

ANNUAL ENVIRONMENTAL REPORT



QUARANTINE STATION NORTH HEAD (MP08_0041)

JANUARY 2020 TO DECEMBER 2020



NOTICE

This report has been prepared on behalf of National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) by SNC-Lavalin Rail & Transit Pty Ltd (SNC-Lavalin), using its professional judgment and reasonable care. It references information supplied by NPWS and Mawland as co-proponents responsible for the joint management of the Q Station site. This Annual Environmental report has been developed to report on the status of the compliance obligations detailed in the Ministers Conditions of Planning Approval (CoPA) for the site under approval MP08_0041 and subsequent modification (MP08_0041 MOD 3).

It is to be read in the context of the agreement dated 26/10/2021 (the “Agreement”) between SNC-Lavalin and NPWS and Mawland (the “Client”), and the methodology, procedures and techniques used, SNC-Lavalin’s assumptions, and the circumstances and constraints under which its mandate was performed. This document is written solely for the purpose stated in the Agreement and for the sole and exclusive benefit of the Client, whose remedies are limited to those set out in the Agreement. This document is meant to be read as a whole, and sections or parts thereof should thus not be read or relied upon out of context.

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Title : Annual Environmental Report – Quarantine Station North Head (MP08_0041):
January 2020 to December 2020

Report No. : EDPM/AU/SN0243077/Annual Report_2020

Issue : Final

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Approved By *Annual Environment Report Compliance Report Declaration Form
has been completed by Authorised Reporting Officer(s) in Section
6 of this Report.*

Amendment Record

Issue	Description	Distribution	Date
A	Draft Issue	NPWS/ Mawland	08/12/2021
0	Final	Project Stakeholders	15/12/2021
1	Final to DPE	DPE	21/01/2022
2	Amended Final to DPE	DPE	04/03/2022

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Contents

1. Introduction	1
1.1 Overview of the Site	1
1.2 Purpose of the Report	1
1.3 Summary of Activities Undertaken During the Reporting Period	1
1.4 Key Personnel	2
1.5 Consultation	2
2. Previous report actions	5
3. Compliance status summary	11
4. Incidents	16
5. Complaints	18
6. Declaration	19
7. Appendices	21
7.1 Appendix A – Compliance table	21
7.2 Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)	170
7.3 Appendix C – Manly Little Penguin Recovery Program. 2020/21 Final Monitoring Report. September 2021	171
7.4 Appendix D –Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021	172
7.5 Appendix E – Acacia terminalis subsp. Terminalis (Sunshine Wattle) 2020 Updated monitoring report.	173
7.6 Appendix F – IMAMS Report January 2020 to December 2020.	174
7.7 Appendix G – Consultation Correspondence December 2021	175
7.8 Appendix H – Consultation Responses January 2022	176
7.9 Appendix I – Consultation Correspondence January 2022	177
7.10 Appendix J – Consultation Responses February 2022	178

List of Tables

Table 1 Stakeholder Comments	3
Table 2: Previous report actions	5
Table 3: Compliance status summary	11
Table 4: Non-compliances with CoPA during January 2020 to December 2020	11
Table 5: Onsite incidents between January 2020 and December 2020	16

List of Figures

Figure 1: Site Map of North Head Quarantine Station (Source: Manidis Roberts)	4
Figure 2: Aerial view of Q Station and Quarantine Beach	4

1. Introduction

SNC-Lavalin has been engaged by the National Parks and Wildlife Services (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to undertake the Annual Environment Report in accordance with Condition of Planning Approval 221 of the Quarantine Station development at North Head.

1.1 Overview of the Site

The Quarantine Station (Q Station) (Figure 1) is located on North Head, Manly, and within the Sydney Harbour National Park, some 10km to the north east of the Sydney CBD. It covers 31 hectares, including 67 heritage buildings. This site has cultural and historical significance as it was in operation as a Quarantine Station from 1828 to 1984. The Q Station is owned by the NSW Department of Planning and Environment (DPE) and managed under the NPWS. DPE is the parent organisation of NPWS and regulates matters relating to heritage, pollution, native vegetation, biodiversity and National Parks. Planning approval (MP08_0041) was granted in 2003 for the 'North Head Quarantine Station Conservation and Adaptive re-use Proposal' with NPWS and Mawland as co-proponents. In 2006 the site was leased to Mawland for the construction and operation of a tourist facility "Q Station", accommodating conferences, weddings, school tours and overnight stays. Mawland is the operator of the facility and runs the day-to-day activities onsite.

1.2 Purpose of the Report

This report has been developed to meet the Ministers Conditions of Planning Approval (CoPA) for the site under approval MP08_0041 and subsequent modification (MP08_0041 MOD 3). The reporting period covered by this report is January 2020 to December 2020. Under the conditions of approval for this project, the site is in Operational mode.

A letter from the Planning Secretary on 8 November 2021 identifies that the annual environmental reports supplied to the Department on 30 April 2021 for the period following the 2018 Audit Report (SNC Lavalin, Rev 2.0 09/11/18) do not satisfy the relevant Approval conditions. Accordingly, the Department issues the co-proponents with a Direction under Condition 225 requiring the co-proponents to resubmit by 21 January 2022 a revised annual environmental report for 1 January 2020 to 31 December 2020 prepared consistent with Conditions 219 and 221 – 225 of the Approval and the *Compliance Reporting Post Approval Requirements (2020)*.

As addressed below (Section 1.5), a letter issued by DPE on the 14 January 2022 required additional information to be included within the report to satisfy Condition 224 of the Minister's approval. In addition, the Department requested that the comment period for the report was to be extended for a further four weeks (or as otherwise agreed with the relevant party) due to the original comment period incorporating the two week, end of year shutdown period. Following this, a revised report is required to be submitted to the Department by 4 March 2022.

1.3 Summary of Activities Undertaken During the Reporting Period

The following activities occurred on site during January 2020 to December 2020

- The site was closed on the following dates as a result of the COVID 19 pandemic

- 8 April to mid-June – Full lockdown – Site completely closed; gates closed. Security on site at all times.
- Mid-June to mid-August – Site open to public until sunset for walking and biking. Hotel only operational Friday to Sunday. Security on site at all times.
- Mid-August – Hotel operations reopened seven (7) days and site open to public until sunset for walking and biking.
- 17 – 18 October – Hotel operations closed due to NPWS hazard reduction burns. North Head was closed.
- 21 December 2020 – 5 January 2021 – Site closed for Northern Beaches lockdown. This included Christmas Day, Boxing Day and New Year's Eve. Site was completely closed including gates. Security on site at all times.

1.4 Key Personnel

The personnel responsible for the environmental management of the Q Station are:

- Max Player, Director of Mawland Quarantine Station Pty Ltd Q Station
- Suzanne Stanton, Director of Mawland Quarantine Station Pty Ltd Q Station
- Jess Dargan, Environmental Liaison Officer, NPWS

1.5 Consultation

In accordance with Conditions 221, 224-225 of the CoPA, a copy of the draft report was made available to the following stakeholders for their review and comment:

- Quarantine Station Community Consultative Committee (QSCCC)
- Department of Planning and Environment (DPE) (formerly DPIE and formerly DIPNR)
- Heritage NSW acting on behalf of the Heritage Council of NSW (Heritage Council)
- NSW Department of Primary Industries (DPI) (formerly NSW Fisheries)
- Transport for NSW (formerly Waterways Authority)

Stakeholders were provided four weeks to review and comment on the report unless otherwise agreed with the co-proponents (Appendix G). Stakeholders received the report for review and comment on 15 December 2021. Comments were required to be received by 14 January 2022. Comments (Appendix H) were received from:

- Sandy Hoy, QSCCC on 07 January 2022
- Alex McGuirk, DPE on 14 January 2022
- Sarah Conacher, DPI Fisheries, 14 January 2022
- Meredith Morris, TfNSW (Maritime), 14 January 2022

An email on 22 December 2021 from Heritage NSW requested an extension of time for the consultation period. This was granted until 11 February 2022.

As above, following a request from DPE on 14 January 2022, the consultation period for comments was extended. An updated copy of the report was made available on 22 January 2022 (Appendix I) to the following stakeholders for review and comment:

- Metro Local Aboriginal Land Council (Metro LALC)
- NSW Department of Primary Industries (DPI) (formerly NSW Fisheries)
- Heritage NSW acting on behalf of the Heritage Council of NSW (Heritage Council)
- Quarantine Station Community Consultative Committee (QSCCC)

- Transport for NSW (formerly Waterways Authority)

Comments were required to be received by the 16 February 2022. Responses were received from (Appendix J):

- Sarah Conacher, DPI Fisheries on 31 January 2022
- Sandy Hoy, QSCCC on 18 February 2022
- Meredith Morris, TfNSW (Maritime) on 18 January 2022 (requesting no further comment period)

Table 1 below provides a summary of feedback received from stakeholders in relation to activities and responses from the co-proponents to feedback received during the consultation process. It should be noted that feedback received has also been incorporated into this final report, in accordance with requirements in DPE’s letter, dated 14 January 2022

Please refer to Appendix G - I for stakeholder consultation records.

This report has been prepared in accordance with the *Compliance Reporting Post Approval Requirements* (DPIE, 2020).

Table 1 Stakeholder Comments

Stakeholder Group	Reference (page number or condition)	Comment	Co-proponent Response Action completed
QSCCC	CoA 56-60	Requested the inclusion of the web link to the QSCCC Annual Reports	The relevant link has been added to the report
TfNSW, Property Asset Management	CoA 34	Concerned that works were not undertaken on the wharf during the reporting period despite the requirement for maintenance	An assessment of the wharf undertaken in September 2018 identified that the wharf was structurally sound. Business difficulties and lack of income during bushfire events followed immediately by COVID19 closures resulted in proponent Mawland unable to carry out any more than day to day works. The wharf has not been used since March 2020 due to the cancellation of ferry services under COVID19 lockdown restrictions.
DPI Fisheries	IMAMS (monitoring report) Seagrass Health Indicator	Queried how performance was measured during the reporting period if surveys were not undertaken in 2020.	Results from monitoring undertaken in the previous year were utilised to assess the performance of the seagrass.



Figure 1: Site Map of North Head Quarantine Station (Source: Manidis Roberts)



Figure 2: Aerial view of Q Station and Quarantine Beach

2. Previous report actions

The following table (Table 2) details actions raised within the reporting period as a result of the previous Annual Environmental Report for the site. Note, there were no independent audits undertaken during the reporting period.

Table 2: Previous report actions

Source	Condition of consent number	Non-Compliance	Action proposed	Proposed completion date	Status	Action completed
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	5	Monitoring reports and data is not publicly available.	Co-proponents are addressing. Review of all publicly available information being conducted with a view to correct omissions where required.	Q1 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	66	Documentation is held in paper files at S7 at Q Station and on the NSW Government Department information system CM9. No specific computer-based information management and GIS has been developed for Q Station.	Co-proponents in discussion to resolve condition. Digitisation of all hardcopy files underway.	Q2 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head.	67	A computer-based information management system and GIS was not	Co-proponents in discussion to resolve condition. Digitisation	Q2 2022	Ongoing	Ongoing

Q Station Annual Environmental Report – January 2020 to December 2020

Source	Condition of consent number	Non-Compliance	Action proposed	Proposed completion date	Status	Action completed
July 2018 to December 2019		developed for Q Station. Documentation is held in paper files at S7 at Q Station and on the NSW Government Department information system CM9.	of all hardcopy files underway.			
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	68	A computer-based information management system and GIS was not developed for Q Station. Documentation is held in paper files at S7 at Q Station and on the NSW Government Department information system CM9.	Co-proponents in discussion to resolve condition. Digitisation of all hardcopy files underway.	Q2 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	74	There has been a lapse in on-going consultation with the Aboriginal community. The co-proponents have obtained advice on these matters as required.	NPWS to undertake consultation with the Aboriginal community.	Q2 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	82	A review of the Conservation Works Program has not occurred since 2006.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing

Q Station Annual Environmental Report – January 2020 to December 2020

Source	Condition of consent number	Non-Compliance	Action proposed	Proposed completion date	Status	Action completed
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	83	No review of the CWP since 2006.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	89	A review of the Moveable Heritage and Resources Plan has not been undertaken in the last five years.	This plan was updated in 2021 and endorsement is being sought from stakeholders.	2021	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	96	A review of the Inscriptions Management Plan has not been undertaken.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	98	Works have not been completed. The stone mason recommended by the Heritage Council has not been willing to undertake the works and the Heritage Council have not approved the works to be undertaken by the University of Sydney.	Co-proponents to seek advice from Heritage NSW.	Q2 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	103	A review of the Interpretation Plan has not been undertaken in the last five years.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing

Q Station Annual Environmental Report – January 2020 to December 2020

Source	Condition of consent number	Non-Compliance	Action proposed	Proposed completion date	Status	Action completed
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	109	A review of the Infrastructure Control Plan has not been undertaken.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	114	Two vending machines were installed in 2019 by Mawland at the request of guests for snacks and drinks when these services are not available on site.	Vending machines will be removed from site in Autumn 2022.	Q2 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	117	A review of the Security Plan has not been undertaken.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	119	A review of the Access Strategy has not been undertaken.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	139	Less than 40% of arrivals use the ferry system. Most guests arrive by car, public bus or walk from manly. Q Station encourages ferry use as much as possible.	Mawland and QSCCC have spoken with NRMA to request the Eco Hopper ferry service recommences	Ongoing	Ongoing	Ongoing

Q Station Annual Environmental Report – January 2020 to December 2020

Source	Condition of consent number	Non-Compliance	Action proposed	Proposed completion date	Status	Action completed
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	143	Proportion of vehicles accessing the site is greater than 50%.	Mawland and QSCCC have spoken with NRMA to request the Eco Hopper ferry service recommences.	Ongoing	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	165	A Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population based on long-term data from 2004 will be prepared in 2021.	Relevant details will be incorporated into the Heritage Landscape Management Plan, which is subject to review in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	184	There was no formal seagrass monitoring undertaken during the reporting period.	Seagrass monitoring to be scheduled in 2022.	Q2 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	190	A review has not been undertaken for the Predator and Pest Control Plan.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	192	No evidence of approval of the EMS.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head.	195	A review has not been undertaken for the EMP.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing

Q Station Annual Environmental Report – January 2020 to December 2020

Source	Condition of consent number	Non-Compliance	Action proposed	Proposed completion date	Status	Action completed
July 2018 to December 2019						
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	208	A review of the Emergency and Evacuation Plan has not been undertaken in the last five years.	Review of document to be undertaken in 2022.	2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	216	An Integrated Monitoring Program has not been developed for the site.	Review of program to be undertaken in 2022.	Q4 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	217	An Integrated Monitoring Program has not been developed for the site.	Review of program to be undertaken in 2022.	Q4 2022	Ongoing	Ongoing
Annual Environmental Report. Quarantine Station North Head. July 2018 to December 2019	220	Review of the overall integrated monitoring program has not occurred.	Review of program to be undertaken in 2022.	Ongoing	Ongoing	Ongoing

3. Compliance status summary

There are 237 Conditions of Planning Approval for the Q Station that have all been assessed for compliance in this report for the period January 2020 to December 2020. Table 3 details the number of conditions assessed as compliant, non-compliant and not triggered for the reporting period.

Table 3: Compliance status summary

Number of conditions in reporting period	
Compliant	156
Not Triggered	50
Non-Compliant	31

Note: Total number of conditions of MP08_0041 is 237 (not 233) due to some conditions numbers having multiple conditions (e.g. 99 and 99A)

Table 4 details the non-compliances with the Conditions of Planning Approval at the Q Station site between January 2020 and December 2020.

Table 4: Non-compliances with CoPA during January 2020 to December 2020

Condition of consent number	Non-Compliance	Action proposed	Status
5	Monitoring reports and data is not publicly available.	Co-proponents to address.	Ongoing
66	Documentation is held in paper files at S7 at Q Station and on the NSW Government Department information system CM9. No specific computer-	Co-proponents to consider options with regard to fulfilling the requirements of this condition.	Ongoing

Condition of consent number	Non-Compliance	Action proposed	Status
	based information management and GIS has been developed for Q Station.		
67	A computer-based information management system and GIS was not developed for Q Station. Documentation is held in paper files at S7 at Q Station and on the NSW Government Department information system CM9.	Co-proponents to consider options with regard to fulfilling the requirements of this condition.	Ongoing
68	A computer-based information management system and GIS was not developed for Q Station. Documentation is held in paper files at S7 at Q Station and on the NSW Government Department information system CM9.	Co-proponents to consider options with regard to fulfilling the requirements of this condition.	Ongoing
74	There has been a lapse in on-going consultation with the Aboriginal community. The co-proponents have obtained advice on these matters as required.	NPWS to undertake consultation with the Aboriginal community.	Ongoing
82	A review of the Conservation Works Program has not occurred since 2006.	Review of document to be undertaken in 2022.	Ongoing
83	No review of the CWP since 2006.	Review of document to be undertaken in 2022.	Ongoing
89	A review of the Moveable Heritage and Resources Plan has not been undertaken in the last five years.	A review of this plan will be undertaken in 2021 and approval will be sought from the Heritage Council.	Ongoing
96	A review of the Inscriptions Management Plan has not been undertaken.	Review of document to be undertaken in 2022.	Ongoing
98	Works have not been completed. The stone mason recommended by the Heritage Council has not been willing to undertake the works and the Heritage Council have not approved the works to be undertaken by the University of Sydney.	Co-proponents to seek advice from Heritage NSW.	Ongoing

Condition of consent number	Non-Compliance	Action proposed	Status
103	A review of the Interpretation Plan has not been undertaken in the last five years.	Review of document to be undertaken in 2022.	Ongoing
109	A review of the Infrastructure Control Plan has not been undertaken	Review of document to be undertaken in 2022.	Ongoing
114	Two vending machines were installed in 2019 by Mawland at the request of guests for snacks and drinks when these services are not available on site.	Vending machines will be removed from site in Autumn 2022.	Ongoing
117	A review of the Security Plan has not been undertaken.	Review of document to be undertaken in 2022.	Ongoing
119	A review of the Access Strategy has not been undertaken.	Review of document to be undertaken in 2022.	Ongoing
126	Free public open days were not held due to the COVID pandemic	During the reporting period, Open Days were cancelled due to the COVID pandemic. DPIE were notified of this at the time. No further requirements of Q Station were necessary.	Closed
127	Free public open days were not held due to the COVID pandemic, and a hazard reduction burn breaking containment.	Planned Open days were cancelled as a result of the COVID pandemic. With the approval of DPIE, the 2020 Open Days were held as part of the <i>Les Sculptures Refusees</i> exhibition (15 October – 17 November 2020) on site, with all activities outdoor due to the pandemic. Unfortunately, the weather was inclement on these days, and the site was evacuated on 17 October 2020 due to the NPWS hazard reduction burn breaking containment on North Head.	Closed
138	The ferry service operated to this timetable until the first 2020 COVID pandemic lockdown (March 2020). This service was then cancelled by RMS/NRMA.	Discussions continue with the relevant authorities regarding the restoration of the ferry service.	Ongoing

Condition of consent number	Non-Compliance	Action proposed	Status
		An email on 17 May 2021 from Michael Betteridge at NRMA states that <i>“I’d love to say Q Station is a possibility but right now we are struggling on the bigger destinations on weekends – Zoo, Manly and Watsons Bay. We need tourists and we need borders open. To divert Manly – Watsons Bay into Q adds ~8mins which we cannot afford on the timetable we have”</i> .	
139	Less than 40% of arrivals use the ferry system. Most guests arrive by car, public bus or walk from manly. Q Station encourages ferry use as much as possible.	Mawland and QSCCC have spoken with NRMA to request the Eco Hopper ferry service recommences.	Ongoing
143	Proportion of vehicles accessing the site is greater than 50%.	Mawland and QSCCC have spoken with NRMA to request the Eco Hopper ferry service recommences.	Ongoing
184	There was no formal seagrass monitoring undertaken during the reporting period.	Seagrass monitoring to be scheduled in 2022.	Ongoing
1815	There was no formal seagrass monitoring undertaken during the reporting period.	Seagrass monitoring to be scheduled in 2022.	Ongoing
186	There was no formal seagrass monitoring undertaken during the reporting period.	Seagrass monitoring to be scheduled in 2022.	Ongoing
187	There was no formal seagrass monitoring undertaken during the reporting period.	Seagrass monitoring to be scheduled in 2022.	Ongoing
190	A review has not been undertaken for the Predator and Pest Control Plan.	Review of document to be undertaken in 2022.	Ongoing
192	No evidence of approval of the EMS	Review of document to be undertaken in 2022.	Ongoing
195	A review has not been undertaken for the EMP	Review of document to be undertaken in 2022.	Ongoing

Condition of consent number	Non-Compliance	Action proposed	Status
208	A review of the Emergency and Evacuation Plan has not been undertaken in the last five years.	Review of document to be undertaken in 2022.	Ongoing
216	An Integrated Monitoring Program has not been developed for the site.	Review of the program is to be undertaken in 2022	Ongoing
217	An Integrated Monitoring Program has not been developed for the site.	Review of the program is to be undertaken in 2022	Ongoing
220	Review of the overall integrated monitoring program has not occurred.	Review of the program is to be undertaken in 2022	Ongoing

4. Incidents

Table 5 details the incidents that took place on the Q Station site between January 2020 and December 2020. The table also details the actions taken following each incident and the current status of the incident.

Table 5: Onsite incidents between January 2020 and December 2020

Date Incident Occurred	Description of Incident	Action Taken	Status of Incident (Open/Closed)
5 - 10 February 2020	Damage to Q Station Beach by the East Coast low weather event.	Beach replenishment works were undertaken by NPWS in February 2020.	Closed
27 February 2020	Mawland arborist assesses the remaining Coral Trees for health. 19 March 2020 NPWS Arborist confirms low risk, and the trees remain in place.	Report was prepared by Active Tree Services on 25 March 2020 in regard to the two (2) Coral trees. The report concluded that there was an 'Acceptable' level of risk for both trees. They are in good condition with typical features of a Coral tree.	Closed
18 March 2020	Mawland advise DPIE of the need to cancel the open day planned for 3 May due to COVID 19 Pandemic.	DPIE noted cancellation but required no further action.	Closed
14 April 2020	Mawland advised NPWS that the public are trying to access the site and beach by climbing over locked gates during lockdown.	NPWS Ranger undertook additional patrols to deter people from entering the site.	Closed
17 June 2020	Mawland advised NPWS of their concerns about the overgrowth of bracken in front of the Boilerhouse.	NPWS advised that the area of concern is outside the Q Station lease boundary and lies within the declared AOBV (Area of Outstanding Biodiversity Value).	Closed
6 July 2020	Mawland expressed concern to NPWS about the condition and safety of the roundabout and bus stop. NPWS referred the matter to Council.	NPWS are undertaking a risk analysis of the bus stop fencing to determine the level of risk and what mitigation measures are required to be implemented.	Ongoing

Date Incident Occurred	Description of Incident	Action Taken	Status of Incident (Open/Closed)
		<p>A consultant was engaged to undertake a sweep analysis of the roundabout and bus stop. QSCCC and NPWS are actively working on making this area safe. The issue has also been raised at the Northern Beaches Council Traffic Committee by Councillor Candy Bingham.</p> <p>Graffiti was removed by NPWS field staff.</p>	
29 July 2020	<p>Mawland advise DPIE of the need to cancel the September Open Day and hold a week long free event (including free tours) due to the COVID 19 Pandemic.</p>	<p>DPIE noted cancellation but required no further action.</p>	Closed
17 October 2020	<p>North Head Hazard Reduction Burn broke containment and forced the closure of the site on 17 and 18 October 2020.</p>	<p>Evacuation of site required around 1pm. As part of the contingency plan for hazard reduction burns, there were approximately 100 firefighters on hand to manage this burn, with support from three helicopters for aerial observation and with water bucketing capability. This resulted in frontline agencies being able to bring the fire under control overnight.</p>	Closed
19 November 2020	<p>Jess Dargan (NPWS Environment Manager) noted a member of public feeding brush turkeys at the cafe.</p>	<p>Existing signage reviewed. Staff advised to increase policing of feeding. No further action was required.</p>	Closed

5. Complaints

There were no complaints received during the reporting period of January 2020 to December 2020.

6. Declaration

Compliance Report Declaration Form

Project Name North Head Quarantine Station Conservation and Adaptive re-use

Project Application Number: MP08_0041 and MP08_0041 MOD3

Description of Project: Construction and operation of a tourist facility “Q Station”, accommodating for conferences, weddings, school tours and overnight stays.

Project Address: North Head, Manly

Proponent: National Parks and Wildlife Service and The Mawland Group

Title of Compliance Report: Annual Environmental Report – Quarantine Station North Head (MP08_0041): January 2020 to December 2020

Date 04/03/2022

I declare that I have reviewed relevant evidence and prepared the contents of the attached Compliance Report and to the best of my knowledge:

- the Compliance Report has been prepared in accordance with all relevant conditions of consent;
- the Compliance Report has been prepared in accordance with the Compliance Reporting Post Approval Requirements;
- the findings of the Compliance Report are reported truthfully, accurately and completely;
- due diligence and professional judgement have been exercised in preparing the Compliance Report; and
- the Compliance Report is an accurate summary of the compliance status of the development.

Notes:

- Under section 10.6 of the Environmental Planning and Assessment Act 1979 a person must not include false or misleading information (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and
- The Crimes Act 1900 contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years' imprisonment or 200 penalty units, or both).

Name of Authorised Reporting Officer: Deon van Rensburg

Title: Director – Greater Sydney Park Operations

Signature:

Date:

Qualification:

Company: NSW National Parks & Wildlife Service

Company Address: 12 Darcy Street, Parramatta NSW 2150

Compliance Report Declaration Form

Project Name North Head Quarantine Station Conservation and Adaptive re-use

Project Application Number: MP08_0041 and MP08_0041 MOD3

Description of Project: Construction and operation of a tourist facility “Q Station”, accommodating for conferences, weddings, school tours and overnight stays.

Project Address: North Head, Manly

Proponent: National Parks and Wildlife Service and The Mawland Group

Title of Compliance Report: Annual Environmental Report – Quarantine Station North Head (MP08_0041): January 2020 to December 2020

Date 04/03/2022

I declare that I have reviewed relevant evidence and prepared the contents of the attached Compliance Report and to the best of my knowledge:

- the Compliance Report has been prepared in accordance with all relevant conditions of consent;
- the Compliance Report has been prepared in accordance with the Compliance Reporting Post Approval Requirements;
- the findings of the Compliance Report are reported truthfully, accurately and completely;
- due diligence and professional judgement have been exercised in preparing the Compliance Report; and
- the Compliance Report is an accurate summary of the compliance status of the development.

Notes:

- Under section 10.6 of the Environmental Planning and Assessment Act 1979 a person must not include false or misleading information (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and
- The Crimes Act 1900 contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years’ imprisonment or 200 penalty units, or both).

Name of Authorised Reporting Officer: Suzanne Stanton

Title: Director / Corporate Counsel

Signature:

Date:

Qualification:

Company: Mawland Group, Q Station

Company Address: 1 North Head Scenic Drive, Manly, NSW 2095

7. Appendices

7.1 Appendix A – Compliance table

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
GENERAL					
Documents To Be Complied With					
1	<p>The activity shall be generally carried out in accordance with the Environmental Impact Statement (EIS) “Proposal for the Conservation and Adaptive Re-use, North Head Quarantine Station, Sydney Harbour National Park”, Volumes 1-5, dated 7 September 2001, except where modified by:</p> <ul style="list-style-type: none"> a) the proposal, including plans, safeguards and mitigation measures, presented in the Preferred Activity Statement (PAS) prepared by the co-proponents dated September 2002; b) preliminary details for the proposed adaptation of Building A6 provided by the co-proponents in a facsimile dated 14 October 2002 and in the paper dated 31 October 2002; c) the variations proposed to the PAS by the co-proponents in a letter dated 12 November 2002; and the conditions of this approval (which incorporate the conditions of concurrence and approval 	Operation	Joint	Activities were generally carried out in accordance with the EIS. Incidents and non-compliances reported against the CoPA and therefore the EIS are reported in the above tables.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>granted by the NSW Heritage Council, Minister for Fisheries, Minister for the Environment and the Minister for Infrastructure, Planning and Natural Resources).</p> <p>d) the conditions of this approval (which incorporate the conditions of concurrence and approval granted by the NSW Heritage Council, Minister for Fisheries, Minister for the Environment and the Minister for Infrastructure, Planning and Natural Resources).</p> <p>e) any future variations to the PAS proposed for the site, that are supported by OEH and the Heritage Council, provided that such variations reflect the key site activities approved for the site (see 'Definitions'); and</p> <p>f) all documentation submitted in support of the modification request (MP08_0041 MOD 3), including Environmental Assessment prepared by Linchpin Environmental (dated August 2015) and Responses to Submissions and Correspondence from Planning prepared by Mawland Group (dated September 2017).</p>				
2	In the event of any inconsistency with the EIS and PAS, the conditions of approval specified in this schedule and schedules 2 to 9 shall prevail.	Operation	Joint	No inconsistencies with the EIS were found during the reporting period. Incidences and non-compliances are reported in Table 4 and Table 5 above.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
Compliance With Conditions					
3	It shall be the ultimate responsibility of the co-proponents to ensure compliance with the conditions of this approval and to ensure compliance by staff and contractors. The conditions do not relieve the co-proponents of the obligation to obtain all other approvals from relevant authorities required under any other legislation.	Operation	Joint	This report details compliance of the activity with the conditions of approval. Non-compliances and incidents are detailed in Table 4 and Table 5 above.	Compliant
Dispute Resolution					
4	In the case of a dispute between the co-proponents and any public authority, company or person in the implementation of the conditions of approval, the matter shall be referred to the Department of Environment and Conservation (DEC) in the first instance. If the DEC is unable to resolve the dispute and/or is of the view that further consideration is justified the matter will be referred to the Department of Infrastructure, Planning and Natural Resources (DIPNR). If the matter is still unable to be resolved it shall then be referred to the Minister for the Environment and the Minister for Infrastructure, Planning and Natural Resources for final resolution.	Operation	Joint	No disputes were raised during the reporting period.	Not Triggered
Public Information					
5	All final reports, reviews, plans and monitoring data referred to in the conditions of approval are to be publicly available, with the exception of material that is commercially sensitive or contains sensitive information regarding Aboriginal heritage	Operation	Joint	Monitoring reports and data are currently not publicly available for this reporting period.	Non-Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	or the location\ of threatened species and/or their habitat.			Information that is publicly available, is available on the Q Station website: https://www.qstation.com.au/our-story.html	
Contact					
6	Prior to the commencement date, the co-proponents shall establish and publicise a contact telephone number, which would enable any member of the general public to reach a person who can arrange appropriate response actions to any queries or complaints received.	Operation	Joint	Contact information has been made publicly available on the Q Station website: https://www.qstation.com.au/contact.htm	Compliant
7	The co-proponents shall provide to DIPNR, DEC, NSW Waterways Authority and the Heritage Office the name and a 24 hour contact telephone number of at least one person who will have authority to enter any work areas, to take immediate action to stop works or any activity or take other action as necessary. The appointment of this person does not preclude any public authority from entering the site for the purposes of meeting or enforcing their statutory responsibilities.	Operation	Joint	The 24 hour contact for the site is: Suzanne Stanton – Mawland Group.	Compliant
Complaints Register					
8	The co-proponents shall record details of all complaints received, and actions taken and response times. The Complaints Register shall be made available to: the Environmental Manager at the end of each week; the auditor for the purposes of the comprehensive audit (condition 226); and at	Operation	Joint	There were no complaints received during the reporting period.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	other times as requested by relevant NSW Government agencies.				
COMMENCEMENT					
Commencement Of Activity					
9	<p>The activity is not to commence until:</p> <ul style="list-style-type: none"> a) the Plan of Management for Sydney Harbour National Park, prepared under the National Parks and Wildlife Act 1974, has been amended to include provisions enabling the adaptive reuse of the Quarantine Station and until other relevant requirements of section 151B of the Act have been met; b) a relevant lease agreement under the provisions of the National Parks and Wildlife (NPW) Act 1974 has been entered into, although the Minister for the Environment, as a co-proponent, shall be at liberty to undertake part or all of the activity prior to the finalisation of a lease; c) the co-proponents have obtained any necessary approvals from relevant authorities required under any other legislation, including the Heritage Act 1977; d) the co-proponents provide documentary evidence to the satisfaction of DIPNR that arrangements have been entered into with relevant agencies and/or private firms for a ferry (the Jenner or a similar 	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>vessel) to use wharf facilities at Manly; and</p> <p>e) an emergency and evacuation plan has been prepared for the site by the co-proponents and approved by the DEC (condition 205).</p>				
10	<p>Notwithstanding condition 9), the co-proponents may undertake the following activities prior to the commencement date:</p> <p>a) commence relevant monitoring programs;</p> <p>b) finalise the various strategies, plans and management systems specified in the EIS, PAS or conditions of approval; and</p> <p>c) operate the existing Quarantine Station facilities up to the current level of usage providing this is undertaken in accordance with condition 24), and subject to conditions 9)e) and 210) being met. This is also subject to any relevant approvals being obtained under the NPW Act.</p>	Construction	Joint	<p>Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.</p>	Compliant
11	<p>For the purpose of the conditions of approval the “commencement date” is taken to be the date that DIPNR declares that all of the requirements of condition 9) have been met and that the activity may commence.</p>	Construction	Joint	<p>Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.</p>	Compliant
12	<p>The conditions of this approval shall be incorporated into the lease agreement under NPW Act for the site.</p>	Operation	Joint	<p>NPWS letter to Mawland re the modification of the Ministers Approval and the addition of these conditions to the lease document (letter dated 27 June 2018).</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
DURATION OF PLANNING APPROVAL					
13	This approval is valid for a period of 21 years. Any proposal to extend the approval beyond this period shall comply with the relevant legislative requirements that exist at the time the extension is sought.	Operation	Joint	Approval was given for the North Head Quarantine Station Conservation and Adaptive Re-Use Proposal on 23 December 2003. Any required extension of approval is not required until 2024.	Not Triggered
14	An extension to the duration of the planning approval may only be sought if there is a current endorsed conservation management plan for the site.	Operation	Joint	Approval was given for the North Head Quarantine Station Conservation and Adaptive Re-Use Proposal on 23 December 2003. Any required extension of approval is not required until 2024.	Not Triggered
15	<p>In addition to any specific legislative requirements that may exist at the time an extension to the approval is sought, the application shall be made available for public comment and address:</p> <ul style="list-style-type: none"> the provisions of any relevant endorsed conservation management plans; compliance with the terms of this activity approval and any approved modifications; the outcomes of all monitoring undertaken since commencement of the activity, including the success of any adaptive management measures applied; and the status of any integrated planning undertaken for north head, including the role of the site in any such process. <p>This condition shall not fetter the exercise of any statutory power or discretion of any authority with</p>	Operation	Joint	Approval was given for the North Head Quarantine Station Conservation and Adaptive Re-Use Proposal on 23 December 2003. Any required extension of approval is not required until 2024.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	respect to any proposed extension of the duration of planning approval.				
SCOPE OF APPROVAL					
Other Infrastructure Approvals					
16	With the exception of minor maintenance repairs or works (as defined) or works in accordance with condition 38) c), prior to undertaking any works associated with the provision of water and sewer services to the site the co-proponents shall consult Sydney Water and obtain a Section 73 Certificate under the <i>Sydney Water Act 1994</i> .	Operation	Joint	No works were undertaken during the reporting period that were associated with the provision of water and sewer services to the site.	Not Triggered
Aspect Of The Activity Not Approved					
17	Aspects of the activity that are not approved as part of this application are listed in Schedule 2.	Operation	Joint	No works detailed in Schedule 2 were undertaken during this reporting period.	Compliant
Aspects Of The Activity Approved Subject To Modification Of Detailed Design					
18	Aspects of the proposal that are approved, subject to modifications or further detailed design, are listed in Schedule 3. The outcomes and objectives to be achieved, and the criteria for assessment of the achievement of the outcome or objective, are also detailed in Schedule 3.	Operation	Joint	See Schedule 3 for additional details.	Compliant
Adaptation Of Accommodation Facilities					
19	Prior to the commencement of any works associated with the conversion of rooms in any of the accommodation buildings, a sample adaptation within Building P6 must be completed and endorsed by the Heritage Council and DEC. The sample adaptation is to include accommodation room fitout and furnishing	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
20	With the exception of buildings P1 and P2, which are to remain with their current spatial layout and internal configuration, adaptation of buildings within the First and Second Class Precincts may occur in accordance with the specifications in Table B-2 of the PAS. Adaptation works are to be assessed and approved in accordance with conditions 35)-40), and reflecting the outcomes of the P6 prototype adaptation.	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.	Compliant
21	Buildings P1, P2 and the original rooms that are adapted, at the conclusion of the lease, are to be returned to their condition and spatial layout/internal configuration as at the commencement date of the lease. Other permissible alterations include those works that are identified in terms 31 and 38. At all times interpretation of the original spatial layout and internal configuration is to be exhibited prominently near buildings P1 and P2.	Operation	Joint	Ministers' approval and lease is valid until 2027, therefore this condition has not yet been triggered.	Not Triggered
Reconstructions					
Buildings P21 And P23					
22	The proposed reconstruction of P21 and P23 and use for environmental and cultural study purposes is approved, subject to: <ul style="list-style-type: none"> a) all existing buildings associated with the Environmental and Cultural Study Centre being made operational first; b) information demonstrating a clear need for the reconstruction based on the management requirements for the ongoing operation of the site (including 	Operation	Joint	S60 Application submitted on 25 August 2011 for the reconstruction of building P21 and P23 for the purpose of educational accommodation within the 3rd Class/Asiatic precinct of the Quarantine Station. NSW Heritage Council approved the S60 Application in a letter dated 26 March 2012.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>demonstrated market demand for additional student accommodation) being provided to the satisfaction of the Heritage Council and DEC;</p> <p>c) final plans for reconstruction being submitted to and approved by the Heritage Council in accordance with the requirements of the Heritage Act 1977. These plans must incorporate distinctions in design between the two buildings; and</p> <p>d) Compliance with the certification requirements of the NPWS Construction Assessment and Approvals procedure</p>			<p>A works certificate was issued on 20 December 2018 for the completion of the buildings.</p> <p>Letter prepared by Ron Edgar of Form Architects to the Heritage Office, Office of Environment and Heritage on 1 August 2019. Letter details that the reconstruction of Buildings P21 and P23 have been completed in accordance with the provisions of the development consent permitted under Section 60 No 2011/S60/85. A log book / photographic record of the construction stage prepared by Form Architects was also submitted to the Heritage Office detailing the works undertaken.</p>	
Buildings H1 And P22					
23	<p>Reconstruction and use of buildings H1 and P22 is approved, subject to:</p> <p>a) final plans for reconstruction being submitted to and approved by the Heritage Council in accordance with the requirements of the Heritage Act 1977;</p> <p>b) compliance with the certification requirements of the NPWS Construction Assessment and Approvals Procedure; and</p> <p>c) if, after reconstruction commences or is completed, further alterations to the</p>	Operation	Joint	<p>Section 60 Application was submitted to DEC in November 2005 for the Reconstruction of Buildings H1 and P22. This work was approved for construction on 31 March 2006.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	buildings are proposed, these shall require assessment and approvals under the relevant legislation.				
Restrictions On Use					
24	Use of the site and the undertaking of the activity must proceed in accordance with uses permissible under the NPW Act 1974 (as amended).		Joint	The site is only used in accordance with the uses permissible under the NPW Act 1974.	Compliant
25	Buildings in the Third Class/Asiatic Precinct shall be used only for accommodation, interpretation and education purposes as specified in the PAS. Building P27 may also be used for special events, functions and/or conferences but only as a secondary use to education and interpretation.		Joint	The buildings in the Third Class / Asiatic Precinct are only used for the approved purposes. Building P27 is used for additional functions as required.	Compliant
26	Regular public tours of the site must form a component of the operation of the Quarantine Station and be run during publicly accessible periods, including weekends and public holidays.	Operation	Joint	Public tours of the site include: Ghostly Encounters 2.5 hours duration Available daily 8 – 10.30pm Ghost Trackers 2 hours duration Available weekends and school holidays Q Station Paranormal Investigation 3 hours Available first Thursday of every month	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<p>Quarantine Wander History Tour 1 hour Available daily 11am</p> <p>Q Station Wildlife Meanders Tour 1.5 hours Available daily 12.30pm</p> <p>Due to the covid pandemic, there were some disruptions to the public tour schedule.</p>	
27	Timber buildings shall not be used for the storage of fuel or other flammable materials.	Operation	Joint	The only fuel stored on site at Q Station is small quantities of petrol in jerry cans in the metal maintenance shed.	Compliant
INTEGRATED PLANNING					
28	The co-proponents shall contribute to any future initiatives focused on the development of an integrated planning approach for North Head, or components thereof, such as transport, infrastructure and utilities, accommodation and/or visitor access. Opportunities for providing general water access to North Head via Quarantine wharf shall be considered in developing such an approach, with a focus on the potential impacts of such access on the volumes of the Quarantine Station and implications for visitor management.	Operation	Joint	<p>The co-proponents are an active member of the North Head Stakeholder Group which regularly meets to discuss and make decisions and contributions on these items.</p> <p>To date, TfNSW (Maritime) has not agreed to general water access</p>	Compliant
29	In order to minimise the requirement for on-site parking, the co-proponents shall undertake consultations with other land managers at North	Operation	Joint	The North Head Stakeholders Committee receives the Annual Environmental Report	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	Head regarding options for off-site car parking. The outcome of these discussions shall be reported on an annual basis as part of the annual environmental report (Condition 221).			A cooperative approach is undertaken where and when necessary. Meeting with the North Head Stakeholders Committee on 2 December 2020 discusses the North Head and Fairfax Road upgrade works and parking requirements.	
30	The co-proponents shall undertake discussions with the Sydney Harbour Federation Trust or future land manager regarding a cooperative and integrated approach to the future management and interpretation of the 3rd Cemetery.	Operation	Joint	Management of the 3rd Cemetery is conducted in accordance with the North Head Sanctuary Management Plan prepared in 2011 (north-head-sanctuary-management-plan.pdf) (harbourtrust.gov.au). The Trust also commissioned an interpretation strategy in 2017 during which the co-proponents were consulted as key stakeholders (tqc-north-head-sanctuary-manly-ip-september-2017.pdf) (harbourtrust.gov.au).	Compliant
STAGING, CERTIFICATION AND UNDERTAKING OF WORKS					
Staging Of Works					
31	The undertaking of works as part of the activity shall generally occur in accordance with the staging plan specified in Table F-1 of the PAS, subject to the following modifications:	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> a) references to the “DACMP” shall be deleted and replaced with “Conservation Works Program (condition 78)”; b) references to “QSARG” shall be deleted; c) 50% of the Conservation Works Program medium term works shall be completed by the end of stage 2; d) upgrade of the fire hydrant system shall be completed within 5 years of the commencement date in accordance with condition 211); e) revisions to building and conservation works as follows: <ul style="list-style-type: none"> • adaptation of P12 shall occur in Stage 2 • adaptation of P10 shall occur in Stage 3 • an approach to sampling and adaptation of the bathrooms in P14-16 shall be prepared during Stage 1 (refer Schedule 3); and f) amend the staging plan so that two free public open days are to be held in every twelve-month period, in accordance with condition 126). 			Compliance against CoPA 31-34 will be reviewed in the EMS review in early 2022.	
32	The co-proponents shall not commence works associated with Stage 2 of the staging plan until the works and project planning actions specified in Stage 1 have been substantially completed to the satisfaction of the DEC and the Heritage Council.	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				Compliance against CoPA 31-34 will be reviewed in the EMS review in early 2022.	
33	The co-proponents shall not commence works associated with Stage 3 of the staging plan until the first comprehensive audit has been completed (condition 228) and any requirements or directions issued by the DEC, DIPNR or the Minister for Infrastructure, Planning and Natural Resources under conditions 232) and 233) have been complied with.	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite. Compliance against CoPA 31-34 will be reviewed in the EMS review in early 2022.	Compliant
34	The co-proponents shall not commence works associated with Stage 4 of the staging plan until the DEC and the Heritage Council are satisfied that a significant proportion of the remaining Conservation Works Program (condition 78)) medium term works have been completed during Stage 3. Compliance with this condition shall be determined as follows: <ul style="list-style-type: none"> a) if Stage 4 is not scheduled to commence within 3 years of the commencement date, then 100% of all medium term works must be completed before Stage 4 works may proceed; or b) if Stage 4 is scheduled to commence within 3 years of the commencement date, then at least 75% of the total medium term works must be completed before Stage 4 works may proceed. 	Construction	Joint	Condition satisfied prior to the commencement of operation. Compliance noted in previous annual reports and records maintained onsite. Compliance against CoPA 31-34 will be reviewed in the EMS review in early 2022.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
General Works					
35	<p>The co-proponents shall comply with the requirements of the NPWS Construction Assessment and Approvals Procedure for all relevant construction works to be carried out under this approval, except where varied by the conditions of this approval. All relevant construction works includes:</p> <ul style="list-style-type: none"> a) all works that require the disturbance or alteration of fabric, buildings and other structures; b) installation or upgrading of utility infrastructure and any maintenance or upgrade work that requires the excavation of new lines or locations or involves the discharge of polluting substances (as defined); and c) landscape works in accordance with the adopted Heritage Landscape Management Plan that require ground surface disturbance, or the installation of new landscape elements including car park construction and road works. 	Operation	Joint	<p>All works are undertaken in accordance with the NPWS Construction Assessment and Approvals Procedure. These documents can be found at https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/development-guidelines/construction-assessment-procedures.</p> <p>Works were undertaken on building P1 and P2 during the previous reporting period (July 2018 – December 2019). A request from Mawland to NPWS for a completed works certificate was denied (5 December 2019) due to several minimum Building Code of Australia requirements not being met. On 30 March 2020, a completed works certificate was issued following rectification of the outstanding items.</p>	Compliant
36	<p>Any application for construction work within the Quarantine Station site must be submitted to the Heritage Advisor for review prior to lodgement with the DEC and Heritage Council. This requirement can be waived at the discretion of the Heritage Advisor, except for those works specified in the conditions of approval as requiring approval from the Heritage Council.</p>	Operation	Joint	<p>A S60 prepared by the Heritage Advisor for the reconstruction of building P21 and P23 for the purpose of educational accommodation within the 3rd Class Asiatic precinct of the Quarantine Station was approved on 28 March 2012 by the Heritage Council. Works were conducted within the 2018/19 reporting period.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<p>A S60 prepared for reconstruction of buildings H1 and P22 (1883 Hospital Building and 1883 Accommodation Building) was approved on 31 March 2006 by the Heritage Council. Works were conducted within the 2018/19 reporting period.</p>	
37	<p>The co-proponents must submit as part of any application for construction works the following additional information (where it is relevant to the particular proposal) to that required under the NPWS Construction Assessment and Approvals Procedure:</p> <ul style="list-style-type: none"> a) a statement of compliance with the relevant policies of the QSCMP, DACMP, relevant site-wide plans and/or requirements of the conditions of this approval, or clear justification for any proposed variances; b) details of all materials, fittings, fixtures and other specifications; c) details of proposed construction techniques; d) sample boards and coloured elevations showing proposed materials and colours, based on research into historic colour schemes as required; e) a schedule of fabric and other materials to be sampled consistent with the fabric sampling guidelines [condition 86) d)] and sampling provisions for asbestos and 	Operation	Joint	<p>All compliance documentation, approvals and consultant certification held by parties including Mawland, the Heritage Advisors, construction contractors and the Heritage Council. No further works anticipated.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>rainwater systems (condition 111) and bathroom fixtures [condition 99) b)];</p> <p>f) for carparks:</p> <ul style="list-style-type: none"> • details of the stormwater management system based on the guideline “Managing Urban Stormwater – Soils and Construction” (DoH 1998) • an assessment of the soil and hydrological characteristics downslope of the proposed carparks • the proposed maintenance program for structures associated with the carpark (eg: stormwater cells; <p>g) a historical archaeological assessment to comply with the requirements of the North Head Quarantine Station Archaeological Management Plan (2000);</p> <p>h) an outline of environmental and/or heritage impacts and proposed mitigative measures or safeguards, including procedures for avoiding impacts on flora and fauna; and</p> <p>i) proposed monitoring and maintenance procedures, where relevant.</p>				
38	<p>Notwithstanding the above, approvals in accordance with the NPWS Construction Assessment and Approvals Procedure are not required for the following matters, where these are undertaken in accordance with the provisions of</p>	Operation	Joint	<p>Regular maintenance works are conducted in accordance with CWP on site. A maintenance log is maintained onsite by the operations team.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>the Conservation Works Program or relevant side-wide plan(s):</p> <ul style="list-style-type: none"> a) painting and carpeting; b) basic essential services, such as upgrading of electrical wiring, installation of power points, telephone connections, etc; c) infrastructure works which involve the essential repair or replacement of existing facilities in the same location using “like-for-like” technology, or where this is not available, appropriate contemporary technology; d) the provision of external lighting, signage and waste receptacles; and e) minor maintenance repairs or works (as defined). 				
39	<p>Prior to works commencing, the co-proponents shall notify the Environmental Manager and provide evidence that the necessary approvals have been obtained in accordance with the NPWS Construction Assessment and Approvals Procedure.</p>	Operation	Joint	<p>No construction works were undertaken in the reporting period due to the disruptions caused by the COVID pandemic.</p>	Not Triggered
NSW Heritage Council Approvals					
40	<p>Prior to any construction works commencing, the co-proponents shall submit the detailed design and working drawings for the project to the NSW Heritage Council for approval</p>	Operation	Joint	<p>No approvals were given in the reporting period.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
Wharf					
41	<p>If necessary, a separate application and approval under Part 5 of the EP&A Act 1979 and other relevant legislation will be required for:</p> <p>a) upgrade works to the wharf, including any works that require excavation or disturbance of the seabed. This excludes use by the proposed ferry service, lighting, works identified in the PAS and minor maintenance repairs or works (as defined) that do not impact on the seabed and; and/or</p> <p>b) provision of additional ferry services or watercraft access to the Quarantine Station.</p>	Operation	Joint	<p>No works were undertaken to the wharf during the reporting period.</p> <p>It should be noted that discussions continue between NPSW and TfNSW (Maritime), supported by QSCCC, Local Members and North Head Stakeholders for the wharf to become a public wharf.</p>	Not Triggered
42	<p>Prior to commencement of any work on or associated with the Quarantine Station wharf, or the commencement of the ferry service at the wharf, the co-proponents shall lodge an Application for Construction of Waterside Structures to the Waterways Authority for approval. This application must be submitted to the Heritage Advisor for endorsement prior to lodgement with the Waterways Authority. The application shall be accompanied by the information and comply with the requirements specified in Schedule 4. Prior to determining the application, the Waterways Authority shall consult with NSW Fisheries.</p>	Operation	Joint	<p>No works were undertaken to the wharf during the reporting period.</p>	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
Access To Store Beach					
43	A separate application and approval under Part 5 of the EP&A Act 1979, and other relevant legislation, will be required for the provision of independent access to Store Beach, or any works associated with the upgrading of the existing access track or construction of any new tracks to Store Beach.	Operation	Joint	No works were undertaken in regard to access to Store Beach during the reporting period.	Not Triggered
Operating Certificate					
44	The co-proponents shall apply to the DEC for an Operating Certificate (as defined), prior to the commencement of operation of the following facilities: <ul style="list-style-type: none"> a) therapeutic health facility (P5); b) educational facilities; c) restaurant, food service and beverage facilities; d) accommodation facilities; and e) the ferry service. 	Operation	Joint	The Operating Certificate for: <ul style="list-style-type: none"> • Accommodation was issued by DEC on 18 March 2008 • Ferry service was issued on 17 December 2010 • Food and Beverage 19 January 2011. 	Compliant
Archival Recording					
45	Archival recording shall be carried out at two stages: <ul style="list-style-type: none"> a) prior to any adaptation work commencing on a building, historic item (including infrastructure) or cultural landscape element - the archival recording shall be submitted to and endorsed by the Heritage Advisor prior to works commencing. This shall 	Construction	Joint	The Heritage Council endorsed the prior to adaptation full site Archival Recording on 27 July 2006.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>form part of the application for construction works where applicable; and</p> <p>b) on completion of adaptation works - the archival recording shall be submitted to the Heritage Advisor for endorsement. This shall form part of the application for a Compliance Certificate in accordance with the NPWS Construction Assessment and Approvals Procedure where applicable. Archival recording will also be required during the removal of any fabric on site that exposes significant fabric/detail.</p>				
46	<p>The form of archival recording required is:</p> <p>a) archival record prior to commencement of adaptation works - the archival record shall meet the minimum standards for recording outlined in the Archaeological Management Plan. It shall include measured drawings of all buildings and structures and photographic recording; and</p> <p>b) archival record for completed adaptation works – the archival record shall comprise “as-built” drawings of all buildings and structures that have been the subject of adaptation works indicating the location and detail of changes.</p>	Construction	Joint	Buildings P21 and P23 archival recording was prepared by Form Architects (August 2019) and issued to OEH on 1 August 2019.	Compliant
47	<p>Measured drawings shall be prepared in accordance with the NSW Heritage Office guidelines ‘How to prepare archival records of heritage items’.</p>	Construction	Joint	Buildings P21 and P23 archival recording was prepared by Form Architects (August 2019) and issued to OEH on 1 August 2019.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
48	Photographic records shall be prepared in accordance with the NSW Heritage Office 'Guidelines for photographic recording of heritage sites, buildings, structures and movable items'.	Construction	Joint	Buildings P21 and P23 archival recording was prepared by Form Architects (August 2019) and issued to OEH on 1 August 2019.	Compliant
49	A copy of the archival record shall be lodged with DEC and the NSW Heritage Office.	Construction	Joint	Buildings P21 and P23 archival recording was prepared by Form Architects (August 2019) and issued to OEH on 1 August 2019.	Compliant
Emergency Works					
50	Notwithstanding any other conditions of this approval, in the event that emergency works are required to be undertaken, the co-proponents shall take all reasonable steps to ensure that these occur as expeditiously as possible. Emergency works are works of a temporary and reversible nature which are urgently required to arrest an imminent threat to life, safety, public liability, and/or threat to the fabric or property.	Operation	Joint	No Emergency Works were undertaken within the reporting period.	Not Triggered
51	Where the co-proponents consider it is necessary to undertake emergency works, notification shall be given to the Heritage Council and the NPWS as soon as possible and direction sought on further procedures to be implemented.	Operation	Joint	No Emergency Works were undertaken within the reporting period.	Not Triggered
ENVIRONMENTAL MANAGER					
52	Prior to the commencement of construction works the co-proponents shall appoint a suitably qualified Environmental Manager (EM). The appointment of the EM shall be subject to the approval of the DEC and DIPNR. The co-	Operation	Joint	The Environmental Manager for the site during the reporting period was Jess Dargan (August 2019 - Current).	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>proponents shall provide to the DEC and DIPNR the following information:</p> <ul style="list-style-type: none"> a) the qualifications and experience of the EM; b) the roles and responsibilities of the EM; and c) the authority and independence of the EM <p>The EM shall be engaged for the duration of the approval</p>				
53	<p>The EM shall</p> <ul style="list-style-type: none"> a) undertake the specific actions identified in the conditions of approval; b) oversee the undertaking of the activity in accordance with the conditions of approval; c) contribute to the development, and oversee the implementation of, the EMP and the associated integrated monitoring and adaptive management system as it relates to environmental management; d) facilitate an environmental management module as part of an induction and training program for all persons involved with the construction works; e) for the first five years from the commencement date, provide six monthly (or as required) status reports to the DEC which shall include, but not be limited to: <ul style="list-style-type: none"> • progress in implementation of approval conditions as these relate to 	Operation	Joint	<p>The Environmental Manager for the site during the reporting period was Jess Dargan (August 2019 - Current).</p> <p>All works during the reporting period were overseen by the EM</p> <p>Six monthly reports to DEC by the EM were not required during this reporting period.</p> <p>There was no requirement to stop works for any unacceptable impacts during the reporting period.</p> <p>There was no requirement for the EM to advise any stakeholder of any major issues on site during the reporting period.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>environmental management (this shall include monitoring programs)</p> <ul style="list-style-type: none"> • complaints and responses to these • any breaches of conditions and response • compliance or other issues arising; <p>f) have the authority to stop work immediately if, in the view of the EM, an unacceptable impact is likely to occur as a result of the undertaking of the activity, or to require other reasonable steps to be taken to avoid or minimise any adverse impacts;</p> <p>g) be available during construction activities at the site and be present on-site during any critical construction activities as defined in the EMP; and</p> <p>h) immediately advise the co-proponents, DEC, DIPNR, the Heritage Council and/or the Waterways Authority (depending on the issue involved) of any major issues resulting from the undertaking of the activity that have not been dealt with expediently or adequately by the co-proponents.</p>				
HERITAGE ADVISOR					
54	Prior to the intended commencement of construction works the co-proponents shall appoint a suitably qualified Heritage Advisor. The appointment of the Heritage Advisor shall be subject to the approval of the DEC and the	Construction / Operation	Joint	Paul Davies and Ron Edgar – Form Architects have been appointed and approved as the Heritage Advisor for the Q Station.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>Heritage Council. The co-proponents shall provide to the DEC and the Heritage Council the following information prior to any appointment being made:</p> <ul style="list-style-type: none"> a) the qualifications and experience of the Heritage Advisor; b) the roles and responsibilities of the Heritage Advisor; c) the authority and independence of the Heritage Advisor. <p>The appointment of the Heritage Advisor shall be for a period agreed to by the Heritage Council and DEC. The Heritage Council and the DEC shall review the functioning of the Heritage Advisor upon receipt of the six monthly status reports [condition 55) d)].</p>			<p>The Heritage Advisor(s) for the site was confirmed by Verena Mauldon (Heritage Council) on 12 December 2017.</p>	
55	<p>The Heritage Advisor shall:</p> <ul style="list-style-type: none"> a) assess applications for construction works with respect to heritage matters and provide advice to the NSW Heritage Council (condition 40) and DEC. This shall include, but not be limited to, ensuring that all plans and specifications submitted with applications for construction works are prepared in accordance with: <ul style="list-style-type: none"> • the conditions of approval • the requirements of any relevant site-wide plans and Precinct Plans • the QSCMP and DACMP, where applicable. 	Operation	Joint	<p>The Heritage Advisors have participated and supervised all construction works (where required) during this reporting period including applications for Section 60 approvals, inspections, preparation of plans.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>The Heritage Advisor shall also have responsibility for approving such applications, if the NSW Heritage Council delegates this function.</p> <p>b) review all site-wide plans prior to lodgement with the relevant approval body to ensure that these are generally in accordance with the QSCMP and DACMP;</p>	Operation	Joint	The Heritage Advisors have participated and supervised all construction works (where required) during this reporting period including applications for Section 60 approvals, inspections, preparation of plans.	Compliant
	<p>c) undertake regular inspections of works in progress and, where appropriate or as specified by the DACMP, either directly supervise works or require the co-proponents to appoint a suitably qualified person to supervise works;</p>	Operation	Joint	The Heritage Advisors have participated and supervised all construction works (where required) during this reporting period including applications for Section 60 approvals, inspections, preparation of plans.	Compliant
	<p>d) for the first three years from the commencement date, provide status reports to the Heritage Council and DEC every six months or as required which shall include, but not be limited to:</p> <ul style="list-style-type: none"> • applications for construction works approved and works undertaken to date • the next 3-6 months schedule of works • compliance or other issues arising; and 	Operation	Joint	<p>The Heritage Advisors have participated and supervised all construction works (where required) during this reporting period including applications for Section 60 approvals, inspections, preparation of plans.</p> <p>Status reports are no longer required, as per this condition.</p>	Compliant
	<p>e) have the authority to stop work immediately if, in the view of the Heritage</p>	Operation	Joint	Works were not stopped by the Heritage Advisor	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	Adviser, an unacceptable impact is likely to occur, or to require other reasonable steps to be taken to avoid or minimise any adverse impacts with respect to those matters for which a construction application is required or where maintenance work is being conducted				
COMMUNITY CONSULTATION					
Quarantine Station Community Committee					
56	Within three months from the commencement date the co-proponents shall establish a Quarantine Station Community Committee (QSCCC). The QSCCC may be established as a subcommittee of the NPWS Sydney Region Advisory Committee or as a full Advisory Committee under the NPW Act, or some other suitable arrangement approved by the DEC. The QSCCC shall report to the DEC.	Operation	Joint	<p>The QSCCC is established to assist with the conservation and management of the historic site.</p> <p>Meeting minutes from the QSCCC can be found at: https://www.environment.nsw.gov.au/about-us/who-we-are/advisory-committees/quarantine-station-community-consultative-committee</p> <p>The February 2019 – February 2020 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<p>The February 2020 to February 2021 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2021/Manly-Quarantine-Station--2021.pdf</p>	
57	<p>The QSCCC shall be chaired by an independent chairperson approved by the DEC and DIPNR and comprise representatives with relevant expertise and experience from appropriate community interest groups, Aboriginal communities and local government. Representatives from relevant government agencies or other individuals may be invited to attend meetings by the Chairperson.</p>	Operation	Joint	<p>Sandy Hoy is the independent chairperson of the QSCCC.</p> <p>Meeting minutes of the QSCCC can be accessed at: https://www.environment.nsw.gov.au/about-us/who-we-are/advisory-committees/quarantine-station-community-consultative-committee</p> <p>The February 2019 – February 2020 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en</p> <p>The February 2020 to February 2021 Annual Report from the QSCCC can be found at https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2021/Manly-Quarantine-Station--2021.pdf</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
58	<p>The general functions of the QSCCC shall include:</p> <p>a) provide comment and recommendations to the co-proponents on proposals or relevant matters including the development and implementation of site-wide plans (as defined), the integrated monitoring program, annual environmental reports, comprehensive audit reports and compliance with the conditions of this approval; and</p> <p>b) provide a communication channel between the community, the co-proponents and the determining and approval authorities on matters relating to the Quarantine Station. The conditions of approval also include other specific functions of the QSCCC</p>	Operation	Joint	<p>reports/2021/Manly-Quarantine-Station--2021.pdf</p> <p>The QSCCC is established to assist with the conservation and management of the historic site.</p> <p>Meeting minutes from the QSCCC can be found at https://www.environment.nsw.gov.au/about-us/who-we-are/advisory-committees/quarantine-station-community-consultative-committee</p> <p>The February 2019 – February 2020 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en</p> <p>The February 2020 to February 2021 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2021/Manly-Quarantine-Station--2021.pdf</p>	Compliant
59	<p>The QSCCC shall meet at least quarterly during the first 3 years from the commencement date and thereafter on an as needs basis, as determined by the Committee. The Committee</p>	Operation	Joint	<p>The QSCCC is established to assist with the conservation and management of the historic site.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>shall function for the duration of this approval. Minutes are to be taken for each Committee meeting.</p>			<p>Meeting minutes from the QSCCC can be found at: https://www.environment.nsw.gov.au/about-us/who-we-are/advisory-committees/quarantine-station-community-consultative-committee</p> <p>3 meetings were held within the reporting period:</p> <ul style="list-style-type: none"> • Meeting #68 on 12 February 2020 • Meeting #69 on 19 August 2020 • Meeting #70 on 18 November 2020 <p>Note: The QSCCC May 2020 meeting was not held due to the COVID pandemic.</p> <p>The February 2019 – February 2020 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en</p> <p>The February 2020 to February 2021 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-</p>	

