 and Lot 1 in DP 811578) was the first property leased on a 125 year lease arrangement. The lease commenced in 1991 and will terminate in 2116.

The leased area contains a 'Restricted Area' in part of Lot 1 in DP 811578, formerly comprised in Lot 3 in DP 801240, where the lessee is prohibited from erecting any building or structure (other than dividing fences) and from planting any plants or vegetation other than low-growing flowering shrubs to a maximum of 1 metre in height.

The lease also has a restrictive covenant where the Lessor covenants with the Lessee that for the term of the lease, the Lessor will not erect any

building or other structure in Lot 2 in DP 811578 (ie, the unleased area around the lighthouse).

Head Keeper's Quarters

The Head Keeper's Quarters (Lot 5 in DP 801240) was the second property leased on a 125 year lease arrangement. The lease commenced in 1994 and will terminate in 2119.

The lease includes a requirement that the Lessee must comply with the 1993 Plan of Management (see discussion in Section 3 of this Plan, *Planning Framework*), and any mutually agreed amendments to that plan.

The application of State laws to these properties is also discussed in Section 3, *Planning Framework* of this plan.

The Lighthouse

The Lighthouse (Lot 4 in DP 801240) is presently leased to Australian Maritime Safety Authority (AMSA) on a 25 year licence agreement which will terminate in 2023. The lease provides for an optional renewal for an additional period of 25 years. AMSA maintains the lighthouse as an Aid to Navigation and manages the facility in accordance with AMSA's heritage register and heritage strategy.

A Tourist Access Licence exists between the Harbour Trust and AMSA enabling the Harbour Trust to conduct tours of the lighthouse and tower. Permission must be sought from AMSA before carrying out any work to the premises.

The Townhouses

The Townhouses (Lot 6 in DP 801240) are presently managed by the Harbour Trust and are leased as residences on short-term leases (leased on an annual renewable basis).



7. OUTCOMES

Macquarie
Lightstation



Australian Government
Sydney Harbour Federation Trust

7. Outcomes

This section describes the Harbour Trust's desired future Outcomes for the site, in terms of works and use.

The proposed outcomes (as summarised in *Figure 13*) for the site are to:

- Conserve and interpret the site's heritage values;
- Facilitate the continued function of the Lighthouse as a navigational beacon;
- Continue the private residential occupation of the site's dwellings;
- Continue to connect the site as part of a sequence of open space along the cliff-edge, while enhancing its sense of place as a discrete, institutional compound;
- Retain the open character of the site, while allowing some natural heath-like re-generation to take place;
- Retain the habitat values of the quarry, while allowing for select removal and pruning of some dominant tree species to maintain the visual relationship between the Lighthouse and the sea;
- Reveal a small part of the quarry to aid in its interpretation;
- Conserve and reconstruct the Greenway retaining wall, and interpret the footprints of former Greenway structures;
- Interpret the former Engineer and Assistant's Quarters;
- Remove intrusive buildings and fences;
- Realign fences to enhance the symmetry associated with the compound;
- Preserve and improve the visual prominence of the Lighthouse and views to and from the site;
- Improve views to and from the Lighthouse by select removal of intrusive trees and shrubs;
- Upgrade and rationalise services to the site; and

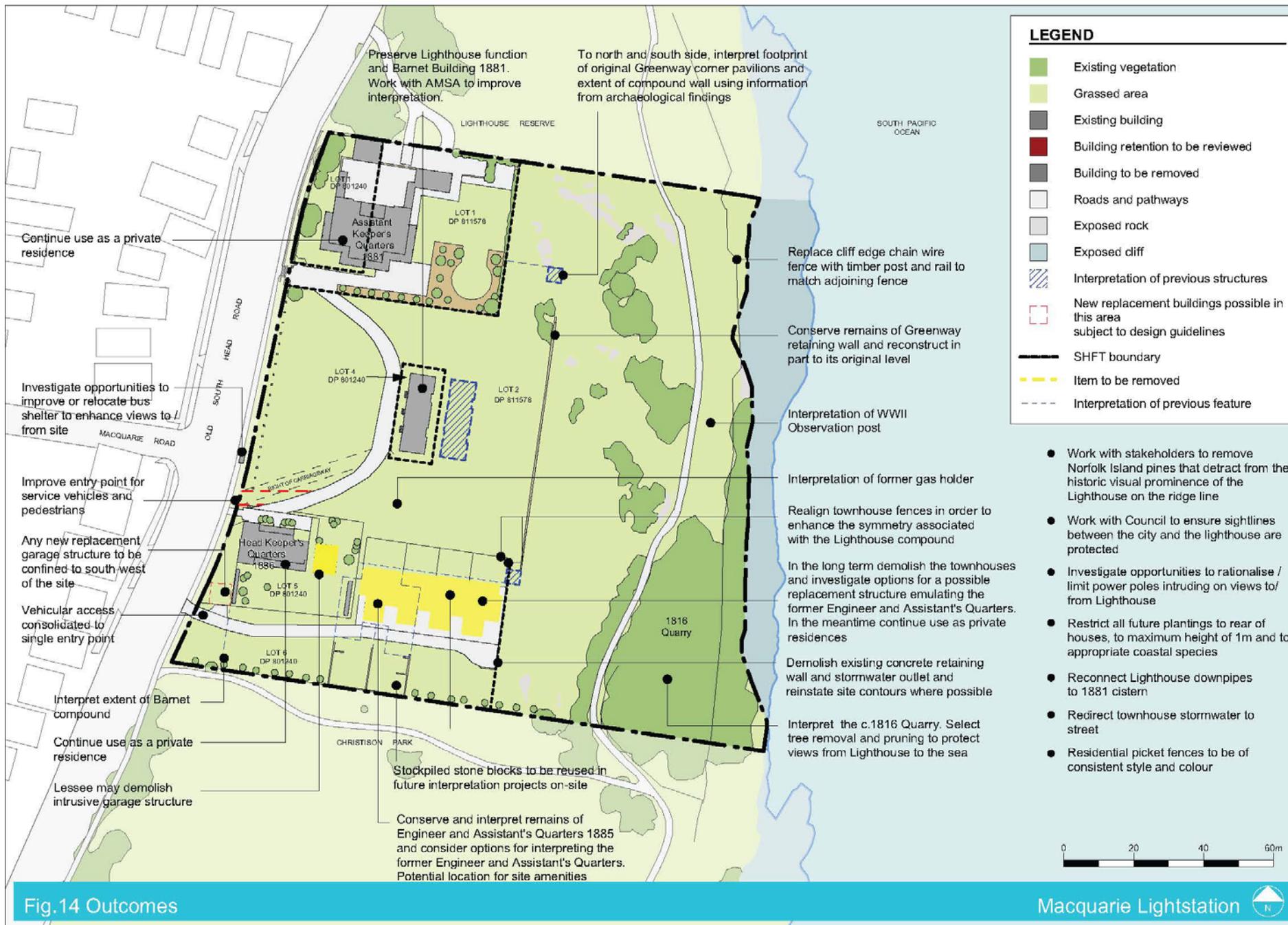
- Improve public access to the site, and rationalise vehicular access arrangements.

The primary objective of the proposed design improvements is to convey the sense of place that characterises the lighthouse compound, while improving public access, enhancing views and interpreting the site's heritage values.

The significant heritage values of the precinct will be protected, conserved and interpreted. The Lighthouse will be retained as a light beacon and the Harbour Trust will continue operating tours of it and the site.

The Harbour Trust will work closely with AMSA to ensure that the building is appropriately conserved and that the interpretive material within it is relevant to the site and its history. The Harbour Trust will also liaise closely with the lessees on the site to ensure that the heritage values of the Head Keeper's and Assistant Keepers' Quarters are protected and enhanced.

The proposed changes are modest but will make a significant difference to how the site is experienced. The removal of intrusive elements – such as inappropriate plantings, electrical infrastructure and some buildings - will allow the public to better appreciate the site's visual and heritage qualities.



The Harbour Trust will liaise closely with the site's lessees and adjoining land managers to ensure that the heritage values of the place continue to be protected, enhanced and interpreted.

7.1. Lighthouse and Compound Area

Under the terms of the lease, AMSA is obliged to keep the lighthouse in good order and repair, and in a safe condition. AMSA continues to follow the AMSA heritage management systems for the care and maintenance of the building.

The Harbour Trust will work closely with AMSA to ensure that the interior and exterior of the lighthouse is appropriately conserved and any interpretive material located within the lighthouse is well maintained and is relevant to the site and its history.

To maintain the lighthouse's significant landmark qualities, the elevated compound area around the lighthouse (contained in Lot 2 DP 811578) will remain free of any structures, street furniture, plantings, signage (aside from low, interpretive signage) shelters, large marquees, bins, benches etc.

The lighthouse will continue to be used as an Aid to Navigation, where required for this purpose. The Harbour Trust conducts regular guided tours of the lighthouse, where visitors are informed of the site's history and particular features are highlighted.

Any secondary use of the lighthouse must be consistent with this use, approved by AMSA and be limited to activities such as heritage interpretation and visitor services.

7.2. Head Keeper's Quarters and Grounds

The Head Keeper's Quarters is to continue to be used as a private single residence only. The building and its grounds are not to be used for other purposes.

The exterior and interior configuration of the residence must remain highly intact and any changes should be minimal unless it is restoration.

The former garage located to the east of the Head Keeper's Quarters has been converted to a laundry and bathroom. The former garage is to remain as a non-habitable space.

Notwithstanding the above, the former garage is considered intrusive in its current location, blocking views of the lighthouse from the south. As the residence is subject to a long term lease, the removal of the garage would be subject to approval from the Harbour Trust.

If the existing intrusive garage adjacent to the Head Keeper's Quarters is removed, any replacement garage structure must reflect the scale, form and materials of the existing buildings and confined to the south-west corner of the leased area in order to avoid obstructing important sightlines to the lighthouse. The height, bulk, and scale of any new garage must be consistent with the existing garage. Building materials and colours must be determined in close consultation with the Harbour Trust to ensure it is compatible with heritage values of the Head Keeper's Quarters and the Macquarie Lightstation precinct. Any replacement garage must only be used for the storage of vehicles.

Vehicular access to the Head Keeper's Quarters should be rationalised, with entry to the leased area via the southernmost driveway to the Lightstation precinct (off Old South Head Road).

Grounds

All new plantings are to be of species that do not grow above 1 metre in height when mature so as not to obscure important views to the lighthouse. Any new permanent or temporary structures must not obscure views to or from the lighthouse.

Excavation is to be avoided where possible. Any disturbance of the grounds must be in accordance with the Environmental Management Plan for the Macquarie Lightstation Precinct, prepared by Coffey Environments in 2011. This includes ensuring subsurface topsoil and geofabric is not disturbed.

All works to the interior and exterior of the dwelling or grounds require prior written approval from the Harbour Trust.

7.3. Assistant Keepers' Quarters and Grounds

The Assistant Keeper's Quarters will continue to be used as a private residence (no more than two attached residences, reflecting its original design). The building (including ancillary buildings) and grounds are not to be used for other purposes.

Exterior

The significance of the external appearance and configuration of the building, in particular and because of its freestanding design and visibility from the public domain, provide minimal opportunity for modification to the exterior of the building and ground.