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
60	<p>The co-proponents shall:</p> <ul style="list-style-type: none"> a) provide the Committee with regular information on the environmental performance and management of the activity; b) provide all relevant plans, including site-wide plans (as defined), to the Committee for comment prior to their approval by the relevant authority; c) ensure the Committee has reasonable access to the necessary plans and reports and is provided with sufficient time to carry out its functions; d) consider the recommendations and comments of the Committee and provide a response to the Committee; e) provide the Committee with access to sufficient resources to perform its functions, including: a meeting space; photocopying, phone and fax facilities; computer/printer and supervised access to the site; f) make any resolutions or decisions arising from Committee meetings available for public inspection within fourteen days of the Committee endorsing the written record of any such resolutions or decisions, or as otherwise agreed by the Committee; and 	Operation	Joint	<p>reports/2021/Manly-Quarantine-Station--2021.pdf.</p> <p>Meeting minutes from the Quarantine Station Community Consultative Committee can be found at: https://www.environment.nsw.gov.au/about-us/who-we-are/advisory-committees/quarantine-station-community-consultative-committee.</p> <p>The February 2019 – February 2020 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en</p> <p>The February 2020 to February 2021 Annual Report from the QSCCC can be found at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2021/Manly-Quarantine-Station--2021.pdf.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	g) shall, depending on the frequency of meetings and workload of the Committee, consider reimbursing community representatives for reasonable expenses associated with their work on the Committee				
CONTRACTORS					
Environmental Management System					
61	Contractors engaged in the undertaking of the activity must be able to demonstrate a commitment to environmental management. Demonstration should be by way of commitment to a recognised Environmental Management System in accordance with NSW Government guidelines and/or a proven satisfactory environmental management performance record.	Operation	Joint	<p>A register of contractors working at Q Station during the reporting period is kept by the General Manager on site.</p> <p>Mawland required a commitment to and EMS from all contractors prior to engagement.</p> <p>All contractors receive instruction from Max Player (Mawland Group), the Maintenance Supervisor and where required, Helen Drew (regarding education, heritage and the museum) prior to undertaking works on site.</p>	Compliant
Appropriately Skilled Contractors And Consultants					
62	<p>All works, including those works identified in the DACMP as requiring specialist expertise, shall be carried out by:</p> <p>a) for construction works - licensed, suitably qualified and, where appropriate, specialised tradespersons; and</p>	Operation	Joint	<p>A register of contractors working at Q Station during the reporting period is kept by the General Manager on site.</p> <p>All contractors receive instruction from Max Player (Mawland Group), the Maintenance Supervisor and where required Helen Drew (regarding</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	b) for planning and assessment works - suitably qualified and specialised staff, consultants and/or contractors.			education, heritage and the museum) prior to undertaking works on site.	
63	Prior to the commencement of works the co-proponents shall submit a list of appropriately qualified and/or experienced heritage specialists (particularly architects, landscape planners and builders) to the Heritage Council and DEC for approval. The list shall include at least 3 specialists in each relevant field where possible. All specialists contracted to work on-site shall be those identified as a preferred contractor, unless otherwise approved by the Heritage Council and DEC.	Operation	Joint	No works were undertaken during this reporting period that triggered this CoPA.	Not Triggered
64	The co-proponents shall ensure that all contractors, sub-contractors and consultants working on the site are aware of the relevant conditions of approval for the activity and have been provided with sufficient training and awareness regarding the conservation values of the site.	Operation	Mawland	NPWS and Mawland both have an induction process for contractors prior to commencement of works on site. Where a contractor is used for multiple works, the induction is updated a necessary. All relevant conditions of approval are discussed in the induction training. An induction register is kept by the General Manager or head contractor (where appropriate).	Compliant
Training For Contractors And Staff Working On Heritage Sites					
65	a) An induction and training program shall be developed by a suitably qualified person and provided to the following persons within 1	Operation	Mawland	NPWS and Mawland both have an induction process for contractors prior to commencement of works on site. Where a contractor is used for multiple	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>week of those persons commencing duties/works:</p> <ul style="list-style-type: none"> All contractors and sub-contractors, who will be required to attend such a program through the provision of a clause in all contracts for on-site works: and All staff employed on the site, including but no limited to shuttle bus drivers(s) and ferry crew, whether on a permanent, temporary, contract or casual basis. Staff working on the site for a period longer than 12 months must undertake a refresher program every year. <p>The program shall include, but not be limited to, an environmental management module outlining the natural and cultural heritage significance or the site and procedures to be followed while working on site, and</p> <p>b) An education and awareness program shall be developed and provided by a suitably qualified person for companies providing services such as, but not limited to, coach and bus access, service delivery and other regular vehicle access to the site within one month of them accessing the site.</p>			<p>works, the induction is updated a necessary. All relevant conditions of approval are discussed in the induction training.</p> <p>An induction register is kept by the General Manager or head contractor (where appropriate).</p>	
INFORMATION MANAGEMENT AND DOCUMENTATION					
Information Management System					
66	The co-proponents shall develop and implement a computer-based information management and Geographic Information System (GIS) for the site. The requirements of the State Records Act 1998	Operation	Joint	A computer based information management system and GIS was not developed for Q Station. Documentation is held in paper files at	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	and other relevant legislation, standards and guidelines shall be taken into account in developing the system.			S7 at Q Station and on the NSW Government Department records management system CM9.	
67	An outline of the system is to be submitted to the DEC for approval within 12 months of the commencement date. Implementation of the system must commence within 3 months of the date its approval.	Operation	Joint	A computer based information management system and GIS was not developed for Q Station. Documentation is held in paper files at S7 at Q Station and on the NSW Government Department records management system CM9.	Non - Compliant
68	The primary role of the system shall be to document decision making by providing a record of all works and management actions taken, and provide current information on resources and assets at the site. The system must be regularly updated and record and reference a range of information, including but not limited to the following: <ul style="list-style-type: none"> a) all approvals issued for works; b) all works undertaken, including renovation, construction and regular maintenance works (date, what work, location etc); c) monitoring programs implemented; d) references to building plans, files, maps, design specifications and other documents; e) Conservation Works Program schedules, including a list of works (including regular maintenance works), priorities and when works are to be conducted (month/year); 	Operation	Joint	A computer based information management system and GIS was not developed for Q Station. Documentation is held in paper files at S7 at Q Station and on the NSW Government Department records management system CM9.	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>f) Moveable Heritage and Resources Plan (condition 85); and</p> <p>g) GIS data layers:</p> <ul style="list-style-type: none"> • location of lease boundary • locations of standing buildings, inscriptions, former fence lines and barriers, cultural landscape features and other historic structures, works and paths • archaeological information as per the requirements of the North Head Quarantine Station Archaeological Management Plan • locations of Aboriginal archaeological sites • locations of threatened flora species, Eastern Suburbs Banksia Scrub, and high-use foraging habitat for the Long-nosed Bandicoot • areas subject to bushfire hazard reduction and/or wildfires, including fire history • bush regeneration areas, including a history of works • locations of all existing and new site services and infrastructure • locations of all new works (including carparks, reconstructions, signs, lights, fences, paths) • data from monitoring programs, as relevant (eg. Longnosed Bandicoot and penguin mortalities). 				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
69	The co-proponents shall undertake a review of the information management and GIS system every five years after the commencement date for the duration of the activity. The review shall focus on the effectiveness of the system for managing data, and currency of information contained within the system, and be submitted to the DEC. The co-proponents shall comply with all reasonable requirements of the DEC with respect to the outcomes of the review.	Operation	Joint	A GIS or information management system was not developed for Q Station, therefore a review was not possible.	Not Triggered
ABORIGINAL HERITAGE					
70	The co-proponents shall prepare and implement an Aboriginal heritage management plan for the Quarantine Station in partnership with the relevant Aboriginal community group/s. the plan shall be submitted to the Heritage Council and DEC for approval within 12 months of the commencement date. The plan shall provide a strategic framework for conserving and managing Aboriginal cultural heritage values and provide a schedule of conservation works. It must consider all Aboriginal cultural heritage values associated with the Quarantine Station site, including physical site, wild resource use, and social values in a traditional, historical and contemporary context.	Operation	Joint with MLALC	A 'North Head Aboriginal Site Management Report' was prepared in 2008.by the Aboriginal Heritage Office.	Compliant
71	The plan shall address, but not be limited to, the following matters: a) the identification of key stakeholders and their interest;	Operation	Joint	A 'North Head Aboriginal Site Management Report' was prepared in 2008.by the Aboriginal Heritage Office. The plan is scheduled for review in 2022/	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>b) the identification and documentation, as appropriate, of Aboriginal cultural values, taking into account values associated more broadly with North Head, and provide a statement of significance;</p> <p>c) document the results of an audit of all Aboriginal sites known to occur in the lease area. The audit shall:</p> <ul style="list-style-type: none"> • review and consolidate records from all previous investigations at the Quarantine Station • record any previously unrecorded sites, and identify any site duplications • develop an Aboriginal site data layer for use on the Quarantine Station GIS database (access restrictions to data will be determined in consultation with the relevant Aboriginal community group/s); <p>d) constraints and opportunities;</p> <p>e) conservation policy / objectives;</p> <p>f) strategies or actions;</p> <p>g) provide a schedule of conservation works required for Aboriginal sites within the lease area. The schedule should be based on the recent conservation assessment conducted by AMBS (2002) for the NPWS, and shall be incorporated into the Conservation Works Program (condition 78);</p>				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> h) management responsibilities, performance measures and monitoring procedures; and i) liaise with DEC and use the information to update the NPWS Aboriginal Heritage Information Management System. 				
72	The co-proponents shall undertake a review of the Aboriginal Heritage Management Plan every five years after the commencement date for the duration of the activity. The review shall be undertaken in consultation with the Heritage Council, DEC and relevant Aboriginal stakeholders. On the basis of the review the co-proponents shall, as necessary, prepare a revised Aboriginal Heritage Management Plan to be submitted to the Heritage Council and DEC for approval.	Operation	Joint	Plan is to be reviewed in 2022 in consultation with the Heritage Council, Heritage NSW and relevant Aboriginal Stakeholders.	Not Triggered
73	Any conservation works for Aboriginal sites are to be undertaken in accordance with the plan and schedule of conservation works and in consultation with the relevant Aboriginal community group/s.	Operation	Joint	No work undertaken during this reporting period.	Not Triggered
74	<p>The co-proponents will, undertake on-going consultation with the relevant Aboriginal community groups on aspects of the proposal and operation of the site that relate to Aboriginal heritage. These aspects shall include, but not be limited to:</p> <ul style="list-style-type: none"> a) the development of protocols for Aboriginal community involvement in the management of Aboriginal heritage within the lease area; 	Operation	Joint	There has been a lapse in on-going consultation with the Aboriginal community. The co-proponents have obtained advice on these matters as required.	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> b) the development of educational material and tours interpreting Aboriginal heritage; c) opportunities for establishing a centre for Aboriginal cultural heritage on site; d) on-going evaluation of the Aboriginal cultural heritage values of the site (to include both new information on historical associations and emerging contemporary values of the place, such as wild resource use); and e) other relevant matters identified in consultations between the co-proponents and the Aboriginal communities. Relevant groups and individuals to be consulted shall be determined in consultation with the DEC. 				
75	There shall be no promotion of or public access to Aboriginal sites within the Quarantine Station unless endorsed by the relevant Aboriginal community group/s and the DEC.	Operation	Joint	There is no promotion of or public access to Aboriginal Sites within the Quarantine Station.	Compliant
76	<p>A fence shall be installed near the southwest end of Building A14-17 to limit public access to Cannae Point within twelve months of the commencement date. The location and design of the fence shall:</p> <ul style="list-style-type: none"> a) be determined in consultation with the relevant Aboriginal community groups; b) take into account fencing requirements for the protection of Little Penguin habitat (see condition 174); and 	Operation	Joint	This fence was completed in 2008 in accordance with this condition.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	c) be designed in consultation with the DEC prior to the lodgement of an application for construction work.			 <p>Fencing west from A14 – 17. © R. Yit NPWS</p>	

HISTORIC HERITAGE

Conservation Works Program

77	For the purposes of the following conditions of approval, conservation works are those works that are essential and necessary to retain the cultural significance of the place. This may include, but is not limited to: <ul style="list-style-type: none"> a) building, landscape and infrastructure works to the extent that these demonstrably contribute to the physical conservation of the site; b) curatorial work on inscriptions, archives, artefacts and moveable heritage; c) environmental management programs, such as erosion, weed and feral animal control; 	Operation	Joint	There have been no conservation works during this reporting period. Regular maintenance works are undertaken as and when required.	Not Triggered
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CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> d) a portion of works to improve visitor access within the site (being basic works, such as disabled access ramps, that are considered essential to provide equitable access and to minimise visitor impacts); and e) a portion of works to improve visitor understanding of the significance of the place (being basic works, such as interpretive displays). <p>It does not include:</p> <ul style="list-style-type: none"> a) works associated with the planning, design and the physical reconstruction of buildings P21, P22, P23 and H1; b) assessment work or documentation undertaken as part of the preparation of the EIS or PAS, including design drawings; c) assessment work or documentation to be undertaken as part of the preparation of detailed design plans for proposed adaptation work; or d) works completed prior to the commencement date, with the exception of urgent works identified in the DACMP. 				
78	<p>The co-proponents shall prepare and submit a final Conservation Works Program (CWP) to the Heritage Council and the DEC for approval as follows:</p> <ul style="list-style-type: none"> a) Stage 1 of the CWP encompassing works required for all buildings, structures and landscape elements, including but not 	Operation	Mawland	A Conservation Works Program was approved in 2006 by NPWS on 12 May 2006 and the Heritage Council on 01 June 2006.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>limited to those identified in the DACMP and the asbestos sampling and replacement strategy (condition 111), shall be prepared within six months of the commencement dates: and</p> <p>b) Stage 2 of the CWP encompassing all works identified for Aboriginal sites (Condition 70), the Moveable Heritage and Resources Plan (Condition 85), Heritage Landscape Master Plan (Condition 91), Inscriptions Plan (Condition 95), Interpretation Plan (Condition 100) and Infrastructure Control Plan (as relevant – Condition 105) shall be prepared and incorporated into the CWP as soon as practicable</p>				
79	<p>For all heritage items covered by condition 78) above, the CWP shall include, but not be limited to the following:</p> <p>a) identification of all conservation works and priorities at a site level. This should identify urgent works (0-1 year), medium term work (1-3 years) and long term work (3-5 years);</p> <p>b) identification of all works relevant to ensuring public health and safety for each building or historic item (such as the removal and stabilisation of asbestos materials);</p> <p>c) identification of any issues requiring further assessment or research, an</p>	Operation	Joint	A Conservation Works Program was approved in 2006 by NPWS on 12 May 2006 and the Heritage Council on 01 June 2006.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>approach for addressing this, and a timeframe where appropriate;</p> <p>d) an outline of the methodology, materials and standards to be followed for all maintenance works; and</p> <p>e) identification of any on-going monitoring requirements.</p>				
80	Following the approval of Stage 1 of the CWP, the co-proponents shall undertake the urgent and medium term priority conservation works in accordance with the staging plan for the activity, as amended by condition 31).	Operation	Joint	A Conservation Works Program was approved in 2006 by NPWS on 12 May 2006 and the Heritage Council on 01 June 2006.	Compliant
81	All conservation works, excluding minor maintenance repairs or works (as defined), shall be conducted in accordance with the Conservation Works Program.	Operation	Joint	There were no such works undertaken during this reporting period.	Not Triggered
82	<p>The co-proponents shall undertake a review of the CWP concurrent with or prior to the first comprehensive audit of the activity (condition 228), and thereafter on an annual basis as part of the overall annual environmental report (condition 221). An annual review is not required in the year that a comprehensive review of the CWP occurs (condition 83).</p> <p>The review must be undertaken in consultation with the DEC and the Heritage Council, and include:</p> <p>a) a list of conservation works implemented;</p> <p>b) the identification of any additional conservation works required to be undertaken. This must include specific</p>	Operation	Joint	A review of the CWP has not occurred since 2006. A review is scheduled for 2022.	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>consideration of the condition of all asbestos items and actions required to ensure that public health and safety standards are met ; and</p> <p>c) information on the amount spent on conservation works (including maintenance works) within the site annually, together with independent verification of expenditures provided by a quantity surveyor. The information should include a breakdown on costs and works undertaken.</p> <p>Advice must be sought from the relevant Aboriginal community group/s, an appropriately qualified and experienced conservation practitioner and other specialists as required in the review process.</p>				
83	The co-proponents shall undertake a regular comprehensive review of the CWP concurrent with or prior to the on-going (5 yearly) comprehensive audits of the activity (condition 228). The review shall be undertaken in consultation with the Heritage Council and the DEC. In addition to the matters referred to above, the review shall include a re-assessment of the condition of each heritage item (historic and Aboriginal) and a reassessment of conservation priorities.	Operation	Joint	A review of the CWP has not occurred since 2006.	Non-Compliant
84	On the basis of the comprehensive review and the outcomes of the comprehensive audit process (condition 226) the co-proponents shall, as necessary, prepare a revised CWP to be	Operation	Joint	Next review to be undertaken in 2022.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	submitted to the DEC and the Heritage Council for approval.				
Moveable Heritage And The Resource Collection					
85	<p>The co-proponents shall submit a Moveable Heritage and Resource Collection Plan within 12 months of the commencement date. The plan shall include all items of moveable heritage and items from the resource collection. The plan shall address the requirements of the State Records Act 1998 and other relevant legislation and be prepared by a suitably qualified person with demonstrated skills and experience in the management of archival collections.</p> <p>The plan shall be reviewed by the Heritage Advisor and submitted to the DEC and the Heritage Council for approval. Implementation of the plan must commence within 3 months of its approval.</p>	Operation	NPWS	A Moveable Heritage and Resource Collection Plan was prepared in 2007 by Anne Cummings. The Plan was approved by Tony Fleming, Deputy Director – General Parks and Wildlife Division on 20 April 2007 and Reece McDougall, Executive Director, Heritage Office on 10 August 2007.	Compliant
86	<p>The plan shall include, but not be limited to:</p> <ol style="list-style-type: none"> the documentation and recording of all moveable heritage and resource collection items, to be registered on a database system; a condition assessment of each moveable heritage item and, as appropriate, items in the resource collection and a prioritised schedule of conservation works required. This shall be incorporated into the Conservation Works Program (condition 78); 	Operation	NPWS	A Moveable Heritage and Resource Collection Plan was prepared in 2007 by Anne Cummings. The Plan was approved by Tony Fleming, Deputy Director – General Parks and Wildlife Division on 20 April 2007 and Reece McDougall, Executive Director, Heritage Office on 10 August 2007.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>c) collection management guidelines, including:</p> <ul style="list-style-type: none"> • a system for referencing and recording information for all items, with an ability to incorporate new information and/or items as it becomes available; • storage requirements for all items, including: <ul style="list-style-type: none"> - consideration of whether items should be stored on or off-site. - conservation requirements for housing and storing items. - an approach to the documentation and storage of fabric and materials removed during construction and adaptation works. This should consider the requirements outlined in the DACMP; and • a system and protocols for public access to items, and the loan of items outside the Quarantine Station; <p>d) fabric and material sampling guidelines, with reference to the minimum requirements outlined of the Archaeological Management Plan; and</p> <p>e) identify and implement a system for cross-referencing the collections held by other institutions (eg. State Records NSW and the National Archives of Australia) which relate to the Quarantine Station site</p>				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
87	No items of moveable heritage or items from the resource collection shall be used for display purposes or made available on loan outside the Quarantine Station until the Moveable Heritage and Resources Plan has been adopted	Operation	Joint	A Moveable Heritage and Resource Collection Plan was prepared in 2007 by Anne Cummings. The Plan was approved by Tony Fleming, Deputy Director – General Parks and Wildlife Division on 20 April 2007 and Reece McDougall, Executive Director, Heritage Office on 10 August 2007.	Compliant
88	The display, storage, loan and public access of moveable heritage must be undertaken in accordance with the Moveable Heritage and Resources Plan	Operation	Joint	There was no change to the moveable heritage collection during 2020.	Not Triggered
89	The co-proponents shall undertake a review of the Moveable Heritage and Resources Plan every five years after the commencement date for the duration of the activity. On the basis of the review the co-proponents shall, as necessary, prepare a revised Moveable Heritage and Resources Plan to be submitted to the DEC and Heritage Council for approval.	Operation	Joint	A review was not undertaken during the reporting period. A review of this plan will be undertaken in 2021/22 and approval will be sought from the Heritage Council.	Non - Compliant
Heritage Landscape Master Plan					
90	The cultural landscape will be conserved, managed and interpreted primarily to reflect its 1958-84 form (the Aviation phase). The interpretation of earlier landscape conditions is appropriate providing there is demonstrated compliance with the policies in the QSCMP, DACMP and Interpretation Plan (condition 100) or a clear justification for any proposed variances.	Operation	Joint	The cultural landscape is managed in accordance with the Heritage Landscape Plan: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-heritage-landscape-management	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				plan.pdf?la=en&hash=AEB5B9F24B52496A4D0E4D297D0A8A7B2C9925C0	
91	The co-proponents shall engage a qualified horticulturist, arborist and heritage landscape specialist to prepare a site wide Heritage Landscape Master Plan within 18 months of the commencement date. The plan shall be reviewed by the Heritage Advisor and submitted to the DEC and Heritage Council for approval.	Operation	Joint	The Heritage Landscape Management Plan was prepared by Thompson Berrill Landscape Design Pty Ltd in August 2005. The plan was approved by Simon McArthur, General Manager Mawland Hotel Management and Q Station in May 2006, Tony Fleming, Deputy Director-General Parks and Wildlife Division on behalf of DEC on 15 September 2006 and Reece McDougall, Executive Director Heritage Office on 15 September 2006.	Compliant
92	The Plan must address, but not be limited to: <ul style="list-style-type: none"> a) objectives for the management of the cultural landscape, including geology and soils, cultural plantings, bushland, paths and edgings, fences and walls, cemeteries, grave markers, and former landscape features; b) an assessment of the condition of existing cultural plantings (including grassed areas), walls, fences, stormwater drains, paths and edgings, and identification of areas of soil erosion and contamination; c) a prioritised schedule of conservation and/or remediation works to be incorporated into the Conservation Works Program (condition 78); 	Operation	Mawland	The Heritage Landscape Management Plan addresses and includes the items referenced in this condition.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>d) proposed changes to the existing landscape, to be supported by research where necessary;</p> <p>e) proposed management protocols, practices and maintenance works for all landscape features. This should include, but not be limited to:</p> <ul style="list-style-type: none"> • stabilisation of eroded areas • drainage, irrigation and use of fertilisers • treatment of lawn edges and bushland/lawn interfaces, including natural regenerated areas where these have encroached on significant historic sites • monitoring and treatment of trees • species list and guidelines for cultural plantings, including a re-planting strategy • the introduction of new plant or organic materials • materials and construction techniques to be used in landscaping works. <p>f) a bush regeneration program (as defined);</p> <p>g) identify general areas where the planting of new vegetation to provide small-scale shelter habitat for Long-nosed Bandicoots could occur without significant impact on the cultural landscape (condition 165);</p> <p>h) monitoring requirements; and</p>				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>i) consider the following specific issues:</p> <ul style="list-style-type: none"> • First Class Precinct Plan – options for re-instatement of the covered walkway from Building P6 to Building P5, as required by the DACMP, and potential impacts associated with these; • Third Class / Asiatic Precinct – options for reinstatement of selected former access paths within the precinct as an interpretive tool; • Entry area at Building A2 (refer Schedule 3) – identify appropriate design outcomes for the entry area at Building A2 and consider options such as a courtyard or reversible deck, to balance the new uses for this area with the unadorned nature of the Quarantine Station landscape and the historical and archaeological context of the location; and • Second Cemetery – identify options for formalising access to and within the Second Cemetery, including options for a single stabilised path or constructed walkway. Consideration should be given to: design and materials; and potential environmental impacts and mitigative strategies. 				
93	All landscape works, excluding minor maintenance works (as defined), are to be undertaken in accordance with the adopted	Operation	Joint	There were no landscaping works undertaken during this reporting period.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>Heritage Landscape Master Plan, with the following exceptions:</p> <ul style="list-style-type: none"> a) car park construction – where an application for b) construction works is approved prior to the adoption of the Plan; and c) the establishment of a stabilised path or walkway in the Second Cemetery (condition 92) – where an application for construction works is approved prior to the adoption of the Plan 				
94	<p>The co-proponents shall undertake a review of the Heritage Landscape Master Plan every five years after the commencement date for the duration of the activity. The review shall be undertaken with advice from a heritage landscape specialist and other relevant specialists. On the basis of the review the co-proponents shall, as necessary, prepare a revised Heritage Landscape Master Plan to be submitted to the DEC and the Heritage Council for approval.</p>	Operation	Joint	Next review to be undertaken in 2022	Not Triggered
Inscriptions / Engravings					
95	<p>The co-proponents shall engage an appropriately qualified and experienced conservation specialist in rock art or stone conservator to prepare an Inscriptions Management Plan within 18 months of the commencement date. The plan shall be reviewed by the Heritage Advisor and submitted to DEC and the Heritage Council for approval.</p> <p>The plan will cover the engravings, inscriptions, pit cover engravings and wall inscriptions together</p>	Operation	Joint	<p>An Inscription Management Plan was prepared as Appendix C of the Heritage Landscape Management Plan (May 2006).</p> <p>https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>with options for managing public access such as fencing and re-alignment of the lower walkway from the Hospital to Wharf Precincts. The plan shall:</p> <ul style="list-style-type: none"> a) provide a brief description of the location, significance and condition of all engravings and inscriptions within the site; b) identify the need for further recording or documentation of engravings and inscriptions; c) outline objectives and strategies for the management of the engravings and inscriptions. In identifying management options, an assessment of potential environmental impacts of works must be undertaken and incorporated into the document. At a minimum, this must address all works requiring direct contact with the surface of inscriptions and engravings, such as cleaning, graffiti removal, taking of moulds and repainting; d) provide a prioritised schedule of works, including conservation works and a maintenance program, as required, to be incorporated into the Conservation Works Program (condition 78); and e) develop an on-going monitoring program to assess the condition of engravings and inscriptions. 			<p>documents/quarantine-station-heritage-landscape-management-plan.pdf?la=en&hash=AEB5B9F24B52496A4D0E4D297D0A8A7B2C9925C0</p>	
96	The co-proponents shall undertake a review of the Inscriptions Management Plan every five years	Operation	Joint	A review of this plan has not been undertaken.	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	after the commencement date for the duration of the activity. The review shall be undertaken with advice from relevant specialists. On the basis of the review the co-proponents shall, as necessary, prepare a revised Inscriptions Management Plan to be submitted to the DEC and the Heritage Council for approval.				
97	No works shall be undertaken on, or in respect to the inscriptions or engravings prior to the adoption of the Inscriptions Management Plan. Any interim arrangements to manage access to the inscriptions for interpretive purposes must be approved by the DEC and the Heritage Council.	Operation	Joint	An Inscription Management Plan was prepared as Appendix C of the Heritage Landscape Management Plan (May 2006). The Plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife Division on 15 September 2006 and Reece McDougall, Executive Director, Heritage Office on 15 September 2006. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-heritage-landscape-management-plan.pdf?la=en&hash=AEB5B9F24B52496A4D0E4D297D0A8A7B2C9925C0 .	Compliant
98	All conservation works on the engravings and inscriptions shall be undertaken by an appropriately qualified and experienced conservation specialist. For the rock engravings, this means a qualified and experienced rock art or stone conservator	Operation	Joint	Works have not been completed. The stone mason recommended by the Heritage Council has not been willing to undertake the works and the Heritage Council have not approved the works to	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				be undertaken by the University of Sydney.	
Internal Fitout					
99	<p>The co-proponents shall engage a suitably qualified and experienced person to prepare a site wide plan for internal building fitout within 12 months of the commencement date. The plan shall be reviewed by the Heritage Advisor and submitted to DEC and the Heritage Council for approval. All internal fittings installed across the site must be consistent with the adopted plan.</p> <p>The Plan shall:</p> <ul style="list-style-type: none"> a) outline the specifications and style of all new plumbing, telecommunication and electrical fittings, and floor coverings to be installed across the site. It must include taps, spouts, shower heads, basins, baths, toilets, electrical fittings, carpets and floor tiling, etc, and demonstrate consistency with the relevant policies of the DACMP; and b) outline an approach to sampling of bathroom and toilet fitouts across the site from the 1958-62 period, taking into account the relevant policies of the DACMP. 	Operation	Joint	An Internal Fit Out Plan was prepared in 2005 by Paul Davies Architects Pty Ltd and Cate Young Design. The plan was approved by the Heritage Office on 13 June 2005 and NPWS on 25 January 2006.	Compliant
Archaeology					
99A	a) An Excavation Permit must be obtained before the commencement on site of any works involving potential disturbance of relics. An archaeologist (Excavation	Operation	Joint	No excavation was undertaken during the reporting period that involved the potential disturbance of any relics.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>Director) approved by the Heritage Council must be appointed to undertake all archaeological work.</p> <p>b) The research design outlined in the Quarantine Station Detailed Area Conservation Management Plan (QSDACMP) must form the basis for interpretation of archaeological deposits and relics.</p> <p>c) Provision must be made in a public area of the Quarantine Station site to display relics or other historical or research material relevant to the historical development of the site. This display must be integrated with the Interpretation Plan.</p> <p>d) Should substantial intact archaeological deposits or features not identified in the Archaeological Assessment be discovered, work must cease in the affected area(s) and the Heritage Office contacted for advice. Additional assessment and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery.</p> <p>e) The archaeologist must remain present during the course of all excavation works in the archaeologically sensitive areas of the proposed development.</p> <p>f) The archaeologist must be allowed access to archaeological deposits at all times during mechanical excavation and mechanical excavation must cease at the</p>				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>request of the archaeologist, to allow for investigation of archaeological remains.</p> <p>g) Opportunities for public visitation to the site will be provided during the program of archaeological works and, where appropriate, community and student volunteers will be invited to participate in field work.</p> <p>h) The excavation permit will be valid only while the approved excavation is being carried out under the direction of the nominated Excavation Director</p> <p>i) The Excavation Director must carry out the excavation in accordance with the approved research design and methodology. Any substantial deviations from the approved research design (including extent and techniques of excavations) must be approved by the Director, Heritage Office.</p> <p>j) The Excavation Director must take adequate steps to record relics, structures and features discovered on the site during the excavation in accordance with current best practice guidelines and the approved research design.</p> <p>k) The co-proponents must endeavour to ensure that the unexcavated artefacts, structures and features are not subject to deterioration, damage or destruction.</p>				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>l) The co-proponents shall be responsible for the safe-keeping of all relics recovered from the site.</p> <p>m) The Excavation Director shall be responsible for ensuring that the artefacts are cleaned, stabilised, identified, labelled, catalogued and stored in a way that allows them to be retrieved according to both type and provenance.</p> <p>n) The Heritage Council and the Heritage Office reserve the right to inspect the site and records at all times and access any relics recovered from the site.</p> <p>o) The co-proponents shall prepare a final report on the excavation, to publication standard, within one year of the conclusion of the project unless an extension of time is approved by the Heritage Council. Two copies of this report must be submitted to the Heritage Office. A further copy must be retained on site as part of the interpretive collection.</p> <p>p) The final report shall include:</p> <ul style="list-style-type: none"> • an executive summary; • due credit on the title page to the co-proponents paying for the excavation; • an accurate site location and site plan; • historical research, references, and bibliography; 				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> detailed information on the excavation including the aim, the context for the excavation, procedures, analysis, treatment of artefacts (cleaning, conserving, sorting, cataloguing, labelling, scale drawings, photographs, repository); nominated repository for the items; detailed response to research questions; and details of how this information about this excavation has been publicly disseminated. <p>q) Should any Aboriginal relics be uncovered, or excavation or disturbance of the area occur, work is to stop immediately and the National Parks and Wildlife Service is to be informed in accordance with the NPW Act 1974.</p>				
INTERPRETATION					
Interpretation Plan					
100	Prior to the commencement of any new interpretive activities or educational tours on the site, the co-proponents shall submit a final Interpretation Plan to the DEC and the Heritage Council for approval. The Interpretation Plan must be prepared by a suitably qualified and experienced interpretive planner in accordance with the policies and objectives outlined in the QSCMP and DACMP. The plan must detail the	Operation	Mawland	The Interpretation plan was prepared and approved by DEC in 2005 for the site. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-interpretation-	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>approach to presenting the significance of the place and address the following matters:</p> <ul style="list-style-type: none"> a) the interpretation objectives and principles for the site and the proposal; b) a targeted analysis of the significance of the place and the primary and secondary interpretation themes and messages for the site; c) identify the key target audiences for interpretation; d) identify the preferred options for delivery of interpretive programs (eg. signage, guided tours, publications, Internet, etc); and e) detail methods for monitoring and evaluating the implementation of the Plan. 			<p>plan.pdf?la=en&hash=B1E2B03F63BA0EA6A24389D302B447AF7EF645E1</p>	
101	<p>The Interpretation Plan shall also address the following site-specific matters:</p> <ul style="list-style-type: none"> a) the provision of interpretive material in the proposed visitor centre (Buildings A14-17) that allows all visitors to the site to gain an understanding of the context, significance and history of the Quarantine Station; b) opportunities for the establishment of theme museums or displays across the Quarantine Station site; c) interpretation of the full length of the former Funicular route; d) interpretation of Buildings P17, A18 ,A24 and S6; 	Operation	Joint	<p>The Interpretation plan addresses and includes the site specific matters as required under this condition.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> e) interpretation of earlier landscape conditions (refer condition 90); and f) controlled tour access to the internal areas of accommodation buildings. This includes access to the Dining Room area in Building P5 when this room is not otherwise in use for function-based dining; 				
102	All interpretive activities on the Quarantine Station shall be undertaken in accordance with the approved Interpretation Plan.	Operation	Joint	All activities were undertaken in accordance with the Interpretation Plan.	Compliant
103	<p>The co-proponents shall undertake a review of the Interpretation Plan every five years after the commencement date for the duration of the activity. The review shall be undertaken by a suitably qualified and experienced interpretive planner, in consultation with the Heritage Council. The review shall include, but not be limited to:</p> <ul style="list-style-type: none"> a) the range of interpretive programs being offered at the Quarantine Station. This shall include a review of the content, methods of delivery and consideration of contemporary best practice in interpretation; b) consider relevant results of the visitor monitoring program and adaptive management responses; c) consider the provisions of any current endorsed conservation management plan for the site; and 	Operation	Joint	Next review to be undertaken in 2022.	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>d) provide recommendations for any revisions to the Interpretation Plan.</p> <p>On the basis of the review the co-proponents shall, as necessary, prepare a revised Interpretation Plan to be submitted to the DEC for approval.</p>				
INFRASTRUCTURE					
Further Approvals					
104	<p>A separate application and approval under Part 5 of the EP&A Act 1979 and other relevant legislation will be required for any amplification of the existing water supply and sewerage system. This does not include on-site works identified for the upgrading of the fire hydrant system or the installation of water tanks in the area adjoining the Lower Reservoir.</p>	Operation	Mawland	No applications have been made under Part 5 of the EP&A Act 1979 during this reporting period.	Not Triggered
Infrastructure Control Plan					
105	<p>The co-proponents shall prepare a site-wide Infrastructure Control Plan to be submitted within 12 months of the commencement date. The plan shall be prepared in consultation with NSW Fisheries, Environment Protection Authority, Sydney Water, Energy Australia and other relevant authorities. With the exception of the matters detailed in condition 106) c), the plan shall be reviewed by the Heritage Advisor and submitted to DEC and the Heritage Council for approval.</p>	Operation	Mawland	The Infrastructure Control Plan was approved on 05 November 2008 by Sally Barnes (Deputy Director General Head – National Parks and Wildlife).	Compliant
106	<p>The plan shall address, but not be limited to, the following:</p>	Operation	Joint	The Infrastructure Control Plan was approved on 05 November 2008 by	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> a) an assessment of the location, current capacity and condition of the water supply and sewerage system; b) an assessment of the current condition of the internal roads; c) minimum design standards for internal roads, including the location and design principles for all proposed road infrastructure, including road surfaces, edges, speed humps and signs. These shall take into account all relevant industry standards and codes, as well as the historic heritage value of the roads. d) Notwithstanding the provisions of condition 105) or condition 112), within 6 months of the commencement date the co-proponents shall submit for approval of the DEC sufficient information regarding the minimum design standards to enable compliance with conditions 145)-146) and 148); e) provide a scaled map and GIS data layer (condition 66) showing the location and route of all water, sewerage, stormwater, power, telecommunications, roads and any related infrastructure across the site, both existing and disused services. It shall identify materials and likely period of installation, and be linked to a list of upgrade specifications for each infrastructure component; f) provide a schedule and map indicating the location of all significant services to be 			<p>Sally Barnes (Deputy Director General Head – National Parks and Wildlife) and includes the information required of this condition.</p>	

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>retained and conserved, as per the requirements of the DACMP;</p> <p>g) a schedule of repair and maintenance works and new works proposed including a prioritisation of works and timeframes. Priority should be given to the identification of any works needed to upgrade or replace the fire hydrant system. The principle of common trenching of services should be adopted for all new works proposed;</p> <p>h) identify strategies to improve stormwater management, including:</p> <ul style="list-style-type: none"> • opportunities for reducing stormwater discharge from the site, including options for redirecting stormwater discharge away from Quarantine Beach • an assessment of works required to secure the stormwater outlet at Quarantine Beach to minimise public safety risk • assess the need to install a flow dissipator into the stormwater outlet at Quarantine Beach. Any design shall must not inhibit fish passage • assess the need to install gross pollutant traps at or near stormwater discharge outlet/s and car-parks; • a monitoring program to allow an on-going assessment of the consumption and capacity of the water supply and 				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>sewerage systems. This shall include the identification of triggers for system upgrades; and</p> <p>i) an emergency strategy for utility infrastructure failures or malfunctions, to include sewerage system overloads and overflows, power failures and water supply.</p>				
107	All infrastructure maintenance and upgrade works, excluding minor maintenance repairs or works (as defined) and priority traffic calming measures (conditions 145)-146), shall be undertaken in accordance with the adopted Infrastructure Control Plan.	Operation	Joint	All infrastructure and maintenance works are undertaken in accordance with the Infrastructure Control Plan (ICP).	Compliant
108	All investigative techniques employed in preparing the Infrastructure Control Plan shall be non-destructive and non-polluting (as defined) and comply with the relevant industry guidelines and standards. Approval from the DEC and other relevant authorities will be required for any techniques that will or may have an environmental impact.	Operation	Joint	All techniques employed in the preparation of the ICP were non-destructive and non-polluting and comply with the relevant industry guidelines and standards.	Compliant
109	The co-proponents shall undertake a review of the Infrastructure Control Plan every five years after the commencement date for the duration of the activity. The review shall be undertaken in consultation with those agencies listed in condition 105) above, relevant public authorities and infrastructure providers. On the basis of the review the co-proponents shall, as necessary, prepare a revised Infrastructure Control Plan to be submitted to the DEC for approval.	Operation	Joint	No review has been undertaken. Next review to be undertaken in 2022. This will include updating the plan to include a digital copy for future reference.	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
Work Sites					
110	Any works requiring the excavation or trenching of areas shall be staged so that the extent of excavation or trenching does not exceed 50 metres at any one time. Any such works shall also be undertaken in accordance with condition 159).	Operation	Joint	No excavation or trenching works were undertaken during the reporting period.	Not Triggered
Asbestos And Rainwater System					
111	The co-proponents shall prepare and implement a sampling and replacement strategy for the AC rainwater system and AC vinyl tiles on the site in accordance with the policies outlined in the DACMP. The strategy shall be reviewed by the Heritage Advisor and submitted to the DEC and the Heritage Council for approval. The strategy shall include a prioritised schedule of replacement works, to be incorporated into the Conservation Works Program (condition 78).	Operation	Joint	There is no replacement strategy for the AC Rainwater System and AC Vinyl Tiles at this stage as treatment and the items remaining in situ has shown to be the safest option. An asbestos register is maintained for the Q Station site and updated regularly.	Compliant
Outdoor Visitor Infrastructure					
112	The co-proponents shall prepare a site-wide-plan for outdoor visitor infrastructure prior to the installation of any outdoor visitor infrastructure. The plan shall be reviewed by the Heritage Advisor and submitted to the DEC and the Heritage Council for approval. The plan shall demonstrate consistency with other relevant site-wide plans such as the Interpretation Plan and Heritage Landscape Master Plan, and address, but not be limited to: a) the proposed location, design and materials of the external lighting system,	Operation	Joint	The Visitor Management Plan was prepared by Simon McArthur, General Manager, Mawland Hotel Management and Q Station in 2005. The plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife Division on 13 July 2005 and Robert Black, DIPNR on 10 August 2005. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>to include any emergency lighting. Lighting should have regard to the following principles:</p> <ul style="list-style-type: none"> • the avoidance of light spill in areas of high-use Long-nosed Bandicoot foraging habitat (as identified in Illustration 15 of the DACMP or the revised habitat assessment – condition 165) and Little Penguin habitat • the use of lights in the red-orange spectral range in the Wharf Precinct • minimising light spill across the site and outside of the site <p>b) the proposed location and design of waste receptacles, including fauna-proof bins;</p> <p>c) the proposed location, design and materials for signage, to include proposed text, style, graphics, and colours;</p> <p>d) a consideration of the environmental impacts of the specific locations and methods of installation for each element of outdoor visitor infrastructure; and</p> <p>e) compliance with relevant industry guidelines, codes, Australian Standards and the Building Code of Australia (BCA).</p>			<p><u>management-other-documents/quarantine-station-visitor--management-plan.pdf?la=en&hash=E5077BAB159853EC5CA8B7DB6C7D2E7336FECE57</u></p>	
113	<p>Prior to the commencement of any works associated with the installation of outdoor lighting, a sample of the proposed lighting of both general outdoor areas and any emergency lighting must</p>	Operation	Joint	<p>No new lights were installed during this reporting period. Broken lights were replaced like for like. Where this was not possible a light</p>	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	be completed in consultation with the Heritage Council and approved by the DEC.			nominated by the contractor to be similar to the existing was installed.	
114	The use of laser or neon lighting (with the exception of emergency lighting), food or beverage vending machines, and commercial advertising signage on the site, is not permitted.	Operation	Joint	Two vending machines were installed in 2019 at the request of guests for snacks and drinks when these services are not available on site. No additional vending machines have been installed during the reporting period. The vending machines will be removed from site in Autumn 2022	Non - Compliant
115	All outdoor visitor infrastructure works shall be undertaken in accordance with the adopted plan and an approved Precinct Plan.	Operation	Joint	There was no new work undertaken during the reporting period. Only maintenance works were carried out.	Not Triggered
SECURITY					
Security System					
116	The co-proponents shall prepare a whole-of-site Security Plan in consultation with the NSW Police, to be submitted within 12 months of the commencement date. The plan shall be reviewed by the Heritage Advisor and submitted to the DEC for approval. Implementation of the plan must commence within three months of the date of its approval. The plan shall address, but not be limited to: a) the DACMP subsidiary policies 16.7.1 – 17.7.6 with respect to locks and hardware across the site; b) a master-key system across the site that enables a consistent approach to keying;	Operation	Joint	The visitor Management Plan includes a Security Plan (Section 6). The Visitor Management Plan was prepared by Simon McArthur, General Manager, Mawland Hotel Management and Q Station in 2005. The plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife Division on 13 July 2005 and Robert Black, DIPNR on 10 August 2005. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>c) a monitored alarm system for buildings containing collections, that are periodically used for interpretation or that are remote and difficult to monitor, and security measures for all other buildings (eg. those in daily use);</p> <p>d) enforcement powers under the NPW Act and protocols for dealing with breaches of the Act;</p> <p>e) reporting structure and protocols for dealing with security incidents, to include communication protocols with DEC and the NSW Police; and</p> <p>f) the need for security personnel on site.</p>			<p>protected-areas/Parks-plans-of-management-other-documents/quarantine-station-visitor-management-plan.pdf?la=en&hash=E5077BAB159853EC5CA8B7DB6C7D2E7336FECE57</p>	
117	The co-proponents shall undertake a review of the Security Plan every five years after the commencement date for the duration of the activity. The review shall be undertaken in consultation with the NSW Police On the basis of the review the co-proponents shall, as necessary, prepare a revised Security Plan to be submitted to the DEC for approval.	Operation	Joint	No review has been undertaken. Next review to be undertaken in 2022.	Non - Compliant
TRANSPORT AND ACCESS					
Access Strategy					
118	The co-proponents shall prepare and submit a final Access Strategy for the site to the DEC and DIPNR for approval within 6 months of the commencement date. The strategy shall be prepared in consultation with the Heritage Council, Manly Council and the State Transit	Operation	Joint	The Visitor Management Plan includes details on access to the site (Sections 2, 3, 4 and 5).	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>Authority. Once approved, the co-proponents shall implement the Access Strategy.</p> <p>The final Access Strategy must address but not be limited to:</p> <ul style="list-style-type: none"> a) all available means of access to the site, including details of the ferry service and shuttle bus operation (including operating times, pick up/set down points, etc) (conditions 138)-142) and 155); b) access provisions within the site, including constraints and management strategies, details of service vehicles, bus and taxi access. Specific consideration shall also be given to access arrangements for the Second Cemetery (condition 124); c) access provisions to the wharf, including the arrival and departure routes for the ferry. These routes shall generally be in accordance with Figure 11.2 in the EIS. The co-proponents shall consult with NSW Fisheries regarding this matter; d) measures to promote public transport and reduce private vehicle access to the site; e) measures to be implemented to prevent additional visitors entering the site once visitor capacities, as specified in condition 120), have been reached; f) measures to ensure that a reasonable proportion of visitors in any one day include day visitors that arrived without pre-booking a tour or other activity; 			<p>The Visitor Management Plan was prepared by Simon McArthur, General Manager, Mawland Hotel Management and Q Station in 2005. The plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife Division on 13 July 2005 and Robert Black, DIPNR on 10 August 2005.</p> <p>https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-visitor-management-plan.pdf?la=en&hash=E5077BAB159853EC5CA8B7DB6C7D2E7336FECE57</p>	

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> g) measures to provide for disabled, concession and non-English speaking access to the site and to enable participation in site activities; h) the provision of disabled access to every precinct. This component of the Access Strategy shall be prepared in accordance with the requirements of the Disability Discrimination Act and any guidelines or standards established under the Act; and i) the visitor monitoring program (condition 156). 				
119	The co-proponents shall undertake a review of the Access Strategy every five years after the commencement date for the duration of the activity. The review shall be undertaken in consultation with the Heritage Council, Manly Council and the State Transit Authority. On the basis of the review the co-proponents shall, as necessary, prepare a revised Access Strategy to be submitted to the DEC and DIPNR for approval.	Operation	Joint	No review has been undertaken. Next review to be undertaken in 2022.	Non - Compliant
Site Visitor Capacity					
120	<p>Visitation to the site and site visitor numbers must be in accordance with the following:</p> <ul style="list-style-type: none"> a) the optimum visitor capacity of the site is 315 people (including staff) at any one time. The co-proponents shall take all reasonable steps to ensure that the optimum visitor capacity (or less) is met for a majority of the time during which the site is publicly accessible; 	Operation	Joint	<p>Visitation records are held at the Front Office by cumulation of all events on site for any given day and guests recorded on site.</p> <p>The Sales / Event Department comply with this condition when booking in events taking advice from the NPWS Ranger when necessary. There were</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>b) the maximum visitor capacity may be increased to 600 people (including staff) for up to 6 hours on up to 20 occasions per calendar year. Arrival and departure from these events must be distributed throughout the day period and these events must be held in accordance with the requirements of term 128 b) of the approval;</p> <p>c) evening and night time events and functions are to avoid high value bandicoot foraging habitat. Identification of high value bandicoot foraging habitat is to be determined by NPWS; and</p> <p>d) access to the Wharf and Quarantine Beach is to be prohibited during evening and night time events and functions. This does not preclude normal operations undertaken as part of the restaurant in building A6, including the outdoor eating area.</p>			<p>no instances in the reporting year where capacity was exceeded or increased to 600 people.</p> <p>Access to the Beach and Wharf is restricted by closure of the beach and wharf gates at sunset. The key is held by the General Manager and the Duty Manager in case of emergency.</p>	
120A	<p>Site Travel and Access Plan must be prepared by a suitably qualified consultant, to the satisfaction of the Secretary, that details management measures to be implemented, at a minimum, for at least 5 event sizes, including those presented in Term 120, and is to include detail of the following:</p> <p>a) mode share targets and measures of how these will be implemented, monitored and achieved including details of the financial and human resources required to implement the targets;</p>	Operation	Joint	<p>The Visitor Management Plan includes details on site travel and access to the site (Sections 2, 3, 4 and 5).</p> <p>The Visitor Management Plan was prepared by Simon McArthur, General Manager, Mawland Hotel Management and Q Station in 2005. The plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>b) b) anticipated number and types of vehicles arriving at the site and car parking provisions for both staff and visitors;</p> <p>c) the management of the site car park (i.e. car park wardens/ traffic controllers) and management measures to ensure site visitors do not impact upon the parking provisions of North Head;</p> <p>d) detail of arrival and departure times and detail of how impacts of this upon existing traffic flows at North Head will be mitigated; and</p> <p>e) a map clearly delineating site access and parking provisions for various sized events of up to 600 people.</p> <p>The co-proponents must not hold have more than 450 people on site until the Site Travel and Access Plan is approved by the Secretary.</p> <p>The Site Travel and Access Plan must be implemented by the co-proponents for the duration of the Lease agreement.</p>			<p>Division on 13 July 2005 and Robert Black, DIPNR on 10 August 2005.</p> <p>https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-visitor--management-plan.pdf?la=en&hash=E5077BAB159853EC5CA8B7DB6C7D2E7336FECE57</p>	
121	<p>Any proposal to increase the site capacity or the optimum visitor capacity after this time must be publicly exhibited and submitted for the approval of the DEC and DIPNR. The proposal must be accompanied by a clear assessment of the potential impacts of any increase on the significance of the Quarantine Station and justification based on the results of the visitor and site monitoring programs</p>	Operation	Joint	<p>An increase in site capacity was included as part of the proposal for a modification of the Ministers Approval for the site. This has been approved (MP08_0041 MOD 3). The approved capacity is now as per CoPA 120 (above).</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
Pricing					
122	The co-proponents shall ensure that all services and facilities at the site are made available at varying price-scales, commensurate with the standard of service to be provided, to facilitate choice and encourage equitable community access to the site. This shall include, but not be limited to, accommodation, tours, interpretive activities and educational facilities.	Operation	Joint	A range of facilities and prices are available on the Q Station website https://www.qstation.com.au/room-options.html https://www.qstation.com.au/conference-packages.html	Compliant
123	Concessional pricing shall be provided for all tours and interpretive activities at the site.	Operation	Joint	Concession rates are available for all tours https://www.qstation.com.au/ghost-tours.html	Compliant
Access To The Second Cemetery					
124	Based on the options identified in the Heritage Landscape Master Plan [condition 92) i)] suitable arrangements for providing managed access to the Second Cemetery shall be provided within 18 months of the commencement date. If measures for managed access have not been implemented after 18 months regular public access to this area shall cease until such arrangements are in place. In the meantime, access to the Second Cemetery shall be limited to one tour group of up to 25 persons at any one time. If any adverse impacts are identified prior to the access system being implemented, measures to reduce such impacts shall be introduced following consultation with the DEC.	Operation	Joint	The Heritage Landscape Management Plan was prepared by Thompson Berrill Landscape Design Pty Ltd in August 2005. The plan was approved by Simon McArthur, General Manager Mawland Hotel Management and Q Station in May 2006, Tony Fleming, Deputy Director-General Parks and Wildlife Division on behalf of DEC on 15/09/2006 and Reece McDougall, Executive Director Heritage Office on 15 September /2006. Section 5.5.3.12 details management of access to the Second Cemetery.	Compliant
Special Events, Functions And Free Open Days					

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
125	The number of special events or activities requiring overflow parking shall be limited to 6 per year. Special events include uses (eg. re-enactments, festivals, etc) and public open days that are not part of the normal operations (eg. tours) and extend beyond those function, conference, accommodation and restaurant uses identified in the PAR.	Operation	Joint	There were no large events that occurred during the reporting period that required the use of overflow parking due to the COVID pandemic.	Not Triggered
126	At least two free public open days are to be held at the site every year. The open days shall be held on either a weekend or public holiday. They shall include opportunities for people to participate in organised tours and interpretive activities that promote an understanding of the site’s values, at no cost. Tours and activities may also be provided that outline the methods of conservation and management being used at the site, also at no cost. A booking system may be used to ensure that the site capacity limits in condition 120) are not exceeded.	Operation	Joint	During the reporting period, Open Days were cancelled due to the COVID pandemic. DPIE were notified of this at the time. No further requirements of Q Station were necessary.	Non - Complaint
127	Special event and public open day proposals are to be submitted to the DEC for approval. The co-proponents shall also consult with the Quarantine Station Community Committee and Manly Council prior to submission to the DEC. Proposals may only proceed if the DEC is satisfied that: <ul style="list-style-type: none"> a) sufficient traffic and car-parking and pedestrian management measures will be provided (both on and off-site); b) noise and light impacts will be minimised; and 	Operation	Joint	Planned Open days were cancelled as a result of the pandemic. With the approval of DPIE, the 2020 Open Days were held as part of the <i>Les Sculptures Refusees</i> exhibition (15 October – 17 November 2020) on site, with all activities outdoor due to the pandemic. Unfortunately, the weather was inclement on these days, and the site was evacuated on 17 October 2020 due	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>c) that the proposal will promote or enhance the interpretation of the place.</p> <p>The DEC may direct the co-proponents to undertake all practicable steps to address the above matters and to ensure that the minimum number of public open days are provided in accordance with condition 126).</p>			to the NPWS hazard reduction burn breaking containment on North Head.	
128	<p>Any special events or functions held after sunset shall:</p> <p>a) if they are to be held outdoors, be located away from the areas identified as high-use Long-nosed Bandicoot foraging habitat in the DACMP (Illustration 15) or the revised habitat assessment (condition 165); or</p> <p>b) if they are to be held in the Wharf Precinct, must be held indoors This does not preclude normal operations undertaken as part of the restaurant in building A6, including the outdoor eating area.</p>	Operation	Joint	All events held after sunset were held in P27, the Boilerhouse Restaurant and A20. All events after sunset were held indoors.	Compliant
Night Tours					
129	<p>For the first three years after the commencement date the maximum number of visitors on night tours shall not exceed 100 persons and 3 tour groups on the site at any one time. After this time any proposal to increase night tour capacities must be submitted for the approval of the DEC. The proposal must be accompanied by a clear assessment of the potential impacts of any increase on the significance of the Quarantine Station and justification based on the results of</p>	Operation	Joint	No change to capacity of tour groups required. Capacity is rarely met for tours.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	the visitor and site monitoring programs (particularly monitoring Long-nosed Bandicoot foraging activity).				
130	Night tours are to be undertaken on formed roads, paths or the Funicular stairway, unless part of an approved special interest tour.	Operation	Joint	No night tours are conducted on any part of the site except formed roads and paths.	Compliant
131	Unless approved as part of a special interest tour, measures are to be taken to ensure that night tour patrons do not use spotlights or flash-photography in outdoor areas (with the exception of the lanterns or torches used as part of the ghost tours).	Operation	Joint	A full safety briefing is given at the start of each tour. This covers personal safety, photography, directions and alcohol testing of patrons on night time tours.	Compliant
132	At the conclusion of any night tours on site, arrangements are to be made to transport visitors in an orderly manner from the conclusion point of the tour to the: <ul style="list-style-type: none"> a) accommodation area (for those visitors staying on site overnight); b) relevant car park (for those visitors departing by car or bus); or c) to the Wharf Precinct (for access to the ferry). This may include, but is not limited to, the use of a shuttle bus or groups led by a guide.	Operation	Joint	All night time tours end at the Wharf Precinct where patrons are then taken to the carpark or public bus stop in a shuttle bus, or at the Reception area in CP1 (off site). No ferries visit the Q Station after dark.	Compliant
133	Notwithstanding the provisions of condition 129), the DEC may at any time direct that night tour numbers are reduced, and/or other appropriate measures implemented, if it is satisfied on the basis of monitoring programs that night tours are having adverse impacts on the Long-nosed Bandicoot population. The co-proponents shall	Operation	Joint	No directions were made by NPWS during the reporting period.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	comply with any such directions issued by the DEC.				
Special Interest Tours					
134	No special interest tours may be run without the approval of the DEC (this may be undertaken as part an application for a tour operators license under the NPW Act). This will include tours to Store Beach, Cannae Point or other areas of the site (including bushland areas, rocky foreshores, Old Mans Hat and the cemeteries). This excludes the four main tours proposed by the co-proponents in the PAS. In seeking approval for special interest tours, the following information shall be provided to DEC: <ul style="list-style-type: none"> a) proposed frequency and size of tours; b) compliance with the Access Strategy and Interpretation Plan (conditions 118) 100); c) details of the tour activities and route, including buildings and other features to be visited; and d) a statement identifying and addressing any potential environmental issues that may arise, including management of visitor safety, and measures to address these. 	Operation	Joint	No Special Interest tours were run during the reporting period.	Not Triggered
135	The co-proponents shall ensure that any approved special interest tours are subject to a specific monitoring and review program to enable assessment of potential visitor impacts.	Operation	Mawland	No Special Interest tours were run during the reporting period.	Not Triggered
School And Educational Programs					

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
136	Provision shall be made for school groups to have access to the site without the need to stay overnight.	Operation	Joint	School groups could book tours without the requirement for overnight accommodation however, there were no school excursions to Q Station in 2020 due to the State Government policy to restrict excursions during the COVID pandemic.	Compliant
137	Overnight educational programs must ensure a high-level of student supervision to prevent uncontrolled night activities or access across the site. Students must also be supervised during any periods of student “free-time” during the day and confined to distinct areas of the site, that is there is to be no general or uncontrolled access across the site.	Operation	Joint	There were no school excursions to Q Station in 2020 due to the State Government policy to restrict excursions during the COVID pandemic.	Compliant
Water-Based Access					
138	The ferry service between Manly and the Quarantine Station site shall: <ul style="list-style-type: none"> a) commence within 6 months of the commencement date or, if this cannot be achieved due to circumstances beyond the reasonable control of the co proponents, within such other time as the DEC may approve; b) generally arrive and depart between the hours of 9:00 am and 11:00 pm respectively; c) be limited to a maximum of one movement per hour, after sunset, between July and February inclusive, to reduce the potential for impacts on the 	Operation	Joint	<p>The ferry service operated to this timetable until the first 2020 COVID pandemic lockdown (March 2020). This service was then cancelled by RMS/NRMA. Discussions continue as to restoration, which is not expected until full border re-opening.</p> <p>An email on 17 May 2021 from Michael Betteridge at NRMA states that <i>“I’d love to say Q Station is a possibility but right now we are struggling on the bigger destinations on weekends – Zoo, Manly and Watsons Bay. We need tourists and we need borders open. To divert Manly – Watsons Bay into Q adds ~8mins</i></p>	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>Little Penguin population. A maximum of 20 movements in one day may occur at other times to encourage water-based access to the site; and</p> <p>d) with the exception of extreme weather events and maintenance periods, be provided on an hourly basis during the peak periods of visitor activity.</p>			<i>which we cannot afford on the timetable we have”.</i>	
139	<p>The co-proponents shall undertake all practicable measures to ensure that:</p> <p>a) within 3 years of the commencement date, the proportion of visitors accessing the site by the ferry is 40% or greater; and</p> <p>b) within 5 years of the commencement date, the proportion of visitors accessing the site by ferry is between 40% - 50% and stays at this level, or greater, for the life of the project.</p>	Operation	Joint	Less than 40% of arrivals use the ferry system. Most guests arrive by car, public bus or walk from Manly. Q Station encourages ferry use as much as possible.	Non - Compliant
140	<p>The wharf facility shall be used in accordance with the following provisions:</p> <p>a) the wharf shall only to be used for the casual berthing of the vessel “The Jenner”, or an appropriate vessel of similar dimensions and loadings. Assistance must be provided to persons with mobility limitations;</p> <p>b) the ferry must always dock at the head of the wharf (ie. The north-western end) until such time as any future alterations to the wharf have been assessed and approved by the relevant authorities;</p>	Operation	Joint	<p>The lease document between DECCW and Maritime (1 December 1999) sets out the requirements for the use of the Q Station Wharf.</p> <p>Section 27 states: “Mooring of Vessels – The Lessee will not permanently moor any vessel or permit any vessel to be permanently moored at or adjacent to the Premises.”</p> <p>Note: “The Jenner” sank prior to this reporting period.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> c) the ferry shall not moor at the wharf when not in active use (ie. overnight); d) the ferry shall not moor at the wharf during unsuitable weather events (eg. storms, strong winds, large swells); e) the co-proponents shall ensure that there is no access to the wharf as part of the activity by recreational or commercial vessels until such time as any proposed access arrangements for these vessels have been assessed and approved by the relevant authorities. The wharf shall include signage to indicate that access is prohibited unless authorised by the Waterways Authority and DEC; and. f) There shall be no vessel access on the south-western side of the wharf, parallel to Cannae Point 				
141	<p>Minor variations to the provisions of condition 140), a), b) and c) above may be approved by the Waterways Authority and the DEC, upon receipt of an application from the co-proponents. The application shall address, but not be limited to, safe berthing/mooring arrangements, disabled visitor access, potential impacts on seagrasses (eg. from overshadowing and propeller wash) and Little Penguins.</p> <p>Any significant variations to these conditions, and any variations to condition 140) e), shall (if necessary) require a separate application and approval under Part 5 of the Environmental</p>	Operation	Joint	No variations were made during the reporting period.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>Planning and Assessment Act 1979 and other relevant legislation.</p> <p>The Waterways Authority and DEC shall consult with NSW Fisheries before any variations are approved.</p>				
142	When the ferry is not available for use (due to extreme weather events or maintenance) the co-proponents shall provide a shuttle bus or some other means of public transport between the site and Manly.	Operation	Joint	When the ferry is not in use, a shuttle bus is used for transport unless there is only 1 –2 passengers, in which case Q Station organises a taxi for the guests.	Compliant
Road-Based Access					
Private Vehicle Targets					
143	The co-proponents shall undertake all practicable measures to ensure that within 5 years of the commencement date, the proportion of visitors accessing the site by private vehicle does not exceed 50% and stays at this level, or less, for the life of the project.	Operation	Joint	At least 50% of access by guests is by car or private bus arrival. This is calculated by reference to the number of cars in the carpark against bookings. All private bus arrivals must be booked through the Q Station sales office. Q Station suggests water arrival to all guests for conferences and functions.	Non - compliant
Management Of Vehicle Access					
144	A 15 km/h speed limit for all vehicles within the site shall be imposed within 3 months of the commencement date.	Operation	Joint	A 15km speed limit is imposed on site which is indicated on site with 15km speed limit signs.	Compliant
145	As a priority measure, traffic calming devices shall be provided within 6 months of the commencement date along the following roads: <ul style="list-style-type: none"> a) from A26 to CP5; b) from S12 to S5; and 	Operation	Joint	The traffic calming measures have been installed in accordance with this condition.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>c) from A26 to A23 (no traffic calming devices are required between S15 and P13).</p>				
146	<p>The devices shall be in accordance with the endorsed design standards [condition 106) c)], spaced at appropriate distances apart and sign-</p>	Operation	Joint	<p>The traffic calming measures have been installed in accordance with this condition.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	posted with the speed limit (15 km/h) and Long-nosed Bandicoot warning/awareness signs			See photos above (Condition 145)	
147	Vehicle access to the site is to be managed by an entrance boom gate that only opens when triggered by staff or contractors.	Operation	Joint	A NPWS work certificate was issued on 1 June 2009 for the car park boom gate.	Compliant
148	Barriers delineating the extent of vehicle access with the site are to be provided within 6 months of the commencement date in accordance with Figure 2.1 of the PAS. In accordance with condition 151) c) within 10 years of the commencement date, the barriers on the road below S2, between S2 and A23 and adjacent to A1 must be replaced with a barrier adjacent to A18 (or at a suitable location east of A18).	Operation	Joint	A boom gate has been installed in place of the barriers under approval from NPWS. A NPWS work certificate was issued on 1 June 2009 for the car park boom gate	Compliant
149	There shall be no vehicle access beyond the barriers described in condition 147) except for: a) vehicles transporting disabled visitors; b) vehicles driven by representatives of the co-proponents, service providers and contractors; c) visitors and guests being transported by shuttle-bus, people-mover or some other form of low-scale public transport (not large buses or coaches); and d) emergency vehicles.	Operation	Joint	There is no access to the site past the boom gate except in accordance with this condition.	Compliant
150	Bus and coach access to the site shall be as follows (see also condition 65(b) and 151): a) coaches shall not enter the site beyond CP1;	Operation	Joint	There is no access to the site past the boom gate except in accordance with this condition.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>b) until CP1 is completed buses may enter the site and use the loop road from A26 to S12 to S5 and to the temporary bus parking area adjoining A26; and</p> <p>c) after CP1 is completed buses shall also not enter the site beyond CP1.</p>				
Vehicle Parking					
151	<p>On-site car parking shall occur as follows:</p> <p>a) CP1 – may provide up to 120 vehicle spaces, constructed in two stages as proposed in the PAS, to be used by day visitors, overnight guests and staff (if necessary);</p> <p>b) CP5 – may provide up to 56 vehicle spaces, constructed in two stages as proposed in the PAS, to be used by staff and overnight guests but no day visitors (including conference or function participants);</p> <p>c) existing administration car park (opposite S1) – may provide short-stay parking for accommodation check-in on the following basis:</p> <ul style="list-style-type: none"> accommodation guest use of this parking area shall be gradually decreased between 5 and 10 years of the commencement date, so that within 7.5 years of the commencement date such usage has decreased by 50% (this excludes 	Operation	Joint	CP1 provides space for 120 vehicles. CP5 and the existing administration car park do not operate due to reception being moved to CP1. NB: Only operation and disability vehicles are now allowed on the site.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>taxis, delivery and operations vehicles);</p> <ul style="list-style-type: none"> • use of this parking area by accommodation guests shall be completely phased out within 10 years of the commencement date, to comply with the long-term carefree boundaries of the DACMP; and • during the above periods the co-proponents shall examine and test alternative check-in parking arrangements, including the option of using the area shown as “Potential Drop Off and Parking” in • Illustration 20 of the DACMP; <p>d) bus and coach parking – the following arrangements shall apply:</p> <ul style="list-style-type: none"> • until CP1 is completed buses may only park in the bus parking area adjoining A26, as shown in Figure 2.1 of the PAS; • until CP1 is completed coaches may only drop-off visitors at the entrance to the site and park at an off-site location (if necessary); • once CP1 is completed, buses and coaches may drop off visitors at CP1 and either park in CP1 or outside the site (if necessary); and 				

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> once CP1 is completed, there shall be no bus or coach parking elsewhere on the site. 				
152	<p>Overflow parking may be provided:</p> <p>a) as part of up to 6 approved special events per year (condition125); and</p> <p>b) during the physical construction stages for the new car parks (ie. during Stages 1 or 2 of CP1 or CP5). Once a stage is complete, no further overflow parking associated with car park construction may occur until the next stage of construction commences.</p> <p>Total overflow parking at any one time shall be limited to up to 50 vehicles and shall be entirely restricted to formed road surfaces (ie. not grassed areas) between building S14 and the first road junction immediately south-west of the upper reservoir</p>	Operation	Joint	This was not required during the reporting period.	Not Triggered
153	There shall be no vehicle parking outside of the CP1, CP5, administration area car park, or overflow parking, except for short-term parking for service providers, contractors and the like.	Operation	Joint	No vehicles were parked outside of CP1, CP5, Administration area car park or overflow parking during the reporting period.	Compliant
Car-Park Design					
154	<p>The co-proponents shall ensure that car-parks are designed and constructed in accordance with the following design principles:</p> <p>a) designated disabled car parking spaces must be provided onsite in accordance with relevant Australian Standards, the</p>	Operation	Joint	Car parks were all constructed prior to operation commencing at the site. No modifications have been made to their design / construction.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>BCA and to achieve compliance with the Disability Discrimination Act;</p> <p>b) secure parking for at least 10 bicycles, plus parking for motorcycles, shall be provided at CP1 (such parking may also be provided at CP5);</p> <p>c) the internal area of car parks shall be generally devoid of any vegetation (with the exception of existing threatened species or communities) that may harbour or provide a foraging resource for fauna (especially Long-nosed Bandicoots);</p> <p>d) vegetation (using local native species) shall be planted and maintained to screen CP1 and CP5. The vegetation screens shall allow for the movement of fauna;</p> <p>e) car parks shall not be enclosed by fencing that may trap individual fauna i.e gaps of sufficient dimensions to allow passage by bandicoots will be provided between and/or under any barriers;</p> <p>f) sufficient low-level lighting shall be provided in the car parks to allow drivers to detect fauna;</p> <p>g) the eastern boundary of CP5 shall be defined by fencing that prevents vehicle access and discourages human access to the adjoining area of Eastern Suburbs Banksia Scrub; and</p> <p>h) any removal of Eastern Suburbs Banksia Scrub required as part of the construction of CP5 shall be offset by the undertaking</p>			<p>Vegetation maintenance is carried out by Go Gardening and the Q Station Maintenance Team.</p> <p>There is no fencing around the carparks and lighting has not been altered since the original approval.</p> <p>Note NPWS parking spaces have moved location to within CP1 at the Ranger's request for safety of the vehicles.</p>	

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	of habitat regeneration works on an area elsewhere at North Head up to 20 times the size of the area impacted (i.e. approximately 0.3 hectares). Details of the area of ESBS to be affected and the areas proposed for regeneration, including regeneration methods consistent with the Heritage Landscape Master Plan, are to be submitted with the construction works application for CP5.				
Shuttle bus					
155	<p>The co-proponents shall provide a shuttle bus service to transport visitors between the Manly Town Centre and the site (see also condition 65). The shuttle bus shall:</p> <ul style="list-style-type: none"> a) have a minimum capacity of 12 persons per trip; b) be operational within 6 months of the commencement date; c) provide a minimum of 3 trips to and from the site (total 6 trips) per day on weekends and public holidays during peak periods of visitor activity or as approved by the DEC. Preference is also to be given to operation of the shuttle bus service during periods of peak night visitation and activity for the Long-nosed Bandicoot. <p>Full details of the shuttle bus operation shall be included in the Access Strategy (condition 118).</p>	Operation	Joint	<p>A shuttle bus was available within six months of the commencement date.</p> <p>There was minimal uptake by visitors and guests and due to the availability of the public bus route, this shuttle now only runs on an as needs basis.</p>	Compliant
Visitor Monitoring					

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
General					
156	<p>A visitor monitoring program is to be established in accord with Policy AIP 3.2 in the DACMP and submitted for approval as part of the final Access Strategy (condition 118). In addition to the matters specified in AIP 3.2, the program must also make specific provision for the monitoring of:</p> <ul style="list-style-type: none"> a) visitor numbers, capacities and entry details (eg. booked on a tour, accommodation booking, or unbooked day visitor); b) mode of access to the site; c) visitor profiling (to include age, cultural background, language spoken, geographic origin, disability status); d) visitor impacts on the site's values, including both physical impacts (such as measurable damage or wear to fabric, impacts on fauna behaviour, etc) and non-physical impacts (such as amenity); and e) measures taken, or proposed to be undertaken, to minimise private vehicle access. This should include the progress or outcomes of any negotiations with other North Head land managers regarding off-site car-parking. 	Operation	Mawland	<p>Section 5 of the Visitor Management Plan includes details of Visitor Monitoring.</p> <p>The Visitor Management Plan was prepared by Simon McArthur, General Manager, Mawland Hotel Management and Q Station in 2005. The plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife Division on 13 July 2005 and Robert Black, DIPNR on 10 August 2005.</p> <p>https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-visitor-management-plan.pdf?la=en&hash=E5077BAB159853EC5CA8B7DB6C7D2E7336FECE57</p>	Compliant
157	Where the visitor monitoring program identifies adverse impacts associated with the activity the co-proponents must, in consultation with the DEC, identify and implement appropriate management	Operation	Mawland	No adverse impacts identified.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	responses. These may include, but are not limited to, altering any relevant activity, temporarily ceasing specific activities or ceasing some uses altogether if impacts cannot be adequately addressed.				
FLORA, FAUNA AND MARINE ENVIRONMENT					
General					
158	The co-proponents shall engage a person(s) trained in basic fauna and flora identification and in possession of the appropriate licences (eg. for fauna handling) to monitor construction activities for the duration of the work. The functions of that person(s) shall include, but are not limited to: <ul style="list-style-type: none"> a) the inspection of work areas every morning prior to work commencing to allow the identification and relocation of any fauna species present (fauna are to be re-located to the nearest area of suitable habitat within the site); and b) the regular inspection of work areas at other times to ensure no inadvertent impacts to flora and fauna are occurring. The person(s) is to report directly to the Environmental Manager. 	Operation	Mawland	The General Manager Alison Langley is WIRES accredited. During construction works in the reporting period, fauna and flora checks were undertaken by Alison, a NPWS Ranger or the Environment Manager. There were no reported issues during the reporting period.	Compliant
159	Any fencing or barriers to be provided for active work areas shall not limit the general movement of fauna across the site. However, sites of specific potential risk to fauna (e.g. Open excavation) shall include measures to prevent fauna access (e.g. limited fencing or covers) and/or to allow their egress/escape (e.g. earth ramps).	Operation	Joint	There were no active work areas within the reporting period that required fencing or barriers to be erected.	Not Triggered


CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
160	No hollow-bearing trees or threatened flora are to be removed, although limited lopping or trimming may occur with approval from the DEC. Existing Coral trees in the Wharf Precinct shall be the subject of regular inspection and maintenance by a suitably qualified person to ensure safe access to this area for site visitors. Any areas proposed for vegetation clearance or removal are to be surveyed by a suitably qualified person for the presence of hollow-bearing trees and threatened flora, which are to be clearly tagged and identified for retention.	Operation	Mawland	No hollow bearing trees or threatened flora were removed during the reporting period.	Not Triggered
161	The proposed design and location of any artificial nesting sites or boxes (including for Little Penguins) are to be endorsed by the DEC. Nest boxes are to be designed to limit the potential for use by possums.	Operation	Joint	No nest boxes were required to be installed during the reporting period.	Not Triggered
162	Details of the methods and approaches to be used in meeting the monitoring requirements specified in the conditions of approval for Long-nosed Bandicoots and Little Penguins will be submitted to the DEC for approval prior to monitoring commencing.	Operation	Joint	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report). See Appendix C – Manly Little Penguin Recovery Program, 2020/21 Final Monitoring Report. September 2021. See Appendix D - Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
Long-nosed Bandicoot					
General					
163	Within 6 months of the commencement date the co-proponents shall update signage along Darley Road and into the Quarantine Station to strengthen warnings to vehicle drivers regarding the presence of Long-nosed Bandicoots and the need for slow and careful driving (see also conditions 145 -146).	Operation	Joint	New signage designed and erected by co-proponents following this modification. This signage was approved by Ania Dorocinska from Planning and Environment in an email dated 29 March 2019.	Compliant
164	Grassed areas on the site must be kept in good condition. No fertilisers or chemicals should be applied to open grassed areas, except where this is essential to the repair and stabilisation of existing eroded areas and is consistent with the provisions of the approved Heritage Landscape Master Plan (condition 91).	Operation	Joint	Grass is inspected and mowed regularly and watered when necessary.	Compliant
165	Within 12 months of the commencement date the co-proponents shall undertake further assessments to refine the mapping of high-use Long-nosed Bandicoot foraging habitat and to identify suitable potential areas and techniques for habitat enhancement, reconstruction and rehabilitation. The outcomes of the assessment should be informed by the monitoring program specified in Schedule 5 and are to be submitted to the DEC for approval and incorporated into the Heritage Landscape Management Plan (condition 91) prior to any habitat works commencing.	Operation	Joint	See Appendix D - Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021. Relevant details will be incorporated into the Heritage Landscape Management Plan, which is subject to review in 2022.	Compliant
166	Any works undertaken for the activity that involve the loss of, or damage to, Long-nosed Bandicoot foraging habitat shall be offset by the undertaking	Operation	Joint	No works were undertaken that involved loss of or damage to Long-nosed	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	of habitat enhancement, reconstruction or rehabilitation works on an area elsewhere at North Head that is at least ten times the size of the area impacted.			Bandicoot foraging habitat during the reporting period.	
Monitoring					
167	The co-proponents shall implement the monitoring program detailed in Schedule 5.	Operation	NPWS	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report). See Appendix D - Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021.	Compliant
Adaptive Management – Foraging Habitat					
168	If the monitoring of bandicoot activity and use of foraging habitat indicates a statistically significant reduction in bandicoot numbers between the control and non-control areas over two consecutive years, measures will be taken, in consultation with the DEC, to reduce the extent of light, noise and activities at relevant locations. Measures may only be reversed or altered with the approval of the DEC (see also condition 133).	Operation	NPWS	No such measures required in reporting period.	Not Triggered
Adaptive Management – Road Mortalities					
169	All adaptive management measures presented within Schedule 6 must be implemented and the co-proponents must contribute to the mitigation of potential impacts on the Long-nosed bandicoot	Operation	Joint	The co-proponents are active members of the North Head Stakeholder Group.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	population across North Head. This includes, but is not limited to, participation in the North Head Stakeholder Group, or its successors. The co-proponents will actively promote awareness of the need for bandicoot protection across North Head.			See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report). See Appendix D - Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021.	
169A	The co-proponents must provide signage at the entrance to Sydney Harbour National Park near Parkhill Archway, to indicate the number of Long-nosed Bandicoot road mortalities recorded on North Head. The sign(s) shall include, but not be limited to, a short statement regarding the endangered status of the population, its estimated population size (within North Head), the threat that road deaths pose to its continued survival, the total number of road deaths from the previous year and a running tally of the number of deaths during the current calendar year. The tally shall be updated after each confirmed road death as recorded on the mortality register referred to in Schedule 5. The sign shall also include a 24 hour phone number (see also Term 6) to allow members of the public to inform the lessor of any mortalities and what to do if an injured bandicoot is found.	Operation	Joint	New signage designed and erected by co-proponents following this modification, This signage was approved by Ania Dorocinska from Planning and Environment in an email dated 29 March 2019.	Compliant
Calculating The Background Level Of Adult Road Mortalities					
170	For the first year following the commencement date the background adult road mortality level is	Operation	NPWS	NPWS maintains a register for Long-nosed Bandicoot mortality for the site.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	set at 10 deaths in 6 consecutive months. The background adult road mortality level is to be recalculated at the end of each consecutive year of mortality monitoring as detailed in Schedule 7.			The total number of deaths recorded in 2020 was 1 (road death).	
Future measures					
171	The Lease shall stipulate requirements regarding the provision of funding to the OEH to undertake a revised population viability assessment (PVA) for the Long-nosed Bandicoot every 6 years from the determination date of Modification 3.	Operation	Joint	The lease document between NPWS and Mawland stipulates the requirements for the provision of funding to NPWS to undertake PVA for the Long-nosed Bandicoot every six years. The last PVA was undertaken in 2015.	Compliant
172	Based on the revised PVA, the provisions of any adopted recovery plan for the Long-nosed Bandicoot population and following consultations with the co-proponents, the Minister for the Environment may recommend to the Minister for Infrastructure, Planning and Natural Resources that the trigger thresholds, background adult road mortality levels and/or adaptive management measures be revised. Prior to the Minister for Infrastructure, Planning and Natural Resources agreeing to any significant revised measures, the details of the proposal and the PVA are to be made available for public comment.	Operation	Joint	See Appendix D - Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021.	Not Triggered
173	The co-proponents shall ensure that the undertaking of the activity complies with any revised measures specified in condition 172).	Operation	Joint	See Appendix D - Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021.	Compliant
Little Penguins					

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
General					
174	<p>Prior to the opening of the restaurant in Building A6 for public use or the commencement of ferry services to the site (whichever comes first), and following approval of the detailed designs by the DEC, Permanent barrier fencing (that maintains access for penguins) shall be provided to actively discourage human access to Little Penguin habitat at:</p> <ul style="list-style-type: none"> a) the northern end of Quarantine Station Beach, in the vicinity of the mean high water mark. The fence shall include signage to indicate that no access along the rocky foreshores is permitted; b) the southern end of the Quarantine Station Beach, in the vicinity of the cliff-line and water’s edge adjacent to the concrete slipway (W1/A13a). The fence shall include signage to indicate that no access along the rocky foreshores is permitted; and c) at least 1.5 metres from the western edge of the existing drain adjacent to Building A6 (ie. towards the building). Consideration shall be given to the use of dense plantings, rather than a fence made of timber or other materials, in the design of the barrier. <p>To avoid adverse visual or cultural impacts the fences shall be constructed of suitable materials and to the minimum height and scale necessary to</p>	Operation	Joint	<p>A fenced beach area, with access prohibited from sunset to sunrise has been provided in accordance with this condition. This provides protection to the little penguin colony.</p>  <p>Penguin fencing at the Boilerhouse looking north © R. Yit NPWS.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	discourage human access. It is not required that the fences be human-proof (e.g. cyclone fencing).				
175	Between sunset and sunrise in the breeding season (July to February inclusive) temporary moveable signage, with appropriate temporary lighting if necessary, shall be provided on Quarantine Beach. The signs are to be located on the beach above the mean high water mark in the approximate vicinity of the intersection of buildings A6 and A7. The signs are to advise visitors that access beyond the signs to the northern part of the beach is not permitted, to minimise potential impacts on wildlife.	Operation	Joint	NPWS varies signage from time to time. No tours take place near Little Penguin habitat. No spotlighting is permitted during the tour and this is specified at the safety briefing prior to commencement of the tour.	Compliant
176	No spotlighting for Little Penguins is to occur from the ferry or from within the site, unless it is being undertaken as part of an approved special interest tour.	Operation	Joint	No tours take place near Little Penguin habitat. No spotlighting is permitted during the tour and this is specified at the safety briefing prior to commencement of the tour.	Compliant
Monitoring					
177	The co-proponents will negotiate with the DEC an annual contribution to assist the on-going implementation of any monitoring programs established as part of the Little Penguin Recovery Plan. The contribution will be adjusted annually to reflect changes in the CPI.	Operation	Mawland	Contribution was paid on the following dates within the reporting period: <ul style="list-style-type: none"> 15/04/2020 	Compliant
178	In the event that any monitoring program under the Little Penguin Recovery Plan ceases to operate during the life of the approval, the co-proponents shall be responsible for developing, implementing and funding a monitoring program	Operation	NPWS	Monitoring programme remains in place.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	that specifically monitors the potential impacts generated by activities within the site.				
Adaptive management					
179	The co-proponents shall comply with the adaptive management measures detailed in Schedule 8.	Operation	NPWS	See Appendix C – Manly Little Penguin Recovery Program, 2020/21 Final Monitoring Report. September 2021.	Compliant
Future measures					
180	The co-proponents will provide funding to the OEH to undertake a review of the long-term monitoring data and to provide recommendations on the long-term sustainability targets for the Manly Little Penguin population every five years from the determination date of Modification 3.	Operation	Joint	Contribution was paid on the following dates within the reporting period: <ul style="list-style-type: none"> 15/04/2020 	Compliant
181	Based on the revised monitoring and long-term sustainability targets (Term 180) and following consultation with NPWS regarding the Little Penguin population, the Minister for the Environment may recommend to the Secretary that the trigger thresholds and/or adaptive management measures be revised. Prior to the Minister for Planning agreeing to any significant revised measures, the details of the proposal and the 5 year report are to be made available for public comment and consideration.	Operation	NPWS	No recommendations have been made by the Minister for the Environment.	Not Triggered
182	The co-proponents shall ensure that the undertaking of the activity complies with any revised measures specified in condition 181).	Operation	NPWS	No recommendations have been made by the Minister for the Environment.	Not Triggered
Marine Environment					
General					

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
183	Within 6 months of the commencement date the co-proponents shall commence discussions with the Waterways Authority and NSW Fisheries in relation to measures that could be undertaken to restrict or discourage private boat mooring in the immediate vicinity of the site. Other relevant stakeholders shall also be consulted. As a minimum, options for restricting or discouraging mooring should generally target the “patchy seagrass” area shown in Figure 1 of Appendix F of the EIS. However, if critical habitat is declared for the Little Penguin population the provisions of the critical habitat listing will take precedence over any other measures.	Operation	Joint	A notice of declaration of critical habitat for Little Penguins was issued in December 2002.	Compliant
Monitoring					
184	The co-proponents shall develop and implement a program to monitor the density, condition and extent of seagrass beds in the wharf area, in consultation with the Waterways Authority. Details of the methods and approaches to be used in monitoring seagrass beds will be submitted to NSW Fisheries for approval prior to monitoring commencing.	Operation	Mawland	The requirement to monitor seagrass remains as a condition in the Approval. No monitoring program for seagrass has been submitted to and approved by DPI. Irregular assessments of the seagrass have been undertaken in the past. An examination of those assessments would likely reveal that the implemented methodological approach would not meet requirements of the Approval nor DPI Fisheries requirements, as indicated by their recent response to the AERs. A partial letter from DPI is held on file. The letter dated 10 December 2007 from NSW Department of Primary Industries to Simon McArthur, General Manager, Mawland Quarantine Station	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<p>states that “NSW DPI has decided that it is unnecessary to continue the current seagrass monitoring program. In lieu of the monitoring program, NSW DPE is seeking a contribution to the Conservation Trust Fund (CTF) that is reflective of the substantial savings afforded to...”. The exact application of this letter to condition 184 is unconfirmed. Ongoing requirements to monitor the seagrass need to be confirmed with DPI in writing and approval provided, or the condition modified as required.</p>	
185	Implementation of the seagrass monitoring program is to occur prior to commencement of the ferry services to the site. Monitoring must be undertaken by a suitably qualified marine ecologist.	Operation	Joint	<p>The requirement to monitor seagrass remains as a condition in the Approval. No monitoring program for seagrass has been submitted to and approved by DPI. Irregular assessments of the seagrass have been undertaken in the past. An examination of those assessments would likely reveal that the implemented methodological approach would not meet requirements of the Approval nor DPI Fisheries requirements, as indicated by their recent response to the AERs. A partial letter from DPI is held on file. The letter dated 10 December 2007 from NSW Department of Primary Industries to Simon McArthur, General Manager, Mawland Quarantine Station states that “NSW DPI has decided that it</p>	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<p><i>is unnecessary to continue the current seagrass monitoring program. In lieu of the monitoring program, NSW DPE is seeking a contribution to the Conservation Trust Fund (CTF) that is reflective of the substantial savings afforded to...". The exact application of this letter to condition 184 is unconfirmed. Ongoing requirements to monitor the seagrass need to be confirmed with DPI in writing and approval provided, or the condition modified as required.</i></p>	
Adaptive Management					
186	If the monitoring of the seagrass beds indicates a significant reduction in the density, extent or condition of the seagrass beds, and NSW Fisheries is satisfied that such decreases are either fully or partially related to the activity, the co-proponents must consult with NSW Fisheries to implement appropriate measures to reduce impacts within a specified timeframe, and to provide habitat compensation at a ratio of 2:1.	Operation	Joint	<p>The requirement to monitor seagrass remains as a condition in the Approval. No monitoring program for seagrass has been submitted to and approved by DPI. Irregular assessments of the seagrass have been undertaken in the past. An examination of those assessments would likely reveal that the implemented methodological approach would not meet requirements of the Approval nor DPI Fisheries requirements, as indicated by their recent response to the AERs.</p> <p>A partial letter from DPI is held on file. The letter dated 10 December 2007 from NSW Department of Primary Industries to Simon McArthur, General Manager, Mawland Quarantine Station</p>	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<p>states that “NSW DPI has decided that it is unnecessary to continue the current seagrass monitoring program. In lieu of the monitoring program, NSW DPE is seeking a contribution to the Conservation Trust Fund (CTF) that is reflective of the substantial savings afforded to...”. The exact application of this letter to condition 184 is unconfirmed. Ongoing requirements to monitor the seagrass need to be confirmed with DPI in writing and approval provided, or the condition modified as required.</p>	
187	The co-proponents shall ensure that the undertaking of the activity complies with any measures specified in condition 186).	Operation	Joint	<p>The requirement to monitor seagrass remains as a condition in the Approval. No monitoring program for seagrass has been submitted to and approved by DPI. Irregular assessments of the seagrass have been undertaken in the past. An examination of those assessments would likely reveal that the implemented methodological approach would not meet requirements of the Approval nor DPI Fisheries requirements, as indicated by their recent response to the AERs. A partial letter from DPI is held on file. The letter dated 10 December 2007 from NSW Department of Primary Industries to Simon McArthur, General Manager, Mawland Quarantine Station states that “NSW DPI has decided that it</p>	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<i>is unnecessary to continue the current seagrass monitoring program. In lieu of the monitoring program, NSW DPE is seeking a contribution to the Conservation Trust Fund (CTF) that is reflective of the substantial savings afforded to...". The exact application of this letter to condition 184 is unconfirmed. Ongoing requirements to monitor the seagrass need to be confirmed with DPI in writing and approval provided, or the condition modified as required.</i>	
Predator And Pest Control					
188	A Predator and Pest Control Plan shall be prepared and implemented for the site. The Plan shall be submitted to the DEC for approval within 2 years of the commencement date. The plan should address relevant provisions of any adopted recovery plans and threat abatement plans and shall: <ul style="list-style-type: none"> a) detail measures for minimising the risk of predator and pest impacts; and b) detail measures for rapidly responding to identified threats, including an emergency shooting strategy. 	Operation	Joint	A Predator and Pest Control Plan was prepared in 2008.	Compliant
189	Predator and pest control activities shall be undertaken in accordance with the approved plan. Until the plan is prepared and approved the co-proponents shall continue on-going consultation	Operation	Joint	A Predator and Pest Control Plan was prepared in 2008.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	with the DEC regarding predator control measures to be applied				
190	The co-proponents shall undertake a review of the Predator and Pest Control Plan every five years after the commencement date for the duration of the activity, or earlier if considered necessary by the DEC. The review shall be undertaken in consultation with the DEC and with advice from relevant specialists. On the basis of the review the co-proponents shall, as necessary, prepare a revised plan to be submitted to the DEC for approval.	Operation	Joint	No review of this plan has been undertaken. A review of the plan is to be undertaken in 2022.	Non - Compliant
ENVIRONMENTAL MANAGEMENT PLAN					
191	An Environmental Management Plan (EMP) shall be prepared by the co-proponents and submitted for approval to the DEC and DIPNR, following a review by the Environmental Manager. Once approved, the co-proponents shall implement the EMP	Operation	Joint	As part of the Environmental Management Plan the following plans were prepared for the site: <ul style="list-style-type: none"> • Erosion and Sedimentation Control Plan, May 2005 • Noise Management Plan, May 2005 • Waste Management Plan, May 2005 • Aboriginal Heritage Management Plan, 2008 • Moveable Heritage and Resources Plan 2007 • Heritage Landscape Management Plan, 2006 • Infrastructure Control Plan 	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				<ul style="list-style-type: none"> • Predator and Pest Control Plan 2008 • Interpretation Plan 2005 • Internal Fitout Plan 2005 • Inscriptions Management Plan 2005 • Visitor Management Plan 2005 Publicly available documents can be found at: https://www.environment.nsw.gov.au/research-and-publications/north-head-quarantine-station-management-plans	
192	The EMP shall be prepared and approved prior to the commencement of construction works or new operation functions as described in the PAS. Operations already occurring on site prior to the commencement date may continue without an approved EMP, subject to other relevant conditions of this approval having been met. The EMP may be updated and amended with the approval of the DEC to incorporate other strategies, plans and programs required by the conditions of approval.	Operation	Joint	No evidence of approval provided for the EMP.	Non-Compliant
193	The primary function of the EMP is to outline environmental safeguards and procedures to be implemented during the construction and operation stages of the activity. The EMP may also function as an operational control document to guide the implementation of all aspects of the proposal. The EMP shall be prepared in accordance with:	Operation	Joint	As noted in condition 191, the EMP includes numerous sub plans and is used as the operational control document for environmental management onsite.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> a) the conditions of this approval; b) all relevant legislation; c) accepted environmental management best practice; and d) shall address all commitments and undertakings made by the co-proponents for environmental management. 				
194	The EMP shall contain, but not be limited to, the matters specified in Schedule 9 and in conditions 197), 199) and 203). Other strategies, plans and programs required by the conditions of approval may be incorporated into the EMP.	Operation	Joint	As noted in condition 191, the EMP includes numerous sub plans and is used as the operational control document for environmental management onsite.	Compliant
195	The EMP shall be reviewed and revised in consultation with the DEC as necessary to incorporate revisions to relevant site-wide strategies, plans and the results of the integrated monitoring program.	Operation	Joint	No review has been undertaken. Next review of the plan will be undertaken in 2022 in consultation with NPWS (DPIE).	Non - Compliant
SOIL					
196	Prior to any works commencing in areas of potential contamination the co-proponents must submit to the DEC a preliminary investigation prepared in accordance with the “Managing Land Contamination: Planning Guidelines” (DUAP & EPA 1998). After considering the assessment the DEC may require the co-proponents to undertake a detailed investigation in accordance with the Guidelines and/or undertake any necessary remediation work. Areas of potential contamination include those identified in Figure 13.1 of the EIS, the sites of former buildings P22	Operation	Joint	These works were undertaken at commencement of the project.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	and H1, and any other areas identified by the co-proponents during the course of the activity.				
197	As part of the EMP, the co-proponents shall prepare and implement an erosion and sedimentation control plan to be implemented for all works that involve ground surface disturbance. The plan will be prepared in accordance with the guideline “Managing Urban Stormwater – Soils and Construction” (DoH 1998), but with adaptations as necessary and appropriate for the Quarantine Station site.	Operation	Mawland	As part of the Environmental Management Plan an Erosion and Sedimentation Control Plan, May 2005 was prepared.	Compliant
198	Regular inspections of temporary and permanent erosion and sedimentation control devices shall be undertaken during the undertaking of any works involving ground surface disturbance.	Operation	Mawland	No works involving ground disturbance were undertaken during the reporting period. Temporary sediment controls were still in place after the construction of P21/23 and were removed early 2020. There are no permanent erosion and sediment control devices on site.	Not Triggered
NOISE					
199	As part of the EMP, the co-proponents shall prepare and implement a noise management plan for both the construction and operation phases of the activity. The plan should include, but not be limited to: a) standards to be met, consistent with relevant EPA guidelines;	Operation	Mawland	As part of the Environmental Management Plan a Noise Management Plan, May 2005, was prepared for the site.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> b) noise mitigation measures, including educational signage for visitors entering and exiting the site; c) regular monitoring of both construction and operational activities. This is to include: <ul style="list-style-type: none"> • noise generated from on-site activities, measured both within the site and off-site • road traffic noise during peak periods of vehicle movements to and from the site, especially in the vicinity of residential areas along Darley Road and Manly Hospital; and d) adaptive management measures. 				
200	<p>Noise levels are to be managed and monitored in accordance with the approved noise management plan. If relevant noise standards are exceeded the co-proponents shall take all reasonable steps to ensure that measures are put in place to meet the standards:</p> <ul style="list-style-type: none"> a) for construction works, within 1 week of the exceedance being identified; and b) for operational activities, within 6 months of the exceedance being identified. 	Operation	Joint	<p>Noise levels were monitored during the modification negotiations with Department of Planning (DoP) in early 2018 by GTA Consultants. They are operationally managed with cut off devices on all audio visual equipment.</p> <p>No complaints in regard to noise were received during the reporting period.</p>	Compliant
201	<p>Amplified music or noise on the site shall be managed on the following basis:</p> <ul style="list-style-type: none"> a) any amplified music or noise or ambient dining music shall not exceed the LAeq noise level of 50 dB(A) as measured up to 	Operation	Joint	<p>Noise levels were monitored during the modification negotiations with DoP in early 2018 by GTA Consultants. They are operationally managed with cut off devices on all audio visual equipment.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>20 metres away from the edge of the building in which the music or noise is being generated;</p> <p>b) outdoor amplification may only occur during the day period and must not exceed LAeq noise level of 50 dB(A), as measured at any point along the existing fence line (as at 2017) to the beach area; and</p> <p>c) ambient dining music in the outdoor eating area adjacent to the Boilerhouse Restaurant (Building A6) during the evening and night time period is restricted to the following times:</p> <ul style="list-style-type: none"> • March to April (inclusive): no restriction; • May to July (inclusive): not permitted at any time; and • August to February (inclusive) not permitted from sunset.\ 				
201A	<p>Within one year of the date of determination of Modification 3, the co-proponents shall provide a Noise Validation Report (NVR) to the satisfaction of the Secretary. The NVR shall:</p> <p>a) be prepared by a suitably qualified acoustic consultant;</p> <p>b) include noise monitoring results collected during the previous twelve months, including results from at least half of the maximum capacity events held within the twelve month period;</p>	Operation	Joint	<p>Compliance within stated time frame previously reported.</p> <p>Submission of report to Planning on 28 May 2019. Planning requested further monitoring of highest capacity event. No events have been held since due to the COVID pandemic restrictions.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> c) verify compliance with the operational noise limits under Term 201; d) identify mitigation and/or management measures required to ensure compliance with the operational noise limits in Term 201; e) include detail of all complaints received by the site from the previous twelve months; and f) include details of ongoing periodic noise testing and complaints handling procedures. 				
202	Even if relevant industry and technical standards for noise management are met, the DEC may direct the co-proponents to take appropriate measures to reduce or alter noise levels, or to implement measures earlier than the time-frames specified in condition 200), after considering monitoring information for the Long-nosed Bandicoot and Little Penguin populations. The co-proponents shall comply with any such directions.	Operation	Joint	No such direction has been received.	Not Triggered
WASTE					
203	As part of the EMP, the co-proponents shall prepare and implement a waste management plan to address the handling, stockpiling and disposal of wastes and construction materials during all phases of the activity. The plan shall include, but not be limited to, the following:	Operation	Mawland	As part of the Environmental Management Plan, a Waste Management Plan, May 2005, was prepared for the site.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> a) procedures to ensure that demolition and construction materials are stockpiled clear of environmentally sensitive areas; b) waste avoidance and reduction measures, including strategies for recycling and re-use of waste materials; c) procedures for the removal and disposal of waste at an appropriately licensed facility, including asbestos material; d) on-site education and signage to promote and encourage “no feeding” rules for wildlife and appropriate waste disposal procedures; and e) procedures for regular litter inspection and collection. 				
204	All handling, stockpiling and disposal of wastes and construction materials shall be undertaken in accordance with the waste management plan and all necessary licenses, permits or other approvals must be obtained by the co-proponents.	Operation	Joint	All handling of waste is undertaken in accordance with the Accor Environmental Policy. https://group.accor.com/en/commitment/positive-hospitality/acting-here https://s3-us-west-2.amazonaws.com/ungc-production/attachments/3079/original/COP.pdf?1262614372	Compliant
SITE MANAGEMENT					
Emergency And Evacuation Plan					
205	Prior to the commencement date the co-proponents shall submit an emergency and evacuation plan for the site to the DEC for approval. The plan will be prepared in consultation	Operation	Joint	The Visitor Management Plan includes an Emergency and Evacuation Plan (Section 7).	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>with the NSW Ambulance Service, NSW Police and NSW Fire Brigade and shall address, but not be limited to:</p> <ul style="list-style-type: none"> a) emergency and/or evacuation procedures for a range of incidents, including spillages, boat collisions, fire, bomb threats, power blackout, personal injury, disturbance to human burial sites, etc; b) interim site fire safety measures to be provided until the upgrade of the fire hydrant system has been completed (condition 211); c) safety and emergency signage; d) an emergency alarm system; e) the location of evacuation points and an evacuation procedure; f) regular testing of the system; g) emergency equipment and appropriate storage locations; h) staff training; and i) emergency contact details for relevant staff. <p>Once approved, the co-proponents shall implement the plan.</p>			<p>The Visitor Management Plan was prepared by Simon McArthur, General Manager, Mawland Hotel Management and Q Station in 2005. The plan was approved by Tony Fleming, Deputy Director-General, Parks and Wildlife Division on 13 July 2005 and Robert Black, DIPNR on 10 August 2005.</p> <p>https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-plans-of-management-other-documents/quarantine-station-visitor-management-plan.pdf?la=en&hash=E5077BAB159853EC5CA8B7DB6C7D2E7336FECE57.</p>	
206	<p>All staff shall be made aware of the plan and its provisions and be trained in the operation of emergency equipment. Records of staff training will be kept by the co-proponents and included as part of the annual environmental report (see condition 221).</p>	Operation	Mawland	<p>All staff take part in an evacuation training during the induction and receive appropriate training specifically for the area of engagement. A record of this is held by the Q Stations HR team.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
207	The plan is to be displayed at prominent locations within the site and is to clearly highlight the recommended actions and 24 hour telephone contacts for emergency situations.	Operation	Joint	A plan is located in every room near the door and in all room compendiums and restaurants. A plan is also located at reception.	Compliant
208	The co-proponents shall undertake a review of the plan every five years after the commencement date for the duration of the activity or earlier if considered necessary by the DEC. The review shall be prepared in consultation with the agencies specified in condition 205). On the basis of the review the co-proponents shall, as necessary, prepare a revised Emergency and Evacuation Plan to be submitted to the DEC for approval.	Operation	Joint	Next review due in 2022.	Non - Compliant
Fire Safety					
209	The co-proponents shall prepare a fire safety schedule for each building on the site. The schedule shall be submitted to DEC for approval prior to occupation or use of a building on the site for the activity. The schedule shall be prepared in accordance with the NPWS Construction Assessment & Approvals Procedure and the following specific requirements: <ul style="list-style-type: none"> a) be prepared by a Fire Protection Consultant with at least 5 years experience; b) identify fire safety services to be installed (including type of service, location and 	Operation	Joint	A fire safety schedule was submitted and approved as part of the New Works Certificate issued by NPWS to Mawland for P21 and P23 on 20 December 2018.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>other specifications) to meet BCA standards (or an acceptable alternative);</p> <p>c) identify interim fire safety measures that could be implemented to allow the use of buildings in the short term; and</p> <p>d) provide a statement outlining the potential impact of the work on the heritage significance of the building, and proposed mitigative measures.</p>				
210	<p>No building on the site shall be occupied or used after the commencement date until such time as fire safety measures have been implemented and an interim or final Fire Safety Certificate issued in accordance with the NPWS Construction Assessment and Approvals Procedure. This includes any purposes that were being undertaken prior to the commencement date. In the event of any inconsistency this condition shall prevail over any other condition of approval (with the exception of condition 50).</p>	Operation	Joint	<p>A fire safety schedule was submitted and approved as part of the New Works Certificate issued by NPWS to Mawland for P21 and P23 on 20 December 2018.</p>	Compliant
211	<p>The co-proponents shall also undertake the following fire safety measures:</p> <p>a) all buildings are to be brought up to BCA standards for fire safety (or an acceptable alternative). This shall occur in stages to match the staging plan for works, as amended by condition 31);</p> <p>b) an upgrade of the fire hydrant system to meet NSW Fire Brigade standards shall be completed within 5 years of the commencement date. In the meantime, the co-proponents shall ensure that the</p>	Operation	Joint	<p>Celsius Fire are the main contractor providing monthly/6 monthly inspections on all fire suppression equipment. This includes fire extinguishers, fire hose reels, smoke and fire alarms in all rooms and a sprinkler system to all buildings from P1-P12. The central fire hydrant system is also tested.</p> <p>The fire control panels are registered with ADT who monitor all faults and advise Mawland accordingly. If there is a</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>fire measures detailed in the emergency and evacuation plan (condition 205) are in place and functioning;</p> <p>c) an annual fire safety statement of the site buildings, prepared in accordance with the NPWS Construction Assessment & Approvals Procedure, shall be submitted for DEC approval; and</p> <p>d) the co-proponents shall comply with the terms of any fire safety order issued by or on behalf of the DEC.</p>			<p>major fault in the system from smoke alarms /sprinklers the local fire brigade are alerted and attend to the situation.</p> <p>There have been no incidents and the odd false alarm caused by dust storm/ bird movement.</p>	
Bushfire Management Plan					
212	The co-proponents are to liaise with the DEC and any other relevant authorities to ensure that the provisions of any adopted bushfire management plans applicable to the site are implemented.	Operation	NPWS	A Bushfire Assessment was prepared for the site in July 2006 by Fire Base Consulting Pty Ltd. No review has been undertaken. The assessment will be reviewed in 2022.	Compliant
HOURS OF OPERATION					
213	<p>All construction activities, including entry and departure of heavy vehicles, shall be restricted to the following hours:</p> <p>a) during daylight savings (ie. summer) - 7am – 6pm Monday to Friday, 8am-1pm Saturday;</p> <p>b) at other times (ie. winter) - 7am – 5pm Monday to Friday, 8am-1pm Saturday; and</p> <p>c) Sundays or public holidays - no work is to be undertaken, except for emergency</p>	Construction	Joint	No complaints or incidents were recorded where works were undertaken outside of working hours.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	works or minor, low noise activities such as painting.				
214	The hours of operation for specific uses shall be as follows: a) restaurant in A6 – closed to the public by 11.00 pm; b) conferences and functions – no organised visitor activity past 11.00 pm; and c) night tours – the 1918 Night Experience sound and light show to conclude by 11.00 pm. The Late Ghost Tour to conclude by 12.00 midnight.	Operation	Joint	Booking details are available in the booking registers at reception, the tour desk and the restaurant. These details also contain times for tours and closures.	Compliant
215	Service providers and contractor vehicles may only access and exit the site between 7.00 am and 12.00 pm (mid-day). This does not apply to vehicles involved in the undertaking of construction or conservation works.	Operation	Joint	This information is given to all contractors during induction.	Compliant
MONITORING AND AUDITING PROGRAM					
Monitoring					
216	Within twelve months of the commencement date an integrated monitoring program for the activity shall be prepared by the co-proponents and submitted for approval of DEC and DIPNR. The program shall be prepared in consultation with the Heritage Council and other relevant authorities. Implementation of the program shall commence no later than three months from the date of approval of the program.	Operation	Joint	An Integrated Monitoring and Adaptive Management System (IMAMS) programme was developed in 2006 and operated until 2020. A review of this system was requested by DPIE. The replacement monitoring system has not yet been approved for use by DPIE. NPWS engage external consultants to undertake monitoring of threatened	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>The primary aim of the program shall be to monitor over time the effects of the activity on the significance of the Quarantine Station site and immediately adjoining areas (such as Quarantine Beach and the Wharf), and to identify the need to develop and implement strategies to respond to any adverse impacts identified. An integrated monitoring program shall be implemented for the life of the activity and shall address:</p> <ul style="list-style-type: none"> a) the feature or issue to be monitored; b) how the monitoring will be undertaken (eg. methods) and who will undertake this work; c) frequency of monitoring; and d) a process for reviewing the results of monitoring and identifying measures to be implemented to respond to impacts, and/or to meet the requirements of the approval. 			<p>species including Long-nosed Bandicoots (Appendix B), Little Penguin (Appendix C), Population Viability Assessment Long-nosed Bandicoots (Appendix D) and threatened flora (Appendix E – <i>Acacia Terminalis</i>).</p>	
217	<p>The program shall include, but is not limited to, the following matters:</p> <ul style="list-style-type: none"> a) visitor access information – see conditions 135) and 156); b) the interpretive program, and whether it is achieving its goals (to include consideration of quality of visitor experience, visitor understanding and presentation performance) (condition 100); 	Operational	Joint	<p>An Integrated Monitoring and Adaptive Management System (IMAMS) programme was developed in 2006 and operated until 2020. A review of this system was requested by DPIE. The replacement monitoring system has not yet been approved for use by DPE.</p>	Non - Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> c) Aboriginal heritage – including the condition of physical sites (condition 70); d) non-Aboriginal heritage – including the condition of buildings and structures, landscape features, moveable heritage and conservation works progress (conditions 78) and 85); e) flora and fauna - including general monitoring during construction and operation phases, as well as specific strategies for monitoring threatened species, including the Little Penguin and the Long-nosed Bandicoot (conditions 167) and 177)-178); f) seagrasses (condition 184); g) soil and erosion (conditions 197)-198); h) noise (condition 199); i) stormwater management, including water quality (condition 104); j) infrastructure – consumption and capacity (water, sewer, gas, etc – condition 105); k) waste management (condition 203); and l) staff and contractor training – including induction programs (conditions 64) and 65) and emergency training (condition 206) 				
218	On the basis of the outcomes of the integrated monitoring program, the co-proponents shall, subject to DEC and any other approvals required	Operation	Joint	No adjustment required.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	as specified in the conditions of approval, use the adaptive management system to adjust the undertaking of the activity to conserve the significance of the site.				
219	As part of the annual environmental report (condition 221) and comprehensive audit (condition 226), the co-proponents shall produce a monitoring report outlining results from the integrated monitoring program. The report shall: <ol style="list-style-type: none"> a) include an analysis of monitoring results and trends collected over time; and b) identify measures taken or proposed to be undertaken to respond to any adverse or unexpected impacts identified. 	Operation	Joint	Monitoring reports were completed for: <ul style="list-style-type: none"> • Long-nosed Bandicoots (Appendix B), • Little Penguin (Appendix C), • Population Viability Assessment Long-nosed Bandicoots (Appendix D) and • Threatened Flora (Appendix E – <i>Acacia Terminalis</i>). 	Compliant
220	The co-proponents shall undertake a regular review of the overall integrated monitoring program concurrent with or prior to the ongoing comprehensive audits of the activity (condition 228). The review shall be undertaken in consultation with the relevant authorities. On the basis of the review the co-proponents shall, as necessary, prepare a revised program to be submitted to the DEC and DIPNR for approval.	Operation	Joint	Review is pending.	Non - Compliant
Annual Environmental Report					
221	An annual environmental report for the activity shall be prepared by the co-proponents and submitted to the DEC, DIPNR, NSW Heritage Council, Waterways Authority, NSW Fisheries and the Quarantine Station Community Committee for comment. In reviewing the annual environmental report these organisations are to specifically	Operation	Joint	This report has been prepared to satisfy this requirement.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	consider issues associated with visitor impacts arising from the activity.				
222	In submitting the report in accordance with condition 221), the co-proponents shall identify a timeframe for the receipt of comments. As a minimum, the organisations listed in condition 221) shall have 4 weeks to provide comment, starting from the date on which they receive the report. An extension of the timeframe for comments may be agreed between the relevant organisation(s) and the co-proponents.	Operation	Joint	See Section 1.2 for details of stakeholders and review timeframes.	Compliant
223	The co-proponents shall submit the first environmental report approximately 12 months after the commencement date, although this may be adjusted if agreed by the DEC to match the end of the calendar or financial years or to coincide with the staging plan (condition 31), and at annual intervals thereafter. No annual report is required in the year that a comprehensive audit is due (condition 228).	Operation	Joint	The original 2020 environmental report was not submitted in accordance with this condition however, it has been prepared and will be submitted in accordance with the direction of Planning Secretary requiring submission by 21 January 2022.	Compliant
224	The annual environmental report shall: <ol style="list-style-type: none"> a) state how the co-proponents have complied with relevant approval conditions; b) include the outcomes of the annual monitoring report (condition 219); c) state any measures taken or proposed by the co-proponents to respond to issues arising from: <ul style="list-style-type: none"> • the integrated monitoring program 	Operation	Joint	<p>This report has been prepared in accordance with the <i>Compliance Reporting Post Approval Requirements</i> (DPIE, 2020).</p> <p>Details of annual monitoring that has taken place can be found within the appendices of this report.</p>	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<ul style="list-style-type: none"> • consultations with the community; and d) state any recommendations from the co-proponents regarding the undertaking of the activity, if considered necessary. 				
225	The co-proponents shall take all reasonable steps to comply with any requirements of the DEC, DIPNR, NSW Heritage Council, NSW Fisheries and Waterways Authority in regard to the outcomes of the annual environmental report. The co-proponents shall also consider the recommendations and comments of the Quarantine Station Community Committee and provide a response to the Committee.	Operation	NPWS	<p>See Section 1.2 for details of stakeholders and review timeframes.</p> <p>See Appendix G for stakeholder comments to this report.</p>	Compliant
Audit					
226	A comprehensive audit of the activity shall be prepared by a suitably qualified, experienced and independent person in accordance with the timeframes specified in condition 228), for the duration of the activity. The audit process shall be consistent with ISO 14010 – Guidelines and General Principles for Environmental Auditing and ISO 14011 – Procedures for Environmental Auditing, or updated versions of these.	Operation	Joint	<p>Audit report submitted for 2011 to 2018 (EOFY). SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service.</p> <p>The next audit report is to be finalised by 1 June 2022.</p>	Compliant
227	The co-proponents shall meet the cost of the comprehensive audit. The appointment of the auditor shall be approved by the DEC and DIPNR.	Operation	Joint	The next audit report is to be finalised by 1 June 2022. The auditors will be submitted for approval prior to commencement and the co-proponents shall share in the cost of the auditor.	Not Triggered

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
228	Preparation of the first comprehensive audit report shall coincide with the conclusion of stage 2 of the staging plan (condition 31). Subsequent comprehensive audit reports shall then be undertaken every 5 years after the commencement date, although this may be adjusted if agreed by the DEC to link with the timing of the annual environmental reports (condition 223).	Operation	Joint	Audit report submitted for 2011 to 2018 (EOFY). SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service. The next audit report is to be finalised by 1 June 2022.	Compliant
229	The audit shall address, but not be limited to: <ul style="list-style-type: none"> a) the environmental performance of the activity and its effects on the environment; b) compliance by the co-proponents with the approval conditions; c) the adequacy of the integrated monitoring program and EMP; d) the adequacy of measures taken or proposed by the co-proponents to respond to issues arising from: <ul style="list-style-type: none"> • the integrated monitoring program; and • consultations with the community; e) consideration of the key impact predictions made in the EIS and PAS using information from the integrated monitoring program; f) the adequacy and functioning of the information management and GIS system (once in place – conditions 66)-69); and 	Operation	Joint	Audit report submitted for 2011 to 2018 (EOFY). SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service. The next audit report is to be finalised by 1 June 2022 in accordance with the "North Head Quarantine Station (MP08_0041) Monitoring and Auditing Program.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
	<p>g) any other matters considered necessary by the DEC, Heritage Council, Waterways Authority or DIPNR.</p> <p>The audit report may recommend measures or actions to improve the environmental performance of the activity and/or its environmental management and monitoring systems, if these are considered necessary</p>				
230	A draft comprehensive audit report shall be submitted by the auditor to the co-proponents, DEC, DIPNR, NSW Heritage Council, Waterways Authority, NSW Fisheries and the Quarantine Station Community Committee for comment.	Operation	Joint	<p>SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service was submitted to key stakeholders on 22 August 2018 for comment.</p> <p>Next audit is due to be finalised by 01 June 2022. The auditor will submit the report to stakeholders for consultation in 2022.</p>	Compliant
231	In submitting the report in accordance with condition 230), the auditor shall identify a timeframe for the receipt of comments. As a minimum, the organisations listed in condition 230) shall have 6 weeks to provide comment, starting from the date on which they receive the report. An extension of the timeframe for comments may be agreed between the relevant organisation(s) and the auditor.	Operation	Joint	SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service was submitted to key stakeholders on 22 August 2018 for comment. Comments were received from DPE, DPI and the QSCCC. The findings were discussed with the QSCCC on 14 November 2018.	Compliant

CoPA	Compliance requirement	Development phase	Responsibility (NPWS, Mawland or Joint)	Evidence and comments	Compliance status
				The auditor will submit the next audit report to stakeholders for consultation in 2022 in accordance with this condition.	
232	The auditor shall consider comments received from the organisations listed in condition 230) and prepare and submit a final audit report to the DEC and DIPNR. Based on the outcomes of the final audit report, and after considering any comments provided by the organisations listed in condition 230), the DEC and/or DIPNR may require the co-proponents to address certain matters identified in the audit. The co-proponents shall comply with any such requirements.	Operation	Joint	<p>SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service. Comments received were addressed in the final audit report.</p> <p>The auditor will submit the next audit report to stakeholders for consultation in 2022 in accordance with this condition.</p>	Compliant
233	If, after considering the outcomes of the comprehensive audit, the DEC, DIPNR and/or the co-proponents consider that significant revisions to the undertaking of the activity or mitigative measures are required to protect the significance of the site, any such proposed revisions will be submitted to the Minister for Infrastructure, Planning and Natural Resources. Prior to the Minister for Infrastructure, Planning and Natural Resources agreeing to any significant revisions, the details of the proposal are to be made available for public comment. The co-proponents shall comply with any reasonable directions of the Minister.	Operation	Joint	<p>SNC Lavalin Atkins (2018) Compliance Audit Report. Quarantine Station, North Head. National Parks and Wildlife Service. No significant revisions to the undertaking of the activity or mitigative measures were required to be sent to the Minister for Infrastructure, Planning and Natural Resources.</p> <p>The next audit shall be finalised by 01 June 2022 in accordance with this condition.</p>	Compliant

SCHEDULE 2

ELEMENTS OF ACTIVITY NOT APPROVED (CONDITION 17)

The following aspects of the activity are not approved as part of this application

Location	Element refused and additional comments	Compliance Status
Wharf Precinct		
Concrete stormwater pipe at Quarantine Beach.	<ul style="list-style-type: none"> The proposed alterations are not approved as there is insufficient information in the current application to assess the potential environmental impacts. 	This has not been undertaken and is not intended to be undertaken.
Open area between A7, A8 and A11-12	<ul style="list-style-type: none"> Power poles - the removal of overhead power poles is not approved, except where they are to be replaced with new poles of a similar size and materials (DACMP CPP 16.8.2). 	This has not been undertaken and is not intended to be undertaken.
A12	<ul style="list-style-type: none"> The interior wall and ceilings of A12 are not to be re-painted, but may be sealed to prevent deterioration. 	This has not been undertaken and is not intended to be undertaken.
First cemetery	<ul style="list-style-type: none"> markers is not approved. Interpretation of the cemetery should not overtly herald its presence to people moving through the site (Landscape Data Sheet L01, L01a). 	This has not been undertaken and is not intended to be undertaken.
Administration Precinct		
Building S2	<ul style="list-style-type: none"> The extension to the timber verandah is not approved as this would adversely alter the external configuration of the building, which makes a strong aesthetic contribution to the centre and core areas of the site (DACMP Building Data Sheet S02). However, if the preparation of detailed design plans for the building indicates that alterations to the verandah are necessary to accommodate disabled access, then these may occur subject to approval of the design and construction plans. Refer also Schedule 3. 	This has not been undertaken and is not intended to be undertaken.
Building S4	<ul style="list-style-type: none"> Changes to the bathroom fitout are not approved as it is a rare surviving fitout of an early bathroom 	This has not been undertaken and is not intended to be undertaken.