Main Dwelling

Following works undertaken in the 1990s and in 2008, the Assistant Keeper's Quarters has been reconfigured as a single residential dwelling. This configuration could be retained, or the building could be restored to

its original configuration as two attached residences, through sensitive reinstatement of dividing walls and living arrangements. Other modifications to the configuration of the interiors of the Assistant Keeper's Quarters is not appropriate.

Ancillary Buildings

The Stables for the Assistant Keeper's Quarters was designed by James Barnet to house carts and horses. It survives today and retains its stone flooring, intact horse stalls and mangers. A garage was constructed in the 1990s.

All ancillary buildings and structures at the Assistant Keeper's Quarters must only be used for the storage of items and to support the ongoing use of the building as a private residence. Ancillary structures are not to be used as habitable spaces. The Stables are to be used for the storage of goods, vehicles and a workshop; the garage is to be used for the storage of vehicles.

Grounds

The leased area contains a 'Restricted Area' in part of Lot 1 in DP 811578, formerly comprised in Lot 3 in DP 801240, where the lessee is prohibited from erecting any building or structure (other than dividing fences) and from planting any plants or vegetation other than low-growing flowering shrubs to a maximum of 1 metre in height.

The Harbour Trust will liaise with the lessee regarding the removal of Norfolk Island Pines from the grounds of the building.

Excavation is to be avoided where possible. Any disturbance of the grounds must be in accordance with the Environmental Management Plan for the Macquarie Lightstation Precinct, prepared by Coffey

Environments in 2011. This includes ensuring subsurface topsoil and geofabric is not disturbed.

Access Arrangements

The existing discreet vehicular driveway to the Assistant Keepers' Quarters through Lighthouse Reserve (a Crown Reserve managed by Woollahra Council) should be retained. Alternative vehicular access to the dwelling, for example via a new entrance in the vicinity of the northern part of the original semi-circular driveway, is impractical due to the significant level difference between the site and Old South Head Road.

Any works to the interior or exterior of the main building, stables, garage, grounds or any other part of the property, require prior written approval from the Harbour Trust.

7.4. Townhouses and Grounds

A townhouse complex consists of four two-storey units constructed from rendered brick, painted white. In 2012, the Harbour Trust undertook internal and external refurbishments of the townhouses to support their continued use as leased residential accommodation. Rental income received from the townhouses contributes towards the Harbour Trust's operations.

The Harbour Trust's long term plan is to remove the townhouses, as this will enhance distant views as well improving the immediate setting of the Lighthouse – see *Figure 14*.

The townhouses are currently occupied on short term leases; retention of the townhouses will be regularly reviewed.

7.5. Engineer and Assistant's Quarters Site

Interpretation of the Former Quarters

In the longer term, the removal of the townhouses will also provide an opportunity to re-connect and interpret the remnant garden walls of the former Engineer and Assistant's Quarters to the site. These walls will be conserved and opportunities investigated for the interpretation of the building as a footprint or a sympathetically designed structure. Interpretation of the Engineer and Assistant's Quarters could for example involve low level stone edging outlining the building's footprint, which may in turn be used for seating.

New Structures

The removal of the townhouses will also provide an opportunity to re-connect the remnant garden walls of the former Engineer and Assistant's Quarters to the site. These walls will be conserved and opportunities investigated for the interpretation of the building as a footprint or a sympathetic structure. The options for any new structure will be carefully explored and must ensure that the appreciation of the site is enhanced, that the amenity of the Head Keeper's Quarters is retained, and that important sightlines to the lighthouse are not obstructed by its addition.

When all the townhouses are removed, an opportunity exists for a possible new structure over the footprint of the former Engineer and Assistant's Quarters. This would provide a covered space for site interpretation, occasional gatherings and ceremonial events. In its form, scale and materials, the structure would emulate the former quarters. Alternatively, the footprint of the former building may be interpreted in the ground, possibly with low level stone edging which could be used for seating. This area would provide opportunities for external seating, signage and other interpretive display as well as site amenities.

Public facilities such as seating, water fountains, gathering spaces and public toilets are available in public parks in the vicinity of Macquarie Lightstation. If additional facilities such as these are required in the

precinct, they may be located in this area, providing any new structures (permanent or temporary) within the garden wall emulate the lightweight, lean-to buildings that originally existed in rear yards, and are located so views to and from the Lighthouse, and amenity of the Head Keeper's Quarters, are not adversely impacted.

7.6. Temporary Structures

Temporary, low-scale marquees may be erected (with the Harbour Trust's written permission) in association with occasional events and tours. The location of the marquees should respect the setting of the Lighthouse. Marquees should be located within the area of the (former) Engineer and Assistant's Quarters, or the townhouses, once these are demolished. Events that involve the introduction of temporary structures may be acceptable if they occur only infrequently, are capable of being removed, and any impacts are reversible.

7.7. Landscape

It is proposed to maintain the existing open character of the site, in keeping with the site's original windswept coastal landscape. Lawns will be maintained around the lighthouse.

A key outcome is to ensure vegetation and built structures do not compete with or obstruct views of or from the lighthouse, particularly from the ridgeline. The Harbour Trust will work closely with the lessees regarding any proposed works within the leased areas, to ensure views to and from the lighthouse, and the landscape character of the place, are not adversely affected.

Proposed

Removal of townhouses and possible replacement emulating former Engineers and Assistant's Quarters

Footprint of former Greenway Lighthouse

Barnet period picket fence

Repairs to Greenway Compound Wall

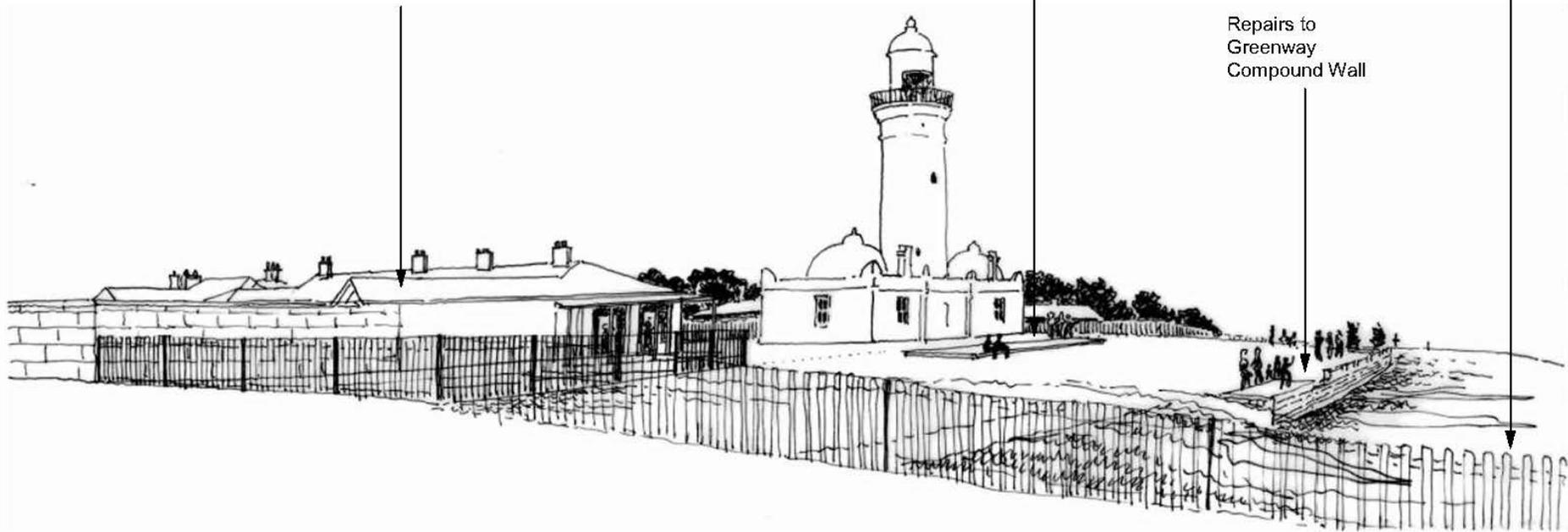


Fig.15 Looking North From Coastal Walkway

Macquarie Lightstation



Open Landscape to be Maintained

The original landscape in the lower area between the Greenway retaining wall and the Coastal Walk may be allowed to naturally regenerate with low-growing shrubs, by ceasing mowing and gradually removing weed species. Rock outcrops may be revealed. This will recreate the historic landscape and help to define the separateness of the Lighthouse compound. The proposed regeneration area will also serve to discourage active recreation in this Precinct, as it is more suited to the adjoining Council reserves.

Local provenance native species will be used in all revegetation to improve habitat for native wildlife. Plant selection should take into account provenance of stock, proximity to heritage buildings and structures, maintaining significant views, aspect and microclimatic conditions. All new plantings are to be of species that do not grow above 1 metre in height when mature so as not to obscure important view lines. Trees within or adjacent to leased areas of the site will be closely monitored to ensure there is no undermining of buildings which may cause damage to foundations. The Harbour Trust will work closely with the lessees to ensure plantings do not detract from views of the lighthouse and the landscape character of the place.

Greenway Compound Wall

The substantial remains of the Greenway compound wall will be conserved as a matter of priority. This will prevent further deterioration and enable safe public access into the elevated compound area from the Coastal Walk. The wall will be re-pointed and reconstructed in part to interpret the extent of the corner lodges and to demonstrate the crenellations that existed in the upper coursing. Stone from the stone pile east of the wall may be utilised for this purpose. The wall has a height of up to 1.7 m: the crenellations of the wall will provide people with a visual cue to make them aware of the level change, thereby avoiding the need

for visually intrusive safety rails. At night, the crenellations may be backlit on their western elevation for the same reason. The use of Aboriginal midden material in the mortar will be interpreted either on site or as part of site tours.

Former Greenway Lighthouse and Corner Lodges

The location of the former Greenway lighthouse, the eastern corner lodges, and the returns to the compound wall will be marked in the ground with a material distinct from the turf to interpret their location and extent.

1816 Quarry

The 1816 quarry will be interpreted from the Coastal Walk path. The height of the vegetation in this area will be controlled in order to ensure that the ocean horizon line is visible from eye level from within the elevated compound; preserving historic uninterrupted views to the Tasman Sea.

An ongoing program of removal and pruning of taller tree species within the quarry to protect sightlines to and from the lighthouse. A particular design objective is to generally obtain a clear view of the ocean horizon when viewed from the site of the Greenway lighthouse. Selective weed removal will ensure the integrity of this habitat is maintained.

Interpretation of Archaeological Remains

Should any remains of now-demolished structures be encountered at the site, the Harbour Trust will implement a program of careful interpretation and potential uncovering. Interpretation could include signage, stone edging or new structures of sympathetic materials and scale.

Bus Shelter on Old South Head Road

The Harbour Trust will work with Transport for NSW and Woollahra Council to investigate opportunities for relocating or replacing the existing bus shelter outside the site. Relocating the bus shelter to the north or south would assist to improve views to the lighthouse from the street.

Fencing

The cliff edge fence will be replaced with a timber post and rail fence to provide continuity with the fence design used along the Council managed section of the Coastal Walk.