Location	Element refused and additional comments	Compliance Status
	<p>on the site. Any adaptation of the bathroom must retain the fabric specified in DACMP Building Data Sheet S04.</p> <ul style="list-style-type: none"> Reconstruction of the verandah based on research may occur. 	
Building S10	<ul style="list-style-type: none"> Demolition of the verandah structure is not approved, however removal of the AC infills may occur, consistent with DACMP Building Data Sheet S10. 	This has not been undertaken and is not intended to be undertaken.
Building S12	<ul style="list-style-type: none"> The conversion of the laundry to a bathroom is not approved as it is a largely intact and rare example on the site (DACMP Building Data Sheet S12). 	This has not been undertaken and is not intended to be undertaken.
First and Second Class Precincts		
Eastern perimeter of road through First and Second Class	<ul style="list-style-type: none"> Power poles - the removal of overhead power poles is not approved, except where they are to be replaced with new poles of a similar size and materials (DACMP CPP 16.8.2). 	This has not been undertaken and is not intended to be undertaken.
Gravel path from P12 to top of the Funicular stairway	<ul style="list-style-type: none"> The proposal gravel path (as shown in Figure 2.1 of the PAS) is not approved, as this is an area of potential foraging habitat for Long-nosed Bandicoots and in accordance with DACMP Policy GCP13.3.29. 	This has not been undertaken and is not intended to be undertaken.

SCHEDULE 3

ASPECTS OF THE PROPOSAL APPROVED SUBJECT TO MODIFICATION OR DETAILED DESIGN (CONDITION 18)

The following aspects of the proposal are approved, subject to achievement of the specific outcomes and objectives shown in the table and:

- Compliance with the Quarantine Station Archaeological Management Plan (AMP)
- Any necessary approvals being obtained from the NSW Heritage Council; and
- Compliance with the NPWS Construction Assessment and Approvals Procedure

Approved	Specific Outcomes / Objectives	Compliance Status
Cross Precinct Issues		
Various buildings: methods for cooling and heating rooms	<ul style="list-style-type: none"> • Rooms to be used for dining, kitchens, function and conference related purposes, as well as archival or records storage and administration may include appropriate contemporary technologies for cooling and heating, which includes installation of room air-conditioning in accordance with Heritage Council approval dated 2 March 2017 that can be reversed at any time. • Ceiling fans may be installed in other buildings, with preference to fans mounted over the ceiling light to minimise fabric impact. • Details of any proposed cooling and heating systems shall be included in the construction works application for the particular building. The application must demonstrate that the proposed system: <ul style="list-style-type: none"> ○ Will have as little adverse impact on significant fabric as practicable; ○ Will not have significant adverse visual impacts; and • Is clearly capable of being removed, and fabric reinstated, at some future point consistent with the principle of reversibility. 	No works were undertaken in regard to this item during the reporting period.
Road repairs	<ul style="list-style-type: none"> • No timber kerbs are to be installed as this is contrary to the DACMP policy GCP 13.3.43, which states that new retaining walls (this includes kerbs) 	No works were undertaken in regard to this item during the reporting period.

	should be sympathetic to neighbouring examples in terms of scale, material and texture.	
Lower Reservoir – water reservoirs/tanks	<ul style="list-style-type: none"> Full details of the proposed design and layout of the water reservoirs and associated infrastructure are to be submitted to the DEC. This shall include evidence of consultation with Sydney Water (condition 16). 	No works were undertaken in regard to this item during the reporting period.
Excavation and installation of second water network for fire purposes	<ul style="list-style-type: none"> Relevant assessments are to be undertaken in accordance with the Archaeological Management Plan. 	No works were undertaken in regard to this item during the reporting period.
Symbolic fences	<ul style="list-style-type: none"> Location and design options for the symbolic fences are to be addressed in the outdoor visitor infrastructure plan (condition 112). Documentary evidence of earlier fences and/or boundary markers must be considered. 	No works were undertaken in regard to this item during the reporting period.
Artificial foraging habitat for Long-nosed Bandicoots – below P1, A28-29, P3, P5, P7 and near CP5	<ul style="list-style-type: none"> Habitat reconstruction and/or rehabilitation shall only occur in accordance with the revised habitat assessment (condition 165). 	No works were undertaken in regard to this item during the reporting period.
Wharf Precinct		
Removal or modification of the existing fence along the beachfront.	<p>Any modification or replacement of the existing fence shall occur in accordance with the following criteria:</p> <ul style="list-style-type: none"> the design and materials will reflect the historic separation of uses and the need to provide adequate security (especially at night), but may allow for improved views and reduced visual impacts; limited openings in the fence may be provided, but must be capable of being closed for security 	No works were undertaken in regard to this item during the reporting period.

	<p>reasons. Suitable areas include near the wharf and behind building A7;</p> <ul style="list-style-type: none"> • there shall be no openings at the northern end of the beach in the immediate vicinity of the outdoor eating area at A6, with the exception of openings to assist the movement of Little Penguins. Any existing openings in this area are to remain closed and are not to be available for general public access to the beach; • any openings shall be of the minimum width necessary, but may be capable of being expanded in the event of an emergency; • any openings are to include measures to protect the dunes and grassed areas and to prevent erosion; and • temporary signage is to be provided on the beach during the Little Penguin breeding season, as detailed in condition 175). 	
Waterfront forecourt	<ul style="list-style-type: none"> • Design of sculptures to be approved by DEC. 	No works were undertaken in regard to this item during the reporting period.
A14-17 – Visitor Centre	<ul style="list-style-type: none"> • The theatrettes are to follow the general layout and direction shown in Drawing No. L-A14-17 of the PAS, but options shall be investigated to provide for a greater retention of luggage racks. 	No works were undertaken in regard to this item during the reporting period.
Open area between A7, A8 and A11-12	<ul style="list-style-type: none"> • A5 symbolic presentation - removal of the bitumen to uncover footings is to occur in accordance with the provisions of the AMP. 	No works were undertaken in regard to this item during the reporting period.
A6 – shade structures	<p>Indoors</p> <ul style="list-style-type: none"> • The timber platform may be relocated to another area within A6 if necessary. • The construction works application shall specifically address the following matters: <ul style="list-style-type: none"> ○ Provide details of access and serving arrangements for sit-down and take-away food provision; 	No works were undertaken in regard to this item during the reporting period.

- Details of the proposed mezzanine, which shall be generally in accordance with the preliminary details provided by the Proponent and NPWS on 14 October 2002, and designed to minimise the mezzanine floor area (eg. By efficient table layouts);
- Demonstrate that the proposal will have as little adverse impact on significant fabric as practicable;
- Demonstrate that the exhaust flue will have as little adverse visual impact on the external appearance of the building as practicable; and
- Demonstrate that the finishes, equipment and services required for the restaurant operation are clearly capable of being removed, and fabric reinstated, at some future point consistent with the principle of reversibility.

Outdoors

- The boundary of the outdoor eating area must correspond with the beachside building line of A6.
 - The existing coral trees in the vicinity of the outdoor eating area shall be regularly inspected and maintained in accordance with condition 160.
 - A shade structure/s over the outdoor eating area beside the Boilerhouse (Building A6) may be provided in accordance with approval granted by NSW Heritage Division (or any subsequent agency).
 - Individual umbrellas and/or temporary shade structures are permitted in outdoor eating areas, including the wharf area, where there is no permanent shade structure.
 - Any umbrella or shade structure must be positioned as to minimise, to the maximum extent possible, any adverse visual impact. It shall not
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	<p>contain any third-party advertising to the site and its operation.</p> <ul style="list-style-type: none"> • The colour and nature of shade structures and/or umbrellas is to be neutral and in keeping with the natural environment • The colour, type, location, time limits and frequency of use of umbrellas or any shade structure must be approved by the Heritage Council prior to commencing use. 	
A6 – sewer outlet	<ul style="list-style-type: none"> • The final route is to be determined following completion of assessments in accordance with the AMP and following approval of the Infrastructure Control Plan (condition 105). 	No works were undertaken in regard to this item during the reporting period.
Construction of stairway over the former funicular railway	<p>The final location of the route is to be determined following the outcomes of an archaeological assessment in accordance with the AMP.</p> <ul style="list-style-type: none"> • The stairway width shall be kept to the minimum necessary to comply with BCA requirements. • No viewing or landing platforms shall be constructed, except where these may be necessary to achieve compliance with the BCA. • Preference shall be given to a metal construction, rather than timber, with the physical footprint of the structure kept to the minimum necessary to comply with the BCA. • The structure shall be of a colour that allows it to blend with the surrounding landscape. • The entire route of the former Funicular shall be identified and interpreted. • Lopping, trimming or removal of vegetation adjoining the stairway shall not occur, except where this is necessary as part of the stairway construction process or for on-going public safety. Vegetation shall not be removed for the sole purpose of improving views from the stairway. 	No works were undertaken in regard to this item during the reporting period.
Bitumen pathway to hospital	<ul style="list-style-type: none"> • Options for managing public access to the inscriptions, including re-alignment of the walkway, 	No works were undertaken in regard to this item during the reporting period.

	are to be considered in development of the Inscriptions Management Plan (condition 95).	
Second Cemetery	<ul style="list-style-type: none"> Options for re-instatement of headstones are to be addressed in the Heritage Landscape Management Plan (condition 91). Any proposal to re-instate headstones must be based on archival evidence regarding the original location of headstones. Where this is not available, the manner of reinstatement must clearly demonstrate this lost knowledge. Any evidence of graves, including clay banking from 1881, shall be retained as per DACMP Landscape Data Sheet L01 and L01a. 	No works were undertaken in regard to this item during the reporting period.
Building S9	<ul style="list-style-type: none"> Research into the construction history of the building is required prior to undertaking any works on this building. The results of this research should form the basis for developing an approach to the ongoing use and maintenance of this building. 	No works were undertaken in regard to this item during the reporting period.
Building P14-16	<ul style="list-style-type: none"> Detailed design work is to be submitted for proposed alterations to the shower and toilet blocks to address the requirements of the DACMP and relevant public health and educational facility requirements. If the public health and educational facility requirements cannot be met without significant departure from the provisions of the DACMP, then the alterations shall not proceed and alternative bathroom and shower arrangements must be made. Alternate options to carpeting within this building (eg. rugs) consistent with DACMP requirements for floors must be submitted. 	No works were undertaken in regard to this item during the reporting period.
Building P28-29	<ul style="list-style-type: none"> Retention of as much significant fabric as possible in accordance with DACMP Building Date Sheet P28-29. 	No works were undertaken in regard to this item during the reporting period.
Hospital and Isolation Precinct		

H6	<ul style="list-style-type: none"> • Details of the approach to rectifying any problems associated with rising damp are to be submitted. 	No works were undertaken in regard to this item during the reporting period.
H7-11 – accommodation	<ul style="list-style-type: none"> • Details of options for the retention of the 1914-1916 fabric and at least some of the 1958 fabric, in accordance with DACMP requirements, are to be submitted 	No works were undertaken in regard to this item during the reporting period.
H15	<ul style="list-style-type: none"> • The addition of a free standing timber platform above the ground alongside H15 is approved, subject to the submission of design details that demonstrate this would not significantly alter the form of the building, its appearance, starkness in the landscape or its basic amenity (DACMP Building Date Sheet H15). • The timber platform shall be designed and constructed to be reversible and should be constructed close to the ground to minimise the need for a balustrade. 	No works were undertaken in regard to this item during the reporting period.
Administration Precinct		
S2	<p>Adaptation must retain as much significant fabric as possible as specified in DACMP Building Data Sheet S02. Particular attention shall be given to:</p> <ul style="list-style-type: none"> • retention of as much of the partition layout as practicable; • assess options for providing efficient guest access to the building, including swapping the location of the reception and guest lounge rooms as shown in Drawing No. L-S2 of the draft Site Master Plan (EIS Vol. 3); • assess options for disabled access to the building; and • removal of the lattice screen to the eastern verandah. • Refer also Schedule 2. 	No works were undertaken in regard to this item during the reporting period.
S4	<ul style="list-style-type: none"> • Reconstruction of the verandah shall occur following completion of research regarding an appropriate design. 	No works were undertaken in regard to this item during the reporting period.

A28-29 – visitor shelter	<ul style="list-style-type: none"> • Details of the proposed mural are to be submitted to the DEC for approval. • Provision for the retention of as much original fabric as possible shall be made in finalising detailed design plans for this building in accordance with DACMP requirements. • A sub-floor archaeological assessment is to be completed. 	No works were undertaken in regard to this item during the reporting period.
A20	<ul style="list-style-type: none"> • Details of the proposed sampling approach to conservation of fabric, as per DACMP Building Data Sheet A20, are to be submitted. 	No works were undertaken in regard to this item during the reporting period.
A26 – visitor shelter	<ul style="list-style-type: none"> • Details of the proposed mural are to be submitted to the DEC. 	No works were undertaken in regard to this item during the reporting period.
A2	<ul style="list-style-type: none"> • Final design and material details for the entry area being submitted in accordance with the approved Heritage Landscape Master Plan (condition 91). • Adaptation must retain as much fabric as possible as specified in DACMP Building Data Sheet A02. 	No works were undertaken in regard to this item during the reporting period.
First and Second Class Precincts		
Eastern perimeter of road through First and Second Class	<ul style="list-style-type: none"> • Service trench – assessments must be completed in accordance with the AMP. 	No works were undertaken in regard to this item during the reporting period.
P1, P2	<ul style="list-style-type: none"> • Complete removal of all wall hot water tanks is not appropriate. Details of a sampling strategy must be submitted. 	No works were undertaken in regard to this item during the reporting period.
P1, P2 and P9	<ul style="list-style-type: none"> • Corridors in these buildings shall be retained as a functioning part of the building. That is, they will be available for use by guests. Internal doors from rooms into these corridors must not be permanently sealed. 	No works were undertaken in regard to this item during the reporting period.
Re-instatement of badminton base, croquet	<ul style="list-style-type: none"> • Options for re-instatement are to be addressed in the Heritage Landscape Management Plan (condition 91). 	No works were undertaken in regard to this item during the reporting period.

lawn and tennis
court

Building P11, P12

- Consistent with DACMP Building Data Sheets P11 and P12 the reconstruction of former stairs on the western elevation of buildings and the uncovering of fireplaces must be addressed in the construction works application for these buildings.

Emergency removal of stairs removed for safety.
Replacement of the stairs is under discussion with QSCCC.

SCHEDULE 4

WORKS ASSOCIATED WITH THE WHARF (CONDITION 42)

Condition Number	Condition	Compliance Status
1	<p>The following information shall be provided with the application:</p> <ul style="list-style-type: none"> a) Four copies of detailed dimensioned working drawings, all signed by the co-proponents (or their delegate), complying with the “Guidelines for Waterside Structures” fully and clearly describing all the proposed works and their components; b) A condition survey report that includes <ul style="list-style-type: none"> • Appropriate photographs • A detailed engineering commentary on the structure integrity of appropriate elements of the existing wharf • Appropriate sketches or drawings; c) A diver’s inspection and pile inspection report; d) Calculations to verify that the existing wharf is structurally sufficient to carry the proposed loads; e) Correspondence from the operator that the wharf will be satisfactory for its intended use; and f) Details of appropriate lighting to the wharf deck 	<p>No works were undertaken to the wharf during the reporting period.</p>
2	<p>The following specifications shall be complied with:</p> <ul style="list-style-type: none"> a) Any parts of the existing wharf that require removal must be completely removed from Waterways Authority land. All piles and piers involved are to be completely withdrawn from the bed of the Spring Cove and not cut off. In 	<p>No works were undertaken to the wharf during the reporting period.</p>

Condition Number	Condition	Compliance Status
	<p>accordance with condition 41), where such works require excavation or disturbance of the seabed a separate application and approval under Part 5 of the Environmental Planning and Assessment Act 1979 will be required; and</p> <p>b) All work is to be done in such a way that no construction or demolition debris etc falls, flows or is carried to the bed or waters of the Spring Cove and any such material entering the Cove is to be removed immediately</p>	
3	<p>Prior to commencement of use of the wharf, the following works must be undertaken to the satisfaction of the Waterways Authority:</p> <p>a) Installation of lifebuoys and ladders on the wharf;</p> <p>b) The top ½ metre of the mooring/fender piles shall be painted and kept painted white: all other elements of the facility shall be left unpainted or, if painting is required, be painted in a mid grey colour with matt finish; and</p> <p>c) Installation of signage indicating that the wharf is for use by the public ferry service only and is not available for private access or mooring.</p>	No works were undertaken to the wharf during the reporting period.

SCHEDULE 5

LONG-NOSED BANDICOOTS – MONITORING REQUIREMENTS (CONDITION 167)

The co-proponents shall undertake the following monitoring program

1. The co-proponents will negotiate with the DEC an annual contribution to assist the on-going implementation of any monitoring programs established as par of the Long-nosed Bandicoot Recovery Plan (once adopted). The contribution will be adjusted annually to reflect changes in the CPI.
2. The following specific elements shall also be monitored by the co-proponents

Element	Timing	Methods	Compliance
Bandicoot activity and use of foraging habitat	To commence within one month of the commencement date	Monitoring will be undertaken using spotlight transects and surveys of Long-nosed Bandicoot diggings on a three monthly basis and will compare areas generally unaffected by the proposal (control areas) with areas potentially affected by the proposal (either by construction activities or visitors).	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)
Any enhanced, reconstructed or rehabilitated habitat established in accordance with condition 165)	To commence within one month of the works being completed	See above, but also to include identification of what use bandicoots are making of the enhanced habitat areas, i.e. foraging, shelter, nesting.	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)
Deaths of Long-nosed Bandicoots attributable to vehicles. Road-deaths are taken to include any bandicoot remains identified on or next to roads	To begin within one month of the commencement date and to occur for the duration of the approval.	Road-death monitoring shall be conducted by an appropriately trained and licensed person on a daily basis, within two hours of sunrise and is to be undertaken by driving set routes at slow speeds. <ul style="list-style-type: none"> • monitored roads are to include all public roads within Sydney Harbour National Park i.e. Blue Fish Road, Collins Beach Road, North Head Scenic Drive from the Parkhill Archway to the North Head look out, and the internal roads with the Quarantine Station. • road deaths are to be recorded on a publicly accessible mortality register, noting basic morphological details (age, sex and condition), the date, the name of the recorder, microchip number of the animal (if present) and the location plotted using a GIS-based map (see also 	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)

Element	Timing	Methods	Compliance
		<p>conditions 169A and 66). For the purposes of road mortality monitoring an adult Long-nosed Bandicoot is defined as: female – 450 grams or heavier; male –heavier than 650 grams.</p> <ul style="list-style-type: none"> opportunities are to exist for the public to provide notification of road deaths that can be verified by a dead specimen or adequate photographic evidence. <p>where the cause of death or the age of the individual cannot be determined at the time of notification, the remains are to be collected and stored and a necroscopy undertaken as soon as possible. Costs of the verification process shall be met by the co-proponents.</p>	

SCHEDULE 6

LONG-NOSED BANDICOOTS: ADAPTIVE MANAGEMENT – ROAD MORTALITIES (CONDITION 169)

Trigger	Trigger mechanisms	Compliance Status
Boundary of road mortality monitoring	For the purposes of applying the following trigger mechanisms, Long-nosed Bandicoot road mortalities are those adult mortalities recorded in accordance with the methods specified in Schedule 5 but only for internal roads of the Quarantine Station.	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)
Trigger 1	If the level of private vehicle traffic generated by the proposal increases 10% above the projected levels measures shall be introduced to reduce traffic volumes to below these levels and as close as possible to the original projections. Trigger 1 will apply regardless of whether the following triggers have been reached and visa versa (e.g. Trigger 2 could occur first, with Trigger 1 occurring at a later stage).	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)
Trigger 2	<p>If in any six-month period there are 2 recorded adult road mortalities above the background level then the co-proponents must implement the following measures, unless otherwise agreed by the DEC:</p> <ul style="list-style-type: none"> (a) seek approval from the relevant authorities (including Council if necessary) to install additional traffic calming devices and signage at appropriate locations within or outside of the site as informed by the mortality register (Schedule 5) and GIS (Condition 66); (b) investigate the feasibility of providing road-side fencing to create defined road-crossing points for Long-nosed Bandicoots, particularly using the existing traffic calming devices; and (c) reduce the frequency and alter the timing of functions, conferences and activities (e.g. scheduling finishing times of activities to minimise traffic leaving or arriving at the site after sunset). With the exception of any additional traffic calming devices, fencing and signage, the measures may be reversed with approval from the DEC if adult road deaths return to less than 2 above the background level for six consecutive months. 	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)
Trigger 3	<p>If the measures in Trigger 2 above have been applied and adult road mortalities continue to exceed 2 deaths above the background level for a further six months then the co-proponents shall also implement the following measures, unless otherwise agreed by the DEC:</p> <ul style="list-style-type: none"> (a) implement a sunset-to-sunrise curfew for overnight guest and day visitor private vehicles arriving at or leaving the site (including CP1 if at least half the mortalities have occurred outside of the site). During the curfew: 	See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)

Trigger	Trigger mechanisms	Compliance Status
	<ul style="list-style-type: none"> o buses and coaches may continue to access the site in accordance with conditions 150) and 151); o the shuttle bus may continue to run from CPI to areas within the site; and o staff may continue to access and park in CP5 at all times; <p>(b) provide a night shuttle bus service between Manly and the site (or some other means of public transport); and</p> <p>(c) implement measures identified in the assessment of habitat reconstruction and rehabilitation options (condition 165) that have not already been undertaken.</p> <p>The curfew must be implemented within 2 weeks of the six month mortality information becoming available. The curfew may be lifted and the shuttle bus service concluded with approval from the DEC once adult road mortalities return to less than 2 above the background level for six consecutive months.</p>	
<p>Trigger 4</p>	<p>If the measures in Trigger 3 above have been applied and adult road mortalities continue to exceed 2 deaths above the background level for a further six months then the co-proponents shall also implement the following measures, unless otherwise agreed by the DEC:</p> <ul style="list-style-type: none"> • implement a total day and night ban on all guest and visitor private vehicles entering the site (including CP1 if at least half the mortalities have occurred outside the site). During the ban: <ul style="list-style-type: none"> o buses and coaches may continue to access the site in accordance with conditions 150) and 151); o the shuttle bus may continue to run from CPI to areas within the site; and o if at least half the mortalities have occurred inside the site, staff may only park in CP1 (with no restrictions on timing) otherwise staff may continue to access and park in CP5 at all times; and • provide a day and night shuttle bus service between Manly and the site (or some other means of public transport). <p>The ban must be implemented within 4 weeks of the six month mortality information becoming available. The ban and associated restrictions may be lifted with approval from the DEC once adult road mortalities return to less than 2 above the background level for 12 consecutive months.</p>	<p>See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)</p>
<p>Trigger 5 – potentially catastrophic events</p>	<p>If there are 10 adult road mortalities or more in any one month period or 15 or more in any consecutive three-month period, then all the measures identified in Triggers 2, 3 and 4 shall be implemented, unless otherwise agreed by the DEC. Where these are inconsistent, the more</p>	<p>See Appendix B – An analysis of the May 2020 census of the North Head Long-nosed</p>

Trigger	Trigger mechanisms	Compliance Status
	<p>restrictive of the measures is to apply).</p> <p>The measures must be implemented within 2 weeks of the mortality information becoming available. The measures may only be reversed with approval from the DEC if adult road mortalities are less than the background level for 12 consecutive months.</p>	<p>Bandicoot Population. April 2021 (Draft Report)</p>

SCHEDULE 7

LONG-NOSED BANDICOOTS – CALCULATING THE BACKGROUND ADULT ROAD MORTALITY LEVEL (CONDITION 170)

The following process shall be followed to enable the existing non-comprehensive monitoring information to be phased out and replaced by the new monitoring information. However, if the provisions of conditions 172) and 173) are enacted then they shall prevail over the following process

Process

- The revised background adult road mortality level is to be established by calculating a weighted average of the pre-commencement adult road mortalities (ie, the existing 10 per six months) with post-commencement recorded adult road mortalities, on the following basis:
- For the second year after the commencement date, the background level = 75% of 10 deaths plus 25% of the average six-monthly post-approval deaths (ie, adult road mortalities recorded during the first year after the commencement date);
- For the third year after the commencement date, the background level = 50% of 10 deaths plus 50% of the average six monthly post-approval deaths (ie. Adult road mortalities recorded in the two years after the commencement date);
- For the fourth year after the commencement date, the background level = 25% of 10 deaths plus 75% of the average six monthly post-approval deaths (ie. Adult road mortalities recorded in the three years after the commencement date); and
- For the fifth year after the commencement date the background level = the average six monthly post-approval deaths as recorded during the four years since the commencement date. This background level will be applied for the remainder for the life of the activity.

SCHEDULE 8

LITTLE PENGUINS: ADAPTIVE MANAGEMENT (CONDITION 179)

Trigger	Trigger Mechanism	Compliance Status
Trigger 1	<p>1) If monitoring indicates that the number of active Little Penguin breeding burrows between Cannae Point and the southern end of Store Beach has significantly decreased over two successive breeding seasons (July to February inclusive), and the DEC is satisfied that such decreases are either fully or partially related to the activity, the DEC may direct the co-proponents to implement appropriate measures. The measures may include, but not be limited to:</p> <ul style="list-style-type: none"> (a) a reduction in the number of lights and their intensity in the Wharf Precinct, particularly in the vicinity of the restaurant in A6; (b) the provision of acoustic barriers in the vicinity of the restaurant at night, especially the outdoor eating area; (c) cessation of outdoor dining in the vicinity of the restaurant in A6 at night during the breeding season (or all year round); (d) restrictions on ferry movements, such as a set period either side of sunset or no movements between sunset and sunrise; and (e) the provision of alternative public transport to the site during times when ferry movements are restricted. <p>If further on-going monitoring indicates that the number of active Little Penguin breeding burrows in this area continues to decrease over subsequent breeding seasons, the DEC may direct the co-proponents to implement further measures.</p> <p>2) The co-proponents shall comply with any directions issued by the DEC in accordance with clause 1. Any measures required to be implemented may be reversed or altered with the approval of the DEC if monitoring indicates that the number of active Little Penguin breeding burrows for the population has increased over two successive breeding seasons.</p> <p>3) If Little Penguin deaths occur in the vicinity of the site as a result of matters reasonably beyond the control of the co-proponents (such as predator attacks, oil spills, etc), the number of active breeding burrows considered for the purposes of clause 1 may be adjusted in consultation with the</p>	<p>See Appendix C – Manly Little Penguin Recovery Program. 2020/21 Final Monitoring Report. September 2021</p>

	DEC to account for such impacts (e.g. to account for the likely impact of predator related deaths on lowering the number of active burrows).	
Trigger 2 – potentially catastrophic events	<p>1) If information becomes available that indicates a significant reduction in the size of the Little Penguin population or a significant change to the behaviour of the population within a period of less than two successive breeding seasons, and the DEC is satisfied that the activity is likely to have contributed to that decline or change, the DEC may direct the co-proponents to implement appropriate measures. These may include, but are not limited to, the measures specified in Trigger 1.</p> <p>2) The co-proponents shall comply with any directions issued by the DEC under clause 1. Any measures required to be implemented may be reversed or altered with the approval of the DEC.</p>	See Appendix C – Manly Little Penguin Recovery Program. 2020/21 Final Monitoring Report. September 2021

SCHEDULE 9

ENVIRONMENTAL MANAGEMENT PLAN (CONDITION 191)

The EMP shall include the following matters:

- (a) a clear statement of the objectives of the EMP;
- (b) a brief description of the management and the planning framework;
- (c) identification of the statutory and other obligations which the co-proponents must comply with during the undertaking of the activity;
- (d) definition of the roles and responsibilities regarding implementation of the EMP and its various components;
- (e) contact protocols outlining procedures and any notifications to be given before works commence, together with contact details for the relevant project manager;
- (f) induction and training arrangements for contractors and staff;
- (g) community liaison arrangements;
- (h) mapping of key environmental features and proposed environmental safeguards, to include:
 - o topographic features
 - o vegetation cover and threatened species locations/habitat
 - o special items or areas of environmental or heritage sensitivity
 - o suitable locations for construction infrastructure (e.g. machinery and material storage), access ways for vehicles and proposed active work sites
 - o location of sedimentation and erosion controls.

The mapped information should be capable of being incorporated into the GIS system for the site once this is approved and functioning (condition 66).

- (i) specific objectives and strategies for the main environmental management elements. This should, at a minimum, identify what the issue is, compliance and best practice requirements, the action required, who will undertake the action and when. The main elements must include, but are not limited to:
 - o historic heritage
 - o Aboriginal heritage
 - o visitor management, access and traffic
 - o flora and fauna
 - o water quality and hydrological regimes
 - o noise and air quality management
 - o geotechnical issues
 - o erosion and sedimentation
 - o contamination
 - o waste management

- landscaping and rehabilitation
- weed and predator controls
- fire management
- visual issues
- hazards and risks, including measures to ensure public safety during the undertaking of construction and renovation activities (such as temporary fencing)
- energy and resource use and recycling.
- monitoring, inspection and reporting arrangements, including performance criteria, protocols (e.g.: frequency and location) and procedures to follow

7.2 Appendix B – An analysis of the May 2020 census of the North Head Long-nosed Bandicoot Population. April 2021 (Draft Report)

**An analysis of the May 2020 census of the
North Head Long-nosed Bandicoot Population:
A report for NPWS Metropolitan North East Region
NSW Office of Environment & Heritage**

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Behavioural Ecology and Conservation Research
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April 2021

DRAFT REPORT

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
INTRODUCTION	4
METHODS	5
RESULTS	6
Capture distribution by sex and weight classes	6
Spatial distribution of captures	9
Trap status	12
Predicted long-nosed bandicoot population	13
Comparison with previous years	18
DISCUSSION	21
REFERENCES	26
Figure 1: The proportion of males and females in the bandicoot population in each age class.	7
Figure 2: The frequency of male and female weights at first capture.	8
Figure 3: The number of individual bandicoots caught each night.	9
Figure 6: The number of new individuals captured at each transect. Transects that trapped no new individuals are not shown.	12
Figure 7: The proportion of bandicoots, non-target species, open (traps open with bait: OBP, traps open without bait: OBG) and closed traps (traps closed with bait: CBP, traps closed without bait: CBG) each night.	13
Figure 8: The number of bandicoots and non-target species trapped each night. Category 'Other' includes water rats, rabbits, mice and birds.....	13
Figure 9: Estimated total, adult and adult female bandicoot populations (\pm SE) at North Head using the null (M_o), individual heterogeneity (M_h) and individual heterogeneity and behaviour (M_{bh}) estimators of Program CAPTURE.	16
Figure 10: Frequency plot of the capture history types for long-nosed bandicoots... ..	16
Figure 11: Extrapolation of the total, adult and adult female long-nosed bandicoot population at North Head assuming the current trapping program covers 40, 60, 80 and 100% of the total area.....	17
Figure 12: Number of individual bandicoots captured per transect during each of the biennial sessions from 2002 to 2020, based on raw numbers of animals captured.	19
Figure 13: The number of individual bandicoots captured during May and November quarterly or biannual trapping sessions from May 2002 to May 2016 (prepared by Dr Jennifer Anson, Australian Wildlife Conservancy)..	20
Figure 15: The proportion of bandicoots caught only once during biennial surveys from 2004 to 2020.	23
Table 1: Estimated a) total, b) adult and c) adult female population from CAPTURE models.....	15

EXECUTIVE SUMMARY

- A minimum of 109 Long-nosed Bandicoots were trapped 207 times across 49 transects over 4 nights across the North Head headland during the May 2020 biennial monitoring session. This is similar to the number of animals trapped in 2018 and 2016 (114 animals) and the fourth highest number of animals trapped since monitoring began;
- The population remains significantly female-biased – 65 females, 43 males captured – and has a similar sex ratio to that reported in May 2018 (69F:45M) and May 2016 (67F:43M), when it was first reported as female-biased;
- Captures remained significantly adult-biased, with 73% of animals captured classed as adults. The proportion of adult animals captured has increased since May 2016, when 63% of the captures were adults. One female captured had pouch young;
- The adult to juvenile ratio varied between the sexes. 20% of females captured were juveniles while 37% of males captured were juveniles. Female captures were significantly adult-biased while male captures were not as biased towards adults. This represents a shift in demographic structure since May 2018 when only females were adult-biased, and probably a swing back towards previous demographic trends when captures for both sexes were adult-biased (May 2016), and possibly heading back to only males being adult-biased (May 2014).
- 84 new individuals were captured this session, which is less than in May 2018 when 97 new individuals were captured but more than in May 2016 when 67 new individuals were captured;
- Different to previous surveys, transects recording the highest numbers of individuals were not always located adjacent to the urban area; (Transect 52 – 8 individuals, Transect 38 – 7 individuals, Transect 24 – 6 individuals)
- Population modelling indicates a likely trappable population of 183 ± 15 , which suggests an overall headland population of 228 ± 15 (not inclusive of the urban subpopulation);
- The population appears to have stayed relatively stable since 2016 and remains in a female dominated state, but with the proportion of juvenile males increasing;
- Increasing recapture rates within sessions would allow for more accurate population estimates and a better understanding of the carrying capacity of the headland, needed for population viability modelling – key questions are how trap availability, encounter rates with available traps and individual responses to trapping influence bandicoot capture and recapture rates.

INTRODUCTION

The endangered population of Long-nosed Bandicoots (hereafter referred to simply as bandicoots) on North Head has been systematically monitored since 2002. The purpose of the monitoring is to provide regular updates on the status of the population, including the number, demography and distribution of individuals. The monitoring also provides information to assess the potential impacts of planned and future land-use changes on the population, thereby informing recovery actions and reviews of current management activities. Biological material for genetic analysis is also collected.

The monitoring program has generally comprised biannual trapping (May and November) of 20 transects of six traps each set for three days. This standard monitoring is supplemented every second May (biennial trapping) with a larger survey effort of approximately 48 transects of six traps set for five consecutive nights in an attempt to trap all individuals within the population to obtain a population estimate across the entire headland. This report details the results of the biennial trapping undertaken in May 2020 by the NSW Office of the Environment and Heritage – National Parks and Wildlife Service (OEH) and Australian Wildlife Conservancy (AWC). Similar headland surveys have been conducted nine times previously (Table 1). The results of the current survey are compared to previous surveys to monitor temporal population changes. For ease of comparison, the methods, analysis and format of this report largely follow that of previous reports.

Table 1: Previous reports on the whole of headland biennial Long-nosed Bandicoot trapping undertaken at North Head, Manly.

Year	Reference
May 2002	Banks & Hayward 2002
May 2004	Lenehan & Banks 2004
May 2006	Hughes & Banks 2006
May 2008	Bates, et al 2008
May 2010	Bytheway et al 2010
May 2012	Price & Banks 2012
May 2014	Price & Banks 2015
May 2016	Price & Banks 2016
May 2018	Price & Banks 2019

METHODS

The biennial headland survey of May 2020 consisted of 49 transects for 4 nights, with each transect comprising six wire cage traps spaced approximately 20m apart. Traps were set on the 19th May, 16 transects where breeding females are likely to be captured were checked each evening between 8pm and 1 am to clear Long-nosed Bandicoots and then all transects checked and cleared each morning between 5am and 9am (19th – 21st, 23rd May). As a condition by the AEC traps were closed by the morning shift and reopened each afternoon by additional non animal handling teams. Traps were not set or checked on 22nd May because of heavy rain and forecast strong winds. Traps were checked by **eight teams (two night and six day shift)** of experienced people sourced from NPWS, EES, Australian Wildlife Conservancy (AWC), Taronga Zoo, Northern Beaches Council, Sydney University and volunteers. Methods followed the procedures documented in the *Guidelines for Long-nosed Bandicoot Surveys, North Head* (Hall 2020) and DPIE AEC Animal Research Authority 200310/02. At first capture, all bandicoots were scanned for the presence of a unique identifying microchip, weighed, sexed, their reproductive condition checked (presence/absence of pouch young and nipple condition of females), their right hind foot measured and condition was noted. Animals found not to have a microchip were microchipped and ear punches were taken for genetic samples. Comments on general condition were recorded, such as if heavy tick loads were observed. Upon subsequent re-capture, individuals were weighed to ensure they maintained condition throughout the trapping session, and then released. If an individual was caught repeatedly (more than twice) on consecutive days or was found to have lost greater than 10% body weight at a trap, then the trap was closed to protect the welfare of the animal.

North Head is a peninsula of natural vegetation, isolated from other natural areas containing bandicoot populations by extensive suburbs. As a result, migration of animals between populations is very unlikely and the North Head population can therefore be considered closed. This isolation means that estimates of actual population size are possible, rather than using trap success as an index of abundance. Population estimates were derived using the closed population estimation programs CAPTURE (Otis et al 1978; Pollock 1982; White et al 1982) within MARK (White & Burnham 1999). This is considered a more robust and scientifically sound technique than abundance indices (Anderson 2001).

CAPTURE relies upon capture-recapture data to estimate population sizes. Any variation in trapability that was unaccounted for (for example due to time, behaviour at first capture and inherent differences between individuals) will therefore affect the reliability of the population estimates (Minta et al 1990). Because of this potential for bias, three important factors that may affect capture probabilities and therefore population estimates were accounted for via different models. Specifically, these models were M_t (assumes that capture probabilities vary with time), M_b (assumes that capture probabilities vary by behavioural response to capture), M_h (assumes that capture probabilities vary by individual), M_{bh} (assumes that capture probabilities vary by individual animal and behavioural response to capture), M_{th} (assumes that capture probabilities vary by time and individual animal) and a null model M_o (assumes all

members of the population are equally at risk of capture on every trapping occasion) (Minta et al 1990; Pledger 2000; Rexstad & Burnham 2006).

As had been done previously, three groups of bandicoot trapping records were modelled. The total population size (adults and subadults) was estimated using the capture history of every individual trapped during the four-day period. Two subsets of this dataset were also modelled: the adult population and the adult female population. The adult female population size is considered the most important for this report as it is likely to be the effective population size.

Although transects were distributed relatively evenly across North Head, it is unlikely all potential bandicoot habitat was trapped due to a combination of logistic and access constraints. For this reason and to better understand potential total population, various estimates of the total population size are made by assuming that 40%, 60% or 80% of the population was trapped.

RESULTS

A minimum of 109 individual long-nosed bandicoots were caught 207 times over the four days of trapping in May 2020, providing a reasonable basis for population modelling. There were an additional 10 captures of animals that either escaped before being identified or microchipped, or could not be microchipped because of equipment failure. At least two of these unchipped animals were females, suggesting the total number of individuals captured may be closer to 111 animals, however we have only used the 109 microchipped animals for our statistical calculations below.

Capture distribution by sex and weight classes

The sex ratio was skewed towards females, with 65 females and 43 males trapped ($p=0.03$, $n=108$, $\chi^2=4.481$, $df=1$). Captures were adult biased for females, but not males. In total 29 individuals (16 males and 13 females) were classified as juvenile (<450g for females and <650g for males) (Figure 1) (males: $p=0.23$, $n=43$, $\chi^2=1.446$, $df=1$; females: $p=0.0002$, $n=65$, $\chi^2=13.46$, $df=1$). Overall, adults comprised approximately 73% of the total animals captured, stable since May 2018 suggesting that the population remains relatively mature and stable.

Until now, the demographic structure of the population has changed with every survey, shifting from both sexes being adult-biased in 2012 to only males being adult-biased in 2014 through to both sexes being adult-biased in 2016. Only females have been adult-biased since May 2018, but it appears to be less strongly biased now than in 2018.

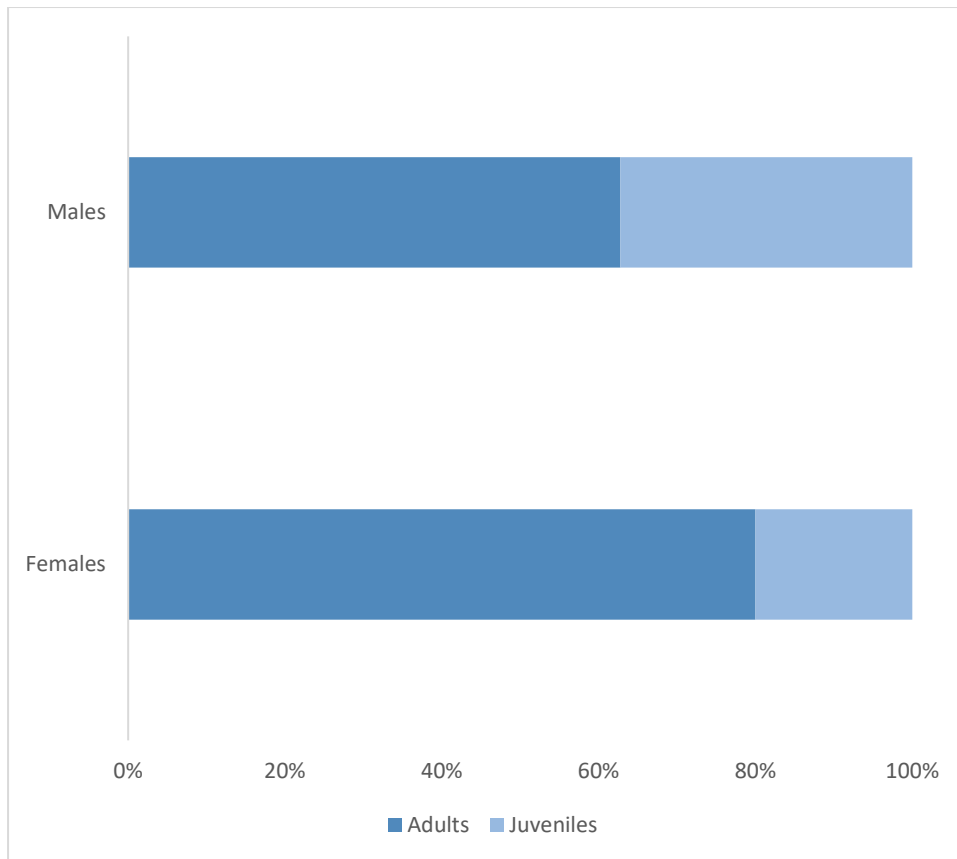


Figure 1: The proportion of males and females in the bandicoot population in each age class. Dark blue represents the proportion of adults captured and light blue represents the proportion of juveniles. Males >650g and females >450g were classified as adults.

The frequency of captures across all weight ranges (at first capture; Figure 2) shows that females are skewed to the middle and lower end of the weight range with males spread throughout weight range, but with peaks in the heavier weight classes. The weight class with the highest number of females were captured was the 651-750g weight class (n=16). The weight classes which supported the highest number of males was the 851-950g (n=11).

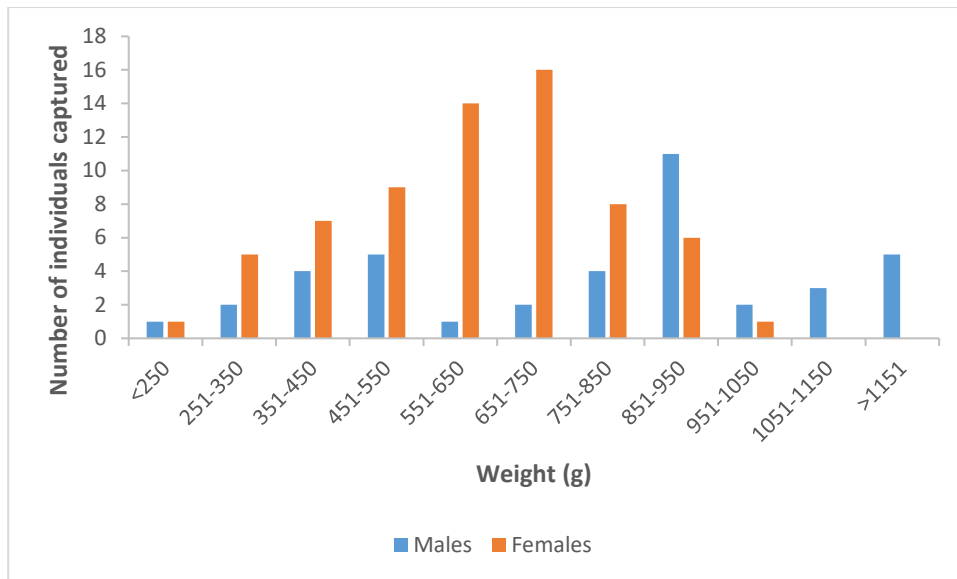


Figure 2: The frequency of male and female weights at first capture.

Similar to 2018, a reasonably high proportion of females subadults were captured ($n=7$), but only 1 male was trapped within 100g of the adult weight range. Male bandicoots were the heaviest individuals captured, with 5 weighing over 1151g. Only 1 female was observed carrying pouch young (Total: 2 PY) and no other signs of recent breeding were recorded.

17 individuals were recaptured from previous sessions (12 females and 5 males). This is less than the number of recaptures in 2018 (24 recaptures), and 2016 (45 recaptures) but may also be a consequence of fewer trap nights being undertaken. In contrast to previous surveys, none of the recaptured animals were more than 2 years old (i.e., first captured in May 2018), indicating that there may have been slightly more turnover of older animals recently than in previous years. However, there are usually only a couple of older animals caught and most years the results indicate that very few (if any) animals currently survive for more than two years on the headland, which is similar to this survey. All of these animals were caught repeatedly on the same or neighbouring transects indicating little movement between sessions. These results further support the hypothesis that movement by Long-nosed Bandicoots may be associated with higher mortality, although a more detailed analysis should be undertaken before making firm conclusions.

The number of individuals captured each night fluctuated but increased overall across the four night trapping period (Figure 3). The highest number of animals were caught on the last night. More females than males were trapped each night. The cumulative number of individuals trapped increased with time (Figure 4), suggesting that the four night trapping period was insufficient to capture all of the trappable individuals within the population. On the final night of trapping, seven new males and ten new females were caught. A factor that may have influenced trapping rates was

the number of non-target captures and the high proportion of traps that were closed yet empty or had bait removed but remained open.

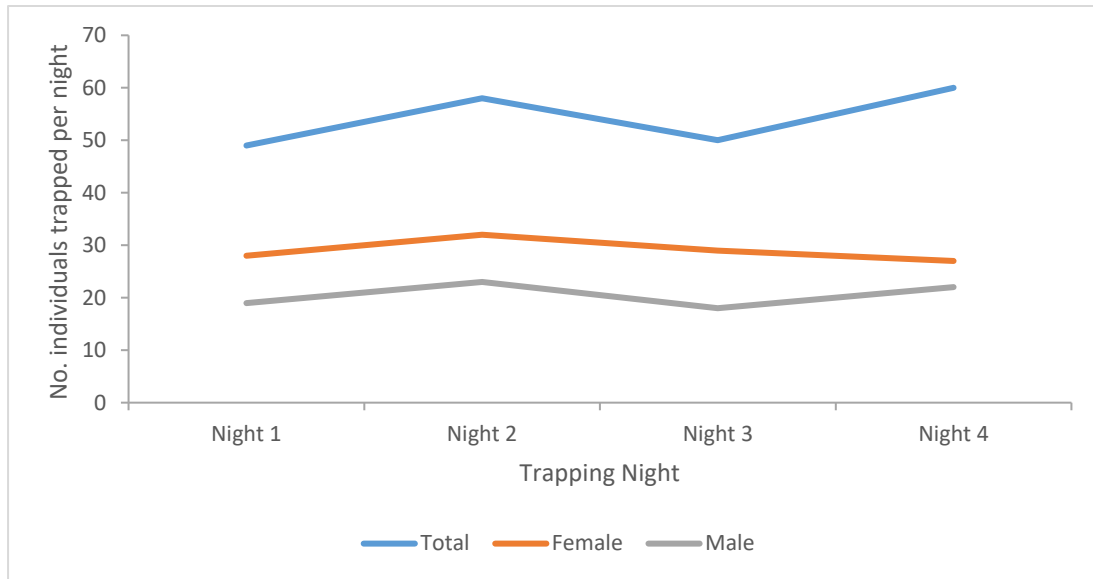


Figure 3: The number of individual bandicoots caught each night.

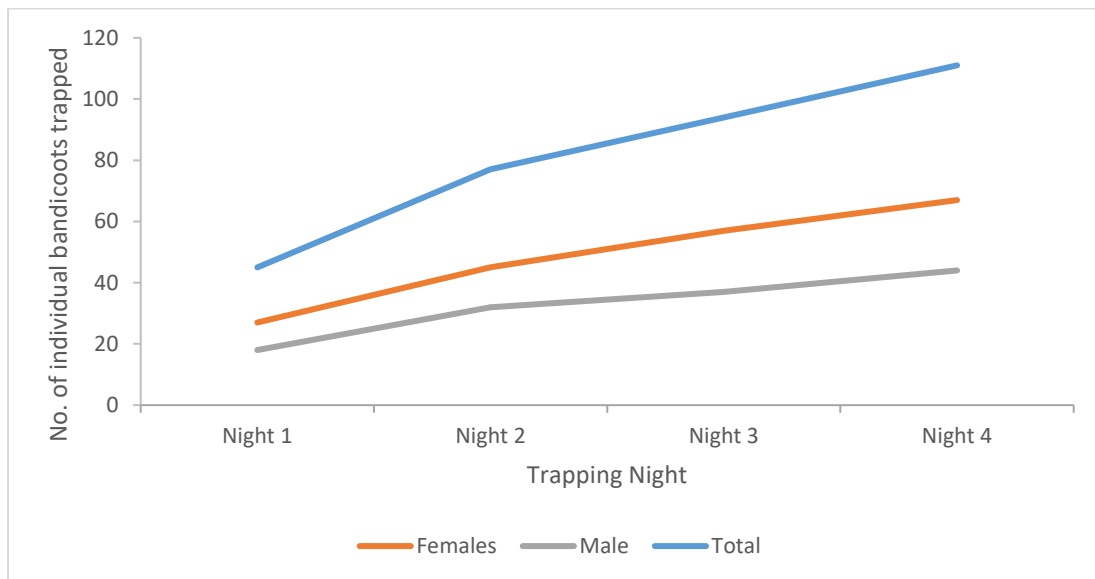


Figure 4: The cumulative number of individual bandicoots caught over the trapping period.

Spatial distribution of captures

There was high spatial variability in the number of total bandicoot captures, ranging from zero capture at four transects to twelve captures at one transect (Figures 5 & 6) (average total captures per transect: 4.7; standard deviation: 3.2). There was also variability in the number of bandicoot individuals captured across transects, ranging from one at 12 transects to eight bandicoots at two transects, T52 and T38 (Figure 5) (average number of individuals per transect: 2.5; standard deviation: 1.9).

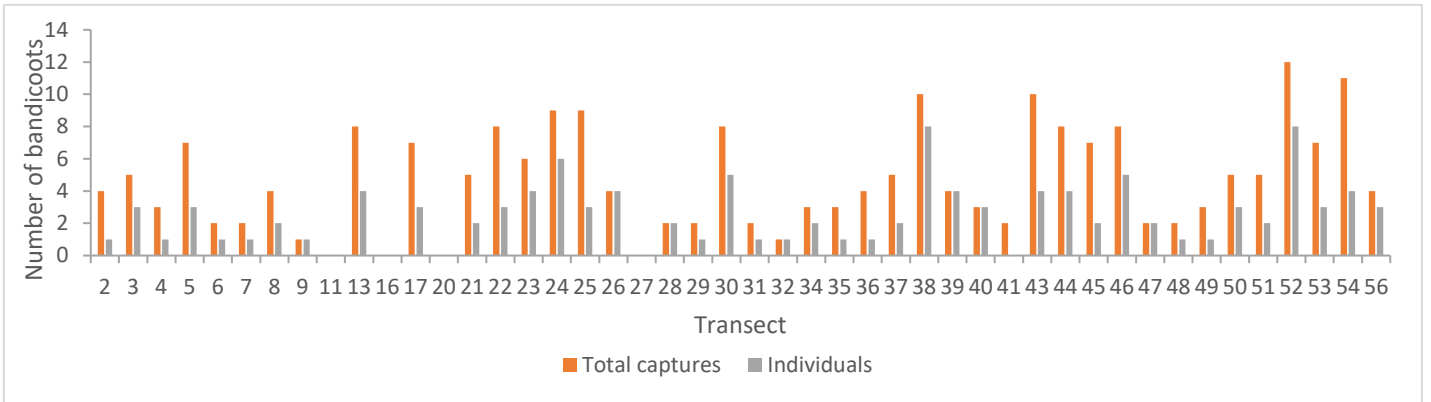


Figure 5: The total number of bandicoot captures and individual bandicoots captured at each transect.