Fences within the lighthouse compound will be realigned to allow the symmetry of the original compound area to be reinterpreted. Fencing of residential properties to be modified to ensure consistency across the Precinct. Residential fences should not be located or designed to suggest they are part of the original Barnett configuration.

7.8. Access

Pedestrian Access

Pedestrian access to the site is available from Old South Head Road and the Coastal Walk via Lighthouse Reserve and Christison Park; the driveway leading to the townhouses provides access for prams and mobility-impaired pedestrians.

The Coastal Walk will continue to provide a scenic link for walking along the eastern perimeter of the site. No new formal pathways are proposed in the lighthouse compound. The main pedestrian entry to the site from Old South Head Road will be improved.

Vehicular Access and Parking Arrangements

Vehicular access to the residences will be improved by rationalising access at the southern end of the site to the formed driveway at the southern end of the Old South Head Road frontage. This driveway provides access for tenants of the townhouses and Head Keeper's Quarters.

Vehicular access to the Assistant Keeper's Quarters is available via an existing driveway across Lighthouse Reserve.

Access for authorised and emergency vehicles is available via locked bollards at the southern end of the semi-circular driveway. No public parking is available on site.

On-site parking for occasional special events may be allowed, however it will be restricted to the lawn area in the south-western corner of the site. Parking in this location would be discreetly screened from the lighthouse compound. Traffic management measures will be put in place during large scale Harbour Trust events at Macquarie Lightstation.

Proposed

Realign internal fences to reinforce symmetry of compound

Repair Greenway Stone Wall and rebuild top courses

Open up the area to the public
Retain open landscape character

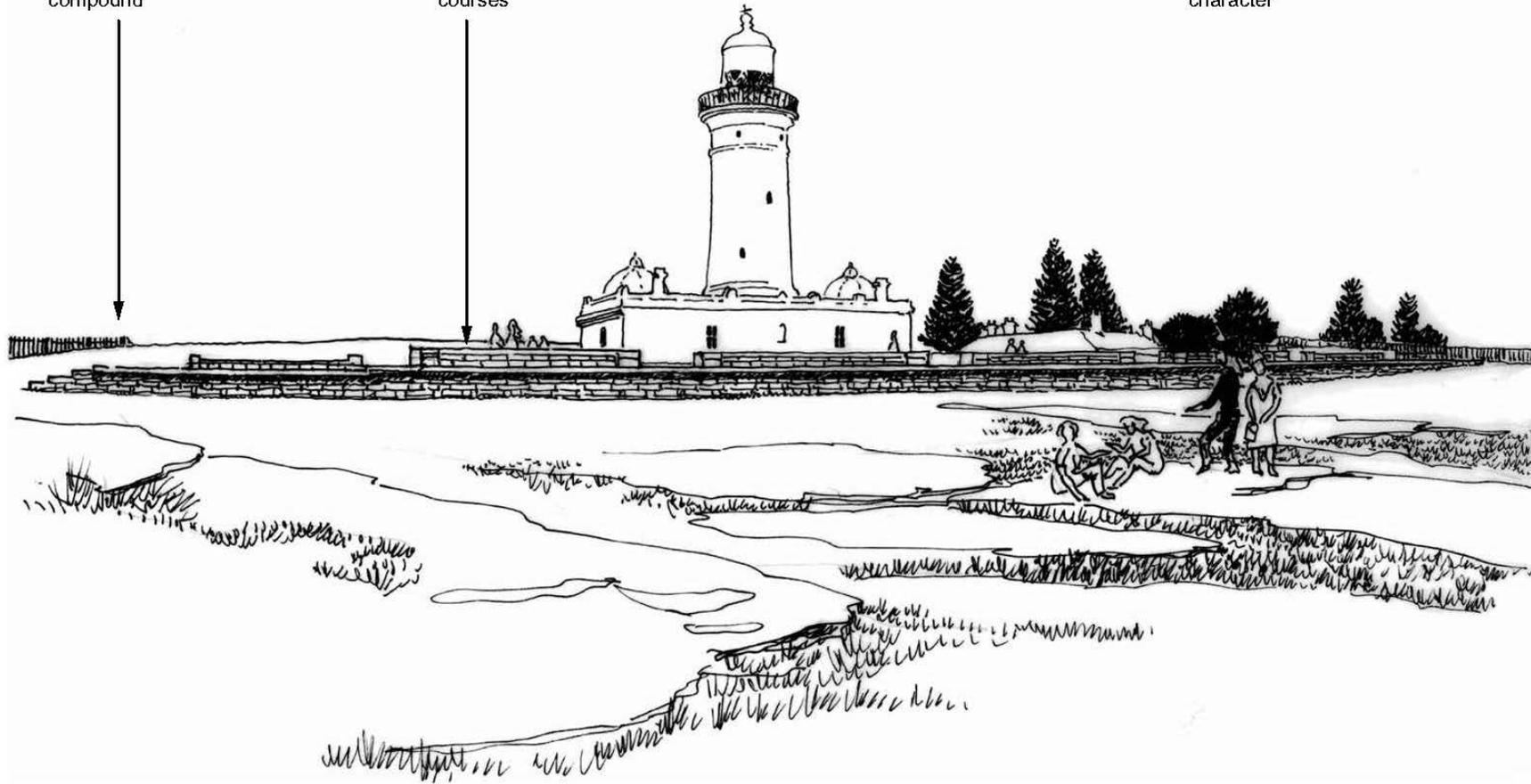


Fig.16 Looking West From Coastal Walkway

Macquarie Lightstation 

7.9. Services

Site services including electricity, water, gas, telecommunications and stormwater services to the site will be maintained as required.

The Harbour Trust will investigate opportunities to rationalise electricity infrastructure in the vicinity of the site. Where possible, unsightly overhead cables on the site will be placed underground to improve views to and from the lighthouse. Where possible, direct and independent water meters will be provided for the lighthouse, Assistant Keeper's Quarters, Head Keeper's Quarters and each of the townhouses. New meters will be installed in unobtrusive locations.

The Lighthouse downpipes will be connected to the 1881 cistern. This will help protect the Lighthouse footings from water seepages as well as providing a possible means for re-using rainwater on-site. Stormwater collected from other building roofs will continue to be directed towards Old South Head Road.

The existing concrete stormwater outlet near the townhouses will be removed.

7.10. Interpretation

One of the primary objectives of the Harbour Trust, in conserving the heritage values of its lands and opening them up to public access, is to convey their rich natural and cultural heritage in a meaningful, relevant and engaging way to the general public.

For Macquarie Lightstation, all phases of the site's history and continued active use as a lighthouse will be interpreted, focusing in particular on the

site's important role in illustrating the development of lighthouse technology and maritime safety.

The methods of interpretation may include, but not be restricted to:

- On-site design in order to interpret the location of former structures on the site.
- External interpretive signage and other forms of display to convey the site's past use and history. This will be located either within the Lighthouse or in the area of the former Engineer and Assistant's Quarters.
- External orientation and way-finding signage to help visitors appreciate and understand the site as a whole. Users of the Coastal Walk will be encouraged to move into the elevated compound via each extremity of the Greenway wall, perpendicular to the lighthouse's main axis of symmetry.
- Guided activities for tourists, students and other specialist interest groups;
- Events and Open Days.
- Visitor information brochure and site map.
- Oral History research programs.

7.11. Contamination and Hazardous Materials Management

A hazardous materials removal and abatement program has been carried out at Macquarie Lightstation. Works have included:

- Removal or containment of lead based paints;
- Removal of asbestos sheeting on the roof of the Head Keeper's Quarters garage and removal or containment of any remaining asbestos materials (in eaves and downpipes); and

- Removal of soils contaminated by lead-based paint and fill being impacted by lead, zinc, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons and dieldrin.

Remediation work was undertaken between 2010 and 2011 by the Harbour Trust in accordance with the Remediation Technical Specification and Remediation Action Plan (RAP) prepared by GHD.

In August 2011, the site was certified by an accredited site auditor as suitable for residential, parks and recreational open space, subject to compliance with the Environmental Management Plan (EMP) prepared for the site by Coffey Environments Pty Ltd. Compliance with the EMP will ensure that any remnant site contamination is appropriately managed.



8. IMPLEMENTATION

Macquarie
Lightstation



Australian Government
Sydney Harbour Federation Trust

8. Implementation

Priorities for implementation have been determined in a manner consistent with *Part 11* of the Harbour Trust's Comprehensive Plan.

The following table summarises the outcomes to be achieved through the implementation of this Management Plan.

The table identifies individual elements of the project and prioritises those elements in a manner consistent with those priorities identified in the Comprehensive Plan. Supporting studies which detail each element are included in the table as a quick reference point.

Implementation and Action Plan

Outcome	Element	Priority	Relevant Management Plan or Supporting Study
Improved Environmental Conditions	<ul style="list-style-type: none"> Remediation of contaminated soil 	Achieved	<ul style="list-style-type: none"> Site Audit Report (SKM, 2011) Environmental Management Plan (Coffey, 2011)
	<ul style="list-style-type: none"> Maintenance or removal of hazardous material in buildings 	Ongoing	<ul style="list-style-type: none"> Remediation Validation Report (Coffey, 2011)
	<ul style="list-style-type: none"> Management of residual site contamination 	Ongoing	<ul style="list-style-type: none"> Remediation Validation Report (Coffey, 2011) Environmental Management Plan (Coffey, 2011)
	<ul style="list-style-type: none"> Allow heath-like landscape to regenerate in area between Greenway wall and coastal walk 	Medium (Ongoing)	
	<ul style="list-style-type: none"> Ongoing weed removal programs in the Quarry 	Medium (Ongoing)	
Heritage Conservation and Interpretation	<ul style="list-style-type: none"> Conserve and reconstruct the Greenway retaining wall, and interpret footprints of former Greenway structures 	High	<ul style="list-style-type: none"> Conservation Management Plan Archaeological Survey

Outcome	Element	Priority	Relevant Management Plan or Supporting Study
	<ul style="list-style-type: none"> Interpret the former Engineer and Assistant's Quarters 	Medium	<ul style="list-style-type: none"> Conservation Management Plan Archaeological Survey
	<ul style="list-style-type: none"> Possibly provide new structure emulating the former Engineer and Assistant's Quarters 	Low	<ul style="list-style-type: none"> Conservation Management Plan Archaeological Survey
	<ul style="list-style-type: none"> Install interpretive material /signage 	High	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Select removal of intrusive Norfolk Island Pines to preserve and improve the visual prominence of the Lighthouse and views to and from the site 	Partly achieved	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Select removal and pruning of taller trees in the Quarry to maintain a visual relationship between Lighthouse and sea 	Medium	<ul style="list-style-type: none"> Conservation Management Plan
Increased public access and view protection	Improve public access to the site, and rationalise vehicular arrangements	Achieved	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Removal of intrusive elements such as fencing and inappropriate plantings 	Partly achieved	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Replace cliff edge chain fence with timber post and rail fence 	High	<ul style="list-style-type: none"> Conservation Management Plan

Outcome	Element	Priority	Relevant Management Plan or Supporting Study
	<ul style="list-style-type: none"> Realign fences to enhance the symmetry associated with the compound 	High	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Liaise with Woollahra Council to deliver coordinated outcomes for the precinct 	Ongoing	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Long term upgrading works to achieve compliance with Building Code of Australia and facilitate access 	Ongoing	BCA Report
Site works, possible new building, and building removal	<ul style="list-style-type: none"> Remove townhouse buildings 	Low	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Remove garage to Head Keeper's Quarters and replace with new garage (lessee works) 	Medium	<ul style="list-style-type: none"> Conservation Management Plan
	<ul style="list-style-type: none"> Provide and/or upgrade of on-site services including stormwater works and electricity supply and removal of intrusive powerboard and stormwater outlet 	Achieved	<ul style="list-style-type: none"> Hydraulic Services Survey
	<ul style="list-style-type: none"> New unisex accessible toilet/ storage room on the site of the former Engineer and Assistant's Quarters. 	Low	



9. FUTURE ACTIONS

9. Future Actions

Section 9 outlines the process for implementing this Plan.