Figure 6: A map of North Head showing the location of transects. Courtesy of Australian Wildlife Conservancy.

As the preferred habitat has been established for bandicoots on North Head (open grassy areas adjacent to closed refuge and nesting sites), analysis of open and closed habitats has not been included in this report. Classification of habitat and

bandicoots use of it can be found in various theses conducted on the bandicoot population (Hughes 2002, Lothian 2007).

Of the 96 new individuals captured during the session, 43 were captured on the regular biannual trapping transects (ex-quarterly) and 53 on the biennial transects (Figure 7). The transect where the highest number of new animals were caught (transect 38, 8 new animals) is adjacent to the lawns at St Patrick’s Estate, but on National Park Estate. The other transect with 6 new individuals is peri-urban and adjacent to the new Spring Cove development. The high number of new animals trapped this session is to be expected as there has been no biannual trapping since November 2018, except for AWC trapping associated with reintroductions. It is encouraging to note that 13 new animals were trapped on the St Patrick’s Estate transects, an increase from 10 in 2016. This area has traditionally contributed a high proportion of new individuals, and is thought to either be an area of high turnover or high reproductive output.

26 new individual animals were trapped on the 14 National Park transects (excluding the Quarantine Station) which is an increase from 15 in 2018. 16 new animals were trapped on the nine Quarantine Station transects and 17 on the seven transects within the Sydney Harbour Federation Trust lands (former School of Artillery and North Fort). The three transects directly adjacent to Shelly Beach recorded 10 new individuals and the three transects around Little Manly Beach and Stuart St recorded 6 new individuals. Only one new individual was trapped on the two Manly Hospital transects and 3 new individuals were trapped on the two Police Institute of Management transects.

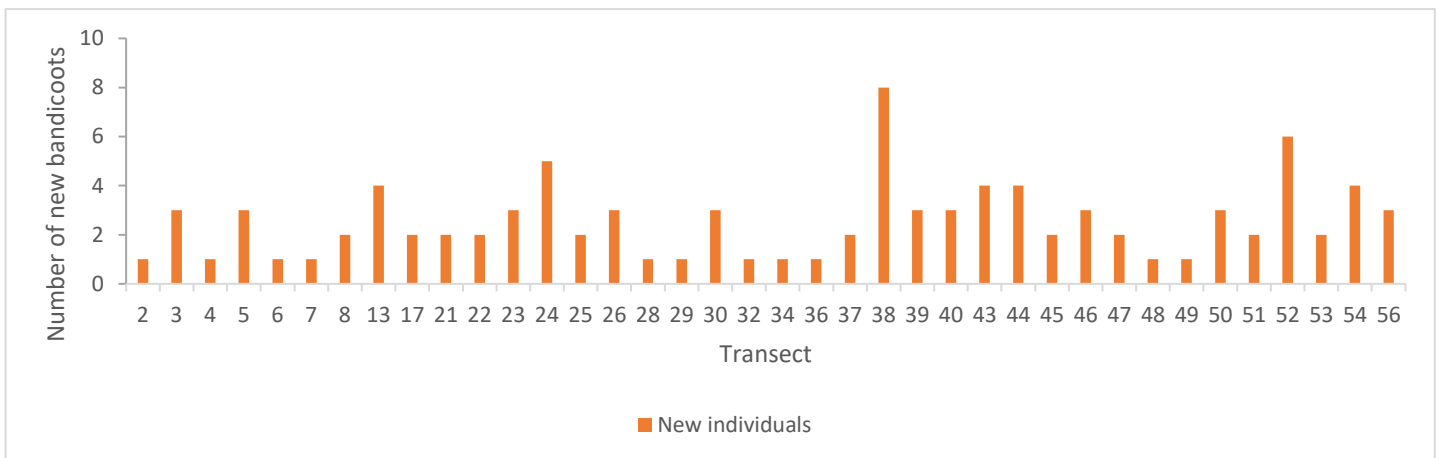


Figure 7: The number of new individuals captured at each transect. Transects that trapped no new individuals are not shown.

Trap status

Competition for traps can lead to underestimates of population size if targeted animals cannot be trapped. Captures of non-target species were not as high as in previous years but there were only four nights of trapping in this survey. There were 82 introduced black rats *Rattus rattus* captured compared to 183 in 2018, and 73 native bush rats *Rattus fuscipes* compared to 93 captures in 2018. Captures of the native brushtail possum were also slightly lower than previous years: May 2020: 155, May 2018: 180 captures. As in previous years, non-target species occupied around 30% of the traps (27%). On average 16% of traps were left open with bait at the end

of each night (Figures 8 & 9), which was higher than in the previous survey (9%) but similar to earlier years (around 15%).

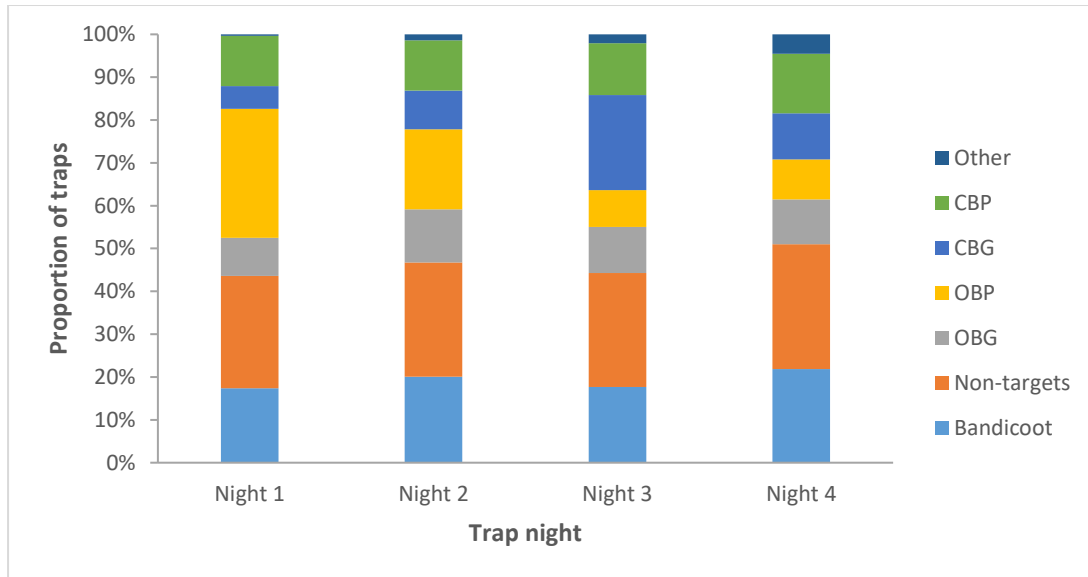


Figure 8: The proportion of bandicoots, non-target species, open (traps open with bait: OBP, traps open without bait: OBG) and closed traps (traps closed with bait: CBP, traps closed without bait: CBG) each night. ‘Other’ refers to traps that were broken, missing, or deliberately closed

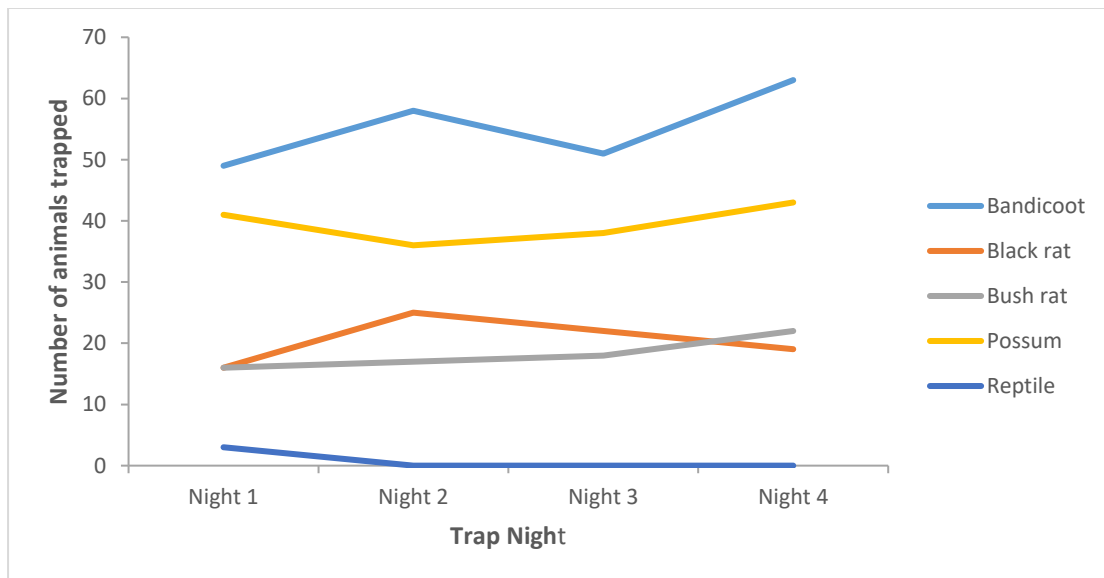


Figure 9: The number of bandicoots and non-target species trapped each night.

Predicted long-nosed bandicoot population

There was variation in the population estimates produced by the different CAPTURE models (Figure 10). According to the null model (M_0), the predicted bandicoot population on the trapped area at North Head is 137 ± 7 , comprising 105 ± 6 adults of which 69 ± 6 are adult females (the effective population; Table 1). CAPTURE’s

preferred estimator for the total population was that which assumes there is heterogeneity in capture probability (M_h ; Table 1). According to this model (M_h), the predicted bandicoot population on the trapped area at North Head is 183 ± 15 individuals (Figure 10). The behaviour and heterogeneity model (M_{bh}) also had a reasonable likelihood of accuracy, with a predicted bandicoot population of 182 ± 16 . Most other models of total population produced variable population estimates with fairly weak probabilities, other than the Null model with a probability of 68% and the time, behaviour and heterogeneity model with a probability of 63% (Table 1). The heterogeneity model (M_h) had the highest probability of predicting the adult population (140 ± 13) and the highest probability of predicting the adult female population (93 ± 11) accurately (Table 1).

Examination of the capture histories (Figure 11) reveals that 59 individuals (approximately 51%) were captured only once, including 13 animals that were only caught on the first night of trapping and 22 animals that were only caught on the last night of trapping. Such a high proportion of the total animals caught only once and for the first time on the last night of trapping, as well as only 4 nights of trapping (not 5, as usual) explains why all models predicted the population contained many more individuals than were actually caught.

Although transects were distributed relatively evenly across the headland, all areas of the headland were unable to be trapped. The total population on North Head is therefore likely to be higher than that predicted. If we assume that only 80% of the total headland area was trapped but that the heterogeneity in capture probability CAPTURE model represents the actual population over 100% of the headland, then the expected total population is 228 animals (Figure 12). The estimated population would be 457 individuals if only 40% of the headland were trapped (these estimates assume constant capture-recapture probabilities). It is more likely that 90% of the headland was trapped, giving an estimated population of approximately 203 individuals.

Table 1: Estimated a) total, b) adult and c) adult female population from CAPTURE models. Probability refers to the probability that a particular model best fits the trapping data or capture histories; N refers to the estimated population size, S.E. is the standard error of the model and the 95 percentile confidence limits are also shown. Asterisks show the model selected as best fit by CAPTURE.

Model	Probability	N	SE	95% low	95% high
a) Total population					
Null model (Mo)	0.68	137	6.77	128	155
*Heterogeneity (Mh)	1.00	183	14.64	161	218
Behaviour (Mb)	0.41	159	21.85	133	225
Pollock and Otto (Mbh)	0.63	182	16.25	158	222
Time (Mt)	0.00	137	6.58	128	154
Chao (Mth)	0.40	181	22.22	150	240
Mtb	0.33	297	650.52	124	4467
Mtbh	0.68				
b) Adult population					
Null model (Mo)	0.87	105	6.49	97	122
*Heterogeneity (Mh)	1.00	140	12.96	121	172
Behaviour (Mb)	0.49	117	17.75	98	174
Pollock & Otto (Mbh)	0.53	138	14.28	117	174
Time (Mt)	0.00	105	6.30	97	122
Chao (Mth)	0.50	141	21.23	113	200
Mtb	0.40	346	1813.20	93	12588
Mtbh	0.68				
c) Adult female population					
Null model (Mo)	0.87	69	5.92	60	83
*Heterogeneity (Mh)	1.00	93	10.83	78	120
Behaviour (Mb)	0.45	75	15.48	61	131
Pollock & Otto (Mbh)	0.49	88	11.49	73	119
Time (Mt)	0.00	68	5.69	62	84
Chao (Mth)	0.52	96	19.87	72	155
Mtb	0.37	118	679.01	56	4596
Mtbh	0.58				

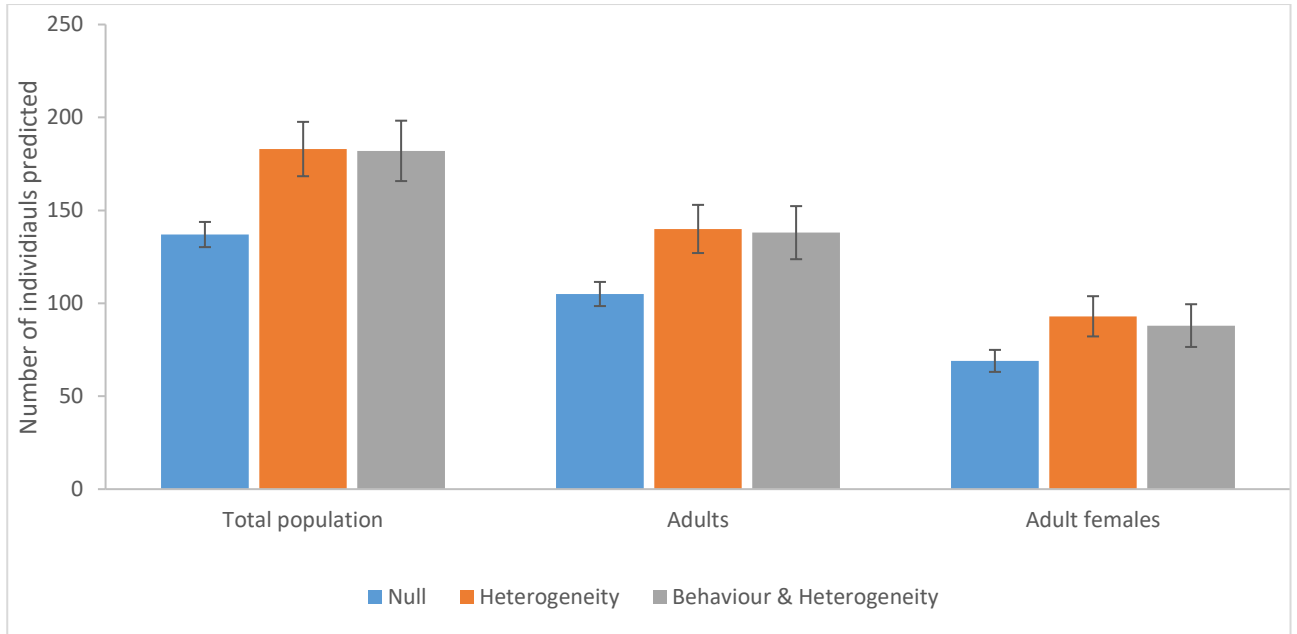


Figure 10: Estimated total, adult and adult female bandicoot populations (\pm SE) at North Head using the null (M_o), individual heterogeneity (M_h) and individual heterogeneity and behaviour (M_{bh}) estimators of Program CAPTURE.

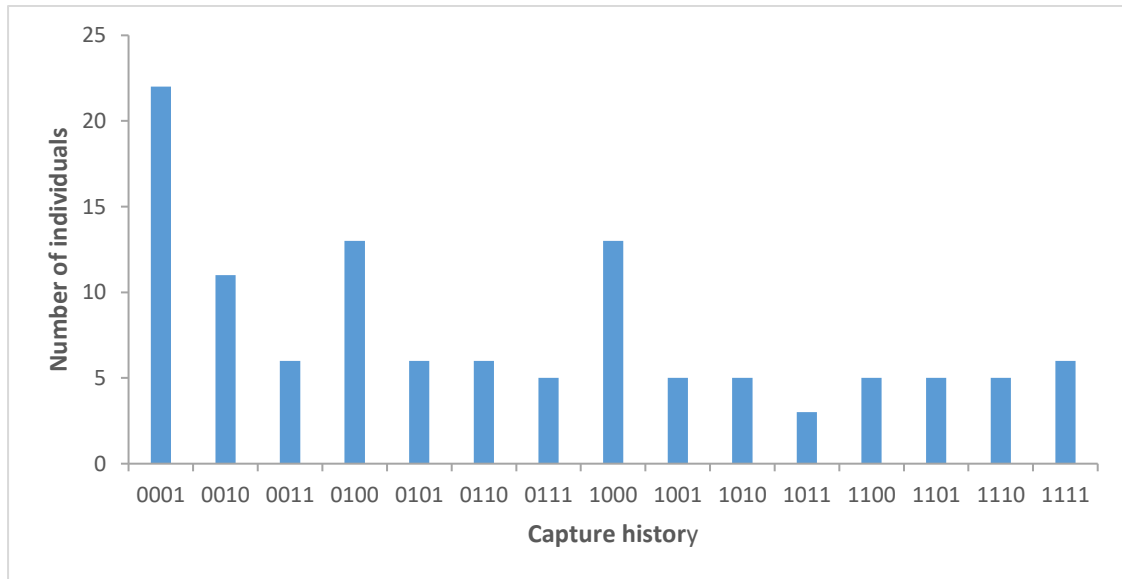


Figure 11: Frequency plot of the capture history types for long-nosed bandicoots. Capture histories show the number of occasions and the timing of each capture event. 1 signifies an individual was captured on the corresponding night and 0 signifies that it was not. The capture history on the far left shows that 22 individuals were caught on the last night only; while the capture history on the far right shows that six individuals were caught on all four nights.

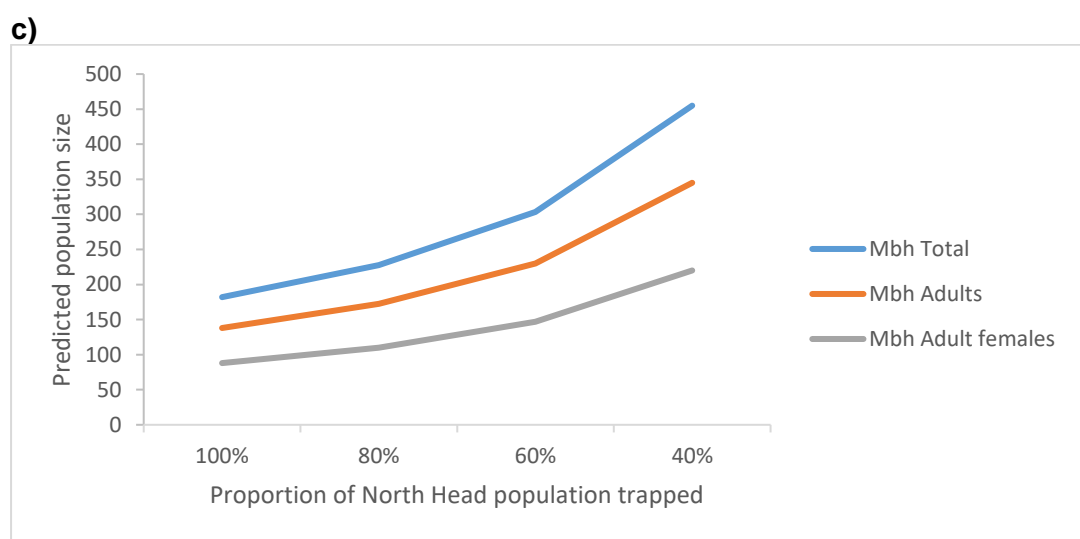
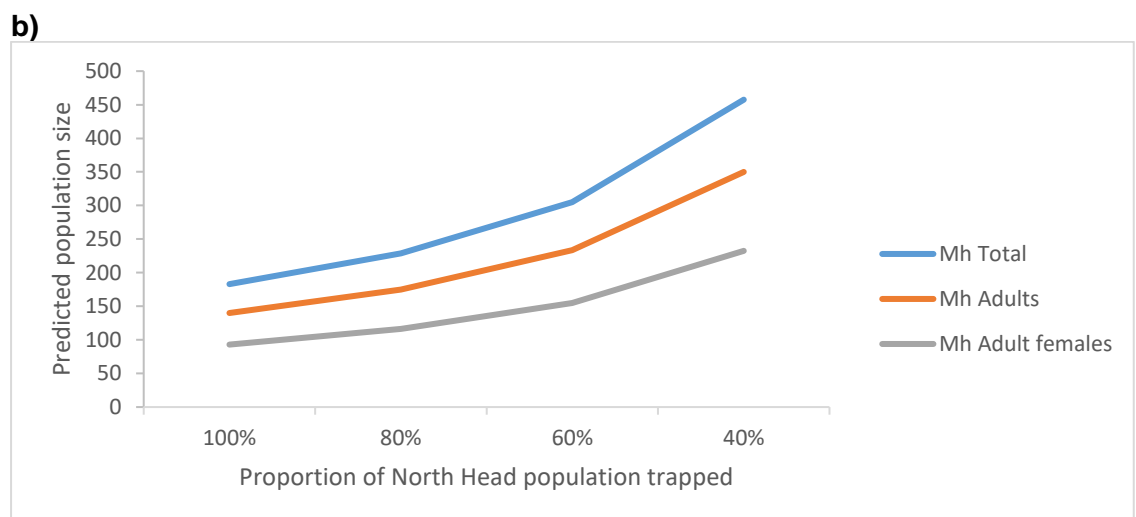
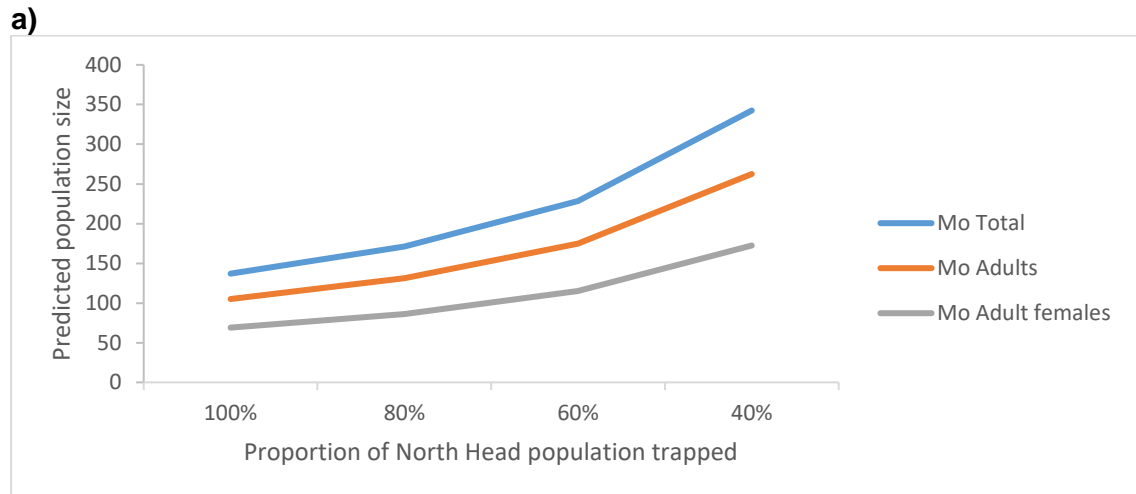


Figure 12: Extrapolation of the total, adult and adult female long-nosed bandicoot population at North Head assuming the current trapping program covers 40, 60, 80 and 100% of the total area. Population extrapolations are derived from the 100% a) null (M_o), b) heterogeneity (M_h) and c) heterogeneity and behaviour (M_{bh}) CAPTURE estimates shown previously.

Comparison with previous years

The 2020 results indicate that bandicoot numbers have remained relatively stable since 2016. While slightly fewer animals were trapped in 2020, than 2016 and 2018, this is likely a consequence of only 4 nights of trapping. The high number of animals trapped on the last night for the first time suggests that had the usual 5 nights of trapping been undertaken, then the total trapped population would have been higher. Overall, it's likely that the population is stable after increasing from a low point in 2010. The observed population remains similar to the number recorded in 2004, although it is likely that the predicted population size should be more accurate given that there should be a higher proportion of marked individuals in the population now.

Using the Null model as the benchmark index of abundance, the 2020 estimate was 137 (up from 127 in 2018) (compared to the “best” M_h model estimate of 183 animals). The 2020 null model estimate is similar to 2016, when the null model predicted a population size of around 132 from 47 transects. 49 transects were surveyed in 2020 (as in 2018), which is the highest surveyed since the biennial surveys began in 2004. The consistency in survey effort indicates that differences in population estimates are not an artefact of different sampling regimes.

The number of individual bandicoots captured in 2020 (109 - 116) is similar to the number trapped in 2018 (114) and 2016 (min 113 to max 117), and higher than in 2014 (102) and in 2012 (95), reflecting that the size of the bandicoot population has recovered since 2010, when only 71 individuals were caught (Figure 13). The number of animals caught has returned to higher levels than reported in 2008 (90) and 2006 (102), and back to similar levels reported in 2004 (117).

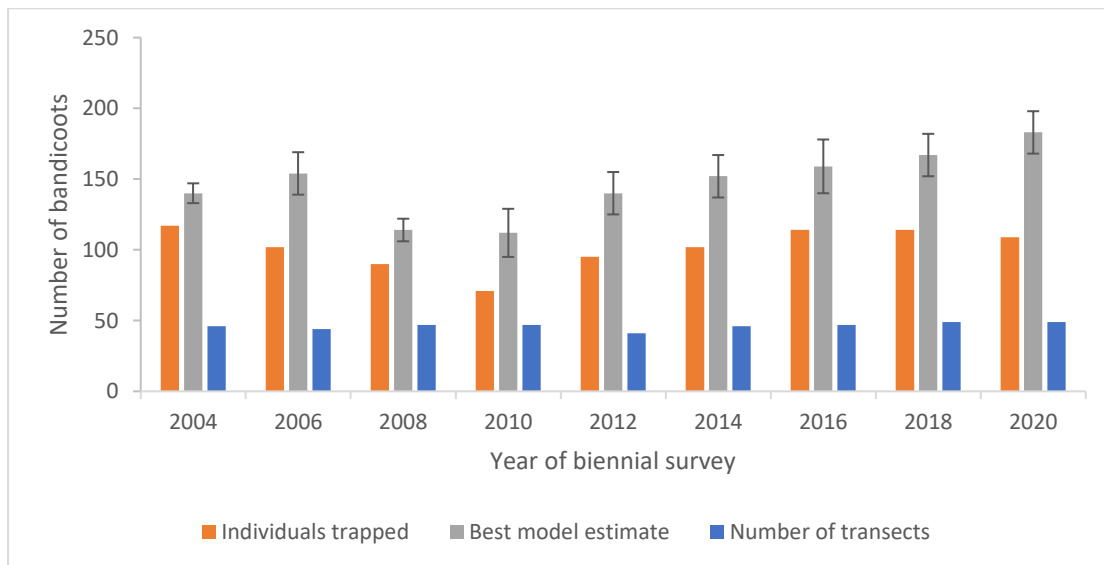


Figure 13: Comparison between the number of individual bandicoots trapped, the best model estimate and the number of transects trapped for biennial surveys since 2004. Note: the heterogeneity model (M_h) was used in 2006, 2012-2016, 2020, the null model (M_o) in 2004 and 2008 (with poor fit), Chao time and heterogeneity model (M_{th}) in 2010, and the behaviour and heterogeneity model (M_{bh}) in 2018. Note: only 4 nights of trapping were undertaken in 2020.

While the overall number of animals captured has remained relatively constant, there has been a continued shift in the demographics, with significantly more females than

males being captured in this census. This is the third time since monitoring began that such a strong female bias in the population has been observed, and the relative dominance of female numbers appears to have remained consistent since 2016 (Figure 14).

Based on the average number of individuals captured per transect, the total numbers seem to be showing an overall slight decrease since 2014 but the sex ratio has remained reasonably constant (Figure 14). In 2014, the average number of males and females captured per transect was almost the same, however since 2016 more females have been caught on transects than males. It is interesting that the female bias in the population has remained relatively stable, but the shift to a high proportion of juvenile males being caught during this census may be a signal that the demographics are likely to shift again. The results are interesting and unique, making it difficult to predict the effect on future population size.

Population estimates point to a stabilising of bandicoot numbers since 2014 after they had flattened since 2012. The total population null model estimate for 2020 is 137, up from 127 in 2018 and similar to 2016 when it was 132, and an overall increase since 2012 (116). Comparing the model of best fit for each year, the 2020 M_h model estimate is 183. This is the highest estimate since modelling began in 2004 and an increase from the 2018 M_{bh} model estimate of 167. The estimates have increased each survey since a low point in 2010 when the M_{th} model best represented the data with a prediction of 112 animals. In 2008 none of the models had a high probability of representing the data (all probabilities <0.26). The large difference between models within a year makes comparison of models between years somewhat problematic.

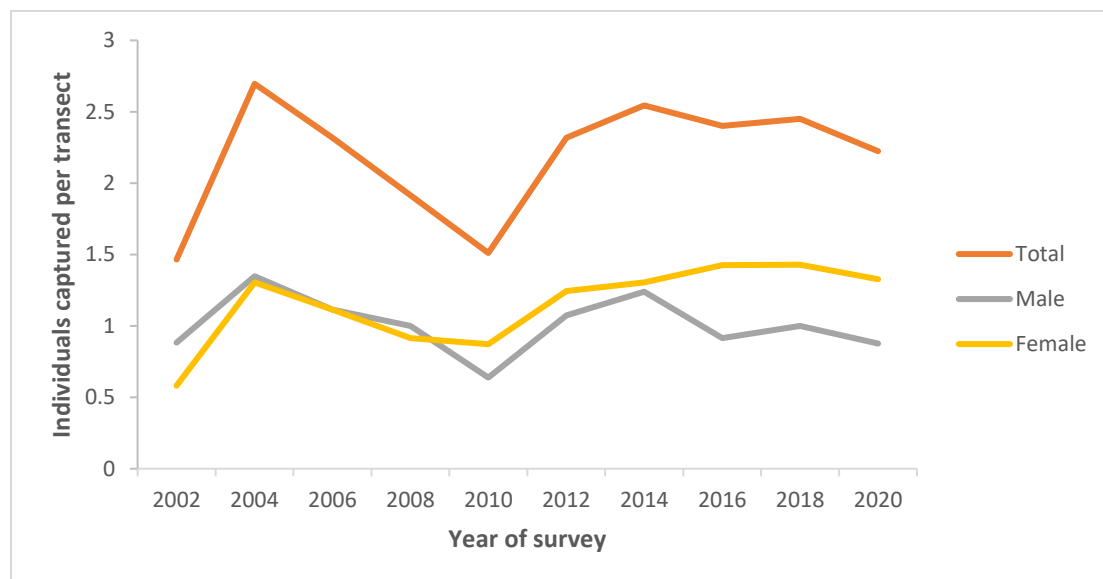


Figure 14: Number of individual bandicoots captured per transect during each of the biennial sessions from 2002 to 2020, based on raw numbers of individual animals captured.

Examination of the May and November quarterly or biannual trapping data (20 standard transects) reveals a decline in numbers since a peak in November 2016 after a period of relative stability since November 2010 (Figure 15). During these smaller trapping sessions, 20 transects of six traps are trapped for three nights as part of ongoing population monitoring. These sessions were conducted quarterly

between 2002 and 2007, and then biannually from 2008. The transects sampled are a subset of the biennial transects and are placed in the same location.

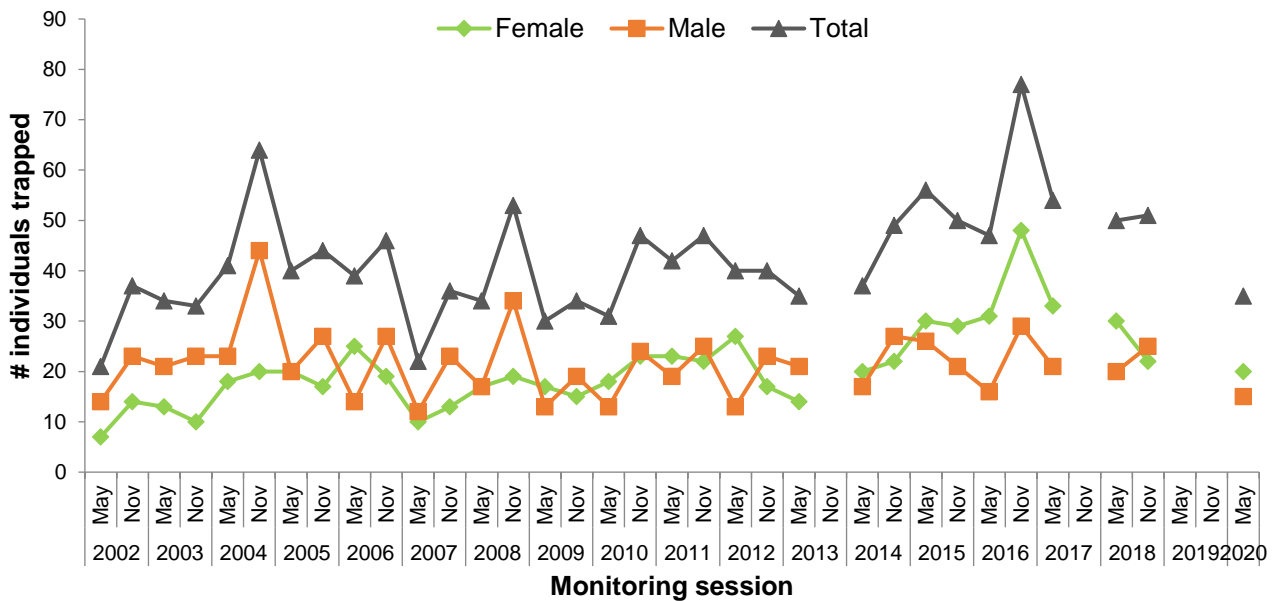


Figure 15: The number of individual bandicoots captured during May and November quarterly or biannual trapping sessions from May 2002 to May 2020. These sessions involve twenty transects of 6 traps set for 3 nights. NB Three transects on St Patrick’s Estate were not trapped in May 2002; results for the biennial sessions are adjusted to 20 transects and 3 nights. Trapping not undertaken in Nov 2013, Nov 2017 or 2019.

Across these 20 transects, male numbers tend to vary more than female numbers within a year, generally being higher in November than in May. However, the absence of trapping in 2019 and November 2017 mean it is difficult to judge how the population has fluctuated over the past few years. Between November 2014 and May 2016 male numbers declined relatively sharply while female numbers have remained stable until both sexes increased sharply in November 2016. The population decreased sharply in May 2017, stabilised during 2018 but appears to have declined since November 2018.

The larger biennial headland surveys do not show the same fluctuations in male numbers as the smaller biannual surveys. The biennial survey results suggest that the population has gradually moved from a male-dominated population in 2004 to being consistently female-dominated since 2010 (Figures 14 and 16). After 2010, the population increased by over 30% in 2 years, then remained relatively stable until 2018 but has declined slightly since then.

Taken together, the results of the headland-wide biennial census and the smaller biannual monitoring suggest that the bandicoot population is relatively stable at present, although may have decreased slightly in recent years. The strong female

bias in the sex ratio has remained relatively constant since 2016 and should indicate a relatively stable population.

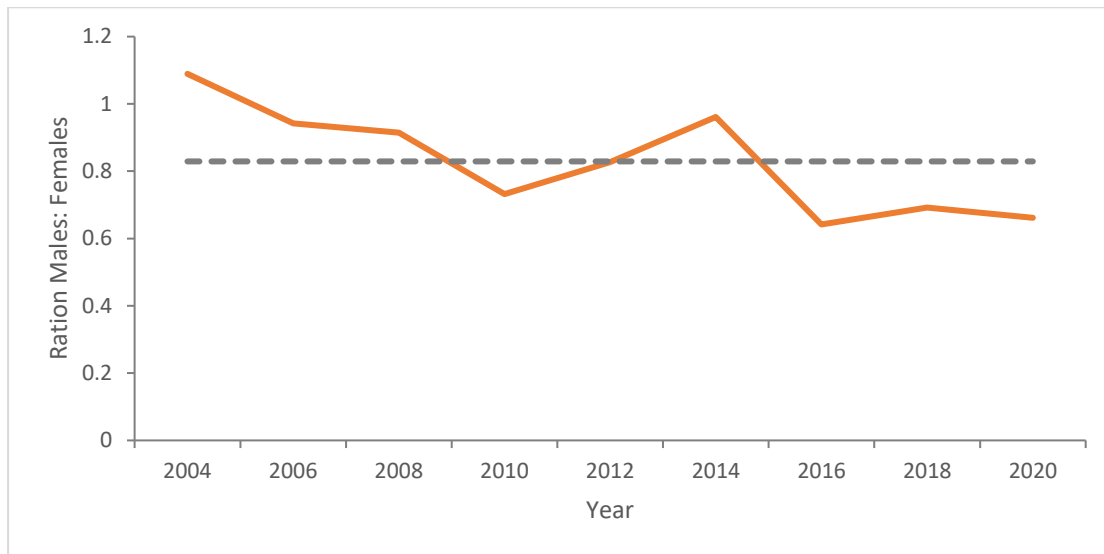


Figure 16: The male: female ratio of Long-nosed Bandicoots recorded during biennial headland-wide census sessions (45-50 transects, 5 nights) since May 2004. The dashed line indicates the average ratio of 0.83. A value of 1 is indicative of an even sex ratio, less than 1 indicates more females than males.

DISCUSSION

Several population estimators were used to model the long-nosed bandicoot population on North Head. From approximately 109 captured individuals, the null model gave a population estimate of approximately 137 ± 7 , including 105 ± 6 adults of which 69 ± 6 are females (M_o). This model had a reasonably high probability of being correct across all population estimates (0.68 for the total population, 0.87 for adults and 0.87 for adult females). The best model across all demographics was the heterogeneity model (M_h), which gave a prediction of 183 ± 15 individuals, including 140 ± 13 adults and 93 ± 11 female adults. The difference in the estimated total population of around 25% between the null model and the heterogeneity model is troubling given that both models have reasonably high probabilities of being correct, and reflects the difficulty of accurately estimating population size when a high proportion of animals, around 50%, were caught only once throughout the four-day trapping period. A standard error of around 8% around the population estimate for the 'best' model (M_h heterogeneity) is also a reflection of the uncertainty surrounding the relationship between the capture data and the actual number of individuals. These issues have been present for the previous biennial surveys. To gain more accurate estimates, it would be useful to understand a) why such a high proportion of individuals are not recaptured, and whether changes to handling or other techniques (trap type, bait type) would increase recapture rates; and b) the movement patterns of animals within different habitat types to predict encounter rates with the traps. The personality traits of individuals are likely to influence capture and recapture likelihood (Johnstone et al 2020), but to date no studies have investigated long-nosed bandicoot behaviours. A recent examination of pre-baiting data for black rats suggests that pre-baiting prior to setting traps may increase the likelihood of capture

more individuals, and is an option for considering to increase bandicoot captures within the first nights of the survey (Bytheway et al.).

As in previous years, of the 22 new individuals caught on the last night of the trapping survey, 16 had never been captured in a previous session. This, and the fact that over half of the captured animals were only caught once, is the most likely reason for the high standard errors around the estimated population size. Eight of the 16 bandicoots caught for the first time on the last night were captured on transects that are included in the smaller biannual surveys. Had the smaller biannual surveys been conducted in 2019 (in May and/or November) this number is likely to have been lower. Thus, it is not surprising that the number of new individuals was higher than in previous years. It is expected that there will be more new animals in areas trapped every two years than in areas trapped every 6 months.

Changing the sampling design to include more traps along transects or sampling more transects may improve the recapture rate of bandicoots within trapping sessions. Reducing non-target captures and the likely interference of non-target species with traps may also improve bandicoot recapture rate by making more traps available for bandicoots. An average of only 17% of traps were left open and available at the end of each night (range: 30% to 9%), which is similar to previous years (11% in 2018, 15% in 2016, 2014 and 2012). Non-target captures were relatively high (27%) but a decrease from previous years, (2018: 32%; 2016: 33%; 2014: 30%; 2012: 30.5%; 2010: 35%). Almost 37% of traps were interfered with, either open but without bait or closed without capturing an animal, which is similar to 2018 (38%). Understanding why such a high rate of trap interference is occurring, and whether animals are entering traps but not being caught, would help to improve trapping efficiency and increase the proportion of traps available for bandicoots. Ideally, 50% of traps should be left open and available for bandicoots.

As with previous surveys, it is estimated that 90% of the headland is trapped based on home range size and previous efforts to assess the range of capture around each transect. This survey had good coverage of the headland as it included transects that have not always been sampled, for example two new transects 55 and 56 that sample areas of relatively new plantings around the childcare centre and the oval. Four individuals were captured on these two transects, all of which were new animals. There are other areas, particularly in the south of the headland, where there are fewer transects but most of this consists primarily of low heath/scrub where vegetation is very dense and captures of bandicoots are typically very low (Banks and Powell 2002, Lothian 2007). Accounting for all factors, the current long-nosed bandicoot population of North Head is probably around 200 (185-215) individuals, of which 155 (140-170) are adults and 103 (88-118) are adult females. This total population estimate is higher than previously estimated: 2018: (170-200), 2016: 148-196, 2014: 138-168, 2012: 130-155, 2010: 109-124, and 2008: 106-136, and may reflect growth in the population over the time and changes in the recapture rate of individuals that affects the population estimates (Figure 17). The proportion of individuals that were captured once only was higher in 2020 (51%) than in 2018 (37%) and 2016 (49%).

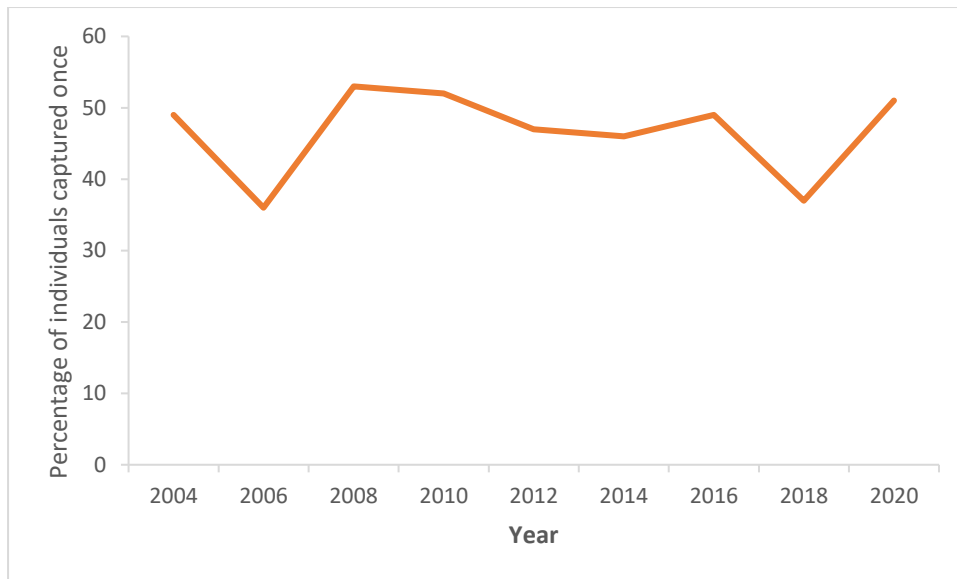


Figure 17: The percentage of bandicoots caught only once during biennial surveys from 2004 to 2020.

Several measures of bandicoot numbers show little change or a moderate increase from 2018 figures (i.e. numbers of individuals caught, predicted population size), which suggests that the population remains relatively stable and has recovered since the low numbers recorded in the 2010 biennial survey. In 2010, all measures suggested that the bandicoot population was in decline, as a continual downward trend had been observed since 2004. In this survey and since 2012, numbers of bandicoots caught per transect are closer to the higher numbers observed in 2004 (2020: 2.2; 2018: average 2.3, 2016: average 2.4, 2014: average 2.5, 2012: average 2.3; 2004: average 2.7), and the total number of animals caught was similar to previous surveys. There was an increase between 2004 and 2008 in the proportion of animals caught only once, which reduces the accuracy of the population models. The proportion of animals caught only once has increased to 51%, which is the highest since 2008 (Figure 17) indicating that the population estimates for this survey should have a lower level of accuracy than those calculated previously, particularly as the estimates are based on four, not five, nights of trapping this year.

In previous reports two main explanations for the high proportion of animals caught once only have been suggested: 1) that high number of non-target captures may limit trap availability; and 2) behavioural responses to trapping. Both these issues remain highly relevant, particularly the availability of open traps. Priority should be given to reducing the number of closed, empty traps and open traps with bait gone if non-target captures cannot be reduced. Anecdotally, there were several broken traps that had to be removed part-way through the survey. Spending time to ensure traps are functioning well prior to the trapping survey could be worthwhile.

The results of this survey also indicate that variation in response to trapping is likely to play an important role in the likelihood of recapture. Investigating factors that may affect capture and recapture probability would be useful for developing methods to increase the probability of recapture, and allow more accurate population estimates to be made. GPS tracking of individuals and placing cameras on traps is recommended as a means of collecting information on individual movements, and how these are influenced by the presence of traps, as well as behaviour at traps and in response to capture. Additionally, personality assays to investigate whether initial capture and then recapture using current techniques favours particular behavioural

syndromes, for example bold animals, could assess whether methods such as pre-baiting or different trap types might increase capture and recapture rates.

The demographics of the population have altered since 2012, and it is unclear how this will influence the current stability of the population. The sex ratio has remained significantly female-biased as since 2016, but while females remain adult-biased, males are not. The proportion of juveniles within the population has decreased since 2018, but remains high suggesting that females are breeding successfully. Understanding the effects of the shift in demographics, and what the drivers of the change in the adult sex ratio is important for predicting its effects. For example, it may be that the shift has been exacerbated by increased rates of roadkill if males were more vulnerable to this type of mortality during dispersal events. However, if the adult sex ratio is being influenced by differences in birth rates as a consequence of maternal condition or density-dependent effects, then it may take longer to stabilise with longer-term consequences. In the short-term, the female bias does not appear to be affecting population growth and is likely to have a positive influence on growth rates.

Access to Bandicoot Transects
















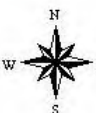


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Figure 18: A map showing the locations of the bandicoot monitoring transects used in the biennial monitoring sessions.

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7.3 Appendix C – Manly Little Penguin Recovery Program. 2020/21 Final Monitoring Report. September 2021

Manly Little Penguin Recovery Program

2020/21
FINAL Monitoring Report

SEPTEMBER 2021

Report prepared for:
Greater Sydney Branch NPWS and DPIE and the
Manly Little Penguin Recovery Team



Planning,
Industry &
Environment



Acknowledgements

This report was prepared by Dr Lisa O'Neill, consultant under contract to the National Parks and Wildlife Service, Department of Planning, Industry and Environment. The breeding of Little Penguins *Eudyptula minor* at Manly was monitored in 2020/21 for the Little Penguin Recovery Team and NPWS.

NPWS staff from Sydney North Area, Greater Sydney Branch assisted in the monitoring program in 2020/21.

The Little Penguin Recovery Team developed the objectives of the monitoring program and continues to review the program and its results.

Executive Summary

The breeding of Little Penguins *Eudyptula minor* at Manly was monitored during the 2020/21 breeding season fortnightly from July 2020 until December 2020, at which point COVID lockdown restrictions prevented further access to the site until the season had finished.

This season's breeding was the lowest on record. Penguin breeding numbers are far from what they were prior to the fox incursion and mass penguin killing of 2015, and have not increased in recent years as had been hoped. Monitoring results are: number of breeding pairs (23), number of eggs laid (60), number of fledglings (51) and number of active nests (29).

There was no breeding activity detected in the vicinity of the Quarantine Station Boilerhouse, which had historically been one of the most significant and consistent breeding areas. Again there was no breeding detected within the AIPM property. The loss of breeding at both these sites has had a significant impact on the breeding output of the Manly Penguin population.

A summary of the results of the Manly Little Penguin monitoring program for 2020/21 is shown in Table 1 below. Full results are provided in Appendix 1.

The continuing poor results overall show that the Little Penguin breeding population has reduced considerably at Manly. The population has not been able to recover from the extensive losses to the breeding population from the fox incursion in the 2015 pre-breeding season. The now low level of the population means there is little buffer against other impacts such as changes in oceanic conditions, which could impact individual breeding seasons or the long term population.

Fox/es were again responsible for deaths at the colony this year, with four direct fox kills and the death of at least one chick after its parents were killed. Ongoing losses of breeding adults to fox kills is not sustainable for the population at its now low levels.

The penguin attraction sound system installed at AIPM was not fully working during the season. The sound system will be used serviced for the next season, hopefully with more promising results.

The results for the 2020/21 season are presented relative to five-year running means from 2010/11 onward. This helps to illustrate trends or changes in the population over the long term. Means are presented \pm one standard deviation as a statistical indication of variability about the

mean. All monitored indicators from this season were below the expected range (mean \pm one standard deviation) based on experience in the previous five years.

Breeding measures are based on all burrows or cavities where breeding activity (the presence of eggs or chicks) was indicated, within the sites monitored. These figures are conservative and do not include potential nests where the nest site could not be located. The results presented are therefore an underestimate of the total local penguin population and breeding results. Rather, they provide a representative sample of the population monitored in a consistent manner at the same sites each year since 2002.

The following figures provide a view of the results of the 2020/21 breeding season relative to seasons since 2006.

Figure 1: Annual breeding results of Manly Little Penguin monitoring from 2002.

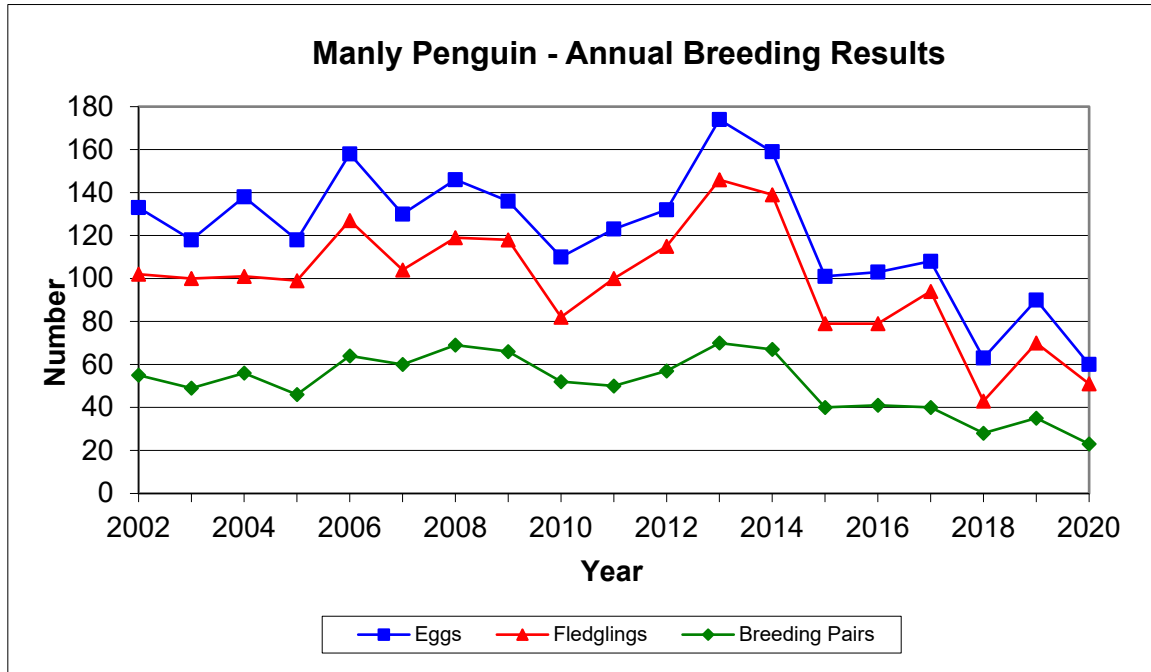


Table 1: Summary of breeding results from 2020/21 nest monitoring of the Manly Little Penguins.

	2020/21	Mean \pm S.D. 2015/16- 19/20	Mean \pm S.D. 2014/15- 18/19	Mean \pm S.D. 2013/14- 17/18	Mean \pm S.D. 2012/13- 16/17	Mean \pm S.D. 2011/12- 15/16
Active nests	29	56 \pm 9	68 \pm 22	75 \pm 22	81 \pm 19	87 \pm 14
Breeding pairs	23	37 \pm 5	43 \pm 14	52 \pm 15	55 \pm 14	57 \pm 12
Eggs laid	60	93 \pm 18	107 \pm 34	129 \pm 35	134 \pm 33	138 \pm 29
Chicks fledged	51	73 \pm 19	87 \pm 35	107 \pm 33	112 \pm 32	116 \pm 28

* Calculated on a subset of total eggs and fledglings, see definitions on page vii.

Table of contents

Acknowledgements	ii
Executive Summary	iii
1. Methods and analysis	1
2. Active nest sites	3
3. Breeding pairs	4
4. Eggs	4
5. Fledgling	5
6. Breeding success	6
7. Store Beach	6
8. Recoveries and recruitment	6
9. Mortality	7
10. Additional sites	7
11. Discussion	8
Appendix 1	10

List of Tables

Table 1: Summary of breeding results from 2020/21 nest monitoring of the Manly Little Penguins.	v
Table 2: Number of active nest sites at each locality in the 2020/21 season and five-year running means (\pm standard deviation) from the 2011/12 season.	3
Table 3: Number of breeding pairs at each locality in the 2020/21 season and five-year running means from the 2011/12 season.	4
Table 4: Number of eggs at each locality in the 2020/21 season and five-year running means from the 2011/12 season.	5
Table 5: Number of fledglings at each locality in the 2020/21 season and five-year running means from the 2011/12 season.	5
Table 6: Breeding success of known first-clutch nests in the previous season and five-year running means from the 2011/12 season.	7

List of Figures

Figure 1: Annual breeding results of Manly Little Penguin monitoring from 2002.	v
Figure 2: Locality map showing site names.	viii

Definitions and abbreviations

The following is a list of abbreviations and definitions used within this report. Also included is a locality map (Figure 3) showing sites named within the text.

ABBBS	Australian Bird and Bat Banding Scheme.
Active nest	any nest site showing recent signs of activity: birds, faeces, feathers or nesting material during the breeding season.
AIPM	Australian Institute of Police Management.
Breeding success	the percentage of eggs that produce fledglings. Only nests with a complete visual history from before the laying of the first egg are used.
Double brooding	where a second clutch of eggs is laid in the same nest following the hatching and rearing of a first clutch. If the identity of the parents is unknown, it is assumed that all eggs within the nest belong to the same breeding pair.
Fledglings	penguin chicks six weeks old or more.



Figure 2: Locality map showing Site Names and Areas of Outstanding Biodiversity Value (previously known as Critical Habitat)

1. Methods and analysis

Methods

Monitoring for the 2020/21 breeding season began in July 2020 and ceased in December 2020 when COVID lockdown restrictions in the Manly area prevented further access to the site. At this point there were still a few chicks in nests, whose fate is unknown. Breeding was monitored in the areas of previously known penguin nests at Oyama Avenue, Addison Road, Collins Beach and AIPM (together these two areas are referred to as the Collins Flat site), Store Beach and Quarantine Station (see Figure 3).

Nests and potential sites at Little Manly Beach were also monitored although to maintain consistency with prior records, these nests are not included in the monitoring totals. Observations from these nests are shown separately in Section 10. Breeding south of Cannae Point, or at sites where access to burrows on private property would invade people's privacy (mainly at Manly Point) was not monitored. It is probable that there are also additional nests undetected within the monitored localities, and some known nests are inaccessible hence can't be adequately monitored. Those nests which can be regularly monitored are considered to be a representative sample of the total Manly penguin population, and the same nests are monitored each year to maintain a consistent sample. The proportion of all Manly penguin burrows monitored as part of this program is probably close to 75%.

Breeding measures in this report are based on all accessible burrows or cavities where breeding activity (the presence of eggs or chicks) was observed within the sample sites described above. These figures are conservative and the results presented are necessarily an underestimate of the total penguin population and breeding outcome.

Known potential nest sites were checked every six weeks for penguin activity, and those where breeding activity was noted were checked at least fortnightly. Nests were monitored for signs of activity, numbers of eggs, chicks and fledglings. Individual adults were identified where possible. Nest site activity was based on direct observations of birds, eggs or the presence of nesting material or fresh excrement at nest sites.

Birds were caught when necessary to allow identification or to fit a microchip. Penguins were caught by hand or using a hooked crook for deep or inaccessible nests, and identified where

possible by their individual microchip transponders using a *Trovan* scanner. At six to eight weeks old, all accessible fledgling chicks were fitted with a microchip.

It was assumed that any second clutch attempted in a burrow was by the same breeding pair (double brooding) after a first clutch had been raised, unless another individual was identified breeding in that nest.

Egg numbers are based on the number of observed eggs, or on a count back from chicks hatched from inaccessible or partially obscured nest sites. Egg numbers do not include nests where adults could be seen lying prone in the nest but the contents could not be assessed and the eggs, if any, failed to hatch.

Fledgling numbers are based on the number of observed fledglings, plus a minimum of one fledgling for each inaccessible nest site that showed indirect evidence of the presence of well-developed chicks, such as calling of chicks from within their nesting cavity, or down at the nest entrance.

Breeding success is measured from a specific subset of all nests. Only those nests where the number of eggs are known, and fate of each egg could be determined from the beginning of incubation through to fledging or prior loss of the chick(s) are used. And of those, only first clutches laid by a pair are used in the calculation. Breeding success is the number of known fledglings as a percentage of known eggs laid from first clutch nests.

Appendix 1 shows figures for all breeding parameters collected during monitoring of the Manly Little penguin population since the 2006/07 breeding season.

Analysis

Consistent monitoring since 2002 has shown considerable natural annual variation in breeding results for the Manly Little Penguin population. Against this range of variation it can be difficult to detect long term trends or changes in breeding results when comparing annual results.

Therefore the results for the 2020/21 breeding season have been analysed relative to five-year running means calculated using data from the 2011/12 season onwards.

A five-year running mean (\pm one standard deviation) has been adopted to allow calculation of the range of variability that can be considered 'normal'. A five-year period was chosen because

the extent of natural variation means that a longer term view is needed to encompass the range of both poorer and better breeding seasons and to allow a more informed and balanced view of the long term trends in the penguin population. As the results from each new breeding season are incorporated in the new figure, the calculation period moves forward by a year with one year dropping off the end to retain only five years of data. For example, the results for the 2020/21 breeding season have been compared to the means and range of variability from five previous five-year periods (2011/12 to 2015/16, 2012/13 to 2016/17, 2013/14 to 2017/18, 2014/15 to 2018/19 and 2015/16 to 2019/20).

Annual data for all measured variables for each season from 2006/07 to the current season are shown in Appendix 1.

2. Active nest sites

The total number of active nests (29) was considerably lower than the previous two years (44 and 55), which were already the lowest on record. This shows a clear continued decline in activity and breeding of Little Penguins at Manly. It remains dramatically lower than the number of active nests recorded in the years prior to the fox attack. The level of activity is well below the expected normal range of variability (mean \pm standard deviation) based on the previous five-year running mean data, shown in Table 2. Oyama Avenue was the only site where activity was at the range of expectation, all others were much lower.

Table 2: Number of active nest sites at each locality in the 2020/21 season and five-year running means (\pm standard deviation) from the 2011/12 season.

	2020/21	Mean \pm S.D. 2015/16 - 2019/20	Mean \pm S.D. 2014/15 – 2018/19	Mean \pm S.D. 2013/14 – 2017/18	Mean \pm S.D. 2012/13 – 2016/17	Mean \pm S.D. 2011/12 – 2015/16
Quarantine	3	14 \pm 3	17 \pm 5	19 \pm 5	21 \pm 5	21 \pm 4
Store Beach	5	9 \pm 3	11 \pm 3	12 \pm 2	11 \pm 3	9 \pm 4
Collins Flat	2	6 \pm 2	8 \pm 3	10 \pm 6	11 \pm 5	14 \pm 4
Addison Rd	6	12 \pm 4	16 \pm 7	18 \pm 7	22 \pm 7	25 \pm 4
Oyama Ave	13	15 \pm 2	16 \pm 3	16 \pm 3	17 \pm 3	18 \pm 3
Total	29	56 \pm 9	68 \pm 22	75 \pm 22	81 \pm 19	87 \pm 14

3. Breeding pairs

Numbers of breeding pairs monitored this year (23) was lower than the previous two years (35 and 28). This was well below the normal expected range. Oyama Avenue was the site least impacted by the fox attack and again this year was the site with the least decline over the last five years. Collins Flat/AIPM was badly hit by the fox attack and the average numbers in the last few years show the dramatic drop and ongoing poor breeding levels. At Quarantine Station (QS) a total lack of breeding near the Boilerhouse in recent years has caused a dramatic drop in numbers for the whole QS area. Most sites were well below the expected range of variability calculated from previous five-year periods (Table 3), except Oyama which was just on the lower edge of the expected range, and QS which is dramatically below previous records and expectations.

Table 3: Number of breeding pairs at each locality in the 2020/21 season and five-year running means from the 2011/12 season.

	2020/21	Mean ± S.D. 2015/16 - 2019/20	Mean ± S.D. 2014/15 - 2018/19	Mean ± S.D. 2013/14 - 2017/18	Mean ± S.D. 2012/13 - 2016/17	Mean ± SD 2011/12 - 2015/16
Quarantine	2	10 ± 3	12 ± 4	14 ± 3	15 ± 3	16 ± 2
Store Beach	5	6 ± 2	7 ± 3	8 ± 2	8 ± 3	7 ± 3
Collins Flat	2	3 ± 1	5 ± 3	6 ± 4	8 ± 5	9 ± 4
Addison Rd	3	7 ± 1	9 ± 5	12 ± 6	13 ± 5	14 ± 4
Oyama Ave	11	11 ± 2	10 ± 1	11 ± 2	11 ± 2	11 ± 2
Total	23	37 ± 5	43 ± 14	52 ± 15	55 ± 14	57 ± 12

4. Eggs

Number of eggs laid this year in monitored nests (60) was lower than the previous two years (90 and 63), and well below the expected range based on the five-year average (Table 4). Quarantine Station breeding has declined severely, while Oyama Avenue has maintained an average level of breeding.

Seven pairs produced a second clutch of eggs, compared to 12 last year and 4 in the previous year. It was not possible to be certain of the result from some of these double clutches as COVID restrictions prevented access to the site from December 2020 into 2021.

Table 4: Number of eggs at each locality in the 2020/21 season and five-year running means from the 2011/12 season.

	2020/21	Mean ± SD 2015/16 - 2019/20	Mean ± SD 2014/15 - 2018/19	Mean ± SD 2013/14 - 2017/18	Mean ± SD 2012/13 - 2016/17	Mean ± SD 2011/12 - 2015/16
Quarantine	6	27 ± 10	33 ± 10	39 ± 6	40 ± 6	42 ± 5
Store Beach	12	16 ± 7	19 ± 9	22 ± 5	21 ± 7	18 ± 7
Collins Flat	6	8 ± 5	9 ± 6	14 ± 10	17 ± 12	19 ± 10
Addison Rd	8	15 ± 4	20 ± 11	27 ± 14	29 ± 13	32 ± 10
Oyama Ave	28	27 ± 4	26 ± 3	28 ± 3	23 ± 3	27 ± 3
Total	60	93 ± 18	107 ± 34	129 ± 35	134 ± 33	138 ± 29

5. Fledglings

Fledgling numbers (51) were between levels experienced in the past two years (70 and 43 respectively), and below the expected range based on the five-year average (Table 5). Data were not able to be collected from mid December onward due to COVID access restrictions. Thus the fate of a few late chicks is unknown, and they were not counted in the data below.

Quarantine Station breeding has declined severely.

Table 5: Number of fledglings at each locality in the 2020/21 season and five-year running means from the 2011/12 season.

	2020/21	Mean ± SD 2015/16 - 2019/20	Mean ± SD 2014/15 - 2018/19	Mean ± SD 2013/14 - 2017/18	Mean ± SD 2012/13 - 2016/17	Mean ± SD 2011/12 - 2015/16
Quarantine	3	19 ± 9	24 ± 10	30 ± 6	31 ± 7	33 ± 5
Store Beach	8	13 ± 5	16 ± 8	18 ± 5	16 ± 7	15 ± 7
Collins Flat	5	6 ± 5	7 ± 8	12 ± 11	15 ± 12	16 ± 11
Addison Rd	7	13 ± 4	17 ± 10	24 ± 13	26 ± 12	29 ± 9
Oyama Ave	28	23 ± 4	23 ± 4	24 ± 3	23 ± 3	23 ± 2
Total	51	73 ± 19	87 ± 35	107 ± 33	112 ± 32	116 ± 28

6. Breeding success

Breeding success in these annual monitoring reports is based on the subset of first clutch eggs for which nest contents were able to be confirmed from egg through to fledgling stage. This season, there were only 3 such nests, so this statistic does not make any appropriate or relevant assessment of the state of breeding success for the colony as a whole. Therefore this figure is not reported this year.

Data from previous years (Table 6) shows declining breeding success and increased variability over the running five-year averages.

Table 6: Breeding success of known first-clutch nests shown as the five-year running means from the 2011/12 season.

Mean \pm SD 2015/16 - 2019/20	Mean \pm SD 2014/15 - 2018/19	Mean \pm SD 2013/14 - 2017/18	Mean \pm SD 2012/13 - 2016/17	Mean \pm SD 2011/12 - 2015/16
54 \pm 17%	59 \pm 19%	64 \pm 13%	66 \pm 15%	65 \pm 15%

7. Store Beach

The Store Beach penguins were badly impacted by the 2015 fox attacks and associated human disturbance of the fox management program. As a result there has been reduced breeding in recent years, with a low of only 3 breeding pairs in 2017. This year, there were 5 pairs observed to be breeding in the area, similar to last year (6). This is an improvement but numbers are still small compared to the 11 pairs of the peak in 2014 (Appendix 1).

8. Recoveries and recruitment

Since 2004, birds have been individually identified using *Trovan* wildlife transponder microchips. This year 8 penguins (4 adults, 4 fledglings) were microchipped as part of the monitoring

program. A total of 745 birds from the Manly population have now been fitted with microchip transponders.

This season, no Manly penguin fledglings from previous seasons were encountered returned to the colony to breed. A total of 53 fledglings have returned to Manly since 2000, 38 of which have bred, some of them over a number of seasons.

Analysis of previous banding records of Little Penguins shows low rates of recapture of fledglings from the Manly population returning as adults, suggesting limited local recruitment to the population. It is also important to note that the number of nests where birds are sufficiently accessible to enable microchips to be retrieved, limits recruitment estimates.

9. Mortality

In 2020, Taronga Wildlife Hospital recorded 16 Little Penguins admitted to the clinic. Of these, 12 were dead on arrival, one was euthanased and two died in care. One penguin was released back into the wild.

Most of the penguins brought to the zoo hospital were found near Manly. Three other birds were from northern Sydney beaches or the Hawkesbury area, and one was from a southern Sydney beach.

Taronga Wildlife Hospital records have been summarised to the following causes for the 15 deaths: two boatstrike, one trauma, two were sick prior to traumatic death, one sick, five predations (likely 4 fox at Manly and 1 dog elsewhere), two unknown and one too decomposed to determine cause of death. In addition one juvenile drowned when it fledged prematurely. This individual was found within a couple of days of the deaths of a number of adult penguins due to predation nearby. It was found with vegetation in its stomach, so it is possible the chick was forced into the ocean to attempt to forage when too young due to lack of food.

None of the dead penguins were microchipped Manly birds. Within the known Manly penguin population, it has previously been estimated that about half of the birds are microchipped, so it would be reasonable to expect a similar proportion of microchips to be found amongst admitted penguins if they are part of the Manly colony. The lack of microchipped admissions suggests, as we have seen in previous years, that many of the penguins brought to the zoo are not part of the known breeding Manly Little Penguin population.

10. Additional sites

In addition to breeding at sites monitored as part of this program, Little Penguins also breed or have bred in small numbers at other nearby sites, including Little Manly Beach, Manly Wharf and Federation Point. These three sites have been monitored in addition to the standard monitoring sites for the past few seasons. There were no observed breeding attempts at Federation Point this season. A pair nesting at Little Manly Beach successfully fledged two chicks from their first clutch, the fate of the second clutch is unknown due to COVID limitations.

Community wardens again worked voluntarily at Manly Wharf, organised by a volunteer co-ordinator under supervision of DPIE staff. The use of wardens provides an important educational tool for beach and foreshore users, with volunteer wardens providing information and advice to the public and acting as a deterrent to disturbance of penguins. Most onlookers are respectful of the need to not disturb the penguins.

11. Discussion

Breeding results were again very low relative to gains in the population made over the last ten years. Numbers this year were lower than last year in general, but similar to those of the prior year.

The fox predation incident of 2015 has caused a dramatic reduction in the numbers of breeding penguins at Manly. Fox/es again impacted the colony this year, with Taronga Zoo hospital reporting 4 fox related deaths of adult penguins, and a drowned chick which had attempted to fledge too young after a fox killed both parents.

The total number of active nest sites dropped dramatically again this year (29) showing there are fewer birds prospecting at new nests than in the last few seasons. It is however heartening that breeding commenced in a relatively high proportion of these, with 23 breeding pairs identified this year. It is possible that relatively more birds have found partners, hence there are fewer individuals prospecting to attract new partners.

The monitoring shows that there are far fewer penguins coming ashore to breed than in the years prior to the fox attacks. In the years 2006 to 2014, breeding pairs were regularly in the range from 50 to 70 pairs, and active nests from 84 to 107. In the last five years, numbers of breeding pairs have ranged only from 23 to 41 and active nests from 29 to 57. The breeding

figures for this year are now the lowest on record in almost every measure for Manly penguins in this monitoring program.

Prior to the fox attack, the population had been regularly around the high 50s or low 60s of breeding pairs but it is likely now that the 20 to 40 breeding pairs experienced over the last few years are our new normal base. Growth will hopefully occur again, but as seen in the past, it is likely to be slowly over time from this low base. It is possible however that the population is dropping to an unsustainable level, and monitoring over the next few years will be crucial to monitor which way the population trends. As for most small populations, the survival of the Manly penguin population will now be even more susceptible to external impacts.

Management options to boost the local penguin population should be discussed, along with other management actions. Translocations from other relatively local breeding sites may be an option in the future.

Appendix 1

Table 1: Summary of breeding season results by year

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Total active nests	84	98	101	96	85	86	87	88	107	68	57	55	55	44	29
Total breeding pairs	64	60	69	66	52	50	57	70	67	40	41	40	28	35	23
Total eggs laid	158	130	146	135	110	123	132	174	159	101	103	108	63	90	60
Total chicks fledged	127	104	119	118	82	100	115	146	139	79	79	94	43	70	51
Breeding success	59%	69%	74%	78%	76%	64%	83%	58%	75%	45%	67%	75%	32%	50%	

Table 2: Number of active nest sites at each locality by year

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Quarantine	18	22	25	23	23	19	22	23	26	17	15	14	14	8	3
Store Beach	2	4	6	3	4	4	6	11	14	10	13	10	7	6	5
Collins Flat	23	19	15	12	13	16	12	14	18	8	4	5	6	5	2
Addison Rd	20	30	27	33	20	27	28	22	28	19	12	11	12	7	6
Oyama Ave	21	23	28	25	22	20	19	18	21	14	13	15	16	18	13
Total	84	98	101	96	82	86	87	88	107	68	57	55	55	44	29

Table 3: Number of breeding pairs at each locality by year.

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Quarantine	11	14	23	16	13	17	16	16	18	12	12	11	8	6	2
Store Beach	1	1	1	2	3	4	4	9	11	6	9	7	3	6	5
Collins Flat	18	11	7	8	9	8	12	11	10	2	3	5	3	4	2
Addison Rd	16	20	20	21	13	11	15	19	17	9	7	7	5	6	3
Oyama Ave	18	14	18	19	14	10	10	15	11	11	10	10	9	13	11
Total	64	60	69	66	52	50	57	70	67	40	41	40	28	35	23

Table 4: Number of eggs at each locality by year.

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Quarantine	31	37	54	38	31	44	41	45	46	34	34	35	18	14	6
Store Beach	1	1	2	4	6	12	12	21	28	17	26	16	6	14	12
Collins Flat	39	24	15	16	17	15	27	29	20	4	6	10	6	16	6
Addison Rd	46	42	42	42	27	26	29	47	37	20	13	18	10	14	8
Oyama Ave	41	26	33	35	29	26	23	32	28	26	24	29	23	32	28
Total	158	130	146	135	110	123	132	174	159	101	103	108	63	90	60

Table 5: Number of fledglings at each locality by year

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Quarantine	25	30	40	34	19	33	35	38	34	24	24	28	8	9	3
Store Beach	1	1	1	2	6	12	9	14	26	13	20	15	5	11	8
Collins Flat	32	17	10	14	10	12	23	27	20	0	6	8	3	12	5
Addison Rd	40	35	39	38	24	23	26	42	34	18	11	16	8	13	7
Oyama Ave	29	21	29	30	23	20	22	25	25	24	18	27	19	25	28
Total	127	104	119	118	82	100	115	146	139	79	79	94	43	70	51

7.4 Appendix D –Population Viability Analysis on the endangered North Head Long-nosed Bandicoot Population. Based on long-term data from 2004 to May 2020. July 2021

Population Viability Analysis on the
endangered North
Head Long-nosed Bandicoot Population:
Based on long-term data from 2004 to May 2020

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July 2021

Draft for comment

Executive Summary

Key findings:

- Under current conditions, the North Head Long-nosed Bandicoot population has a 64% chance of persisting after 50 years;
- Reducing the frequency and extent of ‘catastrophes’ such as predator incursions and wildfire that lead to high rates of adult mortality are important for improving long-term population persistence;
- While not directly tested in this report, all previous studies have shown that adult mortality is the primary factor affecting population persistence;
- High levels of environmental variation in the carrying capacity of the environment are detrimental to population persistence. Lowering environmental variation has a greater benefit to population persistence than increasing the carrying capacity with high levels of variation;
- Since 2016 the shift to a sex ratio that is higher in females than males has likely driven population growth;
- Maintaining a female-biased population and high proportions of females breeding within the population leads to increased chances of population persistence over 50 years.

Recommendations for ongoing management:

- Management should place a high priority on limiting external factors that may increase adult mortality, for example predators such as foxes, dogs and cats, wildfire and traffic;
- Environmental variation in the carrying capacity of the headland should be addressed by expanding areas of fertile foraging grounds close to adequate sheltering habitat and apply techniques to ‘drought-proof’ habitat eg watering areas prone to drying out, mulch foraging areas to enhance invertebrate abundance, revegetate areas prone to drying out;
- Maintain and expand existing habitat across the headland by ensuring access to undisturbed foraging resources associated with shrubs and dense bushy areas for shelter;
- Maintain annual monitoring to assess population size, sex ratio and collect data necessary for PVA, such as mortality rates.

INTRODUCTION

This report presents an update of the Population Viability Analysis (PVA) for the endangered Long-nosed Bandicoot (*Perameles nasuta*) population at North Head. The last PVA (Price & Banks 2015) was conducted in 2015 and updated two previous reports. Lothian and Banks (2011) updated Banks (2004) that had been prepared to examine potential impacts of developments, such as the Quarantine Station (QS) re-development, on the Long-nosed Bandicoot population. Since 2001 there has been extensive regular monitoring of the population at North Head. Population monitoring has included quarterly sub-sampling from 2002 to 2010, and biennial sub-sampling since 2010 (with surveys missed in November 2013, November 2017, May and November 2019). Additionally, the entire population has been censused biannually from 2002 to 2020. As part of the QS development, mortality monitoring across the headland has been conducted systematically since 2002. The ongoing survey work has provided detailed demographic data that was used in the 2011 PVA (Lothian and Banks 2011), and was further refined for the 2015 report and updated again for this current PVA.

This report first presents a summary of changes to the demographic parameters needed to update the PVA from that reported by Price & Banks (2015). We then reran the basic model for the population. Following this, we have examined the sensitivity of the population to certain events or activities, such as wildfire, fox predation or increased roadkill, by varying relevant parameter values. The issues addressed in this report are those requested by the North Head Long-nosed Bandicoot Recovery Team, and are relevant to the long-term management of the endangered population. We conclude with discussion of the long-term implications of current management regimes on the viability of the endangered Long-nosed Bandicoot population on North Head.

METHODS

We used the software package VORTEX 9.99 (Lacy et al 2005) to model bandicoot dynamics and construct a PVA. This programme is appropriate for use with species that exhibit low fecundity, small population size and a small number of populations (Miller and Lacy 2005). Vortex is particularly suited to modelling closed, single populations under the influence of catastrophic events, inbreeding and environmental variation (Brook et al 2000; Banks 2004). The program works by running population parameter inputs (Table 1) through large numbers of simulations incorporating environmental variation.

Analyses were run over 100 programme 'years', the equivalent of 50 calendar years, as per Lothian and Banks (2011) and Price & Banks (2015). As the bandicoots do not always breed year round, and the program seems to have issues with multiple breeding events within a year, the data was run with a year in the program representing six months (182 days) of a real year. The data was split and inputs derived by treating May/August and November/February as "years" (essentially splitting the breeding season in two, and providing two time periods of similar breeding output; seasonal differences between these periods were not included). Furthermore, the age at first breeding must be a whole number, so running the analysis over this time period allowed us to enter the correct breeding age of six months into the program. In some instances, input data was calculated on a session or yearly basis and adjusted where appropriate. The initial data used in the simulations was derived from the most recent May 2020 monitoring session to make simulations as current as possible. Being a biennial session, we also had data from the population estimates conducted in CAPTURE derived from the whole-of-headland biennial population census (Price and Banks 2021).

The basic PVA model

Most data used in this analysis was derived from all data available on the North Head Long-nosed Bandicoot population held in the North Head Long-nosed Bandicoot database up to May 2020.

Previous population estimates conducted during biennial sessions were also used. Data has been collected from many studies conducted on the population (Chambers 1991; Scott 1995a; Miller and Puddephatt 1996; Scott et al 1999; Banks and Powell 2002; Hughes 2002; Banks and Hayward 2002; Lenehan and Banks 2004; Hughes and Banks 2006; Lothian 2007; Bates et al 2008; Lothian et al 2010, Bytheway et al 2010, Price & Banks 2012, Price & Banks 2015, Price & Banks 2016, Price & Banks 2019, Price & Banks 2021). The inputs have been summarised in Table 1. Even with the large and detailed data available, some assumptions had to be made.

Table 1: Input population parameters for the PVA on the Long-nosed Bandicoot population on North Head, Manly NSW. Values for variant scenarios are included.

Vortex Input	Basic Model	Variants	Explanation
Number of iterations	100		
Number of Years	100		50 calendar years
Year length (days)	182		
Extinction definition	0 of 1 sex remaining		
Number of populations	1		
Number of types of catastrophes	3	No fox, short-term fox only, long-term fox only, bushfire	Previous PVAs modelled 2 fox incursions only.
Reproductive system	polygamous		
Age distribution	stable		
Initial population size (IP)	183	109, 137	183: May 2020 CAPTURE best estimate; 109: MNKA May 2020, 137: May 2020 CAPTURE null model estimate. Previous PVA modelled IP at 152 and 102.
Carrying capacity (K)	147	170, 124, 193	147: average CAPTURE estimate 2004-2020; 170: 147+EV; 124: 147-EV; 193: 147+2EV. Previous PVA modelled K at 135, 117, 126, 200.
Environmental variation in K	23	18, 36	23: SD for population estimates 2004-2020; 18: EV for 2014 PVA;

			36: May 2020 population estimate above K; Previous PVA modelled EV in K as 18, 24, 31, 41, 47.
Age of first breeding	6 calendar months		For both males and females
Maximum age of reproduction	4 calendar years		
Maximum number of progeny per year	8 per calendar year		
Maximum number of broods per year	2 per calendar year		
Maximum number of progeny per brood	4		
Sex ratio at birth	41.5% male	50%, 33%	41.5% average since 2004; 50%: used previously; 33%: ratio May 2020. Previous PVA used 50%.
% Adult females breeding (EV of 1 SD)	69% (EV 20%)	77%	
Distribution of broods per year			
0 broods	0%		
1 brood	100%		
Distribution of offspring per female per brood			
1 offspring	16.20%		
2 offspring	55.80%		
3 offspring	24%		
4 offspring	4%		
Mate monopolization	100%		
Proportion of males of adult breeding age			

Juvenile mortality (EV of 1 SE)	53% (EV 15%)	First 6 months
Male mortality after age 1 (EV estimate)	29% (EV 10%)	After first 6 months Previous PVA used 19%.
Female mortality after age 1 (EV estimate)	24% (EV 10%)	After first 6 months Previous PVA used 22%.

The basic scenario starts with an initial population of 183 individuals, derived from the recent population estimate undertaken as part of the May 2020 CAPTURE analysis (Price & Banks 2021). This estimate was higher than previous initial estimates used in the PVAs (2014: 152, 2011: 112, 2004: 100), indicating that the population has either increased since previous PVAs were undertaken or it is at a higher point than previously within a cycle of natural fluctuations in population size. We assumed that the current population is at a high level as conditions have been relatively favorable.

Carrying capacity (K) has previously been calculated as the average population size based on CAPTURE estimates from the biennial sessions. The average population size from the best model CAPTURE estimates 2004-2020 is 147. The initial population estimate of 183 is approximately 1.5 standard deviations above the estimated carrying capacity (K). Environmental variation (EV) in K was calculated as one standard deviation around the mean of the population estimates (23 or 16%). This EV is higher than in the previous PVA (2014: EV 18 or 13%). Calculation of carrying capacity is inherently difficult, but we have assumed that the population would be operating close to the carrying capacity.

The sex ratio has been consistently biased towards females since the previous PVA in 2015. While we have always previously used an even sex ratio in the PVA (i.e. 50% males at birth), in this PVA we have used a value of 41.5% males at birth that reflects the average sex ratio since 2004 of 0.83 males: females. The most recent survey shows a bias towards females and we have used this ratio of 33% males as one of the variants tested (Price & Banks 2021). A stable age distribution was assumed, based on analyses undertaken for a previous PVA (see Lothian and Banks 2011). The breeding system was assumed to be polygynous in concordance with previous PVAs (Banks 2004; Scott et al 1999).

Previous PVAs ran simulations of the basic model with a carrying capacity of 118 with EV of 18% (Lothian and Banks 2011), 120 with EV of 25% (Banks 2004; Chambers 1991;

Miller 1997; Miller and Puddephatt 1996b; Minta et al 1990; Scott 1995b) and 126 and 200 with EV of 24 (18%), 34 (25%), 41 (30%) and 47 (35%) (Price & Banks 2015). Increased variation in the carrying capacity was shown to reduce the likelihood of population persistence, with almost certain extinction predicted when EV was 35% from a starting population of 135 (Price & Banks 2015). We have undertaken a similar sensitivity analysis here, comparing how altering the carrying capacity and environmental variation may affect predicted population persistence. We have modelled carrying capacity (K) at 170 and 124 to reflect ± 1 standard deviation around the estimated carrying capacity, and also 193 to reflect 2 standard deviations above the carrying capacity given the high initial population. We have modelled variations in EV using values of 18 (12%), which was the predicted EV in the 2014 PVA and 36 (24.5%), which reflects the higher May 2020 population estimate above K. These values account for uncertainties in the current and future state of environmental conditions. From detailed analyses run previously (Lothian 2007), the North Head population was found to vary widely in many demographic characteristics, yet remain stable over the long term. Rapid reproductive potential, high fecundity and a short life span is a reflection that bandicoots demonstrate an ability to thrive in unpredictable environments (Banks 2004). We also examined the trajectory of a population within an initial population of 109 (MNKA May 2020) and 137 (May 2020 CAPTURE null model estimate).

We have used the same female breeding rates as in the previous PVA of 69% females breeding with a variation of 20% (Lothian and Banks 2011), as this is likely to be a conservative estimate. Previous trapping data from 1997 to 2014 suggests that the core breeding season on North Head extends from July to December, with a peak around October and November. During this time, an average of 77% of females trapped have pouch young or are lactating (with a standard deviation of 19.4, or 25%). However, in some years breeding extends throughout the year although the proportion of animals breeding in late summer and autumn generally remains lower than during the core breeding season. Female bandicoots were considered adults at 450g, and males were considered adult at 650g (Lyne 1964). Whilst there are a few exceptions where females have pouch young under this definition of "juvenile", the minimum age for reproduction is considered six months for both sexes. We have used the same values for the distribution of offspring per brood as in the last PVA.

Juvenile mortality was kept at the level determined in the previous PVA of 53% with environmental variation of 15% (Banks and Lothian 2011). The previous PVA examined the sensitivity of the modelling to different levels of pouch young mortality so we have not re-examined

that in this analysis. There is no indication that juvenile mortality has changed since the last PVA and it was demonstrated in the previous PVA that trapping activities are unlikely to add to background levels of juvenile mortality (Price and Banks 2015). Calculation of juvenile mortality is inherently difficult, as pouch young are not chipped or marked whilst in the pouch, and capture rates of juvenile bandicoots are low. This is highlighted by the fact that numerous individuals are captured for the first time as adults (Lothian 2007). Furthermore, our interrogation of the database found that only 34.4% of bandicoots are captured over more than one session. Other studies have found bandicoot juvenile mortality to be in the range of 80-90% (Mallick et al 2000; Scott et al 1999; Lacy and Clark). Even though our rate of juvenile mortality is lower than these other studies, and a previous PVA conducted on the North Head bandicoots, the calculation of environmental variation exceeds the 5% estimate used by previous analyses (Banks 2004). In using the 15% variation in other parameters, the model simulates juvenile mortality up to 68% in a poor year and 83% in a very poor year (reflecting 1 and 2 SD's respectively).

We have recalculated the adult mortality values based on all the records available within the North Head Long-nosed Bandicoot database from October 1997 to May 2020. In total, 1889 individuals have been trapped and chipped during trapping surveys on the headland. Of these, 1240 (65.6%) were trapped in one session only so could not be used to estimate mortality rates. We thus used the 649 animals trapped more than once to estimate mortality rates. Of these animals, survival to 6 months was 73.3% overall (Males: 70.8%; Females 76.2%), survival to 12 months was 49.3% overall (Males: 42.3%; Females 57.0%) and survival to 18 months was 30.1% (Males 24.0%; Females: 36.8%). The oldest animal was a female that survived 1645 days between trapping surveys in May 2008 and November 2012 and the oldest male survived 1280 days between May 2011 and November 2014. Mortality up to 6 months was used as the annual adult mortality (Males: 29%, Females 24%), an increase from the figures used in the previous PVA (Males: 19%; Females: 22%). Variation was estimated to be 10%, which is conservative compared to the rest of the variations in this analysis, but greater than the 1% estimated in Banks (2004). In Banks (2004) adult mortality was calculated as 10% in six months, with adult survival considered high.

Two types of catastrophes were modelled – fox incursions and bushfire. Fox impact was modelled in two ways, as per the previous PVAs (Price & Banks 2015; Lothian & Banks 2011) to reflect the two types of fox incursions most likely to occur on the headland. As a short-term catastrophe, chance of a fox arrival is 33% in any given year (three times in 10 years). It was estimated that a fox would kill 20% of the population under short-term presence, but have no impact on the reproductive potential

of females as all surviving females would breed as normal. As a long-term catastrophe, chance of a fox arrival is 10% in any given year (once in 10 years), leaving 35% of the population killed but have no impact on reproductive potential. The chance of fox arrival was halved to make it relative to the 6-monthly analyses, but its impact was considered the same. We also consider that the impact of a severe bushfire might be similar to that of a long-term fox incursion in terms of timing and proportion of the population killed. We hope to have more accurate data to input into future PVAs regarding the effects of bushfire following analysis of the effects of the 2020 fire on the population.

We also modelled the effect of no catastrophes (i.e., code “no fox”), the likelihood of only a long-term fox incursion every 5 years that killed 35% of the population (model code “long fox”), the likelihood of a short-term fox incursion every 3 years that kills 20% of the population (model code “short fox”) and the likelihood of both a long-term and short-term fox incursion (model code “fox_long_short”).

Fox predation is modelled as a catastrophe because it does not occur every year, and when it does occur there is a management response to deal with it. By comparison, road kill is considered a constant source of mortality even with management practices in place and is considered under normal adult mortality rate.

Inbreeding has not been modelled separately in this PVA as the genetic health of the population was recently assessed and is considered fine (Nelson et al 2021).

RESULTS

Scenario ID	K	EV	IP	Catastrophes	Sex ratio	% females breeding	1 year	10 years	20 years	30 years	40 years	50 years
Basic	147	23	183	3	41.5	69	1	0.99	0.95	0.87	0.73	0.64
No catastrophes	147	23	183	0	41.5	69	1	1	1	0.98	0.96	0.93
Fox_long	147	23	183	1	41.5	69	1	1	0.98	0.97	0.94	0.89
Fox_short	147	23	183	1	41.5	69	1	1	0.99	0.98	0.9	0.82
Bushfire	147	23	183	1	41.5	69	1	1	1	0.97	0.95	0.88
Fox_long_short	147	23	183	2	41.5	69	1	1	1	0.96	0.85	0.81
IP_109	147	23	109	3	41.5	69	1	1	0.97	0.87	0.69	0.54
IP_137	147	23	137	3	41.5	69	1	0.99	0.92	0.84	0.77	0.64
K_+1 SD	170	23	183	3	41.5	69	1	1	0.99	0.94	0.76	0.63
K_-1 SD	124	23	183	3	41.5	69	1	1	0.96	0.74	0.59	0.45
K_+2 SD	193	23	183	3	41.5	69	1	0.99	0.95	0.9	0.77	0.67

EV_18	147	18	183	3	41.5	69	1	1	0.99	0.92	0.83	0.71
EV_36	147	36	183	3	41.5	69	1	0.98	0.95	0.86	0.67	0.53
Sex ratio_50	147	36	183	3	50	69	1	1	0.94	0.71	0.56	0.33
Sex ratio_33	147	36	183	3	33	69	1	1	0.99	0.95	0.85	0.81
Females breeding_77	147	36	183	3	33	77	1	1	1	0.95	0.9	0.79

Table 2: Results of the different scenarios modelled over 100 iterations (50 calendar years) within the Vortex programme. K is the carrying capacity of the headland, EV = environmental variation of the carrying capacity, IP = initial population size, sex ratio represents the proportion of males at birth, and females breeding represents the percentage of adult females reproducing.

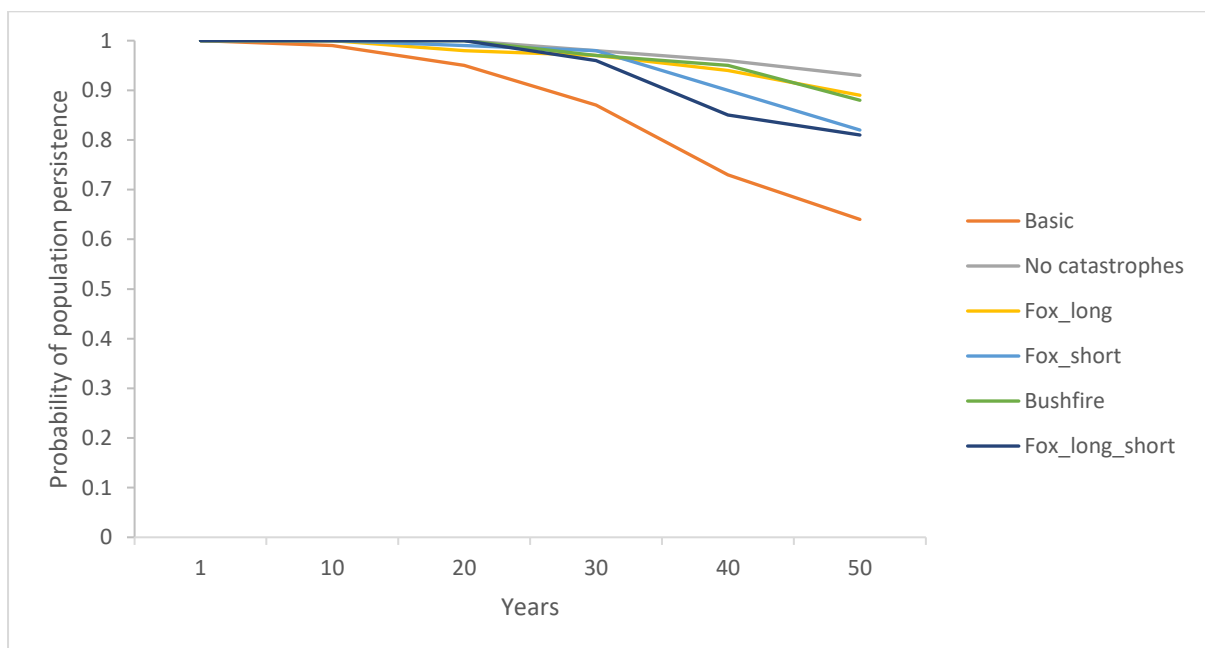


Figure 1: The predicted probability that the population will survive over 50 years under different scenarios involving ‘catastrophes’. The ‘Basic’ scenario includes 3 catastrophes (short-term fox incursions, long-term fox incursions and bushfires), ‘No catastrophes’ has none of the previously mentioned catastrophes occurring over 50 years, ‘Fox_long’ includes only long-term fox incursions, ‘Fox_short’ includes only short-term fox incursions, ‘Bushfire’ includes only bushfires, and ‘Fox_long-short’ includes only short and long-term fox incursions. Catastrophes kill large portions of the population and this graph highlights the effect of pulses of high levels of adult mortality on population persistence.

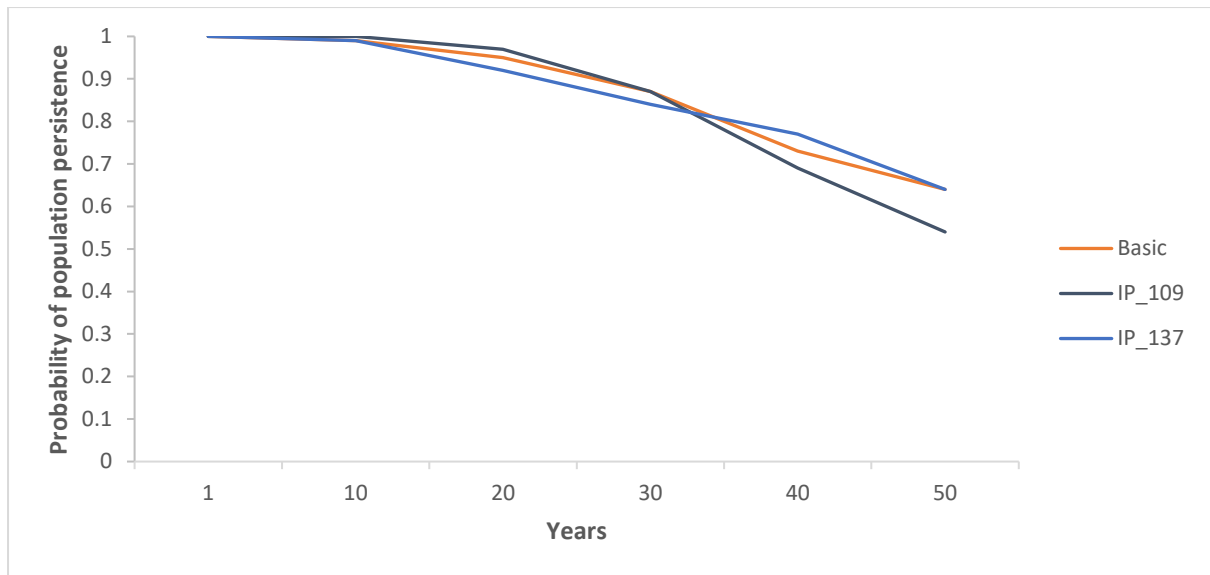


Figure 2: The effect of different size of the initial populations on the probability of population persistence over 50 years. The ‘Basic’ scenario has an initial population size of 183, based on the best model population estimate from May 2020 trapping results. The ‘IP_109’ scenario has an initial population size of 109, the actual number of bandicoots trapped in May 2020 and the ‘IP_137’ scenario has an initial population of 137, the null model population estimate from May 2020 trapping results.

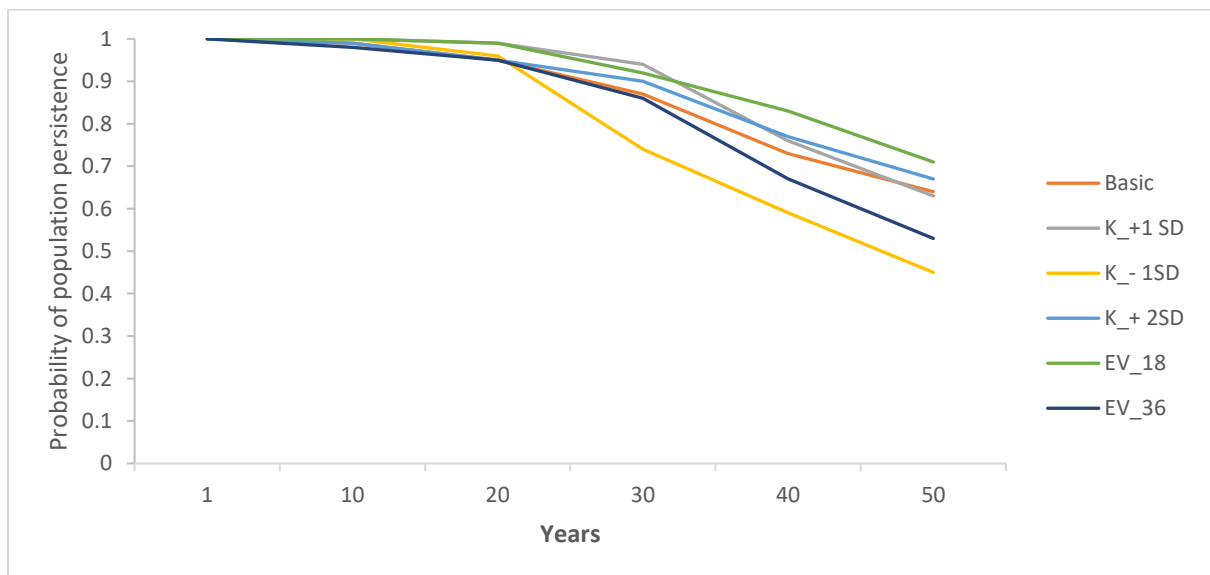


Figure 3: The effect of changing the carrying capacity (K) of the headland and changing the environmental variation (EV) around the carrying capacity on predicted population persistence over 50 years. The ‘Basic’ scenario has a carrying capacity of 147 (the average modelled population estimate between 2004-2020) and an EV of 23, the standard deviation of population estimates from

2004 to 2020. The 'K_+ 1SD' scenario has a K of 170, reflecting the basic K plus 23. The 'K_- 1SD' scenario has a K of 124, the basic K minus the standard deviation. The 'K_+ 2SD' scenario has a K of 193, the basic K plus double the standard deviation of the population estimates. The 'EV_18' scenario reflects the environmental variation used in the previous PVA, and is lower than the basic EV value of 23. The 'EV_36' scenario includes a higher EV than the basic scenario, reflecting how much higher the May 2020 population estimate is from K.

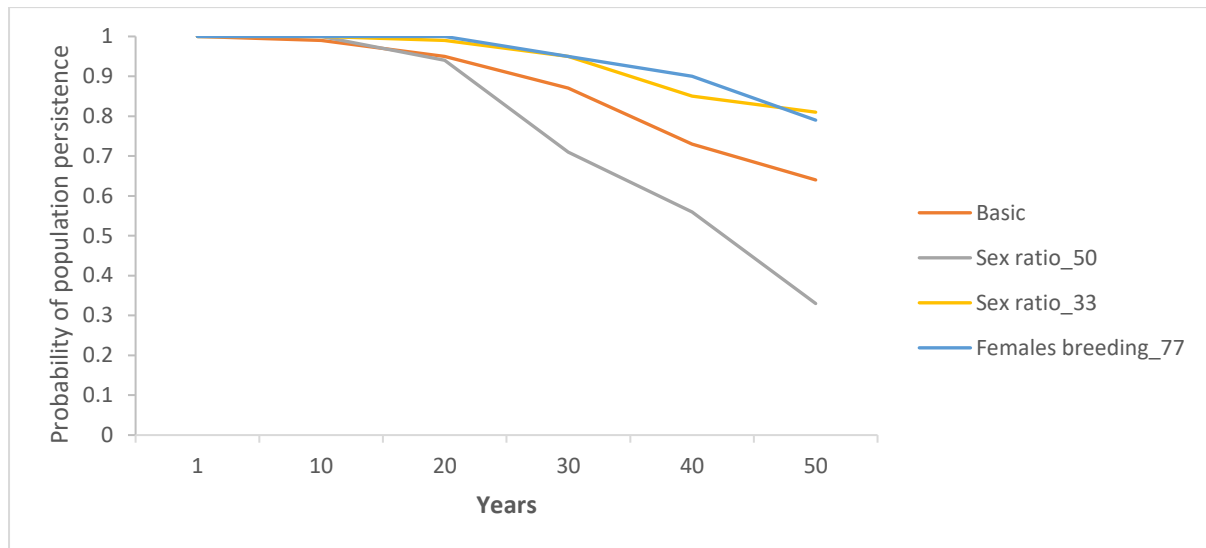


Figure 4: The effect of altering the sex ratio and percentage of females breeding on predicted population persistence over 50 years. The 'Basic' scenario includes a sex ratio of 41.5% male, the average since 2004, and 69% females breeding as per the previous PVA. The 'Sex ratio_50' includes a sex ratio of 50% as has been used previously, and the 'Sex ratio_33' includes a sex ratio of 33% males, as was found in the May 2020 trapping results. The 'Females breeding_77' includes 77% of the females breeding reflecting trapping results for the percentage of reproducing females between 1997-2014.

DISCUSSION

The updated basic model predicts that the Long-nosed Bandicoot population has a 64% likelihood of survival after 50 years, or a 36% chance of extinction over the same period (Table 2; Figure 1). The 64% likelihood of survival after 50 years is very similar to the 62% chance of survival reported in the previous PVA (Price & Banks 2015), but significantly lower than the 80% chance of survival predicted in the 2011 PVA (Lothian & Banks 2011). The similarity in the predicted likelihood of survival between this report and the previous report is surprising given the inclusion of a third catastrophe in the current model and increases to adult mortality values, but a higher initial population and

carrying capacity most likely compensate for the additional losses. The result suggests that the population has improved in its capacity to persist since the previous PVA.

Our 64% predicted chance of survival after 50 years is based on the ongoing likelihood that sporadic fox incursions will occur and have different levels of severity in terms of their impact on the population, and that wildfires will occasionally occur that kill a significant proportion of the population. The model has the same values for juvenile mortality as both the 2011 and 2014 PVAs but has been updated to include a 2-10% increase in adult mortality based on all trapping data within the North Head Long-nosed Bandicoot database (1998-2020) as well as an increase in the carrying capacity (K) and initial population based on the results of the May 2020 monitoring activities. The model also incorporated an increase in the environmental variation of the carrying capacity from 18 to 23 based on the monitoring results since the previous PVA. As has been done previously, the model includes both short and long-term catastrophes of a fox incursion likely to happen every 3 or 10 years respectively, but for the first time also includes a third catastrophe, a wildfire, likely to occur every 10 years. The addition of the wildfire to the model reflects the circumstances under which management has occurred since the 2020 fire on North Head.

If no catastrophes are included in the model, i.e., no fox incursions or wildfires, the population has a very high chance of survival (93%) after 50 years (Figure 1), but not quite as high as in the previous PVA (96%). The slightly lower predicted survival is most likely a consequence of the higher levels of adult mortality in this model compared to the previous model. Regardless, the results of the 'no catastrophe' model suggest that the population could have a relatively secure future if events that cause high levels of adult mortality are prevented. If only one catastrophe occurs, the population has a similar level of predicted survival to if two catastrophes occur. Interestingly, the model with only short-term fox incursions every 3 years predicts a similar overall chance of survival (82%) as the model with both long and short-term fox incursions (81%), and the short-term fox incursion model in the previous PVA (84%). This suggests that the more regular loss of fewer adults is as damaging to population persistence than a less frequent but larger mortality event. The previous PVA predicted that the chance of a long-term fox incursion every 10 years resulted in a 70% chance of survival, whereas the current model predicts an 89% chance of survival under the same circumstances. The improved chance of survival predicted by the current model is also likely a consequence of the larger initial population and carrying capacity of the headland since the previous report. These results and comparisons continue to highlight the importance of remaining vigilant to any events that increase rates of adult mortality, including predator incursions from foxes, dogs and cats as well as wildfire

and road kill. Most importantly, they indicate that more regular events rather than one-off impacts may be more damaging to population persistence, suggesting increases in road deaths could have a larger impact than would otherwise be assumed. Quick and effective responses to any increased adult mortality are essential to alleviate the impacts predicted by the modelling.

The model showed some sensitivity to decreasing the initial population size, with the predicted survival over 50 years dropping from 64% to 54% when the initial population was substantially lowered from 183 to 109, the actual number of animals trapped in May 2020 (Figure 2). However, the predicted persistence was the same as the basic model when an initial population of 137 was used, the null model estimate of population size in May 2020. Similarly, increasing the carrying capacity by 23, the standard deviation in the estimate used as for environmental variation, did not change the overall predictions (Figure 3). Increasing the carrying capacity by two standard deviations (from 147 to 193) only increased predicted survival over 50 years by a small amount, up to 67%. Decreasing the carrying capacity by one standard deviation, however, did reduce the predicted survival after 50 years to just 45%. In line with these results, the model was also sensitive to changes in the rates of environmental variation in the carrying capacity (Figure 3). Reducing environmental variation from 23 to 18, the figure used in the 2014 PVA, increased predicted population persistence to 71%. Increasing environmental variation to 36, to bring the carrying capacity up to the estimated population in 2020, lowered predicted population persistence to 53%. Taken together, these results suggest that variability in the environment is not beneficial for the population that could be at the upper end of the carrying capacity of the headland, and that a succession of 'bad' years could lead to rapid extinction. Future management should aim to improve overall resource availability, limit susceptibility to drought and increase the carrying capacity of the headland. Any lowering of the carrying capacity of the headland by reducing available habitat or activities that lead to an increase in variability is likely to have a detrimental effect on long-term persistence of the population.

Since 2016 the headland monitoring has indicated that the population has had a shift in the sex ratio from being relatively even to female dominated. This change from a 50% sex ratio was modelled for the first time and a sensitivity analysis undertaken (Figure 4). The basic model incorporated a 41.5% male ratio at birth reflecting the average trapping results since 2004. When the sex ratio changed to 50%, *i.e.*, equal rates of males and females born, as has been used in previous PVAs, the predicted population persistence decreased markedly to only 33%. However, when the ratio was altered to 33% males and therefore 77% females at birth, reflecting the trapping results in 2020, population

persistence grew to a predicted 79% chance of survival over 50 years. While we have no way of knowing what the sex ratio at birth is, the estimates used accord with adult sex ratios from trapping results. The modelling results suggest that a female dominated population leads to a higher likelihood of population persistence over the longer term, probably a consequence of higher reproduction rates (as long as numbers of males are not too low) and lower mortality of females compared to males. We also modelled the effect of increasing the percentage of females breeding to 77% (from 69%), and this had a similarly large effect on predicted population persistence, up to 79% over 50 years. These results show the importance of maintaining conditions that allow for high rates of reproduction and, if possible, a female dominated population.

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**7.5 Appendix E – *Acacia terminalis* subsp. *Terminalis* (Sunshine Wattle) 2020
Updated monitoring report.**

**Acacia terminalis subsp.
Terminalis
(Sunshine Wattle)**

2018 Monitoring Report

2019 Update

2020 Update

Sydney Harbour National Park, North Head, Middle Head,
Georges Heights and Chowder Head

Author:

July 2019

1. Introduction

1.1. Background

Acacia terminalis terminalis is one of four subspecies of the Sunshine Wattle (*Acacia terminalis*). It is listed as endangered on the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and on the NSW Threatened Species Conservation Act 1995.

A Recovery Plan was prepared for the subspecies in 2010 and was intended to be implemented over five years. Although this date has passed, the plan is still the most relevant source material for the in-situ conservation of this subspecies across its known range. It also identifies the actions that relate to NPWS responsibilities for the known populations within its reserve system to ensure long-term viability.

In 2017 NPWS commissioned a survey and report in response to Objective 4 of the Recovery Plan which is “to promote surveys, research and monitoring to assist with the management of [the subspecies]” through the identification and management of threats. Action 4.1 requires the NPWS “to undertake surveys of known but recently unsurveyed sites to confirm the presence or absence of *A. t. terminalis* and continue to monitor known sites.” (DECCW 2010 I and 18).

The 2017 Report was also prepared in response to the desired outcomes of Sydney Harbor National Park Plan of Management 2012 which include conserving the natural values of the park. Key project 2 in the plan notes a strong commitment ‘to the management of threatened species, populations and communities whose future is largely or wholly dependent on Sydney Harbour National Park, to ensure the long-term persistence of viable populations.’ Implementation of actions in relevant recovery plans, threat abatement plans and the priorities action statement are to receive a high priority.

The 2017 survey reviewed sites in the Manly and Mosman LGAs on the northern side of Sydney Harbour. This survey was conducted between 20th February and 1st April and the *2017 Monitoring Report* [1] was produced.

A more limited survey was conducted between 23rd April and 15th June 2018, covering sites in the Manly and Mosman LGAs. This survey was documented in the *2018 Monitoring Report* [2].

This has been further updated with the results of a survey conducted between 6th June and 16th July 2019. This survey reviewed only sites reviewed previously that had some *Acacia terminalis terminalis*, and in part was conducted with Erica Mahon from NPWS who was taking tissue samples for analysis by the Royal Botanic Gardens.

The surveys were conducted when the plants were in bud, full flower or late flower. At each site the number of plants was recorded, along with overall health and an analysis of the existence of the threats identified in the *Recovery Plan*. These findings were then compared with the historical record as recorded in *the spreadsheet*.

The Recovery Plan identified 27 Populations and 53 Sites with 38 of these Sites being in the 2018 survey area covering the Manly and Mosman LGAs on the northern side of Sydney Harbour. Two of these Sites were not observed. The other 36 Sites are reported on in this document.

2. Executive Summary

2.1. Findings

The 2018 report found that the surveyed population was significantly (60%) smaller than reported in the Recovery Plan with 15 of the 38 sites no longer having any plants counted. A further 11 showed significant decreases since the initial plan.

The report identified the major threats as:

- Fire and other disturbance (specifically, lack of)
- Habitat loss and fragmentation
- Weed invasion

It also noted that surveying was made much difficult than it needed to be because the locations reported had used obsolete mapping data, were sometimes inaccurate and there was limited information on how to reach the sites.

This 2019 Update identifies a further population decline of almost 25% in the year, and an increased identification of hybridisation and /or the presence of other subspecies as a threat to the continued existence of the subspecies in the surveyed areas.

During the 2019 survey new areas containing *Acacia terminalis terminalis* were found. The initial plan did not contain any recommendations or processes for adding new areas, so these have been reported separately.

2.2. Recommendations

The 2018 Report contained a number of recommendations, including:

- Focus on viable sites, to maximise efficiency of resource allocation
- Introduce fire or other disturbance, to trigger renewal
- Enhance weed management, to reduce competition
- Update bush regeneration practices, so that bush regenerators, councils and other land managers are not accidentally removing *Acacia terminalis terminalis*
- Consider targeted planting in areas where conditions are good for
- Enhance rabbit controls, to reduce rabbits as a threat
- Review and revise register, to accommodate the changes in the population and to simplify future surveying

From the findings of the 2019 survey, additional recommendations are:

- Confirm the presence and identification of hybrids and /or other subspecies from the tissue samples taken, and then develop and implement a policy for dealing with known hybrids and / or other subspecies
- Extend the survey, to identify new sites containing *Acacia terminalis terminalis*.

3. Summary of Findings

3.1. Findings from 2018

3.1.1. Population and Distribution

The findings from this survey and the trends over time suggest a significant decline in the overall population and distribution of *Acacia terminalis terminalis* on the northern side of Sydney Harbour. Specific observations include:

- The surveyed population is now only approximately 40% of the population reported in the Recovery Plan.
- 70% of all plants counted were on a single Site (At1d, north of Bluefish Drive on North Head)
- 15 Sites had no *Acacia terminalis terminalis* and a further 7 had only 1 or 2 plants
 - 5 of these Sites are considered to have been compromised to the extent that it is unlikely that *Acacia terminalis terminalis* will grow there again.
- Only 8 Sites had 10 or more plants, and 2 of those had a marked decrease compared with previous counts.

Table 1 - Change in Site populations since 2010

Change in Site population	Increase	Stable	Decrease	None Found	Insufficient data
Number of Sites	5	4	11	15	3

This decline is further emphasized in the table below which reproduces Table 1 from the Recovery Plan, and adds current data. The table shows the breakout of the 14 Populations in the Survey Area by size class, counting mature specimens in each Population.

Table 2 - Change in Population by size class from 2010 to 2018

Population size class	0	<10	11-50	51-100	>100	Not Inspected
Number of populations (2010)	0	1	4	2	3	4
Number of populations (2018)	5	4	3	1	1	

3.1.2. Threats

All of the threats identified in the Recovery Plan are implicated in the decline noted above, with the exception of “Dieback from *Phytophthora cinnamomi*” which was not apparent to the observers.

The major threats are seen to be:

- Fire and other disturbance (specially, lack of)
- Habitat loss and fragmentation
- Weed invasion

Table 3 - Analysis of identified threats

Threat	Summary of Threat	Impact on Survey Area
Habitat loss and fragmentation	The subspecies already occurs only in small and fragmented sites, and many of these are subject to further development	A major threat. Some sites have been lost to development and the impacts of fragmentation means others will be lost as the existing plants age and die. A number of sites in Mosman appear to have been impacted by bush care activities with evidence of planting of other native species, but no observed <i>Acacia terminalis terminalis</i> .
Weed invasion	Direct competition from weeds and some natives, as well as impact from disruption to life cycle process.	This is a major impact at a number of sites, implicated in the disappearance of <i>Acacia terminalis terminalis</i> from some sites and a major ongoing threat to others.
Dieback from Phytophthora cinnamomi	Potential issue – not known whether the subspecies is susceptible.	Not observed
Access & visitation issues	Disturbance caused by formal and informal track creation, and subsequent weed invasion, habitat degradation, risk of dumping, fires, etc	Not observed as an issue – if anything the disturbance caused by track creation has aided some recruitment, although this may still cause issues in the future if weed invasion and habitat degradation occur. It remains a risk in pockets that are close to public areas such as ovals.
Fire and other disturbance	Inappropriate fire regimes causing population declines, with fire exclusion as a greater risk than too much fire.	None of the surveyed sites have evidence of recent fire activity, and most have limited other positive disturbance. Many of these are extremely unlikely to experience such disturbance due to their location (urbanisation). Leaf build up, thick lower and middle cover and extensive upper cover is common at many sites. One site recorded as having recent fire activity is At1d(i) – North Head, north of Bluefish Drive (“very hot burn in November 2003”), which is also the only site recording large numbers of the subspecies. A number of sites with obvious recent disturbance are also relatively prosperous (specifically At2a, At2b, At2c and At8b) which are along constructed paths).
European rabbits	Rabbits known to favour <i>Acacia terminalis terminalis</i> and particularly seedlings. Also damage from burrows a risk	This is not an obvious issue at most sites. The main exception is Quarantine Station with a noticeable large rabbit population, and with a significant reduction in observed <i>Acacia terminalis terminalis</i> and with no smaller plants. Other sites near grassed areas such as public ovals are also at risk.

Threat	Summary of Threat	Impact on Survey Area
Hybridisation	Hybridisation with other subspecies of <i>Acacia Terminalis</i> is known and considered likely where these are in close proximity.	There are 3 sites where potential hybrids were observed, and one site (the Military School at North Head) where other subspecies of <i>Acacia Terminalis</i> have been planted.

3.1.3. Site details

There are a number of issues with the recorded data for the various sites that have made surveying more complex and difficult than it needs to be.

This data has been provided in the form of a spreadsheet extracted from the NPWS Wildlife Atlas. The data, spreadsheet and source Atlas database are subsequently termed “The Register” in this report.

AGD66

The location data is recorded using AGD66 references which have become obsolete. GPS trackers no longer use these references and instead use GDA94. This leads to location differences of around 100m in this area of NSW.

Accuracy

Many of the locations recorded on the database are not accurate, even after translation. Text in some fields mentions locations being moved to match the description, but in many cases:

- the description does not match the location
- the location cannot be accessed and the description is not sufficient to work out where the plants are most likely to be

For example, At13c is a Site on Curraghbeena Head, Mosman. The location data puts it close to the water’s edge, on private property. The location says “Curraghbeena Park”, and plants were actually found near the side of a road opposite the park, about 10m from the park and 30m from the location data.