9.1. Unforeseen Archaeological Discoveries

Archaeology includes: buildings, structures, objects and relics, landscapes and other remains, both above and below the ground. All of these items have enormous potential to contribute to our knowledge of the place by revealing information about how people lived and worked there. All relics are protected by Commonwealth legislation and the intentional uncovering of relics, without a permit, is forbidden.

Appropriate provisions will be included, in leases for the site and in any contracts for works to be undertaken, requiring that in the event that relics are unintentionally uncovered, work must cease in the area where the relics were found and the Harbour Trust immediately informed. The Harbour Trust will arrange for an archaeologist with the appropriate experience to visit the site and undertake an assessment before determining the appropriate course of action.

9.2. Records of Intervention & Maintenance

The Harbour Trust is proposing to use the inventory sheets as the starting point for establishing an ongoing record for each of the site's buildings and structures. This will enable all relevant information relating to a building or structure (for eg its history, statement of significance, conservation policies, leasing arrangements, etc) to be available for reference in one document.

The Harbour Trust will work with the residential leaseholders and leaseholders and AMSA to ensure records of intervention and maintenance to the houses and Lighthouse are retained.

9.3. Future Consultation

Community consultation and communications is critical to the implementation of this plan. The community includes the Harbour Trust's Community Advisory Community, broad community, special interest groups, non-government organisations and Local, State and Commonwealth Governments.

The Harbour Trust has been consulting with these groups since its inception and will continue this process in accordance with the *Consultation and Communications Objectives and Policies* set out in Part 3 of the Harbour Trust's Comprehensive Plan.

9.4. Aboriginal Consultation

Ongoing consultation with the aboriginal community will take place through the Harbour Trust's Aboriginal and Torres Strait Islander Advisory Group and in accordance with the Harbour Trust's Reconciliation Action Plan and the *Aboriginal Heritage Objectives and Policies* set out in Part 3 of the Harbour Trust's Comprehensive Plan.

9.5. Monitoring and Review of the Plan

During the implementation, this plan will be continuously monitored in terms of its objectives and consistency with the Commonwealth Heritage management principles.

At least once in every 5 year period after the plan's adoption the plan will be reviewed in accordance with Section 341X of the EPBC Act, 1999 as amended. The review will assess whether the plan is consistent with the Commonwealth management principles in force at the time.



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Appendix B: Acknowledgements

Front Cover

Macquarie Lighthouse (Sydney Harbour Federation Trust)

Cover – Section 1

Jean Baptiste Arnout, 1829 Macquarie Lighthouse, Phare de Port Jackson (National Library of Australia)

Cover – Section 2

Two Lighthouses together prior to demolition of the original 1883 (State Library of New South Wales)

Cover – Section 3

Aerial looking north at Macquarie Lightstation with North Head beyond (Sydney Harbour Federation Trust)

Cover – Section 4

Plan, section and elevations of the new lighthouse by James Barnet dated 22 May 1879 (National Archives of Australia)

Cover – Section 5

Hurley, Frank. *Macquarie Lighthouse [Aerial views, Sydney, New South Wales]*., 1910

Cover – Section 6

Laying the foundation Stone for the new Lighthouse (1881) (National Library of Australia)

Cover – Section 7

Chance bros. lens in the current lantern (Sydney Harbour Federation Trust)

Cover – Section 8

Aerial looking south west at Macquarie Lightstation with CBD beyond (Sydney Harbour Federation Trust)

Cover –Section 9

Interior spiral stair and floor tiles of the Barnet light (Sydney Harbour Federation Trust)

Cover – Appendices

Richard Read Snr. 1819 View to Macquarie Lighthouse from Bunker Hill (State Library of New South Wales)

Figure 4

Macquarie Lightstation Phases of Development.

Source: Davies, M. and Wilson, G. 1979, *Macquarie Lighthouse Report*, Department of Construction

Figure 5

c.1810 illustration of Watsons Bay with the flagstaff and column on South Head.

Source: Public Record Office of Northern Ireland, *Pilot's House & Watson Bay*, Alexander Huey, c. 1810, D3220/2/3B

Figure 6

c.1833 View of the first Macquarie Lighthouse from South Head Road.

Source: National Library of Australia, *Vue du phare du Port Jackson, Nouvelle Galles du Sud*, Jean Baptiste Arnout, c. 1810, NLA pic-an8134734

Figure 8

c.1870 View of the first Macquarie Lighthouse showing the added veranda and iron hoops on the tower.

Source: Small Picture File Collection, Mitchell Library, State Library of NSW, *First Macquarie Lighthouse, Vauclose NSW*, Undated c. 1870, SPF_a089198

Figure 9

c.1883 View of the first Macquarie Lighthouse and the newly completed Barnet tower.

Source: National Library of Australia, *Old & New Macquarie Lighthouse, Sydney NSW*, Undated c. 1883, NLA vn3513278

Figure 10

Original Drawing of the Quarters for the Engineer and Assistants designed by Barnet.

Source: National Archives of Australia, *Images of Macquarie Lighthouse: Assistant Engineer's Quarters and Lighthouse by Barnet, 1883*, NAA: A9568 1/10/12

Figure 11

Aerial view of the Macquarie Lightstation site in 1943.

Source: Roads and Traffic Authority of NSW, *Sydney Black and White Aerial Photographs CD 1 & 2 Runs BB01 to BB37, 1943*

Appendix C: Related Studies

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This document is available at

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Dascem Holdings Pty Ltd, February 2004c, *Stage 2 Environmental Assessment & Remedial Action Plan, Macquarie Lightstation, Vaucluse, NSW, CL 617*

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Dascem Holdings Pty Ltd, February 2005b, *Detailed Environmental Assessment and Remedial Action Plan, Head Keeper's Quarters and Townhouses Lots, Macquarie Lightstation Precinct, Old South Head Rd, Vaucluse NSW, CL617-2*

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Department of Administrative Services, June 2003, *Macquarie Lightstation – Plan of Management*

Dominic Steele, 2018 *Aboriginal Archaeological and Historical Assessment Macquarie Lightstation*

GHD, *Remediation Action Plan, Macquarie Lighthouse, Vacluse, 2010*

Lucas Stapleton Johnson & Partners, 2018, *Macquarie Lightstation, Old South Head Road, Vacluse Conservation Management Plan, 2018*

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Sinclair Knight Merz, 4 May 2004d, *Letter report: Site Audit for Macquarie Lightstation: Review of Investigation Reports and RAP (4 pages)*

Sinclair Knight Merz, 22 August 2011, *Site Audit Report for the Remediation of Macquarie Lightstation, Old South Head Road, Vacluse NSW*

Significant Impact Guidelines 1.1. A reference to the Significant Impact Guidelines 1.1 is a reference to that document as in force in 2013. This document is available at <http://www.environment.gov.au/epbc/publications>.

Significant Impact Guidelines 1.2. A reference to the Significant Impact Guidelines 1.2 is a reference to that document as in force in 2013. This document is available at <http://www.environment.gov.au/epbc/publications>.

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Appendix D: Schedule 7A, EPBC Regulations 2000

Environment Protection and Biodiversity Conservation Regulations 10.03B

Management Plans for Commonwealth Heritage Places

A Management Plan for a Commonwealth Heritage Place must:	Relevant section of the Macquarie Lightstation Management Plan
(a) establish objectives for the identification, protection, conservation, presentation and transmission of the Commonwealth Heritage values of the place; and	Aims of the plan (Section 2) Policies 1-5
(b) provide a management framework that includes reference to any statutory requirements and agency mechanisms for the protection of the Commonwealth Heritage values of the place; and	Introduction; Aims of the Plan; Planning Framework (Sections 1, 2, 3)
(c) provide a comprehensive description of the place, including information about its location, physical features, condition, historical context and current uses; and	Site Description and History (Section 4) Site Analysis (Section 6)
(d) provide a description of the Commonwealth Heritage values and any other heritage values of the place; and	Heritage values (Section 5)
(e) describe the condition of the Commonwealth Heritage values of the place; and	Heritage Values (Section 5)
(f) describe the method used to assess the Commonwealth Heritage values of the place; and	Heritage Values (Section 5)
(g) describe the current management requirements and goals including proposals for change and any potential pressures on the Commonwealth Heritage values of the place; and	Aims of the Plan (Section 2) Planning Framework (Section 3) Heritage Values (Section 5) Outcomes (Section 7)
(h) have policies to manage the Commonwealth Heritage values of a place, and include in those policies, guidance in relation to the following:	Conservation Policies (Section 5)
i. the management and conservation processes to be used;	Policies 4-9, 28
ii. the access and security arrangements, including access to the area for indigenous people to maintain cultural traditions;	Policies 18, 26 Traffic, Parking and Access (Section 6.9) Leasing Arrangements (Section 6.10)
iii. the stakeholder and community consultation and liaison arrangements;	Policies 19, 21, 39 Future Consultation (Section 9.3) Aboriginal Consultation (Section 9.4)

A Management Plan for a Commonwealth Heritage Place must:	Relevant section of the Macquarie Lightstation Management Plan
iv. the policies and protocols to ensure that indigenous people participate in the management process;	Policies 19, 21, 39 Aboriginal Consultation (Section 9.4)
v. the protocols for the management of sensitive information;	There is no sensitive information
vi. the planning and management of works, development, adaptive reuse and property divestment proposals;	Policies 30-39 Planning Framework (Section 3)
vii. how unforeseen discoveries or disturbances of heritage are to be managed;	Policies 19, 20 Unforeseen Archaeological Discoveries (Section 9.1)
viii. how, and under what circumstances, heritage advice is to be obtained;	Policies 1, 9, 20 Planning Framework (Section 3) Unforeseen Archaeological Discoveries (Section 9.1)
ix. how the condition of the Commonwealth Heritage values is to be monitored and reported;	Planning Framework (Section 3) Monitoring and Review of the plan (Section 9) Policies 9, 31
x. how records of intervention and maintenance of a heritage places register are kept;	Policies 9-22 Planning Framework (Section 3) Records of Intervention & Maintenance (Section 9.2)
xi. the research, training and resources needed to improve management;	Policy 4 Implementation (Section 8) Future Actions (Section 9)
xii. how heritage values are to be interpreted and promoted; and	Policies 26-29 Interpretation (Section 8)
(i) include an implementation plan; and	Implementation (Section 8)
(j) show how the implementation of policies will be monitored; and	Monitoring and Review of the Plan (Section 9) Policy 39
(k) show how the management plan will be reviewed.	Monitoring and Review of the Plan (Section 9)

Appendix E: Schedule 7B, EPBC Regulations 2000 Environment Protection and Biodiversity Regulations 10.03D

Management Principles for Commonwealth Heritage Places

Commonwealth Heritage management principle	Relevant section of the Macquarie Lightstation Management Plan
1. The objective in managing Commonwealth Heritage places is to identify, protect, conserve, present and transmit, to all generations, their Commonwealth Heritage values.	Aims of the plan (Section 2) Policies 1-5, 26-29
2. The management of Commonwealth Heritage places should use the best available knowledge, skills and standards for those places, and include ongoing technical and community input to decisions and actions that may have a significant impact on their Commonwealth Heritage values.	Policies 1-5, 26, 39 Introduction; Aims of the Plan; Planning Framework (Sections 1, 2, 3)
3. The management of Commonwealth Heritage places should respect all heritage values of the place and seek to integrate, where appropriate, any Commonwealth, State, Territory and local government responsibilities for those places.	Policies 19, 21, 39 Aims of the Plan (Section 2) Planning Framework (Section 3) Future Consultation (Section 9.3) Aboriginal Consultation (Section 9.4)
4. The management of Commonwealth Heritage places should ensure that their use and presentation is consistent with the conservation of their Commonwealth Heritage values.	Introduction; Aims of the Plan; Planning Framework (Sections 1, 2, 3)
5. The management of Commonwealth Heritage places should make timely and appropriate provision for community involvement, especially by people who: (a) have a particular interest in, or associations with, the place; and (b) may be affected by the management of the place.	Introduction; Aims of the Plan; Planning Framework (Sections 1, 2, 3) Policy 39
6. Indigenous people are the primary source of information on the value of their heritage. The active participation of Indigenous people in identification, assessment and management is integral to the effective	Policies 19, 39 Aboriginal Consultation (Section 9.4)

Commonwealth Heritage management principle	Relevant section of the Macquarie Lightstation Management Plan
protection of Indigenous heritage values.	
7. The management of Commonwealth Heritage places should provide for regular monitoring, review and reporting on the conservation of Commonwealth Heritage Values.	Monitoring and Review of the plan (Section 9)

Appendix F: Commonwealth Heritage Listings

The following Commonwealth Heritage Listings are relevant to the Macquarie Lightstation Precinct:

Place Name	CHL Place ID
Army Cottage with return verandah	105404
Cottage at Macquarie Lighthouse	105411
Macquarie Lighthouse	105366
Macquarie Lighthouse Surrounding	105412
The Macquarie Lighthouse Group	105365

The official summary statements of significance for each place is provided below (source: www.environment.gov.au)

Army Cottage with return verandah, Old South Head Rd, Vaucluse, NSW, Australia

List	Commonwealth Heritage List
Class	Historic
Legal Status	Listed Place (22/06/2004)
Place ID	105404
Place File No	1/12/041/0041

Summary Statement of Significance

The Macquarie Lightstation, built in 1883 is significant as the site of the first lighthouse to be built in Australia and represents the longest continuously operating site of a navigational beacon in Australia (Criterion B.2). The Head Keeper's Quarters, built in 1883, is significant as a government cottage typical of its era and well suited to its exposed site. The cottage is an integral part of the Lightstation and visually complements the adjacent lighthouse tower (Criteria D.2 and E.1). The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial architects Francis Greenway and James Barnet (Criterion H.1). The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures (Criteria E.1 and F.1). The Lightstation is significant for illustrating the difficulties of construction in the early period of European settlement, including the isolation of the site and of the colony and the necessity to quarry materials on site (Criterion A.4). The Lightstation is significant for providing material evidence of the changing living and working conditions of the lighthouse keepers and their families, who constitute an early maritime community. (Criterion A.4).

Official Values

Criterion D Characteristic values

The cottage is an integral part of the Lightstation and visually complements the adjacent lighthouse tower.

Criterion E Aesthetic characteristics

The cottage is an integral part of the Lightstation and visually complements the adjacent lighthouse tower.

Description

Situated on Sydney Harbour's southern headland, Macquarie Lighthouse is a prominent regional landmark. An icon of National significance, the tower is representative of the vital link and dependence of Australia with the sea. The property is located 18km from the central business district of Sydney, situated wholly within the Municipality of Woollahra in the suburb of Vaucluse. The Lightstation precinct covers an area of approximately 2.2ha. Over 170 years of settlement are represented on the site, including remnants of the colonial 1816 Lighthouse, retaining wall and various archaeological sites. There are four primary structures, predominantly of Victorian vintage. These include the Lighthouse, the Head Lighthouse Keeper's quarters and the duplex of the Assistant Keepers' quarters, all substantially constructed in the 1880s. A townhouse complex occupies a south-eastern part of the property. This is the largest of the residential buildings, (consisting of four dwellings) and was constructed in stages from 1969-72. The former Head Keeper's Quarters, built c 1883, has been built up over a number of different phases of construction which are evident in the amalgamated structure. The earliest part of the building still performing its structural function are the walls enclosing rooms two to five and seven. These consist of approximately 670mm thick sandstone walls and are the original external walls and internal wattle and daub walls. The roof is of timber rafter construction supported on the north and south sandstone walls and propped at the ridge line onto large timber beams at approximately 3m centres

also spanning between the north and south walls (a distance of approximately 6.5m). The ceiling joists span east west between these timber beams. The second major component consists of rooms one to twelve which are constructed of rendered brickwork with the dividing wall also of rendered brickwork and loadbearing. The third area of structural additions, commenced prior to rooms one and twelve, were the north and south verandahs, part of which were later enclosed in asbestos cement sheeting on timber studs. The north eastern enclosed section of this has since been demolished. The roof sheeting is of new custom orb sheeting. This replaced corrugated asbestos cement sheeting installed c 1887 over the original cedar shingles, sections of which still remain on the roof.

History Not Available

Condition and Integrity

Wattle and daub walls do not perform a structural function. The walls appear sound in their present condition and their continued function depends on the long term usage of the building. Drainage structures recently installed around the building have been designed to ensure surface runoff does not cause damp problems around walls and floors and these should be maintained to ensure that they perform their required function. Similarly roofing, guttering and downpipes are new and appear to have effectively waterproofed the building.

Location

Part of Macquarie Lighthouse Group, located north-west of Lighthouse, Old South Head Road, Vaucluse.

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Cottage at Macquarie Lighthouse, Old South Head Rd, Vaucluse, NSW, Australia

List	Commonwealth Heritage List
Class	Historic
Legal Status	Listed Place (22/06/2004)
Place ID	105411
Place File No	1/12/041/0039

Summary Statement of Significance

The former Head Keeper's Cottage at Macquarie Lighthouse, dating mainly from 1836, is historically highly significant. It is directly associated with a very early Australian lightstation (separately registered, RNE 2519) and, for nearly 150 years, the Cottage played an important role in the safety of shipping using Australia's oldest port. (Criterion A4) (Themes: 3.8.1 Shipping to and from Australian ports, 3.16.1 Dealing with hazards and disasters, 8.12 Living in and around Australian homes)

The building is the oldest intact freestanding lightkeeper's quarters in Australia. Further, it provides material evidence of the changing living conditions of lighthouse keepers and their families over a lengthy period. (Criterion B.2)

The Cottage is a rare and important example of an 1830s government-built cottage residence, and the original and early fabric, both external and internal, contributes to this significance. (Criterion D.2)

The building is of added importance for its associations with several key nineteenth century architects: Francis Greenway, Mortimer Lewis and James Barnet. Rarely does a building have links with three such outstanding figures in Australia's architectural history. (Criteria H.1 and B.2)

Owing to its form, scale and materials, and its place within the balanced layout and spacing of the buildings that form the lightstation group, the Cottage contributes to the visual harmony of the lightstation precinct, and so possesses aesthetic significance. Significant too is the bare, windswept setting on top of dramatic sandstone cliffs. (Criterion E.1)

Official Values

Criterion A Processes

The former Head Keeper's Cottage at Macquarie Lighthouse, dating mainly from 1836, is historically highly significant. It is directly associated with a very early Australian lightstation and, for nearly 150 years, the Cottage played an important role in the safety of shipping using Australia's oldest port.

Attributes

All of the historic fabric and setting of the cottage.

Criterion B Rarity

The building is the oldest intact freestanding lightkeeper's quarters in Australia. Further, it provides material evidence of the changing living conditions of lighthouse keepers and their families over a lengthy period. The building is of added importance for its associations with several key nineteenth century architects: Francis Greenway, Mortimer Lewis and James Barnet. Rarely does a building have links with three such outstanding figures in Australia's architectural history.

Attributes

All of the historic fabric and setting of the cottage, plus fabric that demonstrates changing living conditions of lighthouse keepers and their families over time.

Criterion D Characteristic values

The Cottage is a rare and important example of an 1830s government-built cottage residence, and the original and early fabric, both external and internal, contributes to this significance.

Attributes

The original and early fabric, both external and internal.

Criterion E Aesthetic characteristics

Owing to its form, scale and materials, and its place within the balanced layout and spacing of the buildings that form the lightstation group, the Cottage contributes to the visual harmony of the lightstation precinct, and so possesses aesthetic significance. Significant too is the bare, windswept setting on top of dramatic sandstone cliffs.

Attributes

The cottage's form scale and materials and setting, plus its relationship to other buildings in the lightstation precinct.

Criterion H Significant people

The building is of added importance for its associations with several key nineteenth century architects: Francis Greenway, Mortimer Lewis and James Barnet. Rarely does a building have links with three such outstanding figures in Australia's architectural history.

Attributes

The building form and fabric that dates to each architect.

Description

HISTORY

As early as 1788 a lookout post was established at South Head to maintain a watch for ships. In 1791 a column was erected to act as a signal for approaching vessels, and two years later a fire was lit as an additional navigational beacon. By the early 1800s a road had been built to the area and it was subsequently improved. A flagstaff was built as a signal station for shipping, but it was realised soon that a lighthouse needed to be erected.

Governor Lachlan Macquarie commissioned the project, and convict architect Francis Greenway, who played a very important role in early Australian architecture, designed the light tower and associated buildings. The Macquarie Lighthouse, as it became known, commenced operation in 1818. Greenway's reward was his conditional freedom.

The complex included four corner lodges or pavilions which were used as military barracks. In the mid 1830s it was decided to enlarge the south-western one of these into a Head Keeper's Cottage. The design of the enlarged building was probably executed by Colonial Architect Mortimer Lewis. The Cottage was completed in 1836.

Decay of the stone in the tower over successive decades meant that a replacement lightstation was required. James Barnet, who as Colonial Architect for 25 years had a major influence on NSW building design, designed the new complex and it was closely based on Greenway's original. The new station was ready by 1883 and for some of that year the two lightstations stood adjacent to one another until Greenway's was demolished. In addition to the replacement tower, the new works included Assistant Keepers' Quarters and other structures. In about 1899 a new wing was added to the Head Keeper's Cottage and this work demolished most of the remaining section of the Greenway lodge (only the eastern wall survived).