Areas or Sites

Locating plants is complicated by an inconsistent approach to areas where there are a number of plants. In some cases the reference is to a specific plant and in others the reference is to a zone where there are multiple plant sites. Unless the surveyor is familiar with the site they are not certain on arrival whether they are looking for plants in one place or over a range.

As examples:

- At7 is a Population in Mosman which is also the only Site in that Population, and is in a small road reserve. No plants have actually been recorded there.
- At2 is a Population around the former Military Barracks at North Head, with 3 Sites (At2a, At2b and At2c). Site At2a has 2 sub-sites – At2a(i) and At2a(ii). At2a(i) refers to a 200m long strip of land either side of a path.
- At1 is a Population which covers a large range of North Head and has 12 Sites (At1a to At1l). One of those Sites (At1d) is further subdivided into 8 Locations (At1d(i) to At1d(viii)). One of those Locations is At1d(i) which covers a large area of land, although mainly includes plants close to a 500m long wall.

In short:

- Entries in *The Register* can refer to either a Population, a Site or a sub-site
- Entries can be either a specific point where plants were found, or a line of up to 200m along which plants may be found, or an area covering several hundred square metres.

3.1.4. Directions

The Register assumes a good working knowledge of the survey area and provides inconsistent but generally incomplete guidance on accessing the various locations.

Most plants are found on or near paths or roads. Particularly for those near paths, knowing where to get on the path and how to get there can be instrumental in saving many hours of survey time, and may also make the difference between whether plants are found or not.

For example:

At9 is a Population on Middle Head with 9 Sites. Three of these sites are accessible from the same walking track, but there are three very different ways and locations that they are most effectively accessed:

- At9c is on a walking track that descends from Middle Head Road to Balmoral Oval. It is easily reached and the plants are easily found if you know where on Middle Head Road the track starts, and that you need to walk about 50m down stairs to get to the Site.
- At9b has exactly the same location as At9c, but is assumed from its description to be nearby in HMAS Penguin, a Navy base with strict access controls. How to reach the site should one be able to get in to the base is not clear. There has been no survey there since 2006.
- At9a is on Balmoral Oval which is most easily accessible from The Esplanade at Balmoral Beach. On a map one might also think it is accessible from roads to the east but these turn out to be part of HMAS Penguin. It is also accessible from the walking track that descends from Middle Head road, but that is 200m down and up around 200 steps.

3.2. Updated Findings from 2019

Plant numbers in mapped locations have continued a marked decline of 25% from just 1 year ago, with corresponding increases in dead and senescent plants and decreases in small (<30cm) plants.

- In the Manly LGA, counted plant numbers dropped 25% from 569 to 427 in mapped locations.
- In Mosman, the decrease was 27%, from 75 to 55 individuals.

The major threat observed in these locations continues to be the lack of disturbance from fire or any other cause. This has allowed slower growing plants to establish themselves and, in many cases, to crowd out the *Acacia terminalis terminalis*. Given the nature of *Acacia terminalis terminalis*, as a “subspecies requiring disturbance to trigger recruitment”, a “fire sensitive obligate seeder”, and with a lifespan of 8-20 years [1], this is to be expected: undisturbed sites first identified in 2010 would now be expected to have aging plants with limited opportunity for recruitment. Numbers would be expected to decline.

An increasingly apparent threat is hybridisation, most likely with *Acacia terminalis* ssp. *Augustifolia*. Hybrids and / or different subspecies of *Acacia terminalis* have been identified as a real or potential threat in 5 out of 11 current sites on North Head and 6 out of 9 in Mosman. This includes sites where hybrids and / or different subspecies have clearly been actively planted rather than self-seeded.

Some new plants have been found in areas of North Head not previously recorded as having *Acacia terminalis terminalis*. This included a number of large plants which are clearly more than a year or two old, so were missed in earlier surveys.

4. Recommendations

Site specific recommendations are contained in Appendix B Appendix B, with the major themes outlined below. Most of the recommendations below were initially made in the 2018 Report and have either been updated or added following the 2019 survey.

4.1. Focus on viable sites

The survey area contains 66 recorded locations, most of which are single points, but which can be up to 500m². In many of these locations, there are no longer any *Acacia terminalis terminalis*, and this is unlikely to change given the characteristics of the location.

Examples include:

- At1f – part of St Patricks Estate where recent developments have removed all known *Acacia terminalis terminalis*
- At1k – part of Quarantine Station, now in a heavily overgrown forest-like area
- At7 – Road reserve in Mosman which is now replanted and weed infested

There are other locations where there is still some *Acacia terminalis terminalis*, but the long term viability of the subspecies in these areas is unlikely. Areas include:

- At1c – initially 10 plants on an isolated traffic island in the Sydney Water site. Now only 1 remains, surrounded by mature leptospermum and banksia.
- At9f – once more than 16 plants, now only 2. The area is heavily forested and shaded.

Activity to regenerate *Acacia terminalis terminalis* at these sites is unlikely to be successful and would most likely be a waste of scarce resources.

These locations should therefore be removed from the register to allow resources to be focused on the areas that do have potential.

Note that there are other examples of sites that have no *Acacia terminalis terminalis* remaining but which have the right features for future presence.

The recommendations below focus on viable sites.

4.2. Introduce fire or other disturbance

The Recovery Plan noted that the subspecies “should be considered a fire sensitive obligate seeder” and that “A.t.terminalis is susceptible to population declines (and potentially local extinctions) as a result of inappropriate disturbance regimes.”

It recommends “a minimum fire-free interval of 6-12 years” and a maximum period of 20 years.

With the recovery plan being prepared in 2010 and monitoring in most Sites going back to 2006 and 2001, this minimum period has now expired and in many cases the maximum period is probably also in the past.

The major recommendation is to review all fire plans for viable sites with a view to applying controlled burns in the near term where possible.

A specific location to focus on is At8a(i) recorded in 2006 as having over 300 plants following a “very high intensity burn two years prior”, but now having no *Acacia terminalis terminalis* and instead

being inundated with weeds such as lantana, privet, and asparagus fern. The site is considered too heavily infested for weed management to be the initial action.

4.3. Manage the threat of hybridisation

The Recovery Plan states that “Hybridisation with other subspecies of *A. terminalis* is potentially a major threat to *A.t.terminalis*.” and recommends “the removal of inappropriate *Acacia terminalis* plantings”.

At least 11 sites were identified as potentially having either a different subspecies of *Acacia terminalis* (probably *Acacia terminalis Augustifolia*) or hybrids.

One issue faced when dealing with this is the definitive identification of variants. A number of tissue samples (both of suspected variants and plants believed to be *Acacia terminalis terminalis*) were taken on the 2019 survey and sent to the Botanic Gardens. These should be analysed to confirm whether they are variants, and from this to clarify identification of the subspecies so that surveyors and land managers can do so without resorting to tissue samples.

Assuming confirmation that there are other subspecies and / or hybrids, then the Recovery Plan’s recommendation of removal of these plantings should be carried out, noting that a number of these are on land not managed by OEH.

4.4. Enhance weed management

There are several Sites where weed invasion (including native plants) is threatening both the existing *Acacia terminalis terminalis* and potential new recruits, and where weed removal would be appropriate.

Examples include:

- At1h, along the eastern wall bounding Quarantine Station and a pipeline extending north east to Collins Beach Road. Clearing and other disturbance in these areas has resulted in plants being recorded in new locations, including some new recruits. However there is also weed presence, including privet, that needs to be dealt with before it becomes unmanageable.
- At1d(i), along the boundary wall with St Patricks. There is *Acacia terminalis terminalis* all along the wall except one location where there is a patch of lantana which could be readily targeted for removal.
- At1j (specifically At1j(v)) where previously identified recruits have failed to survive in an area with a lot of blady grass, mother of millions, and pampas grass was in evidence.

4.5. Update bush regeneration practices

There are some sites, mainly in LGAs, where *Acacia terminalis terminalis* is no longer recorded but the area has been well tended by local bush care groups. Examples here include At9a, At13a and At14 in Mosman.

While it is not known whether these activities have actually removed existing *Acacia terminalis terminalis*, it is likely that weed control measures, and the alteration of the environment (including “mesic shift”) have impacted on actual and potential recruitment.

If these and similar sites are to remain viable then the groups involved in these areas need to be trained to recognise *Acacia terminalis terminalis* and to promote its growth and recruitment.

A very specific case is for Site At2c, the Former Military School where there appear to be plantings of other subspecies of *Acacia Terminalis*, probably *Acacia Terminal Angustifolia* in a number of locations. To avoid the risk of hybridisation these plants should be removed.

4.6. Consider targeted planting

The Recovery Plan states:

... given the high cost and risk associated with the technique, translocation should only be considered as a last resort when all other management options are deemed inappropriate or have failed

and:

Translocation is not currently considered necessary for the survival of *A.t.terminalis* as the in-situ conservation measures proposed in this recovery plan are expected to meet the conservation needs of the subspecies.

and:

However, 're-stocking' or 're-introduction' should be considered at sites that experience a substantial decline in population size ...

Given the significant decline in plant numbers and the increased existence of threats to the remaining sites, where sufficient seed banks have been collected consideration should be given to growing stocks of *Acacia terminalis terminalis* (for example in Council nurseries) to replenish areas where previously identified *Acacia terminalis terminalis* is no longer present but the habitat is suitable.

A specific example could be to replace the *Acacia Terminal Angustifolia* at Site At2c

4.7. Enhance rabbit controls

In the Recovery Plan, Specific objective 3 is "To identify and minimise the threats operating at sites where *A.t.terminalis* occurs" and includes the threat abatement measure:

- installing tree guards around seedlings and ensuring that rabbit control programs are aimed at areas where *A.t.terminalis* seedlings are found

Only one Site, Atj in Quarantine Station had an obvious exposure to large numbers of rabbits, but this site has seen a reduction in plants from 32 to 7 since 2006, with no small plants. Rabbit control programs should be stepped up here, in conjunction with weeding programs and tree guard should be considered for any seedlings or small plants found.

4.8. Survey new locations

The Recovery Plan noted that "It is likely that our current understanding of the distribution of *A.t.terminalis* is not complete.", and the 2019 survey did find some areas with *Acacia terminalis terminalis* which had not previously been identified on the register.

This includes:

- 22 plants on the track from Shelly Beach carpark to Blue Fish track (near site At1e)
- 1 large healthy plant by the roundabout at the top of Quarantine Station, near site At1i
- 7 plants at the end of a new boardwalk by Chowder Bay, near site At4a.

Given the subspecies' propensity to germinate near areas of disturbance, it is likely that there are more such areas, and these should be identified and managed in the same way that the initial set has been.

The process for doing so needs to be identified:

- This is a large area and a full scale survey would require resources that are not available
- However, land managers may well be aware of areas of recent disturbance, and these could be added to a register of "potential sites"
- Similarly, new sites could be identified by small scale searches in likely areas as part of the main survey.

This would need to be accompanied by a more flexible approach to recording known locations (see below).

4.9. Review and revise register

There are a number of changes that could be made to the Register to make future surveys easier, to improve the quality of information, and to allow for changes to the known locations of plants.

- Change all locations to their GSDA94 equivalent
- Remove records for locations no longer considered viable
- Add directions to reach the locations
- Support areas of land (polygons) where appropriate, as well as specific locations
- Adopt a structured nomenclature such as:
 - Populations are numbered At<n> and are only an aggregator of Sites – ie have no location data or plants counts of their own.
 - Each Population has at least one Site.
 - Sites are numbered At<n><a> and may cover an area of land tracked as a polygon, in which case they would have no plant counts of their own.
 - Each Site may have Locations.
 - Locations are numbered At<n><a><i> and record specific plant locations within a polygonal Site, or may be a small polygon (small enough that a surveyor would be able to see plants in that Location from any starting point.

Appendix A. Summary of survey data

The table below summarises the status of the 38 Sites in the Survey Area and for each one identifies:

- Location and Local Government Area
- Historic plant counts and counts in the Recovery Plan, where different
- Current Survey counts
- A colour coded assessment of the Population Status:
 0. Red - There were no plants found
 1. Yellow - The population has declined to only one or two individuals
 2. Yellow Green - The population has declined markedly
 3. Pale Green - The population is stable but small (one or two individuals)
 4. Mid Green - The population has increased but is less than 20 individuals
 5. Dark Green – A healthy population of at least 20 plants
- A colour coded assessment of the overall threat status which is an average of the specific risks, ranging from:
 - High (5.0, Red) – site is no longer considered viable
 - Low (1.0, Dark Green) – site is in good health (note that the lowest actual rating is 2.0)
- A colour coded assessment of the impact of each of the 6 specific risks (ie not including PC):
 - HL – Habitat Loss
 - W – Weeds
 - A – Access
 - F – Fire and other disturbance
 - R – Rabbits
 - H – Hybridisation
- Each specific risk is rated from 5 (High, Red) to 1 (Low, Dark Green) as follows:
 - 5 The threat has already severely impacted the site and there is no reasonable prospect of it being removed
 - 4 The threat has impacted the site and could shortly destroy it, removal of the threat is complex
 - 3 The threat is impacting the site but either the site can continue as is in the short to medium term, or removal of threat is feasible
 - 2 The threat has had some impact on the site, or may do so, but removal is feasible
 - 1 There is little or no evidence of the threat for this site

A.1. Manly LGA

Site Code	Location	Count - Historic	Count - Plan	Count - 2018	Count - 2019	Count-2020	Pop Status	Threat Status	HL	W	A	F	R	H
At1a	Sydney Harbour NP (North Head) - Bluefish Point track	15	2	1	1		1	2.0	2	3	1	3	2	1
At1b	North Head STP	60	22	24	19		4	2.2	2	2	2	4	2	1
At1c	North Head STP (traffic island)		10	3	1		1	2.7	4	3	2	5	1	1
At1d	Sydney Harbour NP (North Head - north of Bluefish Dr)		several hundred	445	302		4	2.0	1	2	3	2	2	2
At1e *	North of 1880s wall		3	4	5		4	1.8	1	2	3	2	2	1
At1f	St Patricks Estate, Manly	87	?	0	0	NR	0	5.0	5					
At1g	Sydney Harbour NP (North Head) - west of Collins Beach Road	2	2	0	0		0	2.7	4	4	2	3	1	2
At1h	Sydney Harbour NP (North Head) - east of Collins Beach Road	5	9	6	2		2	2.5	2	5	1	3	3	1
At1i *	Sydney Harbour NP (North Head) - Quarantine Station (Stonemasons Yard)	2	0	0	0		0	5.0	5					
At1j *	Sydney Harbour NP (North Head) - Quarantine Station (Lower Reservoir - south)		32	7	13		3	4.2	3	4	4	5	5	4
At1k	Sydney Harbour NP (North Head) - Quarantine Station (Quarantine Beach Rd 1)	2	0	0	0		0	5.0	5					
At1l	Sydney Harbour NP (North Head) - Quarantine Station (Isolation Wards 1)		2	2	4		3	3.0	4	2	3	4	4	1
At2a	Former Military School, North Head (along memorial track - north)		13	44	50		5	2.0	1	2	3	2	2	3
At2b	Former Military School, North Head (along stonewall firebreak)		19	13	13		4	2.7	3	2	3	2	3	3
At2c	Former Military School, North Head (entrance to new walkway)		13	20	12		3	3.2	3	2	3	3	3	5

Note that for At1e, At1i, and At1j, new locations were found – the data in the table above refer to like for like comparisons.

A.2. Mosman LGA

Site Code	Location	Count - Historic	Count - Plan	Count - 2018	Count - 2019	Pop Status	Threat Status	HL	W	A	F	R	H
At3a	Parriwi Park, sandstone plateau above Spit Road, Mosman.	0	48	2	2	1	2.5	3	3	2	3	2	3
At3b	Parriwi Park, east of Parriwi Road, Mosman.	1	1	3	1	4	2.5	2	2	2	3	2	4
At3c	The Spit Reserve, Mosman	1	3	0	0	0	3.2	4	2	4	5	3	1
At4a *	Quakers Hat Park (east), Mosman	3	330	30	16	3	2.7	2	3	2	4	2	3
At5	Quakers Hat Bay Reserve, Mosman	1	2	0	0	0	5.0	5					
At6	Quakers Hat Bay Reserve, Bay Street, Mosman.	Small	?	0	0	0	5.0	5					
At7	Road Reserve 29, Mosman Local Government Area, Almora Street.	0	?	0	0	0	3.0	4	4	1	5	3	1
At8a	Sydney Harbour NP (Middle Head forts east)	0	304	0	0	0	2.5	2	5	3	2	2	1
At8b	Sydney Harbour NP (Obelisk Bay)	>10	214	20	16	2	2.7	2	4	3	2	2	3
At9a	Balmoral Oval, Mosman	0	?	0	0	0	3.2	4	4	4	4	2	1
At9b	HMAS Penguin, western boundary	0	13	?	?								
At9c	Walkway to Balmoral Oval	0	2	2	2	3	2.2	3	2	2	4	1	1
At9d	north of Training Command Centre, Georges Heights	>79	13	0	0	0	3.3	4	3	4	4	3	2
At9e	Training Command Centre, Georges Heights	26	13	0	0	0	3.5	4	3	4	4	3	3
At9f	Sydney Harbour NP (Chowder Bay Rd)	>16	2	8	2	2	3.3	4	5	2	3	2	4
At9g	Camouflaged Fuel Tanks (north), Georges Heights	0	18	5	3	3	2.7	2	4	3	3	2	2
At10	Bradley Bushland Reserve, Middle Head Road, Mosman	1 (possibly planted)	?	0	0	0	2.5	4	3	1	4	2	1
At11a	Sydney Harbour NP (Taylors Bay Reserve)		9	2	N/C	1	2.5	2	3	3	3	3	1
At12	Sydney Harbour NP (Ashton Park)	11	8	1	2	1	3.3	3	4	3	4	3	3
At13a	Sirius Cove, Mosman	0	?	0	0	0	3.3	4	4	3	4	3	2
At13b	Road Reserve 47, Mosman Local Government Area, end of Mcleod Street, S of Mosman Bay.	1	?	?	?								
At13c	Curaghbeena Park, Mosman	0	?	2	2	3	2.3	3	2	3	4	1	1
At14	Reid Park, Mosman	0	?	0	0	0	3.7	4	4	4	4	4	2

Note that for At4a a new locations was found – the data in the table above refer to like for like comparisons.

Appendix B. Location survey data

The tables below provide the specific counts, habitat notes and recommendations for each of the Locations listed in the Register. Where other locations were identified they have been added as close as possible to the existing locations. The 2019 count updates are in red text.

Each table is accompanied by a Google Maps map showing the geographic location of the Locations recorded in the Register:

Colour coding on maps:

- Yellow colours indicate original Locations which still have ATT
- White colours indicate original Locations which no longer have ATT
- Green colours indicate new Locations
- Red indicates hybrid plants or other *Acacia Terminalis* subspecies

Icon coding on maps:

- Teardrops of various colours indicate actual locations
- Pins indicate an expansion of original Locations to provide more specific location
- Lines and polygons indicate larger areas where ATT has been counted

B.1. Manly LGA

The tables below record the survey data for the locations on North Head, split across 5 main Sites as follows:

- North Head Wastewater Treatment Plant: At1a – At1c
- St Patricks Estate to Bluefish Point: At1d – At1f
- Manly Hospital to Quarantine Station carpark: At1g – At1i
- Quarantine Station: At1j – At1l
- Gun Park: At2

North Head Wastewater Treatment Plant



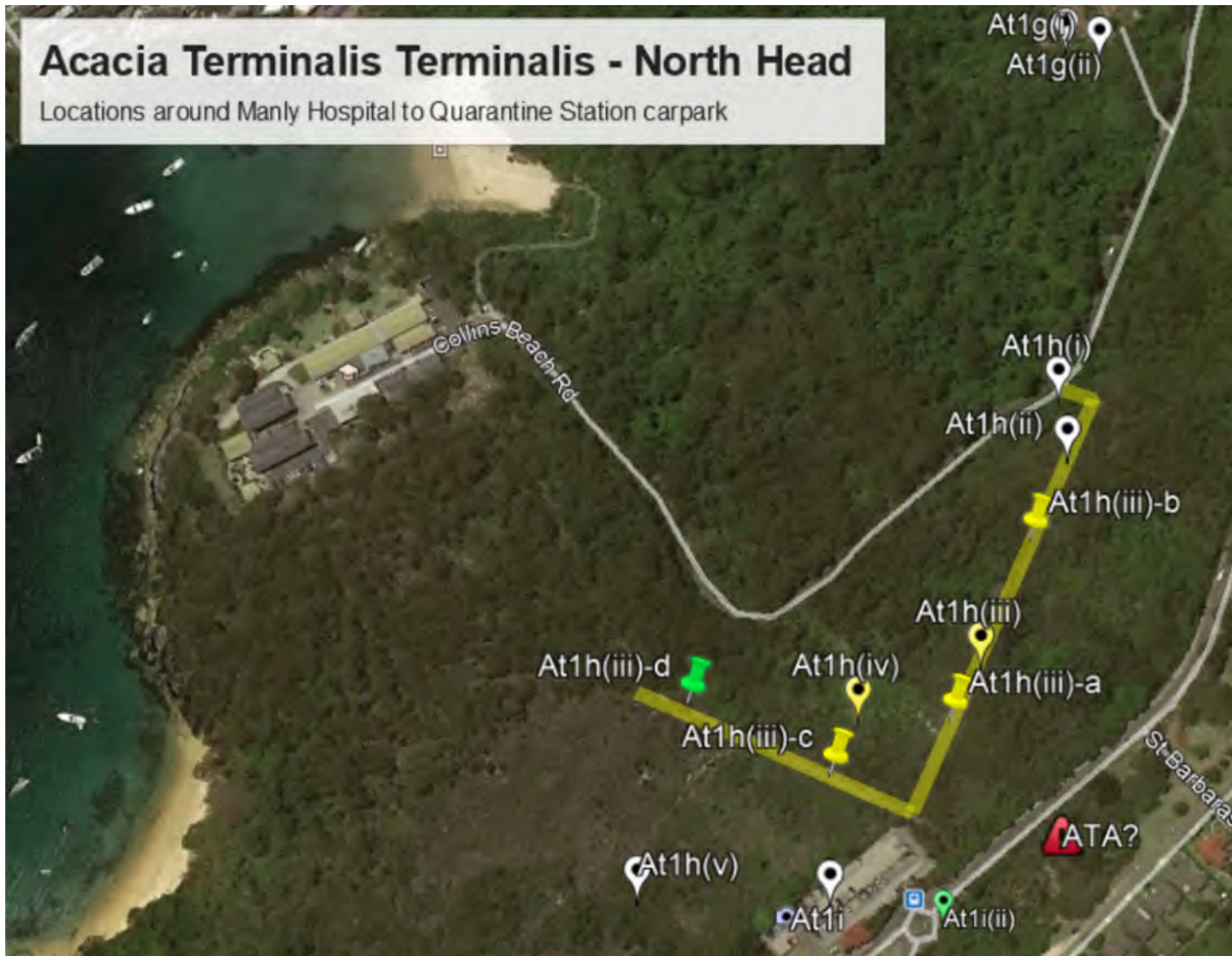
Site	<30cm	>30cm	Dead	Current Status	Historical	Threats observed	Recommendation
At1a		1		Healthy, but weeds (lantana and mother of millions) and thick native vegetation smothering. Unlikely to recruit without action. Not counted	15 plants in 2006.	Fire exclusion, Weeds	Disturb Weeding
At1b	3 1	24 18		Spread over about 50m ² , Healthy area with Leptospermum and senescent banksia, also mother-of-millions. Recent large planting nearby with Leptospermum and banksia	Originally 60 plants, with 22 in 2006.	Fire exclusion	Register update - polygon
At1c	4 0	2 1		On a vegetated traffic island, with mature Leptospermum and banksia, quite shaded, long term future questionable.	10 plants, of which 7 were immature.	Fire exclusion Small site	

St Patricks Estate to Bluefish Point



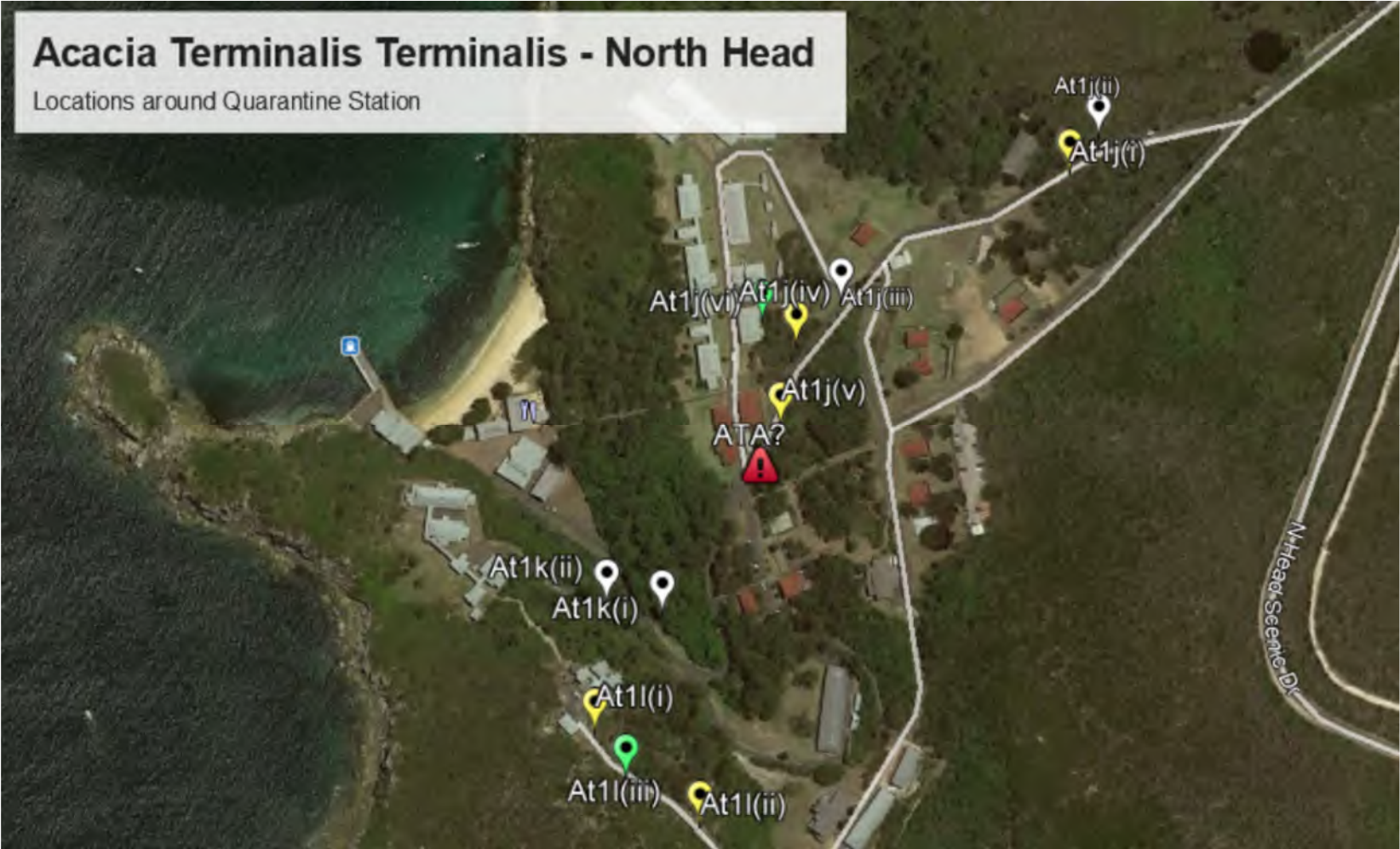
Site	<30cm	>30cm	Dead	Current Status	Historical	Threats observed	Recommendation
At1d(i)	29 6	407 284	13 30	Recorded as being the length of the wall beside St Pats to Bluefish Point (about 600m). Large numbers, but fewer immature than 2017. One area with lantana. New track in part of area. Bushcare activity along wall. Recently weeded, population aging and decreasing. 1 possible hybrid noted at entrance – appears to have been planted there.	"Several hundred" originally, about 550 in 2017, with a burn on 2003 credited with the germination.	Low threat. No habitat destabilisation	Register update - polygon Weeding
At1d(ii)	2 0	4 8	0 1	Plants found in 3 spots along 30m of the path either side of the coordinates. Healthy plants, in flower. Area to east of track has had a recent burn, so it may be source of new recruits in coming years	Not clearly separated from At1d(i)	Limited - healthy site	Register update - polygon
At1d(iii)		3 4		Plants by road verge - assumed to be this site. There may have been more off the road, but not checked.	Not clearly separated from At1d(i), Atlas says 10 plants over 300m ²	Limited - healthy site	
At1d(iv)							
At1d(v)							
At1d(vi)	0	0		Sites in interior of scrubland, with no obvious trails - not searched. May have been considered part of At1d(i)	Nothing published.	Limited - healthy site	Register update - remove?
At1d(vii)							
At1d(viii)							
At1e	1	3		Healthy plants either side of track, in mature scrub	3 counted	Fire exclusion	
At1e(ii)	2	20		Newly found on track from Shelly Beach carpark to Blue Fish track. Generally healthy, 0.5-1.5m, in bloom		Limited - healthy site	Register update - include
At1f(i)		0		None found - areas developed since previous count, not likely any more	87 originally	Development	Register update - remove
At1f(ii)							

Manly Hospital to Quarantine Station carpark



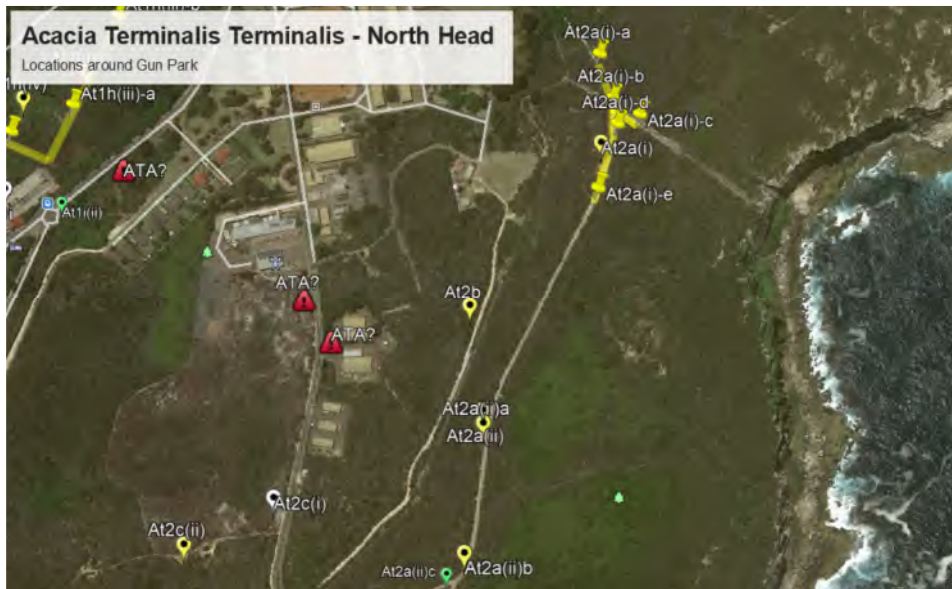
Site	<30cm	>30cm	Dead	Current Status	Historical	Threats observed	Recommendation
At1g(i) At1g(ii)		0		None found - site was side of fire trail, now overgrown now with blady grass and garden escapees	2 previously	Fire exclusion, Weeds	
At1h				The various records comprising At1h can be seen as 2 paths - one along the sewerage pipe from the QS wall to Collins Beach Road and the other heading north-west on the northern side of wall towards AIPM			Register update - polygon
At1h(i)		0		None found - overgrown. Collins Road end of sewerage pipe	3 mature	Habitat loss - forestation	Register update - remove
At1h(ii)		0		None found - overgrown. Collins Road end of sewerage pipe	8 mature		
At1h(iii)	4 0	5 2		Path along sewerage pipe from wall to Collins Beach Road, a few ATT sites, lots of weed (privet, etc), also potential other subspecies. Also a few plants along wall, in various spots - again possible hybrids. Area beside wall appears to have been cleared. Natives and privet now dominating area – no longer a good site.	1 immature, references to walking track which is no longer there	Weeds, Hybridisation Habitat Loss	Weeding
At1h(iv)		0		None found - overgrown with blady grass	Just 1 - site data seems inaccurate	Fire exclusion, Weeds	Weeding
At1h(v)		0		Not looked for - inaccessible area	Just 1		Weeding
At1i		0		None found - car park and overgrown	2, but not located since 2006	Development	Register update - remove
At1i(ii)		1		Mature specimen in full flower by roundabout			Register update - include

Quarantine Station



Site	<30cm	>30cm	Dead	Current Status	Historical	Threats observed	Recommendation
At1j(i)		0		None found	3 in 2006, 1 later	Fire exclusion, Weeds, Rabbits	Weeding, Rabbit control
At1j(ii)	0 1	4 0		Healthy and in flower Trittering along roadside has recently removed the mature specimen.	6 in 2006,	Fire exclusion, Weeds, Rabbits Habitat loss	Weeding, Rabbit control
At1j(iii)		0		Cleared area, no plants	Just 1	Development	Weeding, Rabbit control
At1j(iv)	1	5		Both sides of road. No sign of recruits - needs some TLC Includes possible hybrid	12 immature	Fire exclusion, Weeds, Rabbits Hybridisation	Weeding, Rabbit control Remove non-ATT
At1j(v)		4 2	Surrounded by blady grass, Mother of millions and pampas. Nearby plot of planted hybrid / other subspecies	11 immature			
At1j(vi)	2	1	Large plant, 2.5m just flowered, behind back of building. Also 2 recent recruits - ~3cm high				
At1k(i)		0		Shaded heavily grown area, no longer a likely spot for ATT	2, but no data and not found since 2006	Forestation	Register update - remove
At1k(ii)							
At1l(i)	1	1	1	Mature, flowering New recruit observed below mature plant.	Just 1	Road maintenance	Monitor
At1l(ii)		4 2		Mature, flowering - on rocky outcrop Newly found on opposite side of road	Just 1	Limited - healthy site	Monitor

Gun Park



Site	<30cm	>30cm	Dead	Current Status	Historical	Threats observed	Recommendation
At2a(i)	3 4	35 40		found in 5 spots over about 200m, along wall, and on path either side of wall Generally mature plants up to 2m with late bloom. Some suspected ATA/hybrid.	13 plants	Fire exclusion, track maintenance, Hybridisation	Register update - polygon
At2a(ii)	1	5		Healthy plants found either side of track Spread along track north of path to Gun Emplacement 1 & 2.	No data	Fire exclusion, track maintenance	Monitor
At2b	0 1	13 12		What was a firebreak is now a bike track, so recreational use a threat	19 along a firebreak	Recreational use	Monitor
At2c(i)		0		A number of other subspecies (confirmed Paul Ibbotson) found in Barracks Precinct - some have been planted.	2 plants	Hybridisation	Bush regen - remove
At2c(ii)		20 12		5 dying, 9 near track and 6 about 5m off. Some large, all flowering. Aging population, appears to be planted ATA nearby	11 plants	Lack of disturbance, Hybridisation	Register update – polygon Remove non-ATT

B.2. Mosman LGA

The tables below record the survey data for the locations in the Mosman LGA, split across 3 main areas as follows:

- North, The Spit and Beauty Point: At3 – At6
- Central, Middle Head and Georges Head: At7 – At10
- South, Clifton Gardens: At11 – At14

North, The Spit and Beauty Point



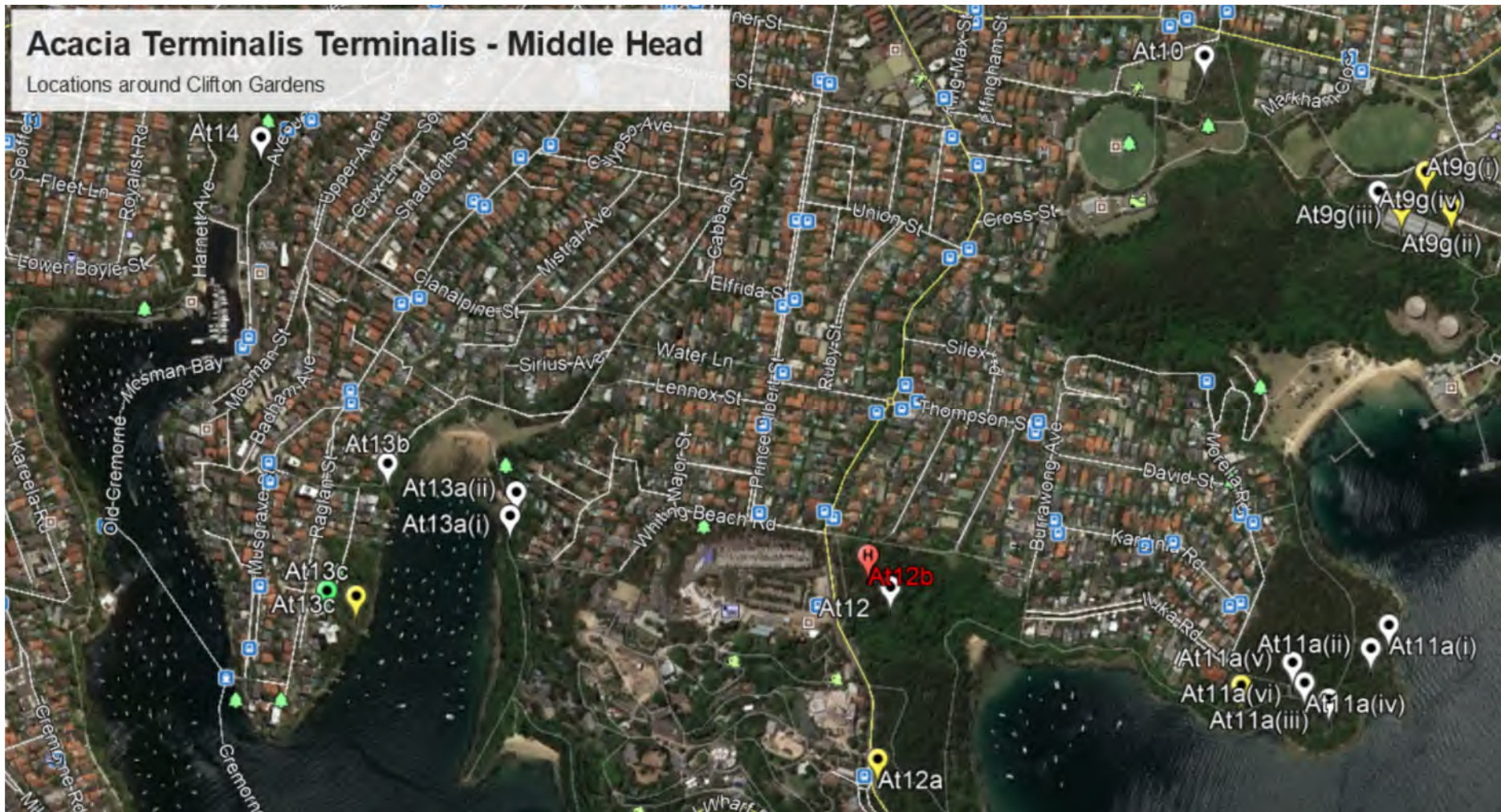
Site	<30cm	>30cm	Dead	Last	Threats observed	Recommendation
At3a		2		Healthy, but overgrown in area with no recent disturbance Possible hybrids	Fire exclusion, Hybridisation	Disturb
At3b		3 1		Possible other AT / hybridisation Likely hybrid, surrounded by pittosporum	Hybridisation, Fire exclusion	Disturb
At3c		0		Overgrown area with no recent disturbance	Fire exclusion	Disturb
At4a(i)	4 1	4 7		On cliff edge on north side of track On side track off the main track. Signs of senescence	Fire exclusion	
At4a(ii)		8		Possible ATA / hybrid	Hybridisation, Fire exclusion	Confirm ATT
At4a(iii)	1	6		By new boardwalk, mainly mature, 2 with seed pods	Fire exclusion	
At5		0		Overtaken by garden expansion / overflow?	Weeds	Register update - remove?
At6		0		Overgrown, weeds	Weeds	Register update - remove?

Central, Middle Head and Georges Head



Site	<30cm	>30cm	Dead	Last	Threats observed	Recommendation
At7		0		On steps down from Arbutus St, overgrown with weeds	Weeds	Register update - remove?
At8a(i)		0		Lantana, privet, asparagus fern	Weeds	Disturb
At8a(ii)		0		Not located		Confirm location
At8b	2 3	4 13		End of track by B801 battery, surrounded by tick bush, banksia, both sides of track, 5 in flower. None around fort itself Suspected hybrids included in count	Hybridisation, Access	None
At9a		0		Front of creek planted out with lomandra and bladey grass	Habitat loss	Register update - remove?
A9b				DoD side of fence - not accessed		
At9c		2		Mature, in flower - side of walking track to Headland Park 1 senescent, spent flowers, new seed pods	Lack of disturbance	None
At9d(i)		0		Small ATA, not ATT	Hybridisation	Confirm subspecies
At9d(ii)		0		Nothing found		Confirm location
At9d(iii)		0		Overgrown with bracken and Pittosporum	Habitat loss	Register update - remove?
At9e(ii)		0		Nothing found		Confirm location
At9e(iii)		0		Nothing found		Confirm location
At9f	0 3	5 2		Near car park Chowder 4, but possibly ATA / hybrid Probable hybrids	Hybridisation	Confirm subspecies
At9g(i)		1		90cm high, finished flowering, kikuyu around	Weeds	Weeding
At9g(ii)		3 4		Mature, in flower, lots of weed around Some fungal growth on plants and dieback	Weeds	Weeding
At9g(iii)		1		Being suffocated by weed	Weeds	Weeding
At9g(iv)		0		Nothing found	Weeds	Weeding
At9g-a		1		Healthy 1m plant, just finished flowering		Register update - add?
At10		0 1		Good potential site, but actual area covered with chopped down casuarina 1 mature ATT, suspected planted?	Habitat loss	Keep monitoring

South, Clifton Gardens



Site	<30cm	>30cm	Dead	Last	Threats observed	Recommendation
At11a(ii)		0		Heavy undergrowth (lomandra, pittosporum)	Habitat loss	Keep monitoring
At11a(iii)		0		Tea tree, eucalypt, lomandra	Habitat loss	Keep monitoring
At11a(iv)		0		Rocky outcrop with healthy native scrub around	Habitat loss	Keep monitoring
At11a(v)		0		Some dead trees in area, but otherwise good native scrub	Habitat loss	Keep monitoring
At11a(vi)		2		60cm plants on north side of track about 5m apart. Heavy native plant growth around.	Habitat loss	Keep monitoring
At12a		1		Mature, 3m, in flower, surrounded by blady grass.	Habitat loss, Weeds	
At12b		1		Suspected ATA	Hybridisation	
At13a(i)		0		Regeneration area, heavy lower and middle cover	Habitat loss	Update bush regen advice
At13a(ii)		0		Leaf mulch, lomandra, grevilleia	Habitat loss	Update bush regen advice
At13b		0		Location appears to be near garden replanted with lilli pilli	Habitat loss	Register update - remove?
At13c		2		Location incorrectly recorded. Actual site is just south of Curraghbeena Park on the opposite side of the road. One 2m specimen and one 60cm with possible elongated petiole.	Habitat loss Senescence	Register update - update location?
At14		0		Bush care area, heavy lower and middle cover	Habitat loss	Update bush regen advice

Appendix C. Terminology

Subspecies	refers specifically to <i>Acacia Terminalis Terminalis</i>
Site	Areas defined in the Recovery Plan on the basis of tenure or management boundaries. Populations may consist of a number of Sites . Sites are numbered At<n><a> - eg At3a. Note that some Sites have many recorded locations where the Subspecies has been found. There are referred to as “locations” or “sites” (lower case).
Population	In the Recovery Plan, records within 300 metres of each other have been defined as one Population as dispersal of the subspecies is unlikely to exceed this distance. Populations are identified by the Site Code At<n> - eg At4
Survey Area	The area surveyed in surveys in 2017, 2018 and 2019, covering all 14 Populations north of Sydney Harbour, from At1 to At14, all in the Mosman and Manly LGAs
The Register	The NPWS Wildlife Atlas records pertaining to <i>Acacia Terminalis Terminalis</i> , specifically as provided to the surveys via the Recovery Plan and a spreadsheet extract.

Appendix D. References

Recovery Plan Recovery Plan for the Sunshine Wattle (*Acacia terminalis* subsp. *terminalis*)

Authors: Martin Bremner and Ann Goeth

April 2010

[1] 2017 Monitoring Report

[2] 2018 Monitoring Report

Sydney Harbor National Park Plan of Management 2012

7.6 Appendix F – IMAMS Report January 2020 to December 2020.

Monitoring Report

North Head Quarantine Station

January –December 2020



Mawland Quarantine Station
Building S7 QStation
North Head Scenic Drive Manly

Table of Contents

Executive Summary	Overall Performance	3
	Reasons for Economic Performance	3
Report	Introduction	4
	Key Indicators	4
	Sustainability Indices	5
	Overall Sustainability Index	5
Where Indicator Performance is Outside Acceptable Range	Environmental	6
	Cultural	10
	Social	11
	Economic	11
Specific Environmental Indicators where Performance is within Acceptable Range	Environmental	13
	Cultural	17
	Social	19
	Economic	23
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DECCW Report	Attachment	

In 2020 QStation was closed for the following periods due to the COVID 19 pandemic:

- 8 April to Mid-June full lockdown, site completely closed, gates closed , some public access by squeezing through and over closed gates, security on site
- Mid-June through mid-August – site open to public to sunset for walking, biking etc, but hotel operating Fri-Sun only, security on site at all times
- Mid-August hotel operations reopened 7days and site open to public to sunset for walking, biking
- 17-18 October – hotel operations closed because of NPWS Hazard Reduction burn closure of North
- 21 Dec 2020- 5 Jan 2021- closed for Northern Beaches lockdown including Xmas day, Boxing Day and NYE , site completely closed, gates closed , some public access by squeezing through and over closed gates, security on site

Accordingly, some calculations can only be made for these periods in 2020.

EXECUTIVE SUMMARY OF MONITORING RESULTS AND RECOMMENDATIONS

This report summarises the health of the site known as the former North Head Quarantine Station, its tourism activities and business over the period January -December 2020.

In 2018 an extensive Environmental Audit of the site was undertaken and can be accessed at <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Parks-management-other/compliance-audit-report-quarantine-station-north-head.pdf>

The contents of this document are based on four major indicators being Environmental, Cultural, Social and Economic.

For the future Mawland has recommended to OEH that the provisions of the Lease and Conditions of Approval relating to the Annual Sustainability Report and Environmental Monitoring be dealt with in a simpler document.

Negotiations continue between NPWS and Mawland as to cooperation between the Co-proponents as to infra structure renewal and replacement.

Overall performance

During this period there were excellent performances in achieving environmental, cultural and social sustainability, but Mawland remains concerned as to the economic performance sustainability of the site. Anecdotally Mawland believes that this could be due to matters highlighted in the previous IMAMS reports and this report.

The overall sustainability index was 0.95 out of 1. Poor performing headline indicators driving the poorer indices were;

- Little penguin population health
- Cultural Landscape condition
- Aboriginal Site Condition
- Yield
- Occupancy and Profitability

Reasons for Economic performance

The economic performance of QStation during this reporting period has still not reached that of comparable properties in the market segment. Notwithstanding this Mawland notes that the systems which have been installed as part of the ACCOR Management Programme have continued to assist in more efficient financial management and better returns going forward are expected.

Mawland still has major concerns that the extensive and complex environmental compliance has soaked up significant management expertise that would normally be focussed on further

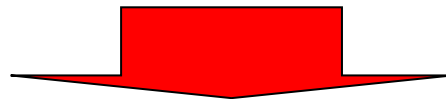
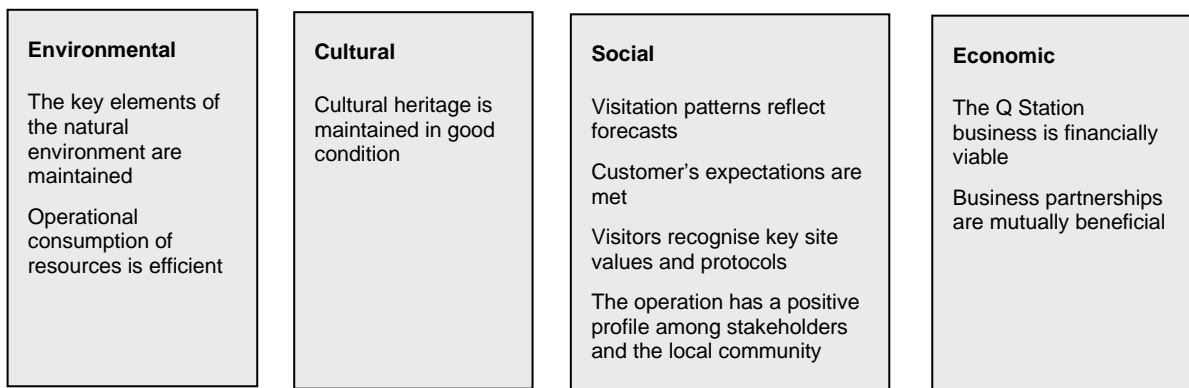
business stimulus and cost management. Time taken by the senior management team as well as the Directors in meeting NPWS administrative obligations is both costly and time consuming and requires refinement in the future. Our concerns have been forwarded to the DPIE with changes suggested to the conditions.

REPORT

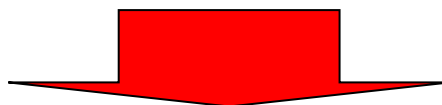
1.0 Introduction

This Report is generated by an Integrated Monitoring and Adaptive Management System (IMAMS) which monitors the sustainability of tourism activity across the environmental, cultural, social and economic dimensions. If the integrated following set of environmental, cultural, social and economic optimal conditions can be simultaneously achieved, then the operation could be nearing a full state of sustainability. The IMAMS measures how close the operation is to this position, and if necessary introduces changes to management practices to bring it closer. Monitoring is performed by the individual departments of Mawland and the NPWS Environmental Manager.

Key Indicators:



2. INTEGRATED MONITORING SYSTEM (IMAMS)



3. ADAPTIVE MANAGEMENT SYSTEM (AS REQUIRED)

This report has been prepared to meet the requirements of Conditions of Approval 216-225 and has been prepared for feedback by the DPIE and the Quarantine Station Community Committee (QSCC).

1.1 Sustainability Index

The Sustainability Index Measures the combined results of all the specific indicators that suggest the health of the natural, cultural, social and economic environment. The maximum score possible is one, the equivalent of 100%. In this report a tick indicates compliance.

Figure 1.2 shows that there were excellent performances in all headline indices.

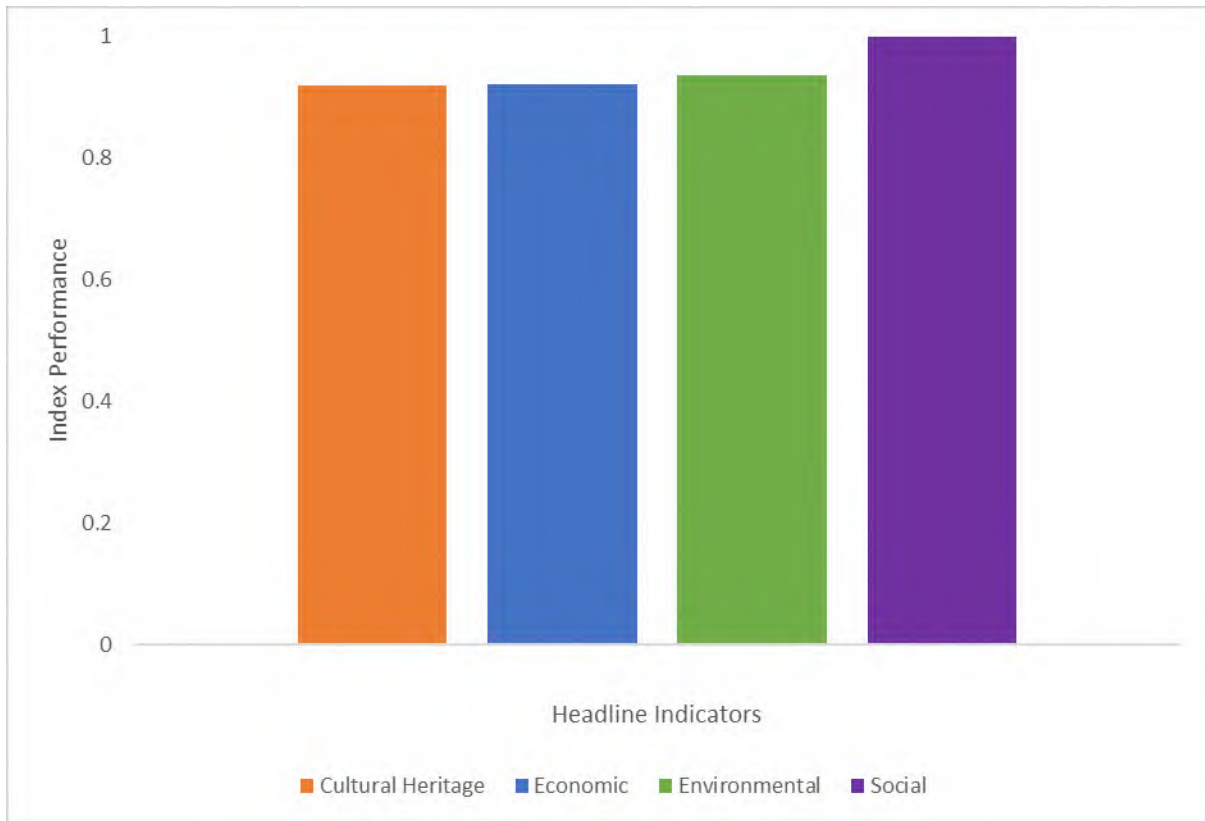


Figure 1.2 Sustainability Index for Jan – Dec 2020

2.0 Indicator Performance

Table 2.1 presents the performance of the headline indicators that created each Sustainability Index.

Table 2.1 – Headline indicator performance and subsequent overall Sustainability Index for performance for January to December 2020

Sustainability indices	Jan - Dec 2020
Environmental index	0.94
Cultural Heritage Index	0.92
Social Conditions	1.0
Economic Index	0.92

Table 2.2 – Indicator performance for January to December 2020

Cultural Heritage	0.92
Aboriginal sites condition	1
Building condition	1
Cultural landscape condition	0.5
Infrastructure condition	1
Moveable heritage collection condition	1
Economic	0.921569
Customer database	1
Customer feedback systems	1
DEC Quarantine Station partnership	1
Marketing performance	1
Occupancy levels	0.9
Profitability	0.714286
Rate	1
Repeat visitors	1
Staff retention	1
Yield	0.8
Environmental	0.94
Erosion and runoff	1
Fauna impacts	1
Light impacts	1
Little Penguin population health	0
Long-nosed Bandicoot population health	1
Native vegetation health	1
Noise impacts	1
Predators and pests	0.666667
Resource use	1
Seagrass health	1
Stormwater quality and quantity	1
Waste generation	1

Social	1
Customer complaints	1
Local employment	1
Media	1
Minimal Impact Code	1
Partnerships	1
Public complaints	1
Public perceptions	1
Representation of leisure target market	1
Research opportunities	1
Satisfaction of the target market	1
Staff and contractor training	1
Visitor access	1
Visitor numbers	1

2020 Where Indicator Performance is Outside of Acceptable Range

Mawland and OEH Comments

This section analyses the specific indicators that performed outside of their acceptable range. There is an individual table for each indicator, which provides the result against the acceptable range and whether the result is directly related to QStation tourism operation (DR), not related to same(NR) or if uncertain (UC).