In 1976 the Macquarie Lighthouse was fully automated and there were no longer keepers to be accommodated. During the 1980s some of the rooms in the Head Keeper's Cottage were used for interpretative purposes. In the 1990s the quarters was leased to a tenant. In 2001 the building became part of the Sydney Harbour Federation Trust.

Today, the former Head Keeper's Cottage is the oldest intact freestanding lightkeeper's quarters in Australia. Although that at Low Head in Tasmania is earlier (1833), it is not nearly as intact.

DESCRIPTION

The Head Keeper's Quarters is mainly Colonial Georgian in style, and has sandstone walls (except for the 1899 western wing which is stuccoed brick). The roof is mainly hipped and some of the earlier timber shingles remain under the present Colourbond cladding (corrugated galvanised iron and corrugated asbestos cement were also used to clad the roof at different times.) Gables on the western wing have decorative timber infill, reflecting Federation stylistic influences. Windows are mainly 12-pane sashes, and doors are four-panel. There are timber verandahs front and back, and that at the front has a valance and picket fence. Chimneys have twin pots. Internally, there is some lath and plaster walling, and several early chimney pieces. A pair of Barnet-designed gate posts is adjacent to the building.

The Cottage is a rare example of a mainly 1830s government cottage residence, and is a good example of such a building. It provides material evidence of the living conditions of lighthouse keepers and their families over a lengthy period of time. Due to its form, scale and materials, the building contributes to the visual harmony of the lightstation complex.

The cottage is part of the balanced layout of the lightstation buildings. These include the Barnet-designed Lighthouse, the Assistant Keepers Quarters, the

remains of the Engineers Quarters, the stables and the Greenway-period retaining wall. The spaces between each structure are significant.

Contributing to the place's aesthetic qualities is the setting: a bare, windswept area on top of dramatic sandstone cliffs.

History Not Available

Condition and Integrity

Various changes have been made to the Cottage over the years. By the late 1970s the building was in poor condition, and the outbuildings had been lost. During the 1980s the Department of Housing and Construction carried out external conservation works, and further conservation was undertaken in the 1990s. The building is now in good condition. (February 2002)

Location

Part of Macquarie Lighthouse Group, situated south-west of Lighthouse, Old South Head Road, Vaucluse. Excludes garage.

Bibliography

Clive Lucas, Stapleton and Partners Pty Ltd, "Macquarie Lightstation, Old South Head Road, Vaucluse NSW 2030, Revised Conservation Management Plan", for the Department of Finance and Administration, 2001.

National Trust of Australia (NSW), information.

Macquarie Lighthouse, Old South Head Rd, Vaucluse, NSW, Australia

List	Commonwealth Heritage List
Class	Historic
Legal Status	Listed Place (22/06/2004)
Place ID	105366
Place File No	1/12/041/0039

Summary Statement of Significance

The Macquarie Lightstation, built in 1883, is significant as the site of the first lighthouse to be built in Australia and represents the longest continuously operating site of a navigational beacon in Australia (Criterion B.2). The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial Architects Francis Greenway and James Barnet (Criterion H.1). The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures (Criteria E.1 and F.1). The Lightstation is significant for illustrating the difficulties of construction in the early period of European settlement, including the isolation of the site and of the colony and the necessity to quarry materials on site (Criterion A.4). The Lightstation is significant for providing material evidence of the changing living and working conditions of the lighthouse keepers and their families, who constitute an early maritime community. (Criterion A.4).

Official Values

Criterion A Processes

The Lightstation is significant for illustrating the difficulties of construction in the early period of European settlement, including the isolation of the site and of the colony and the necessity to quarry materials on site. The Lightstation is

significant for providing material evidence of the changing living and working conditions of the lighthouse keepers and their families, who constitute an early maritime community.

Criterion B Rarity

Criterion E Aesthetic characteristics

The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures.

Criterion F Technical achievement

The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures.

Criterion H Significant people

The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial Architects Francis Greenway and James Barnet.

Description

Situated on Sydney harbour's southern headland, Macquarie Lighthouse is a prominent regional landmark. An icon of National significance, the tower is representative of the vital link and dependence of Australia with the sea. The property is located 18km from the central business district of Sydney, situated wholly within the Municipality of Woollahra in the suburb of Vaucluse. The

Lightstation precinct covers an area of approximately 2.2ha. Over 170 years of settlement are represented on the site, including remnants of the colonial 1816 lighthouse, retaining wall and various archaeological sites. There are four primary structures, predominantly of Victorian vintage. These include the lighthouse, the head lighthouse keepers quarters and the duplex of the assistant keepers quarters, all substantially constructed in the 1880s. A townhouse complex occupies a south-eastern part of the property. This is the largest of the residential buildings, (consisting of four dwellings) and was constructed in stages from 1969-72. Macquarie Lighthouse was the first to be erected in Australia. The building of the signal station and lighthouse, which was to be known as Macquarie Tower, commenced in 1816 and was completed on 16 March 1818. It was officially designed and supervised by Captain John Gill, Acting Principal Engineer of the Government and Francis Howard Greenway as architect. However, the sandstone walls soon began to crumble away and within fifty years the tower had to be strapped with iron bands. In 1881 the building of a new lighthouse 12ft (3.6m) away from the original lighthouse commenced. The light in the present tower was first exhibited on 1 June 1883. The colonial architect James Barnet designed the new tower based on the design of Greenway's tower. The lantern was slightly larger and the internal arrangements were quite different. The power for the new light was generated by two dynamos driven by two coal gas engines. The light proved far too costly and in 1912 was replaced by an incandescent kerosene gas apparatus. In January 1933, the light was again converted to electricity and the candle power, which in 1912 had been reduced to 100,000, was increased to 1,140,000 with the visibility being 25 miles (40km). The focal plane of the light is 344ft (105m) above high water and the lighthouse is 85ft (26m) high. The lighthouse is situated immediately landward of the original lighthouse. The tower is 61ft (20m) high from ground to floor of lantern, divided into four storeys. All floors and staircases are of iron. It is circular in plan, 11.5ft (3.5m) diameter on the inside, built of sandstone, dressed both sides, designed to resemble as closely as possible the old lighthouse. The base of the tower, externally is 23.5ft (7.17m) square, to a height of 17ft (5.2m), above which it is circular. The walls are 4ft thick at the bottom, tapering to 3ft (0.9m) thick at the top. It has a bluestone gallery around the lantern, with gun metal railing.

Engine room, oil stores and workrooms are provided in two, one storey wings, one on either side of the tower and attached to same, the wings being each about 24ft (3.6m) square, surmounted by domes constructed of woodwork and covered with lead.

History Not Available

Condition and Integrity

The lighthouse is in original condition, the structure being the subject of continuous maintenance since 1883.

Location

Part of Macquarie Lighthouse group. Old South Head Road, Vaucluse.

Bibliography

Anglin Associates, (1989). The Macquarie Lighthouse Conservation Plan. Prepared for The Australian Property Group, Department of Administrative Services, Australia.

Cox, Tanner Pty Ltd. (1979). A Study of Four New South Wales Lighthouses. For Department of Housing and Construction, Sydney.

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Herman, M. Early Australian Architects and Their Work.

Macquarie Lightstation Plan of Management (1993). Prepared by the Australian Construction Services for Australian Estate Management, Department of Administrative Services, Australia.

Nash, D., (1979). A Report of Historical Classifications of Lightstations. Department of Transport, Australia.

Reid, G., (1988). From Dusk Till Dawn - A History of Australian Lighthouses. Department of Transport and Communications. MacMillan, Sydney.

Stephenson, P.R. The History and Description of Sydney Harbour. NSW Govt. Architect.

Macquarie Lighthouse Group, Old South Head Rd, Vaucluse, NSW, Australia

List	Commonwealth Heritage List
Class	Historic
Legal Status	Listed Place (22/06/2004)
Place ID	105365
Place File No	1/12/041/0039

Summary Statement of Significance

The Macquarie Lightstation, built in 1883, is significant as the site of the first lighthouse to be built in Australia and represents the longest continuously operating site of a navigational beacon in Australia (Criterion B.2). The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial architects Francis Greenway and James Barnet (Criterion H.1). The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony of form, scale, materials and textures (Criteria E.1 and F.1). The Lightstation is significant for illustrating the difficulties of construction in the early period of European settlement, including the isolation of the site and of the colony and the necessity to quarry materials on site (Criterion A.4). The Lightstation is significant for providing material evidence of the changing living and working conditions of the lighthouse keepers and their families, who constitute an early maritime community (Criterion A.4).

Official Values

Criterion A Processes

The Lightstation is significant for illustrating the difficulties of construction in the early period of European settlement, including the isolation of the site and of the

colony and the necessity to quarry materials on site. The Lightstation is significant for providing material evidence of the changing living and working conditions of the lighthouse keepers and their families, who constitute an early maritime community.

Attributes

The former lighthouse quarry and all of the fabric of the quarters, and their relationship to the other historic buildings in the group.

Criterion B Rarity

The Macquarie Lightstation, built in 1883, is significant as the site of the first lighthouse to be built in Australia and represents the longest continuously operating site of a navigational beacon in Australia.

Attributes

All fabric on the site dating back to the first lighthouse.

Criterion E Aesthetic characteristics

The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony of form, scale, materials and textures.

Attributes

The visual unity of the nineteenth century buildings.

Criterion F Technical achievement

The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour.

Attributes

The prominence of the lightstation.

Criterion H Significant people

The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial architects Francis Greenway and James Barnet.

Attributes

Built elements that demonstrate the work of each architect.

Description

Situated on Sydney harbour's southern headland, Macquarie Lighthouse is a prominent regional landmark. An icon of National significance, the tower is representative of the vital link and dependence of Australia with the sea. The property is located 18km from the central business district of Sydney, situated wholly within the Municipality of Woollahra in the suburb of Vaucluse. The Lightstation precinct covers an area of approximately 2.2ha. Over 170 years of settlement are represented on the site, including remnants of the colonial 1816 Lighthouse, retaining wall and various archaeological sites. There are four primary structures, predominantly of Victorian vintage. These include the Lighthouse, the head lighthouse keepers quarters and the semi-detached assistant keepers quarters, all substantially constructed in the 1880s. A townhouse complex occupies a south-eastern part of the property. This is the largest of the residential buildings, (consisting of four dwellings) and was constructed in stages from 1969-72. Macquarie Lighthouse was the first to be erected in Australia. The building of the signal station and Lighthouse, which was to be known as Macquarie Tower, commenced in 1816 and was completed on 16 March 1818. It was officially designed and supervised by Captain John Gill, Acting Principal Engineer of the Government and Francis Howard Greenway as architect. However, the sandstone walls soon began to crumble away and within

fifty years the tower had to be strapped with iron bands. In 1881 the building of a new Lighthouse 12ft (3.6m) away from the original Lighthouse commenced. The light in the present tower was first exhibited on 1 June 1883. The Colonial Architect James Barnet designed the new tower based on the design of Greenway's tower. The lantern was slightly larger and the internal arrangements were quite different. The power for the new light was generated by two dynamos driven by two coal gas engines. The light proved far too costly and in 1912 was replaced by an incandescent kerosene gas apparatus. In January 1933, the light was again converted to electricity and the candle power, which in 1912 had been reduced to 100,000, was increased to 1,140,000 with the visibility being 25 miles (40km). The focal plane of the light is 344ft (105m) above high water and the Lighthouse is 85ft (26m) high. The Lighthouse is situated immediately landward of the original Lighthouse. The tower is 61ft (20m) high from ground to floor of lantern, divided into four storeys. All floors and staircases are of iron. It is circular in plan, 11.5ft (3.5m) diameter on the inside, built of sandstone, dressed both sides, designed to resemble as closely as possible the old Lighthouse. The base of the tower, externally is 23.5ft (7.17m) square, to a height of 17ft (5.2m), above which it is circular. The walls are 4ft thick at the bottom, tapering to 3ft (0.9m) thick at the top. It has a bluestone gallery around the lantern, with gun metal railing. Engine room, oil stores and workrooms are provided in two one storey wings, one on either side of the tower and attached to same, the wings being each about 24ft (3.6m) square, surmounted by domes constructed of woodwork and covered with lead. The quarters for the Assistant Keepers formed part of Barnet's original scheme. Their design was altered a number of times: it was intended to provide verandahs on all the frontages, however that on the western side was to be omitted because of the position of the west wall on the boundary line. The quarters were actually constructed some distance to the east of the boundary and the western verandah was built as originally planned. An interesting feature on the east wall of the structure is the provision of two metal brackets for the storage of a flag pole. The stables were designed by Barnet in conjunction with his 1880-83 building program. Over the years, there have been a number of changes in function. The stable and forage room have become a workshop and storeroom and the cart shed now houses an

automobile. However, the structure itself has remained unaltered, the stalls with their mangers and boxes being preserved intact as is the stone flooring. The retaining wall was designed by Greenway as the eastern limit of his dwarf terrace. Its length was equal to the external distance between the two military barracks on the road frontage. The lower portion of the wall ran uninterrupted from north to south. On top of this was a coping course surmounted by a non-continuous wall, three courses in height. This latter part of the wall should be distinguished from the stone and lattice perimeter fence which surrounded the precinct on the three remaining sides. The townhouses were constructed in 1965-66 to accommodate four maintenance men and their families. The two western units are located on the site of the Engineer's Quarters. The erection of this structure formed part of a building program which included replacing fencing and construction of an access road and path.

History Not Available

Condition and Integrity

The Lighthouse is in original condition, the structure being the subject of continuous maintenance since 1883. The Quarters for the Assistant Keepers' are in good condition, but converted into a single residence, with all the exterior surfaces having been painted. The Head Keeper's Quarters are in good condition. The retaining wall is in good condition, very little fretting being evident. Each block has been weathered to the extent that the edges are rounded. The only structural damage appears at the south and north ends and in the upper section where each break occurs. The uppermost course is no longer in situ.

Location

Including: Macquarie Lighthouse, stone wall at east end, cottage (Head Keepers Quarters) south-west of lighthouse and army cottage (Assistant Keepers Quarters) north-west of lighthouse, Old South Head Road, Vaucluse.

Bibliography

Anglin Associates, (1989). The Macquarie Lighthouse Conservation Plan. Prepared for The Australian Property Group, Department of Administrative Services, Australia.

Cox, Tanner Pty Ltd. (1979). A Study of Four New South Wales Lighthouses. For Department of Housing and Construction, Sydney.

Davies & Wilson. Macquarie Lighthouse Report. Prepared for the Department of Construction.

Macquarie Lightstation Plan of Management (1993). Prepared by the Australian Construction Services for Australian Estate Management, Department of Administrative Services, Australia.

Nash, D., (1979). A Report of Historical Classifications of Lightstations. Department of Transport, Australia.

Reid, G., (1988). From Dusk Till Dawn - A History of Australian Lighthouses. Department of Transport and Communications. MacMillan, Sydney.

Macquarie Lighthouse Surrounding Wall, Old South Head Rd, Vaucluse, NSW, Australia

List	Commonwealth Heritage List
Class	Historic
Legal Status	Listed Place (22/06/2004)
Place ID	105412
Place File No	1/12/041/0039

Summary Statement of Significance

The Macquarie Lightstation, built in 1883 is significant as the site of the first Lighthouse to be built in Australia and represents the longest continuously operating site of a navigational beacon in Australia (Criterion B.2). The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial architects Francis Greenway and James Barnet (Criterion H.1). The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures (Criteria E.1 and F.1). The stone retaining wall, remnant of Greenways construction of 1816, is significant as a reminder of the stages of the Macquarie Lighthouse's growth and the use of convict labour during this period (Criterion A.4).

Official Values

Criterion A Processes

The Lightstation is significant for illustrating the difficulties of construction in the early period of European settlement, including the isolation of the site and of the colony and the necessity to quarry materials on site. The Lightstation is significant for providing material evidence of the changing living and working

conditions of the lighthouse keepers and their families, who constitute an early maritime community.

Criterion B Rarity

The Macquarie Lightstation, built in 1883, is significant as the site of the first lighthouse to be built in Australia and represents the longest continuously operating site of a navigational beacon in Australia.

Criterion E Aesthetic characteristics

The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures.

Criterion F Technical achievement

The Lightstation is significant for its outstanding landscape value, located on a dominant and dramatic portion at the entry to Sydney Harbour. The nineteenth century buildings possess a visual unity in their harmony form, scale, materials and textures.

Criterion H Significant people

The Lightstation is significant for providing a rare example of the historical association with the colonial Governor Lachlan Macquarie and with colonial Architects Francis Greenway and James Barnet.

Description

Situated at the South Pacific Ocean on Sydney's southern headland, Macquarie Lighthouse is a prominent regional landmark. An icon of National significance,

the tower is representative of the vital link and dependence of Australia with the sea. The property is located 18km from the central business district of Sydney, situated wholly within the Municipality of Woollahra in the suburb of Vacluse. The Lightstation precinct covers an area of approximately 2.2ha. Over 170 years of settlement are represented on the site, including remnants of the colonial 1816 Lighthouse, retaining wall and various archaeological sites. There are four primary structures, predominantly of Victorian vintage. These include the Lighthouse, the Head Lighthouse Keeper's quarters and the duplex of the Assistant Keepers' quarters, all substantially constructed in the 1880s. A townhouse complex occupies a south-eastern part of the property. This is the largest of the residential buildings, (consisting of four dwellings) and was constructed in stages from 1969-72. Macquarie Lighthouse was the first to be erected in Australia. The building of the signal station and Lighthouse, which was to be known as Macquarie Tower, commenced in 1816 and was completed on 16 March 1818. It was designed by Captain John Gill, Acting Principal Engineer of the Government and was built under the supervision of Francis Howard Greenway with the Government Acting Architect. However, the sandstone walls soon began to crumble away and within fifty years the tower had to be strapped with iron bands. In 1881 the building of a new lighthouse 12ft away from the original lighthouse commenced. The light in the present tower was first exhibited on 1 June 1883. Greenway's precinct was enclosed on three sides by a stone and lattice fence, which perfected the surroundings of the Macquarie Tower and Lighthouse. Greenway makes reference to a dwarf terrace and railing in the Greenway Papers of 1821. The land at the eastern side of the site was built up slightly higher than that to the west, the eastern stone sections of the fence serving as a retaining wall, these sections are still in situ. The length of the wall was equal to the external distance between the two military barracks on the road frontage. The lower portion of the wall ran uninterrupted from north to south. On top of this was a coping course surmounted by a non-continuous wall, three courses in height. This latter part of the wall should be distinguished from the stone and lattice perimeter fence which surrounded the precinct on the three remaining sides.

History Not Available

Condition and Integrity

The Retaining Wall is in good condition, very little fretting being evident. Each block has been weathered to the extent that the edges are rounded. The only structural damage appears at the south and north ends and in the upper section where each break occurs. The uppermost course is no longer in situ.

Location

Part of Macquarie Lighthouse Group, east of lighthouse, Old South Head Road, Vacluse.

Bibliography

Anglin Associates, (1989). The Macquarie Lighthouse Conservation Plan. Prepared for The Australian Property Group, Department of Administrative Services, Australia.

Cox, Tanner Pty Ltd. (1979). A Study of Four New South Wales Lighthouses. For Department of Housing and Construction, Sydney.

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Reid, G., (1988). From Dusk Till Dawn - A History of Australian Lighthouses. Department of Transport and Communications. MacMillan, Sydney.



Appendix G: Statement of Cultural Significance

This statement is extracted from the Conservation Management Plan for Macquarie Lightstation, prepared by Lucas Stapleton Johnson & Partners Pty Ltd in 2018.

Criteria (a) Historic Values

<p>The Macquarie Lightstation is of outstanding significance for being the first permanent, purpose-built lightstation in Australia and is now the longest-serving lightstation still extant. Its prominent location on the ridgeline of South Head, visible from various points throughout Sydney Harbour remain a symbol of both the British settlement of Sydney and colonial Australia's dependence on seaborne trade and still functions today as a navigation aid.</p>	<p>National Criteria A State/Local Criteria A</p>
<p>The place is of outstanding significance for its historic associations with Australia's earliest attempts under Governor Phillip in 1790 at signalling ships from South Head. Beginning with a flag staff, beacon, night fire and column, this navigational system lead to the initial development of the Macquarie Lightstation in 1818.</p>	<p>National Criteria A State/Local Criteria A</p>

<p>The Macquarie Lightstation forms part of a group of highly significant historic buildings and precincts including the Signal Station, Hornby Lighthouse, remnant Water Police and Harbour Pilots facilities and other features at South Head and Watson's Bay which demonstrate the importance of shipping and coastal navigation aids in the early days of the colony and throughout the nineteenth century.</p>	<p>State/Local Criteria A</p>
<p>The lightstation is of historical significance as a remnant of colonial architect Francis Greenway's more substantial works and his first commission by Governor Macquarie. Although no longer extant, Greenway's lightstation remains readable in the configuration and landscape of the Macquarie Lightstation today.</p>	<p>National Criteria A State/Local Criteria A</p>
<p>The Macquarie Lightstation retains its visual connection with the city via the historic view corridor between the lighthouse and the Royal Botanic Gardens and the former Governors Domain and is important surviving example of Governor Macquarie's urban design plans for the young colony and an historic tangible expression of the permanency of the British</p>	<p>National Criteria A State/Local Criteria A</p>

settlement of Sydney.	
The 1883 lighthouse and additions are also of historical significance as the work of the prominent Colonial Architect James Barnet and as part of an ambitious program of lighthouse construction undertaken by Barnet in the late nineteenth century.	State/Local Criteria A
The Barnet lighthouse is of outstanding significance for being the first Australian lightstation to be powered by electricity generated by one of the earliest electrical installations in Sydney, parts of which are extant.	National Criteria A State/Local Criteria A

Criteria (b) Rarity

The Macquarie Lightstation is of exceptional rarity as surviving evidence of Australia's first permanent lightstation and as the longest continuously operating site of a navigational beacon in Australia. The influence of Macquarie in terms of the placement and grandeur of the tower remains evident and due to its location on a prominent ridge on the edge of a city, the Macquarie lighthouse is a rare, surviving	National Criteria B State/Local Criteria F
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colonial landmark signifying the settlement of Sydney.	
As the oldest lightstation in Australia, the place has evidence of and is associated with the evolution of technological changes associated with lighthouse operation, and the site has the ability to physically demonstrate the changing living and working conditions of the Lighthouse Keepers and their families from 1818 to automation in 1976, a period unequalled by any other Australian lightstation.	National Criteria B State/Local Criteria F
The Barnet lighthouse is of exceptional rarity for being the first Australian lightstation to be powered by electricity in 1883, generated by one of the earliest electrical installations in Sydney.	National Criteria B State/Local Criteria F
The place is also considered to be rare for containing the earliest surviving lightkeepers quarters in Australia, almost certainly designed by Colonial Architect Mortimer Lewis which, while altered, are still a rare and substantially intact example of an early Government-built cottage residence and one of only three known such buildings still surviving in Australia.	National Criteria B State/Local Criteria F

<p>The Macquarie Lightstation is exceptional rare for containing the remains of the lighthouse compound designed by the convict Francis Greenway for Governor Macquarie and other individual features of note including:</p> <ul style="list-style-type: none"> • Quarry: rare, relatively undisturbed early colonial and Victorian period stone quarry • Greenway's 1817 retaining wall: a very early and rare colonial sandstone wall • 1883 stables: rare substantial government-built 2-stall stables associated with a lightstation. • Lighthouse lantern: a rare Victorian period Chance 3600mm (12") first-order lighthouse lantern notable for its Trinity-style (diagonal) glazing. • Lighthouse generator: a unique (Australia wide) example of a de Meritens alternator and switchboard manufactured in the early 1880s (now held at the 	<p>State/Local Criteria F</p>
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<p>Powerhouse Museum)</p> <ul style="list-style-type: none"> • Lighthouse (twin) domes: rare lead-sheeted Victorian period building domes. • Lighthouse ventilators: rare late Victorian period sheet metal roof ventilators. 	
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Criteria (c) Research potential

<p>The Macquarie Lightstation site has high potential to contain rare archaeological remains of historic, aesthetic, associative and social significance. These potential remains relate to the continuous use of the highest part of South Head as the location of a marker and signal beacon and the historic development of navigational aids from 1790 to the present day and any remains uncovered have the potential to be of National significance.</p>	<p>National Criteria C State/Local Criteria E</p>
<p>The structural remains of the Greenway lightstation have the potential to provide further insight into early architectural practices and may shed light on the nature of this significant early engineering</p>	<p>State/Local Criteria E</p>

achievement.	
The archaeological deposits and artefacts associated with the continuous occupation of this site since 1790 as a Government institutional site have the potential to provide further information into early colonial foodways and material culture, patterns of consumption and subsistence practices and other relevant research questions. ²	National Criteria C State/Local Criteria E

Criteria (d) Representativeness

The original configuration of the 1818 lightstation as a compound enclosed on four sides with a central tower and lodges or pavilions located at the four corners, that can be understood from both the physical and documentary evidence, is representative of Greenway's distinctive neo-classical style (also referred to as 'Macquarie Palladian').	State/Local Criteria G
The Macquarie Lightstation is representative of the broader urban	State/Local Criteria G

² Casey & Lowe, 2005; *Archaeological Assessment Macquarie Lightstation, South Head*, p. 49

planning scheme instigated under Governor Macquarie, exhibited particularly in the surviving visual relationship between the place and the former Governor's Domain and the Royal Botanic Gardens. It is also representative of Macquarie's public works program, being one of over 200 buildings and places he commissioned during his tenure as Governor between 1810 and 1822.	
The Macquarie Lightstation as it was modified and added to by Barnet in 1883, is a good example of Barnet's work and a good example of a mid-Victorian period lightstation and is one of approximately 14 Barnet designed lightstations surviving in NSW (although it is historically distinct and architecturally significant for being a close replica of the original Greenway tower).	State/Local Criteria G
The site of the Macquarie Lighthouse and its immediate surrounds does not contain any uncommon or rare or endangered archaeological sites, or known geological or ecological resources, and the Aboriginal historical records that relate to the place are of a general nature and are representative of the records generated by the colonists during	State/Local Criteria G

the formative years of Sydney's post 1788 history.	
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Criteria (e) Aesthetic Values

The Macquarie Lighthouse is of outstanding significance as a Sydney landmark, clearly visible from both the Tasman Sea and points throughout Sydney Harbour. The lighthouse makes a significant contribution to the harbour aesthetically and symbolically as a reminder of the colony's isolation and dependence on shipping and remains one of the principal markers to the entry to Port Jackson as a still functioning navigational aid.	National Criteria E State/Local Criteria C
The existing lighthouse, standing proud on the prominent ridgeline of South Head overlooking the harbour, continues to represent Greenway's and Macquarie's original siting and conception of the Macquarie Tower and Lighthouse and continues to communicate Macquarie's early planning schemes for Sydney and his delight in architectural folly and ornament.	National Criteria E State/Local Criteria C
Despite its urban context, the dramatic headland setting and the	National Criteria E

neat cluster of lightstation buildings set in a relatively bare windswept landscape remains a highly romanticised and evocative landscape aesthetic associated with lighthouses the world over and the grandeur of the lighthouse and its dramatic landscape setting above the sandstone cliffs has been recorded in numerous early paintings, prints and photographs throughout its history.	State/Local Criteria C
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Criteria (f) Creative/Technical Values

The Macquarie Lightstation is of outstanding significance for its creative and technical values due to its long history, making the place capable of demonstrating the history of the establishment of civic and maritime facilities in the early colony of New South Wales, government building programmes throughout the 19th century and their role in the early development of Sydney, civic architectural design.	National Criteria F State/Local Criteria C
The place is also of exceptional significance for its ability to demonstrate the historical development of Australian lighthouses and their technology more generally including the 19th	National Criteria F State/Local Criteria C

century and 20th century Chance Brothers optics, the 20th century mercury float pedestal and the development of the lamp from oil wick to kerosene to electricity to photoelectric.	
The lighthouse retains its original Barnet-period Chance 12'1½" (3700mm) dia cast iron and copper lantern house with segmental cast iron murette, cast iron framed copper clad dome, cast iron Trinity (diagonal) pattern glazing, copper ball vent and wind vane. The whole of the lantern is a beautiful example of 19th century industrial technology, is one of three examples in Australia and is of exceptional significance.	National Criteria F State/Local Criteria C
Being the first lighthouse to be operated by electricity, the surviving de Meritens arc lamp regulator & switchboard installed at the lighthouse between 1883 and 1911 (now held at the Powerhouse Museum), is of outstanding significance and likely to be the only one of its kind in Australia.	National Criteria F State/Local Criteria C
Barnet's lighthouse is a close copy of Greenway's original lighthouse and so constitutes a rare architectural replica of an early	National Criteria F State/Local Criteria C

important colonial building by an important early architect.	
Albeit modified, the site with its levelled terrace with symmetrically placed structures is able to demonstrate the configuration of Greenway's original compound design for the lightstation and the early nineteenth century taste for Palladian-style architecture shared by Francis Greenway, Lachlan Macquarie and Henry Kitchen.	State/Local Criteria C

Criteria (g) Social, Cultural and Spiritual Values

The Macquarie Lighthouse is of significance as a landmark and symbol of the settlement of Sydney and Governor Macquarie's essential role in development of the colony. The numerous representations of the lighthouse as seen in artworks, logos and stamps etc. demonstrates the social and cultural appeal of the lighthouse for various sectors of the broad community of Sydney.	State/Local Criteria D
The high value accorded the Macquarie Lightstation is also demonstrated by its inclusion in numerous heritage registers indicating wide agreement that the site is of exceptional significance. As	State/Local Criteria D

<p>a recognised place of heritage value, the Macquarie Lightstation is likely to be held in esteem by groups interested in historical architecture, lighthouses and the history of marine navigational aids in Australia and those who are interested in the colonial heritage of Sydney and the early establishment of the settlement.</p>	
<p>As the lightstation was manned from the time of its initial construction in 1818 until the mid 1970s, the place has a special association with former lighthouse keepers, their families and other associated staff who lived and worked at the lightstation, as well as their descendants.</p>	<p>State/Local Criteria D</p>

Criteria (h) Historic Associations

<p>The Macquarie Lightstation is of exceptional significance for its associations with the life and works of many people of importance in the history of New South Wales.</p>	
<p>The Macquarie Lightstation is strongly associated with Governor Lachlan Macquarie, who commissioned its building in 1816 and for whom the lightstation is</p>	<p>National Criteria H State/Local Criteria B</p>

<p>named.</p>	
<p>The lightstation is also strongly associated with its convict architect Francis Greenway, who is now considered one of the greatest names in Australian colonial architecture. Although no longer surviving, Greenway’s lighthouse design was copied by James Barnet, attesting to the importance and regard Greenway’s work was work was held in even in the 19th century.</p>	<p>National Criteria H State/Local Criteria B</p>
<p>The place has strong associations with the NSW Colonial Architect James Barnet, an influential architect responsible for some of Sydney’s most significant 19th century public buildings, and who designed the existing lighthouse (based on Greenway’s original design), the Assistant Keeper’s Quarters and the Engineer’s & Assistant’s Quarters. The Macquarie Lightstation is one a number of lightstations Barnet developed throughout NSW.</p>	<p>State/Local Criteria B</p>
<p>The lightstation is also associated with the NSW Colonial Architect Mortimer Lewis who designed the Head Keeper’s Quarters in 1836 as an addition to Greenway’s south-</p>	<p>State/Local Criteria B State/Local Criteria B National Criteria H</p>

<p>west lodge, as well as the Signal Station; and with Governor Phillip who ordered the first navigational aids to be erected on the South Head ridge, a flagstaff followed by a signal column, which eventually led to the establishment of the Macquarie Lightstation under Governor Macquarie.</p>	
<p>The Macquarie Lightstation together with the adjacent Signal Station have important associations with Robert Watson, harbourmaster and quartermaster of H.M.S. Sirius, who was appointed signal master at South Head and the first superintendent of the lighthouse in 1818. The suburb of Watsons Bay is named for him.</p>	<p>State/Local Criteria B</p>
<p>The archaeology and potential archaeological remains of the Macquarie Lightstation have strong associations with early members of colonial society including Governors Phillip and Macquarie, Francis Greenway, Commissioner Bigge and others including possibly Bennelong and the seamen of the H.M.S. Sirius.</p>	<p>National Criteria H State/Local Criteria B</p>

Criteria (i) Indigenous traditions

<p>The place has significant natural and Aboriginal heritage value, which when combined, and taking into account any new finds and future research, these values can tell us about the complex human-environmental interactions and relationships that developed during the Late Pleistocene and Holocene evolutionary history of Sydney and the continued unbroken archaeological record of Aboriginal occupation of the place during periods of long-term climate change.</p>	<p>Local Criteria A & E</p>
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