ENVIRONMENT INDICATORS

Headline Indicator	Little Penguin Population Health				
Specific Indicator	Acceptable range	Result	DR	NR	UC
7	>6 active burrows	<6 active burrows			✓
Comment			Adaptive Management Response		
<p>This season's breeding was an increase on the low of last year, but numbers are still far from what they were prior to the fox incursion and mass penguin killing of 2015. Breeding improved at most sites, except Quarantine Beach. There was no breeding activity detected in the vicinity of the Quarantine Station Boilerhouse which had historically been one of the most significant and consistent breeding areas. The result of the 2019/20 breeding season was much improved on last year, which was the worst in the time of our records. All monitored measures however, remained lower than in any year prior to last year, so this season is now the second worst in our monitoring history. Monitoring results are: number of breeding pairs (35), number of eggs laid (90), number of fledglings (70) and number of active nests (44). The number of active nests (where breeding occurred or there were signs of nests having been investigated with a view to breeding) was lower than last year or of any prior year. The continuing poor results overall, though an improvement on last year, seem to show that the Little Penguin breeding population has reduced considerably at Manly. The population has not been able to recover quickly from the extensive losses to the breeding population from the fox incursion in the 2015 pre-breeding season. The now low level of the population now means there is little buffer against other impacts such as changes in oceanic conditions which could impact individual breeding seasons or over the long term.</p>			<p>Little Penguin numbers remain low.</p> <p>Mawland light and noise monitoring falls within acceptable limits.</p> <p>The population has declined at all breeding sites across North Head, suggesting external factors may be contributing to the decline.</p> <p>NPWS is working with the Little Penguin Recovery Team to identify appropriate management responses.</p>		
Headline Indicator	Number of rabbits				
Specific Indicator	Acceptable range	Result	DR	NR	UC
10	0-26 Individuals	30 individuals		✓	
Comment			Adaptive Management Response		
<p>Rabbit control operations significantly increased in Q4 of 2020 following the escaped Bluefish Banksia HR. It is likely that additional monitoring has artificially influenced the number of rabbits reported. The increased numbers of rabbits may also be due to rabbits being driven out of other areas on North Head where vegetation cover has been reduced following fire.</p>			<p>NPWS is continuing 3-weekly rabbit control and has participated in the RHDV release coordinated by Local Land Services.</p>		

CULTURAL INDICATORS

Headline Indicator	Cultural Landscape Condition				
Specific Indicator	Acceptable range	Result	DR	NR	UC
54. Clearly differentiated cultural landscape representing the Aviation Phase	>80% of landscape area	Not achieved		✓	
Comment			Adaptive Management Response		
The aviation phase cannot be represented in the future due to regrowth of ESB in some areas.			See previous reports- educative interpretation of guests increased		
Headline Indicator	Cultural Landscape Condition				
Specific Indicator	Acceptable range	Result	DR	NR	UC
57. Painted inscriptions showing colour over the majority of painted surface	>80% of painted inscriptions	Achieved but faint		✓	
Comment			Adaptive Management Response		
The inscriptions last received conservation in 2007-2008. Ongoing research and investigation by archaeologists, historians and geologists is part of ARC Project 2013-15.			Potential repainting of 9% of suite inscriptions, subject to receipt of Heritage approval and professor/ student availability		

ECONOMIC INDICATORS

Headline Indicator	Occupancy Levels				
Specific Indicator	Acceptable range	Result	DR	NR	UC
111. Comparative occupancy to relevant NSW properties	Confidential to MQS and the DECCW	Improving	✓		
Comment			Adaptive Management Response		
We are slightly behind but monitor reasons and are attempting to address these in marketing			Continue Monitoring of customer comments and in particular of the reasons given for conferences tendered for, which occur elsewhere		
Headline Indicator	Yield				

Specific Indicator	Acceptable range	Result	DR	NR	UC
139. Average spend per conference & function customer	Confidential to MQS and the DECCW	Improving	✓		
Comment			Adaptive Management Response		
Steady from previous year			Upgrade products and packages by adding new add-ons eg bonding and art activities, whale watching and indigenous tour availability.		
Headline Indicator	Profitability				
Specific Indicator	Acceptable range	Result	DR	NR	UC
140. Overall Food costs	Confidential to MQS and the DECCW	Improving	✓		
Comment			Adaptive Management Response		
Food costs are under control			Continued work on cutting waste and local product use		
Headline Indicator	Profitability				
Specific Indicator	Acceptable range	Result	DR	NR	UC
142. Overall labour costs	Confidential to MQS and the DECCW	Improving			
Comment			Adaptive Management Response		
Transport costs still a concern affecting profitability			Continued attempts to encourage guests to rely less on shuttle buses on site		

END OF SUMMARY

ENVIRONMENTAL INDICATORS

Headline Indicators	Summary of Specific Indicator	Acceptable range	Performance	Comments	
Long-nosed Bandicoot population health	1. Long-nosed Bandicoot abundance		✓		
	3. Adult long-nosed bandicoot deaths attributable to vehicles (5 triggers)	Trigger 1 is traffic based	Jan-June ✓ July-Dec ✓	Mawland notes that ultimately any bandicoot mortalities in areas outside of the Lease boundary (such as Darley Road) are ultimately outside of the control of Mawland. This issue was part of a suite of modifications to the Conditions of Approval	
		Trigger 2: 2 adult mortalities above background levels for a 6-month period			
		Trigger 3: 4 adult mortalities above background levels (2 in first 6 months and 2 in the second).			
			Trigger 4: 6 adult mortalities above background levels, 2 in first 6 months, 2 in the second & 2 in third)		
		Trigger 5: 10 or more adult mortalities in any '1 month or 15 or more in any consecutive 3-month period (above background levels)			
Fauna impacts	4. Fauna deaths attributable to vehicles	0-12 deaths per year	✓		
	5. Animals moved from work sites	0-20 animals moved per year	✓		

	6. Inadvertent impacts to flora and fauna from construction activity	0-6 impacts per year	✓	
Little Penguin population health	7. Active Little Penguin breeding burrows (2 triggers)	>6 active burrows	X	In 2017/18 the Quarantine site recorded 0 active burrows as part of the Manly Little Penguin Recovery Program
Seagrass health	8. Seagrass patchiness off Quarantine Wharf	25-45% cover	✓	
Predators and pests	9. Number of foxes and cats	0-1 fox, 0-1 cats Jan-Mar	✓	1 cat and 1 fox detected within the lease area. The result is within the acceptable range.
		Apr -June	✓	
		Jul-Sept	✓	
Oct -Dec		✓		
Predators and pests	10. Number of rabbits	0-26 individuals Jan-March	✓	Outside acceptable range - See comments in Indicator Performance above. Mawland remains concerned about the number of rabbits on site.
		Apr -June	✓	
		July – Sept	✓	
		Oct -Dec	X	
Predators and pests	11. Number of black rats	<16% of headland population Jan-June	✓	
		Jul -Dec		
Native vegetation health	12. Number of Sunshine Wattle	>12 individuals	✓	
	13. Number of Camfield's Stringybark	>1 individual	✓	
	14. ESBS regeneration	>600m ²	✓	
	15. Fuel load in bushland	<15 tons per hectare	✓	The QS Central HR was conducted in Aug-2020.
	16. Flora displaying dieback	0-10% variation of existing level (2006)	✓	No significant dieback recorded around car park 1 or 5.

	17. Weed coverage	0-25% variation	✓	MQS to monitor. Q Station Gardening Contractors are continually undertaking vegetation/bushland maintenance in accordance with the Bushland Maintenance Plan.
Noise impacts	18. Construction noise	0-45dB(A)	NA	
	19. Traffic noise	0-62 dB(A) (7am-10pm) 0-57 dB(A) (10pm- 7am)	✓	
	20. Operations noise outside site	0-50dB(A)	✓	
	21. Operations noise inside site	0-45 dB(A)	✓	
	22. Amplified indoor music or noise levels	0-50 dB(A)	✓	
Light impacts	23. Light spill on Quarantine Beach	<0.1 lux	✓	
	24. Light spill in Bandicoot habitat	<0.1 lux	✓	
Stormwater quality and quantity	25. Suspended solids in storm water	<20NTU	✓	
	26. Sites with oil or grease in storm water	<5% of sites	✓	
	27. Significant spills or discharges including sewage overflows	0-1 spill per year	✓	
Erosion and runoff	28. Sites showing active erosion	0-5 sites	✓	
Resource use	29. Water consumption	24.3.3-46.8 kl/d	✓	
	30. Electricity consumption	72-85KWH (per month)	✓	
Waste generation	31. Sewage output	< 4212 kl/quarter	✓	
	32. Non-recyclable waste	<80m3 per month	✓	
	33. Recyclable paper	<60 m ³ month	✓	

	34. Recyclable glass	<42m ³ month	✓	
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CULTURAL HERITAGE

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
Building condition	35. Smoke alarm functionality	>90% alarms functioning	✓	
	36. Roof deterioration	>90% of all buildings in good condition	✓	
	37. Asbestos cement fretting	>90% of all buildings containing asbestos without fretting	✓	
	38. Sandstone pillars	>80% of all sandstone pillars in good condition	✓	
	39. Brick mortar requiring re-pointing	>95% of all buildings not requiring repointing	✓	
	40. Moisture entry into internal buildings	<10% buildings with leaks	✓	
	41. Functionality of doors and locks	>95% of all doors and locks functioning	✓	
	42. Window functionality	>95% of all windows functioning	✓	
	43. Termite presence in timber buildings	>80% of all buildings with wood without termites	✓	
	44. Dry rot in timber veranda posts, balustrades and decking	>80% of all buildings without dry rot	✓	
	45. Building exteriors showing loose or damaged sections	>80% of all buildings without loose or damaged sections	✓	
	46. Cracked or peeling painted wooden surfaces	>95% of all buildings without cracked or peeling paint	✓	
	47. Interior and exterior rusting elements	>75% of elements without active rust	✓	
	48. Incidents resulting in damage to historic heritage (accidental or malicious)	0-6 incidents per year	✓	
Infrastructure condition	49. Building drains	>95% drains fully functioning	✓	
	50. Stormwater drains	>95% drains	✓	
	51. Concrete steps and pathways showing cracking or spalling	<20% without spalling or cracking	✓	
	52. Road surface and edges alongside historic drains and	>85% showing no damage	✓	

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
	walls showing no damage			
	53. Wharf planking and steps firmly fastened and showing no signs of splits, holes or failure	>95% of wharf area	✓	
Cultural landscape condition	54. Clearly differentiated cultural landscape representing the Aviation Phase	>80% of landscape area	X Not applicable	The aviation phase cannot be represented in the future due to regrowth of ESB in some areas. This was addressed in the last Audit. Mawland does not consider this to be non-compliance
	55. Fencing that remains structurally stable	>95% of fences	✓	
	56. Culturally planted trees (including coral trees) showing no signs of damage, disease or pests	>90% of cultural planted trees	✓	One coral tree in wharf area fell during this period. Ongoing discussions re replacement options
	57. Painted inscriptions showing colour over the majority of painted surface	>80% of painted inscriptions	x	The inscriptions I received conservation in 2007-2008. Ongoing research and investigation by archaeologists, historians and geologists was part of ARC Project 2013-15 Ongoing discussions with Heritage about approval pathway for approval to repaint
Moveable heritage collection condition	58. Proportion of moveable heritage items that are allocated to high priority conservation treatment	<10% of moveable heritage items	✓	

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
Aboriginal sites condition	59. Grass cover and absence of active erosion of midden in Wharf Precinct	<10% of midden area	✓	

SOCIAL /VISITATION / COMMUNITY INVOLVEMENT

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
Visitor access	60. Visitors who arrive by Manly Q-Station shuttle bus	Tentatively 2-5%	✓	
	61. Visitors who arrive by water transport	From year 3, 40-50%	✓	As regards 2019, The EcoHopper stopped at QStation 8x per day in peak season and usage is being monitored. Public take up was favourable. Service paused for 2020 during COVID 19 pandemic. Return date still unknown.
	62. Visitors who arrive by private vehicle	From year 3, 50-60% From Year 5 <50%	✓	
	63. Private vehicles entering core precinct	28,000-30,000 vehicles per annum	✓	Note significant reduction in vehicle usage in site due to relocation of Reception in 2013
	64. Visitors who enter site by private vehicle at sensitive traffic periods	28-41 vehicles between 830pm-midnight per night	✓	Note significant reduction in vehicle usage in site due to relocation of Reception in 2013

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
	65. Number of times overflow parking area used	2-6 times per annum	✓	
Visitor numbers	66. Visitors on site at any one time	<450 people	✓	
	67. Visitors within Wharf Precinct at any one time (peak periods)	<250 people	✓	
	68. Participants on tours	200-500 participants per week	✓ as regards 2019 and where possible when open in 2020 due to COVID19 regulation	In 2020 many tours were suspended due to pandemic regulation
	69. Number of students undertaking education programs	>100 students per month	✓ as regards 2019	All School and tertiary excursions were suspended by regulation during the pandemic
	70. Number of visitors to the visitor centre	400-600 people per week	✓ as regards 2019	See operating dates for site as regards 2020 during pandemic. Closure was often required due to COVID regulation.
Representation of leisure target market	71. Leisure target market undertaking interactive tours at any one time	>45% of customers	✓ as regards 2019	In 2020 many tours were suspended due to pandemic regulation
	72. Leisure target market staying overnight	>60% of customers	✓	This is increasing but we are still not achieving leisure 60%+except for weekends. In 2020 many tours were suspended due to pandemic regulation

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
	73. Leisure market on Adult Ghost Tour that perceived crowding reduced satisfaction	<10% of customers	✓	<p>Note that some tours are being re-named, reconfigured and refreshed to meet customer expectation and provide better product, which promotes return visit In 2020 many tours were suspended due to pandemic regulation</p> <p>No overcrowding was reported at all during the COVID19 pandemic</p>
	74. Leisure market that felt intended emotional response during the Spirit Investigator	>70% of customers	✓	<p>In 2020 many tours were suspended due to pandemic regulation No concerns were reported during the COVID 19 Pandemic</p>
	75. Leisure target markets that believe that they have learnt something about one of the emphasised themes on the Interpretive tour experience.	>60% of customers	✓	<p>In 2020 many tours were suspended due to pandemic regulation</p>
Satisfaction of the target market	76. Leisure market that were satisfied or very satisfied with Interpretive Tour Experience	>50% of customers	✓	<p>Note that some tours are being re-named, reconfigured and refreshed to meet customer expectation and provide better product, which promotes</p>

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
				return visit. In 2020 many tours were suspended due to pandemic regulation
	77. Leisure market that were satisfied or very satisfied with Defiance	>60% of customers	n/a	No longer relevant
	78. Leisure market that were satisfied or very satisfied with Spirit Investigator	>50% of customers	✓	In 2020 many tours were suspended due to pandemic regulation
	79. Leisure market who were satisfied or very satisfied with their overnight stay	>50% of customers	✓	In 2020 many
	80. Leisure market were satisfied or very satisfied with the Boilerhouse restaurant service	>50% of customers	✓	
	81. Leisure market who were satisfied or very satisfied with the Boilerhouse restaurant food quality	>50% of customers	✓	
	82. Conference organisers who were very satisfied with the conference service	>50% of customers	✓	
	83. Conference delegates who were very satisfied with the venue	>50% of customers	✓	
	84. Education market were very satisfied with their experience	>60% of customers	✓	In 2020 many tours were suspended due to pandemic regulation
	85. Education market who believed that the program met their curriculum requirements	>60% of customers	✓	In 2020 many tours were suspended due to pandemic regulation
Customer complaints	86. Customer complaints about operational issues	<11 per annum	✓	
Minimal Impact Code	87. Visitors aware of Minimal Impact Code	>50% of customers	✓	

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
Staff and contractor training	88. Operations staff recorded as being induction trained	>90% of staff currently employed	✓	
	89. Construction contractors recorded as being induction trained	>90% of contractors	✓	
Public perceptions	90. Visitors who believe the Quarantine Station is being adequately conserved	20-50% year 1-3 50-80% year 4+	✓	
	91. Visitors who believe there is adequate public access to the Quarantine Station	20-50% year 1-3 50-80% year 4-5	✓	
	92. Visitors aware that OEH are present on-site	20-50% year 1-3 50-70% year 4-5	✓	
	93. Visitors aware the ongoing on-site role of the OEH	20-40% year 1-3 40-60% year 4-5	✓	
Media	94. Visitors who recognise QS as part of Sydney Harbour National Park	20-50% year 1-3 50-70% year 4-5	✓	
	95. Proportion of visitors and guests who heard about Q Station through a media article	>10% of visitors and guests	✓	
Partnerships	96. News stories about Quarantine Station	>5 stories per month	✓	
	97. Partnerships and initiatives involving stakeholder groups	3 to 6 partnerships per annum	✓	including Stakeholders' Meetings/ National Parks Foundation/ Manly Art Gallery/Bear Cottage/Local Public and Private Schools and the Police /National Landscapes Committee/ TTF-Adaptive Reuse Enquiry/
Research opportunities	98. Occupancy of Quarantine Station Community Committee at meetings	>70% per annum	Jan-June ✓ July-Dec ✓	
	99. Proportion of enquiries for access to the moveable heritage and resource collection that were serviced	>90% per annum	✓	

Headline indicators	Specific Indicator	Acceptable range	Performance	Comment
Public complaints	100. Complaints from the general public or stakeholders	12 or less per annum	✓	Note that in October 2020 many complaints were received from the public as to the escaped hazard burn by NPWS on North Head and its impact on the site. Mawland does not consider this a non compliance on its part.
Local employment	101. Q Station positions occupied by local population	>40% of positions at any one time	✓	

ECONOMIC-

See comments above about the economic sustainability of the business.

The following matters are subject to constant operational review and are largely commercial in confidence. **The COVID 19 pandemic had serious operational impact on the business**

Headline economic indicator	Specific economic indicator	Acceptable range	Performance	Comments
Customer feedback systems	102. Proportion of completed accommodation feedback forms to number of customers	Confidential to MQS and the OEH	✓	Feedback is now provided on line through ACCOR "Trust You "System which ensures that monitoring forms are sent to every registered/booked patron.
	103. Proportion of completed Boilerhouse Restaurant feedback forms to number of customers	Confidential to MQS and the OEH	✓	In aggregate. Feedback is now provided on line through ACCOR "Trust You"System which ensures that monitoring forms are sent to every registered/booked patron
	104. Proportion of completed conference feedback forms to number of customers	Confidential to MQS and the OEH	✓	Feedback is now provided on line through ACCOR "Trust You"System which ensures that monitoring forms are sent to every registered/booked patron . Conference organisers are de-briefed for input after every conference.
	105. Proportion of completed tour feedback forms to number of customers	Confidential to MQS and the OEH	✓	Feedback is now provided on line through ACCOR "Trust You"System which ensures that monitoring forms are sent to every registered/booked patron
Marketing performance	106.Business conversion from database mailouts	Confidential to MQS and the OEH	✓	Solid performance in this area
Customer database	107.Converted leads supplied by conference marketing contractor	Confidential to MQS and the OEH	✓	
Occupancy levels	108. Room nights sold	Confidential to MQS and the OEH	✓	Rooms are increasing in

Headline economic indicator	Specific economic indicator	Acceptable range	Performance	Comments
				occupancy levels.
	109. Length of stay	Confidential to MQS and the OEH	✓	
	110. Overall room occupancy level	Confidential to MQS and the OEH	✓	Requires ongoing marketing and price.
	111. Comparative occupancy to relevant NSW properties	Confidential to MQS and the OEH	X	We are slightly behind
	112. Shared bathroom room occupancy	Confidential to MQS and the OEH	✓	Cannot sell unless personalised- in Modification Application
	113. Personal bathroom Occupancy	Confidential to MQS and the OEH	✓	Still difficult but OK for some conference market.
	114. Ensuite Bathroom occupancy	Confidential to MQS and the OEH	✓	
	115. Cottages occupancy	Confidential to MQS and the OEH	✓	
	116. Ghost Tour occupancy	Confidential to MQS and the OEH	✓	
	117. Conference Occupancy	Confidential to MQS and the OEH	✓	
Repeat visitors	118. Leisure market guests on repeat visit	Confidential to MQS and the OEH	✓	Increasing especially local market
	119. Leisure market tour customers on repeat visit	Confidential to MQS and the OEH	✓	Increasing
	120. Education market on repeat visit	Confidential to MQS and the OEH	✓	Ongoing marketing
	121. Conference market who have returned for a repeat visit	Confidential to MQS and the OEH	✓	Ongoing marketing
Revenue	122. Visitor Centre revenue	Confidential to MQS and the OEH	✓	
	123. Tours revenue	Confidential to MQS and the OEH	✓	
	124. Education revenue	Confidential to MQS and the OEH	✓	
	125. Accommodation revenue	Confidential to MQS and the OEH	✓	
	126. Revenue per available room (REVPAR)	Confidential to MQS and the OEH	✓	Improving
	127. Comparative REVPAR to	Confidential to	✓	Improving but

Headline economic indicator	Specific economic indicator	Acceptable range	Performance	Comments
	relevant properties in NSW	MQS and the OEH		dominance of cruising market is of interest
	128. Conference & function revenue	Confidential to MQS and the OEH	✓	
	129. Boilerhouse restaurant revenue	Confidential to MQS and the OEH	✓	
	130. Total revenue	Confidential to MQS and the OEH	✓	Commercial in confidence but improving
	131. Proportion of Visitor Centres customers that made a purchase	Confidential to MQS and the OEH	✓	
Rate	132. Average room rate	Confidential to MQS and the OEH	✓	
	133. Comparative ARR to relevant NSW properties	Confidential to MQS and the OEH	✓	
	134. Average room rate- Cottages	Confidential to MQS and the OEH	✓	
Yield	135. Average spend per cover at the Boilerhouse restaurant	Confidential to MQS and the OEH	✓	
	136. Average spend per Visitor Centre customer	Confidential to MQS and the OEH	✓	
	137. Average spend per interactive tour customer	Confidential to MQS and the OEH	✓	
	138. Average spend per education program participant	Confidential to MQS and the OEH	✓	Market showing need to reduce prices due to demand from schools for budget product
	139. Average spend per conference & function customer	Confidential to MQS and the OEH	X	Steady from previous year
Profitability	140. Overall Food costs	Confidential to MQS and the OEH	X	Food costs are under control
	141. Overall beverage costs	Confidential to MQS and the OEH	✓	
	142. Overall labour costs	Confidential to MQS and the OEH	X	Transport costs still a concern affecting profitability
	143. Overall other expenses	Confidential to MQS and the OEH	✓	Contained due to diligence of financial overview
	144. Open accounts as a	Confidential to	✓	

Headline economic indicator	Specific economic indicator	Acceptable range	Performance	Comments
	percentage of revenue	MQS and the OEH		
	145. Proportion of revenue to operating expenses	Confidential to MQS and the OEH	✓	
	146. Net Operating Profit	Confidential to MQS and the OEH	✓	Improving but not yet to peak
Staff retention	147. Employee turnover	Confidential to MQS and the OEH	✓	
	148. Proportion of casual to permanent employees	Confidential to MQS and the OEH	✓	
	149. Staff OH&S incidents	Confidential to MQS and the OEH	✓	
DEC Quarantine Station partnership	150. Rental allocation to OEH from year 3 onwards	Confidential to MQS and the OEH	✓	Confidential to MQS and the OEH and the subject of current negotiations
	151. Environmental incidents	0-5 incidents per year	✓	Historic coral tree fall in Wharf precinct and erosion of QS beach during significant rainfall.
	152. Lease breach notifications	0-3 notifications per year	✓	NIL received

7.7 Appendix G – Consultation Correspondence December 2021

SN0243077
QSconsultAER_DPI

15/12/2021

Carla Ganassin
Fisheries Manager - Aquatic Ecosystems Unit
NSW Department of Primary Industries
Block E, Level 3
84 Crown Street
Wollongong NSW 2500

Via email: carla.ganassin@dpi.nsw.gov.au

Dear Carla,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

These reports have been developed to meet the Ministers Conditions of Planning Approval (CoPA) for the site, under approval MP08_0041 and subsequent modification (MP08_0041 MOD 3). The reports have also been prepared in accordance with the Compliance Reporting Post Approval Requirements (Department of Planning, Industry and Environment, 2020).

Planning approval for the site was granted in 2003, with NPWS and Mawland as co-proponents. In 2006, the site was leased to Mawland who operate the Q Station and coordinate the day-to-day activities. With reference to condition terms, the site is currently in Operational mode.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

Please find the Annual Environment Reports attached for your review. A previous draft of the July 2018 – December 2019 report was prepared and distributed for comment by the co-proponents, however, the attached July 2018- December 2019 report has been prepared to replace the previous version and ensure compliance with all CoPA.

It would be greatly appreciated if you could please provide any comments or remarks on these reports by 14 January 2022. To streamline this process, a comments template is enclosed. On completion of your review, please return the completed comments template or other correspondence to the email noted below by 14 January 2022. If no response is received by this date, it will be assumed that you do not wish to provide any comments or feedback on the reports.

If you have any questions, please do not hesitate to contact me on 0405 635 333 or at cheryl.cahill@atkinsglobal.com.

Yours sincerely,

SNC-LAVALIN ATKINS



Cheryl Cahill

Senior Environmental Consultant

Environmental Services

Engineering, Design and Project Management

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020
 Comments Template

SN0243077
QSconsultAER_DPIE

15/12/2021

Rob Sherry
Department of Planning and Environment
4 Parramatta Square
12 Darcy Street
Parramatta NSW 2150

Via email: Rob.Sherry@planning.nsw.gov.au

Dear Rob,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

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Cheryl Cahill

Senior Environmental Consultant

Environmental Services

Engineering, Design and Project Management

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020
 Comments Template

SN0243077
QSconsultaER_HNSW

15/12/2021

Heritage NSW
Level 6
10 Valentine Ave
Parramatta NSW 2150

Via email: HERITAGEMailbox@environment.nsw.gov.au

To whom it may concern,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

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Yours sincerely,

SNC-LAVALIN ATKINS



Cheryl Cahill

Senior Environmental Consultant

Environmental Services

Engineering, Design and Project Management

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020
 Comments Template

SN0243077
QSconsultAER_QSCCC

15/12/2021

Sandy Hoy
QSCCC Chairperson
Parkland Planners - Principal
PO Box 41
FRESHWATER NSW 2096

Via email: sandy@parklandplanners.com.au

Dear Sandy,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

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Yours sincerely,

SNC-LAVALIN ATKINS



Cheryl Cahill

Senior Environmental Consultant

Environmental Services

Engineering, Design and Project Management

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020
 Comments Template

SN0243077
QSconsultAER_TfNSW

15/12/2021

Meredith Morris
Portfolio Leasing Manager
Transport for NSW
231 Elizabeth Street
Sydney NSW 2000

Via email: meredith.morris@transport.nsw.gov.au

Dear Meredith,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

These reports have been developed to meet the Ministers Conditions of Planning Approval (CoPA) for the site, under approval MP08_0041 and subsequent modification (MP08_0041 MOD 3). The reports have also been prepared in accordance with the Compliance Reporting Post Approval Requirements (Department of Planning, Industry and Environment, 2020).

Planning approval for the site was granted in 2003, with NPWS and Mawland as co-proponents. In 2006, the site was leased to Mawland who operate the Q Station and coordinate the day-to-day activities. With reference to condition terms, the site is currently in Operational mode.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

Please find the Annual Environment Reports attached for your review. A previous draft of the July 2018 – December 2019 report was prepared and distributed for comment by the co-proponents, however, the attached July 2018- December 2019 report has been prepared to replace the previous version and ensure compliance with all CoPA.

It would be greatly appreciated if you could please provide any comments or remarks on these reports by 14 January 2022. To streamline this process, a comments template is enclosed. On completion of your review, please return the completed comments template or other correspondence to the email noted below by 14 January 2022. If no response is received by this date, it will be assumed that you do not wish to provide any comments or feedback on the reports.

If you have any questions, please do not hesitate to contact me on 0405 635 333 or at cheryl.cahill@atkinsglobal.com.

Yours sincerely,

SNC-LAVALIN ATKINS



Cheryl Cahill

Senior Environmental Consultant

Environmental Services

Engineering, Design and Project Management

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020
 Comments Template

7.8 Appendix H – Consultation Responses January 2022

Alex Bamford

From: Cahill, Cheryl
Sent: Sunday, 16 January 2022 4:13 pm
To: Rebecca Yit; Alex Bamford; sstanton
Cc: Smith, Alistair
Subject: FW: Q Station - annual reports - re-sending file link
Attachments: Quarantine Station report (SC comments).docx

Hi Bec, Suzanne and Alex,

Also attached are comments from DPI Fisheries, received later on Friday evening.

Regards,
Cheryl

From: Sarah Conacher <sarah.conacher@dpi.nsw.gov.au>
Sent: 14 January 2022 20:35
To: Cahill, Cheryl <Cheryl.Cahill@atkinglobal.com>
Subject: Re: Q Station - annual reports - re-sending file link

Hi Cheryl,

I've attached my comments table for the Q Station annual reports.

Please let me know if you have any questions regarding my comments.

Kind regards,
Sarah

From: Cahill, Cheryl <filetransfrcn@atkinglobal.com>
Sent: Friday, 14 January 2022 10:49 AM
To: Sarah Conacher <sarah.conacher@dpi.nsw.gov.au>
Subject: Q Station - annual reports - re-sending file link

Hi Sarah,

Please find attached the reports, DPI letter and comment template for reviewing the Q Station annual compliance reports.

Thanks and regards,

Cheryl

Files attached to this message

Filename	Size	Checksum (SHA256)
comments template.docx	95.9 KB	79c1dae6cd77ea5a907ef4881e7aad7dcdaa71f6276a6a3b62d9c6497655167b

Filename	Size	Checksum (SHA256)
DPI fisheries 15122021.pdf	408 KB	d11abee75f9468a85955a1ba247023ec5b7a36f5170665fb74b1dd22d08fc7a5
North Head Q Station - Annual Environmental Report - July 18 to Dec 19 Final.pdf	12.7 MB	b80b5bb799394ac67d2ebb68ddf1a0ea2259b0222ecb0b562fcb682869c968c
North Head Q Station Annual Environmental Report Jan to Dec 2020 Final 20211215.pdf	37.5 MB	c1fd2b765fae5200f91377f5e6dbb5c298fc70a824475ee891261ba9ddcab508

Please click on the following link to download the attachments:

<https://FiletransferCN.atkinsglobal.com/message/KhnhtM7cdRtHSBgFyxm7gf>

This email or download link can be forwarded to anyone.

The attachments are available until: **Friday, 28 January.**

Message ID: KhnhtM7cdRtHSBgFyxm7gf

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Comments Template for Q Station Annual Environment Reports

Review undertaken by

Name: Sarah Conacher

Agency or Committee: DPI Fisheries

It would be greatly appreciated if any comments or remarks are provided by 14 January 2022 for inclusion in the final report.

In accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

Report (2018/2019 or 2020)	Page Number	Report Section or Condition number	Comment
2018/19	6	Section2 - condition 228	Comment: SNC Lavalin Atkins (2018) Compliance Audit Report recommended that the mooring exclusion zone at Quarantine Beach be extended. DPI Fisheries supports this recommendation. What action has been taken in relation to this?
2018/19	6	Section2 - condition 228	"Eco Divers regularly review the sea grass cover and have not identified any issues of concern in the reporting period." Comment: Please provide this monitoring data/mapping for Fisheries to review.
2018/19	6	Section2 - condition 228	"A report prepared by EcoDivers in July 2018 – Report on Sea Grass in Quarantine Bay adjacent to the Quarantine Wharf details the proposed additional piles adjacent to the wharf to accommodate the ferry service for the Invictus Games ferry arrival. The report detailed that there would be no adverse impacts to the sea grass. A Minor projects approval was given for the installation of the piles by OEH on 8/10/2018." Comment: Please provide the EcoDivers 2018 report to DPI Fisheries for review.

			<p>Any proposed piling in the waterway requires consultation with, and potentially a Part 7 permit from DPI Fisheries in accordance with s199, 201 and 205 of the Fisheries Management Act. Fisheries is not aware of any consultation regarding this proposal.</p> <p>Additionally, DPI Fisheries must be consulted in relation to any changes in ferry frequency, routes, turning circles, or changes to vessel type, as these all have the potential to impact on the seagrass beds around the wharf.</p> <p>The seagrass around the ferry wharf is <i>Posidonia australis</i>, listed as an endangered population under State and Federal legislation.</p>
2018/19	100	Section 7.1 - Appendix A - Compliance Table - Condition 141	<p>“An application to the Office of Environment and Heritage was made on 20/09/2018 for the installation of additional fender piles at the wharf to assist with the docking of a large ferry as part of the Invictus Games. This application was approved on 5 October 2018 following consultation.”</p> <p>Comment: Was DPI Fisheries consulted in relation to this proposal? Approval or permits may be required from DPI Fisheries in accordance with s199, 201 and 205 of the Fisheries Management Act.</p> <p>DPI Fisheries must be consulted in relation to any changes in ferry frequency, routes, turning circles, or changes to vessel type, as these all have the potential to impact on the seagrass beds around the wharf.</p>
2018/19	120	Section 7.1 - Appendix A - Compliance Table - Condition 184	<p>“One site visit by EcoDivers occurred in July 2018 prior to installation of additional pile adjacent to the wharf to accommodate the ferry service for the Invictus Games ferry arrival. The report detailed that there would be no adverse impacts to the sea grass. A Minor projects approval was given for the installation of the piles by OEH on 8 October 2018.”</p> <p>Was DPI Fisheries consulted in relation to this proposal? Approval or permits may be required from DPI Fisheries in accordance with s199, 201 and 205 of the Fisheries Management Act.</p> <p>DPI Fisheries must be consulted in relation to any changes in ferry frequency, routes, turning circles, or changes to vessel type, as these all have the potential to impact on the seagrass beds around the wharf.</p>
2018/19	120	Section 7.1 - Appendix A -	<p>“No reduction has been identified. Report prepared by EcoDivers in July 2018 states that the seagrass is healthy and abundant within the vicinity of the wharf.”</p> <p>Comment:</p>

		Compliance Table - Condition 186	The 2018 report should be provided to DPI Fisheries to determine the health of the seagrass.
2018/19	120	Section 7.1 - Appendix A - Compliance Table - Condition 185	<p>"185 Implementation of the seagrass monitoring program is to occur prior to commencement of the ferry services to the site. Monitoring must be undertaken by a suitably qualified marine ecologist."</p> <p>"One site visit by EcoDivers occurred in July 2018 prior to installation of additional pile"</p> <p>Comment: A seagrass monitoring program should involve multiple survey events to compare the health and distribution of the seagrass over time. DPI Fisheries understands that Covid lockdowns may have interfered with field work in 2020 and 2021. Please confirm that the seagrass monitoring program will be commencing in 2022.</p>
2018/19	119	Section 7.1 - Appendix A - Compliance Table - Condition 183	<p>"Within 6 months of the commencement date the co-proponents shall commence discussions with the Waterways Authority and NSW Fisheries in relation to measures that could be undertaken to restrict or discourage private boat mooring in the immediate vicinity of the site."</p> <p>Comment: Did consultation with DPI Fisheries occur? What measures have been implemented to discourage private boat mooring?</p>
2020	7	Section 2 - Previous report actions	<p>"Seagrass monitoring to be scheduled in 2022."</p> <p>Comment: Noted. Thank you.</p>
2020	283	IMAMS Report (Monitoring Report)	<p>Environmental Headline Indicator - Seagrass Health - Seagrass patchiness off Quarantine Wharf: Acceptable range = 25 - 45% coverage Performance - achieved</p> <p>Comment: How was the the acceptable range of 25 - 45% coverage determined? The upper limit on the acceptable range should be 100% How was performance measured during this period when no surveys were undertaken? Acceptable range should also include a density parameter and a species composition parameter.</p>



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(Add more rows as required)

On completion of your review, please return the completed comments template or other correspondence to cheryl.cahill@atkinsglobal.com

Thank you for your time

Alex Bamford

From: Cahill, Cheryl
Sent: Friday, 14 January 2022 7:43 pm
To: Rebecca Yit; Alex Bamford; sstanton
Cc: Smith, Alistair
Subject: FW: Q Station Annual Environmental Reports - Invitation to review reports and provide comments
Attachments: Quarantine Station North Head - Annual Reports Letter - 14.01.2022.pdf

Hi Bec, Suzanne and Alex,

Please find letter from DPIE regarding comments on the annual reports.

Yesterday, she called briefly and discussed the various aspects noted, and warned that a formal letter would be issued, and if needed to call to discuss. She was very friendly and wanted to call to advise that the letter may come across negatively. She also stated that efforts to meet the deadline should be made and any issues after this time can be addressed through a report addendum.

Thanks,
Cheryl

From: Alex McGuirk <Alex.McGuirk@dpie.nsw.gov.au>
Sent: 14 January 2022 17:28
To: Cahill, Cheryl <Cheryl.Cahill@atkinglobal.com>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Cheryl,

As discussed yesterday, please see attached the Department's comments (as the successor to DIPNR) on the annual environmental reports.

Please don't hesitate to contact me on 8289 6865 or via email to discuss,

Alex McGuirk

Senior Compliance Officer

Planning & Assessment | Department of Planning & Environment

T 02 8289 6865 | M 0427 749 597 | E alex.mcguirk@dpie.nsw.gov.au

Locked Bag 5022 | PARRAMATTA NSW 2124

www.dpie.nsw.gov.au



From: Cahill, Cheryl <Cheryl.Cahill@atkinglobal.com>
Sent: Wednesday, 12 January 2022 3:01 PM
To: Rob Sherry <Rob.Sherry@planning.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Rob,

I was following up on the Q Station annual compliance reports previously provided and wish to remind you that the deadline for receipt of comments is this Friday 14th January 2022 COB. If you need me to re-send the documents (as the link would have expired), please let me know via return email.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

Tel: +61 2 8239 8700
Mob: 0405 635 333

SNC-Lavalin Atkins
Level 17
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Sydney | NSW | Australia | 2000



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From: Cahill, Cheryl
Sent: 15 December 2021 15:15
To: Rob.Sherry@planning.nsw.gov.au
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Rob,

I have recently sent you a large file transfer link to download files associated with the Q Station Annual Environmental Reports. These were sent to you as the dominated agency representative for review and comment.

The file transfer link will expire on 29/12/21, so please ensure the reports are downloaded prior to this time.

If you have any questions or want any clarifications, please feel free to contact me via email or 0405 635 333.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

Tel: +61 2 8239 8700
Mob: 0405 635 333

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From: Cahill, Cheryl <filetransfercn@atkinglobal.com>
Sent: 15 December 2021 14:40
To: Rob.Sherry@planning.nsw.gov.au
Subject: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Dear Rob,

Please refer to the attached files.

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

It would be greatly appreciated if you could please provide any comments or remarks on these reports by 14 January 2022. To streamline this process, a comments template is enclosed. On completion of your review, please return the completed comments template or other correspondence to the email noted below by 14 January 2022. If no response is received by this date, it will be assumed that you do not wish to provide any comments or feedback on the reports.

If you have any questions, please do not hesitate to contact me on 0405635333 or at cheryl.cahill@atkinglobal.com.

Regards,

Cheryl Cahill

Files attached to this message

Filename	Size	Checksum (SHA256)
North Head Q Station - Annual Environmental Report - July 18 to Dec 19 Final.pdf	12.7 MB	b80b5bb799394ac67d2ebb68ddf1a0ea2259b0222ecb0b562fcb682869c968c
North Head Q Station Annual Environmental Report Jan to Dec 2020 Final 20211215.pdf	37.5 MB	c1fd2b765fae5200f91377f5e6dbb5c298fc70a824475ee891261ba9ddcab508
DPIE 15122021.pdf	408 KB	4758dc0d2fcdf258bc8c549fff8d5a2a8a0d698cfc6b12756385406cf1e6b1e4
comments template.docx	95.9 KB	79c1dae6cd77ea5a907ef4881e7aad7dcdaa71f6276a6a3b62d9c6497655167b

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The attachments are available until: **Wednesday, 29 December.**

Message ID: qV1KhHR8pqSAsp5eld2Mfn

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Department of Planning and Environment

Cheryl Cahill
SNC-Lavalin Rail & Transit Pty Ltd
Level 17, 55 Clarence Street
Sydney NSW 2000
via email: cheryl.cahill@atkinsglobal.com

Our ref: 08_0041
Your ref: SN0243077

14 January 2022

Dear Cheryl

Subject: Quarantine Station North Head (08_0041) – Annual Environmental Reports

Thank you for your letter dated 15 December 2021 enclosing the Quarantine Station North Head annual environmental reports for 2018/2019 and 2020 required under conditions 221 to 225 of the Minister's approval (08_0041, last modified 25/05/2018).

As set out in the Secretary's Direction issued 8 November 2021, the annual environmental reports must be prepared consistent with the *Compliance Reporting Post Approval Requirements* (DPIE, 2020) (the *Requirements*).

As set out in condition 224 of the Minister's approval, *The annual environmental report shall:*

- a) *state how the co-proponents [National Parks and Wildlife Service and The Mawland Group] have complied with relevant approval conditions;*
- b) *include the outcomes of the annual monitoring report (condition 219);*
- c) *state any measures taken or proposed by the co-proponents to respond to issues arising from:*
 - *the integrated monitoring program*
 - *consultations with the community; and*
- d) *state any recommendations from the co-proponents regarding the undertaking of the activity, if considered necessary.*

The Department considers that whilst the annual environmental reports are substantially consistent with the *Requirements* and part a of condition 224, they do not contain the information required by parts b, c and d of Condition 224. Moreover, the annual monitoring reports (conditions 224b / 219) are not consistent with the required monitoring program (which has been identified within the annual environmental reports as a non-compliance condition 217) and contain insufficient monitoring data to support the performance scores provided.

Further, the Department considers that to improve consistency with the *Requirements*:

- the compliance status summary (section 3) should clearly identify the total number of conditions assessed and the number of conditions assessed as compliant, non-compliant and not triggered. Each non-compliance identified in the compliance table (Appendix A) must be included in the compliance status summary. For each non-compliance, the details set out in section 3.1.3 of the *Requirements* must be provided. This includes but is not limited to the date the non-compliance occurred, was identified, was reported to regulators and action was completed.

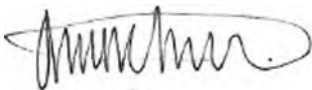
- the table of previous actions in the 2018/19 report (section 2) should identify all actions arising from the previous report, being the 2018 comprehensive audit report which identifies actions in Tables 1, 3 and 4, as well as Table 5 (which largely but not wholly consolidates the earlier tables). The table of previous actions must use the condition number related to the non-compliance rather than the condition number related to the previous report. For example, for unauthorised clearing the condition numbers are 90-94 or 174-176 (as per previous report Table 1) rather than 228.

The Department also reminds the co-proponents that the annual environmental reports are due via the Major Projects Portal by 21 January 2022. However, the Department considers that the four-week comment period required by condition 222 has not been satisfied due to the comment period provided incorporating the two week end of year shutdown period.

Therefore, the Department requests you extend the comment period for a further four weeks (or as otherwise agreed with the relevant party) and revise the reports in response to this letter and any other comments received. The Department will formalise this with the co-proponents via the Major Projects Portal, with the comments and revised reports due via the Major Projects Portal by 4 March 2022.

Should you have any questions in relation to the contents of this letter, please contact Ms Alex McGuirk, Senior Compliance Officer, via compliance@planning.nsw.gov.au.

Yours sincerely,



Thomas Minchin

A/Team Leader Compliance – Government Projects

Planning & Assessment | Department of Planning and Environment

Alex Bamford

From: Cahill, Cheryl
Sent: Monday, 17 January 2022 1:45 pm
To: Smith, Alistair
Subject: FW: Request for Comment Q Station Reports

From: Cahill, Cheryl
Sent: 12 January 2022 14:37
To: Tracy Appel <Tracy.Appel@environment.nsw.gov.au>; Mary Ann Hamilton <MaryAnn.Hamilton@environment.nsw.gov.au>
Subject: RE: Request for Comment Q Station Reports

Hi Tracy and Mary Ann,

Thanks for your response and interest in Q Station.

Yes, I note that the consultation deadlines were tight and not ideal over the Christmas shutdown period.

The Q Station annual reports had previously been submitted by NPWS/ Mawland and were rejected by DPIE as they did not meet the required compliance report format, recently updated by DPIE in the Compliance Reporting Post Approval Requirements Guidelines (May 2020). Updated reports were required to be submitted by 21st January 2022, which is the reason for the imposed consultation deadline.

However, if you require more time, would the 11th February 2022 be sufficient? Any comments provided will be submitted to DPIE as an addendum after the report submission date.

If you require any further information or need the reports to be resent (via the file transfer link, as the link would have expired by now), please let me know.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

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Mob: 0405 635 333

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From: Tracy Appel <Tracy.Appel@environment.nsw.gov.au>
Sent: 22 December 2021 12:57
To: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Cc: Mary Ann Hamilton <MaryAnn.Hamilton@environment.nsw.gov.au>
Subject: Request for Comment Q Station Reports

Hi Cheryl,

Thank you for email regarding Q Station Report. I note you have asked for comment by the 14 January 2022. With the whole of government shutdown over the Christmas New Year and staff on leave and the implementation of a new Heritage NSW structure, we would appreciate if you would be able to provide an extension to the date by which comment is required. This will allow HNSW the opportunity to review the reports (dating back to 2018) and provide comment if required. Please contact Heritage NSW Acting Manager Mary Ann Hamilton on 9873 8565 or Director Steve Meredith on 0455 079 190 in the new year to discuss.

Regards,

Tracy Appel

M.Herit Cons

A/Senior Team Leader

North Metro

Heritage, Community Engagement, Department of Premier and Cabinet

Level 6, 10 Valentine Avenue Parramatta 2150 * Locked Bag 5020, Parramatta NSW 2124

T: 02 9873 8559 | tracy.appel@environment.nsw.gov.au

Heritage NSW and coronavirus (COVID-19)

Heritage NSW has taken steps to protect the safety, health and wellbeing of our staff, communities and customers. Whilst our offices remain open, we have put in place flexible working arrangements for our teams across NSW and continue to adapt our working arrangements as necessary. Face-to-face meetings and field work/site visits with our customers are subject to rules on gatherings and social distancing measures. We thank you for your patience and understanding at this time.



**Premier
& Cabinet**

I acknowledge and respect the traditional custodians and ancestors of the lands I work across

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Alex Bamford

From: Cahill, Cheryl
Sent: Tuesday, 18 January 2022 11:30 am
To: Smith, Alistair
Subject: FW: Q Station 2018-2020 Environmental Reports comments Sandy Hoy
Attachments: Q Station 2018-2020 Environmental Reports comments Sandy Hoy.pdf

Good morning,

See attached comments from Sandy, as chairperson of the QSCCC.

Cheers

From: sandy@parklandplanners.com.au <sandy@parklandplanners.com.au>
Sent: 07 January 2022 20:08
To: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Subject: Q Station 2018-2020 Environmental Reports comments Sandy Hoy

Hi Cheryl

Please find attached my comments on the Q Station 2018-2020 reports.

I am away for work next week. If you have any questions about my comments please email or call me.

Regards,
Sandy

Sandy Hoy
Director
Parkland Planners

ph. (02) 9452 6377
mob. 0411 191 866

sandy@parklandplanners.com.au
PO Box 41, FRESHWATER NSW 2096
www.parklandplanners.com.au

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Comments Template for Q Station Annual Environment Reports

Review undertaken by

Name: Sandy Hoy

Agency or Committee: Chair, Quarantine Station Community Consultative Committee (QSCCC)

It would be greatly appreciated if any comments or remarks are provided by 14 January 2022 for inclusion in the final report.

In accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

Spelling errors I picked up while reading the reports are listed below. Suggest doing a final spellcheck to find out if there are more occurrences.

Report (2018/2019 or 2020)	Page Number	Report Section or Condition number	Comment
2018/2019	ToC and p.3		Change 'Mandis' to 'Manidis'. [I worked at Manidis Roberts Consultants in the 1990s]
2018/2019	16	Table 4	<p><i>Summary: The Q Station did not seek approval from DPIE for the planned Open Day on 28 April 2019. Approval was sought through NPWS when it should have been directed to DPIE. This complaint was received prior to the open day occurring. No public complaint was received regarding this incident Approval was sought from DPIE immediately.</i></p> <p><i>Response: DPIE approved the open day to proceed on 4 April 2019. Open day on 28 April proceeded with NPWS participation. Mawland continue to seek approval from DPIE for all future open days.</i></p> <p>I am surprised that this situation was registered as a complaint by NPWS and included in this report. Given the need for Mawland to obtain approvals for various management and operational matters from NPWS and from DPIE, NPWS could have simply advised Mawland that they needed to obtain approval for the Open Day from DPIE and not from NPWS. From the timeframes given it seems that Mawland informed NPWS and then DPIE of the Open Day in plenty of time, at least 3-4 weeks before the Open Day.</p>
2018/2019	16	Table 4	Please change Robyn 'Sans' to 'San'.
2018/2019		CoPA 56-60	Conditions of Planning Approval 56-60 and the IMAMS no. 98 refer to the QSCCC. Before the DPIE's change in report template and contents the QSCCC Annual Report I am required to prepare for DPIE was included as an Appendix in the environmental reports. As no. 98 of the IMAMS in particular refers

			to the attendance of QSCCC meetings which is included in the Annual Report, I suggest that a link to the Feb 2019-Feb 2020 Annual Report on the DPIE website is included in this section. https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en
2018/2019	p.93	CoPA 123	Change 'Complaint' to 'Compliant'. Suggest doing a spellcheck to find out if there are more occurrences.
2018/2019	p.94	CoPA 126	Change 'Complaint' to 'Compliant'. Suggest doing a spellcheck to find out if there are more occurrences.
2020		General comment	The impacts of COVID on Q Station operations in 2020 unfortunately meant that more non-compliances than usual that were outside Mawland's control occurred and were recorded.
2020	ToC and p.3		Change 'Mandis' to 'Manidis'. [I worked at Manidis Roberts Consultants in the 1990s]
2020	p. 12		Change 'Dragan' to 'Dargan'. Suggest doing a spellcheck to find out if there are more occurrences.
2020	p.18	CoPA 4	Change 'Rsources' to 'Resources'
2020	p. 17-18 and elsewhere		Final edit: make sure table headings and text are on the same page
2020	p. 38-39		Change 'Dragan' to 'Dargan'. Suggest doing a spellcheck to find out if there are more occurrences.
2020		CoPA 56-60	Conditions of Planning Approval 56-60 and the IMAMS no. 98 refer to the QSCCC. Before the DPIE's change in report template and contents the QSCCC Annual Report I am required to prepare for DPIE was included as an Appendix in the environmental reports. As no. 98 of the IMAMS in particular refers to the attendance of QSCCC meetings which is included in the Annual Report, I suggest that links to the Feb 2019-Feb 2020 and Feb 2020-Feb 2021 Annual Reports on the DPIE website are included in this section. https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2019/quarantine-station-manly-ccc-report-2019.pdf?la=en https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/CCC-annual-reports/2021/Manly-Quarantine-Station---2021.pdf
2020		CoPA 59	Please add that the QSCCC May 2020 meeting was not held because Q Station was closed due to COVID 19.
2020	p. 85		Change 'Manger' to 'Manager'

(Add more rows as required)

On completion of your review, please return the completed comments template or other correspondence to cheryl.cahill@atkinsglobal.com

Thank you for your time

Alex Bamford

From: Cahill, Cheryl
Sent: Friday, 14 January 2022 7:45 pm
To: Rebecca Yit; Alex Bamford; sstanton
Cc: Smith, Alistair
Subject: FW: Q Station Annual Environmental Reports - Invitation to review reports and provide comments
Attachments: Q Station Annual Environmental Report - TfNSW comments - 14.01.2022.pdf

Hi Bec, Alex and Suzanne,

See attached comments from TfNSW (Maritime) on the annual reports.

Thanks,
Cheryl

From: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Sent: 14 January 2022 15:09
To: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Cc: Joseph Pascuzzo <Joseph.Pascuzzo@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Cheryl

Please find attached comments regarding the Q Station Annual Environmental Reports for 2018/2019 and 2020 on behalf of Transport for NSW as landlord of the wharf.

Kind regards
Meredith

Meredith Morris
Portfolio Leasing Manager | Maritime Commercial & Community
Property Asset Management
Commercial, Performance & Strategy
Infrastructure & Place | **Transport for NSW**

T 8849 2577 M 0434 904 256
33 James Craig Road, Rozelle NSW 2039



**Transport
for NSW**

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From: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Sent: Wednesday, 12 January 2022 2:52 PM
To: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Meredith,

I was following up on the Q Station annual reports previously provided and wish to remind you that the deadline for receipt of comments, prior to finalisation of the reports for issue to DPIE, is this Friday 14th January 2022 COB. If you need me to re-send the documents (as the link would have expired), please let me know via return email.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

Tel: +61 2 8239 8700
Mob: 0405 635 333

SNC-Lavalin Atkins
Level 17
55 Clarence St
Sydney | NSW | Australia | 2000



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From: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Sent: 17 December 2021 15:56
To: Cahill, Cheryl <Cheryl.Cahill@atkinglobal.com>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Cheryl

Thank you for your email.

I will ensure the documents are downloaded prior to 29/12/21 and provide a response as soon as possible.

Regards

Meredith Morris
Portfolio Leasing Manager | Maritime Commercial
Property Asset Management
Commercial, Performance & Strategy
Infrastructure & Place | **Transport for NSW**

T 8849 2577 M 0434 904 256
33 James Craig Road, Rozelle NSW 2039



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From: Cahill, Cheryl <Cheryl.Cahill@atkinglobal.com>
Sent: Wednesday, 15 December 2021 3:17 PM
To: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Meredith,

I have recently sent you a large file transfer link to download files associated with the Q Station Annual Environmental Reports. These were sent to you as the dominated agency representative for review and comment.

The file transfer link will expire on 29/12/21, so please ensure the reports are downloaded prior to this time.

If you have any questions or want any clarifications, please feel free to contact me via email or 0405 635 333.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

Tel: +61 2 8239 8700
Mob: 0405 635 333

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Sydney | NSW | Australia | 2000



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From: Cahill, Cheryl <filetransfrcn@atkinglobal.com>
Sent: 15 December 2021 14:42
To: meredith.morris@transport.nsw.gov.au
Subject: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Dear Meredith,

Please refer to the attached files.

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

It would be greatly appreciated if you could please provide any comments or remarks on these reports by 14 January 2022. To streamline this process, a comments template is enclosed. On completion of your review, please return the completed comments template or other correspondence to the email noted below by 14 January 2022. If no response is received by this date, it will be assumed that you do not wish to provide any comments or feedback on the reports.

If you have any questions, please do not hesitate to contact me on 0405635333 or at cheryl.cahill@atkinsglobal.com.

Regards,

Cheryl Cahill

Files attached to this message

Filename	Size	Checksum (SHA256)
comments template.docx	95.9 KB	79c1dae6cd77ea5a907ef4881e7aad7dcd71f6276a6a3b62d9c6497655167b
TfNSW 15122021.pdf	409 KB	331170eb4f0d982819d36597931f40bceec8d425e44f50d27a28ddf7ba3775312
North Head Q Station - Annual Environmental Report - July 18 to Dec 19 Final.pdf	12.7 MB	b80b5bb799394ac67d2ebb68ddf1a0ea2259b0222ecb0b562fcb682869c968c
North Head Q Station Annual Environmental Report Jan to Dec 2020 Final 20211215.pdf	37.5 MB	c1fd2b765fae5200f91377f5e6dbb5c298fc70a824475ee891261ba9ddcab508

Please click on the following link to download the attachments:
<https://FiletransferCN.atkinsglobal.com/message/6szzFgv5QJRUqD9hM0uety>

This email or download link can be forwarded to anyone.

The attachments are available until: **Wednesday, 29 December.**

Message ID: 6szzFgv5QJRUqD9hM0uety



LiquidFiles Appliance: FiletransferCN.atkinsglobal.com

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Comments Template for Q Station Annual Environment Reports

Review undertaken by

Name: Meredith Morris, Portfolio Leasing Manager

Agency or Committee: Transport for NSW, Property Asset Management

It would be greatly appreciated if any comments or remarks are provided by 14 January 2022 for inclusion in the final report.

In accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

Report (2018/2019 or 2020)	Page Number	Report Section or Condition number	Comment
2018/2019	38	Compliance: Wharf – no.41	We are concerned that no works were undertaken on the wharf even though it was evident that some wooden planks and sleepers needed replacement and the main area of the wharf was unable to be used
2020	34	Compliance: Wharf – no.41	No works were undertaken on the wharf during the subject year and we are concerned that the repairs to the wharf surface have not been progressed and the main area of the wharf remains unusable.

On completion of your review, please return the completed comments template or other correspondence to cheryl.cahill@atkinsglobal.com

Thank you for your time

7.9 Appendix I – Consultation Correspondence January 2022

SN0243077
QSconsultaER_METROLALC

19/01/2022

Metropolitan Local Aboriginal Land Council
PO Box 1103,
Strawberry Hills
NSW 2012

Via email: metrolalc@metrolalc.org.au

To whom it may concern,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

These reports have been developed to meet the Ministers Conditions of Planning Approval (CoPA) for the site, under approval MP08_0041 and subsequent modification (MP08_0041 MOD 3). The reports have also been prepared in accordance with the Compliance Reporting Post Approval Requirements (Department of Planning, Industry and Environment, 2020).

Planning approval for the site was granted in 2003, with NPWS and Mawland as co-proponents. In 2006, the site was leased to Mawland who operate the Q Station and coordinate the day-to-day activities. With reference to condition terms, the site is currently in Operational mode.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

Please find the Annual Environment Reports attached for your review. A previous draft of the July 2018 – December 2019 report was prepared by the co-proponents, however, the attached July 2018- December 2019 report has been prepared to replace the previous version and ensure compliance with all CoPA.

It would be greatly appreciated if you could please provide any comments or remarks on these reports by 16 February 2022. To streamline this process, a comments template is enclosed. On completion of your review, please return the completed comments template or other correspondence to the email noted below by 16 February 2022. If no response is received by this date, it will be assumed that you do not wish to provide any comments or feedback on the reports.

If you have any questions, please do not hesitate to contact me on 0405 571 909 or at alistair.smith@atkinsglobal.com.

Yours sincerely,

SNC-LAVALIN ATKINS



Alistair Smith

Head of Environmental Services – Principal Planner
Australia

Engineering Services

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020
 Comments Template

SN0243077
QSconsultaER_DPI

19/01/2022

Fisheries Manager - Aquatic Ecosystems Unit
NSW Department of Primary Industries
Block E, Level 3
84 Crown Street
Wollongong NSW 2500

Via email: sarah.conacher@dpi.nsw.gov.au

Dear Sarah,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

Further to our phone conversation yesterday and letter of 15 December 2021, National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) have been granted an extension of time for the submission of the Annual Environmental Reports for Q Station covering the following two periods:

- July 2018 – December 2019
- January 2020 – December 2020

As a consequence The Department of Planning and Environmental have also requested that we extend the period for comment due to the initial consultation period including the Christmas/New Year shutdown period. Your original comments already received dated 14 January 2022 will be taken into consideration. However, if you wish to submit any further comment following additional time for review can you please do so by no later than 16 February 2022. If no response is received by this date, it will be assumed that you do not wish to provide any further comments or feedback on the reports.

Following review of your initial comments the July 2018 – Report on Sea Grass in Quarantine Bay adjacent to the Quarantine Wharf undertaken by EcoDivers is now included as an appendix to the July 2018 – December 2019 report for your reference.

If you have any questions, please do not hesitate to contact me on 0405 571 909 or at alistair.smith@atkinsglobal.com.

Yours sincerely,

SNC-LAVALIN ATKINS



[Alistair Smith](#)

Head of Environmental Services – Principal Planner
Australia

Engineering Services

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020

SN0243077
QSconsultAER_HNSW

15/12/2021

Heritage NSW
Level 6
10 Valentine Ave
Parramatta NSW 2150

Via email: MaryAnn.Hamilton@environment.nsw.gov.au

Dear Mary Ann,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

Further to our phone conversation today and letter of 15 December 2021, National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) have been granted an extension of time for the submission of the Annual Environmental Reports for Q Station covering the following two periods:

- July 2018 – December 2019
- January 2020 – December 2020

As a consequence The Department of Planning and Environmental have also requested that we extend the period for comment due to the initial consultation period including the Christmas/New Year shutdown period. If you wish to submit comments following additional time for review can you please do so by no later than 16 February 2022. If no response is received by this date, it will be assumed that you do not wish to provide any further comments or feedback on the reports.

I also now enclose the most up to date draft reports for your reference.

If you have any questions, please do not hesitate to contact me on 0405 571 909 or at alistair.smith@atkinsglobal.com.

Yours sincerely,

SNC-LAVALIN ATKINS



Alistair Smith

Head of Environmental Services – Principal Planner
Australia

Engineering Services

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020

SN0243077
QSconsultAER_QSCCC

19/01/2022

Sandy Hoy
QSCCC Chairperson
Parkland Planners - Principal
PO Box 41
FRESHWATER NSW 2096

Via email: sandy@parklandplanners.com.au

Dear Sandy,

Q Station Annual Environment Reports - Invitation to review reports and provide comments

Further to our phone conversation yesterday and letter of 15 December 2021, National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) have been granted an extension of time for the submission of the Annual Environmental Reports for Q Station covering the following two periods:

- July 2018 – December 2019
- January 2020 – December 2020

As a consequence The Department of Planning and Environmental have also requested that we extend the period for comment due to the initial consultation period including the Christmas/New Year shutdown period. Your original comments already received dated 7 January 2022 will be taken into consideration. However, if you wish to submit any further comment following additional time for review can you please do so by no later than 16 February 2022. If no response is received by this date, it will be assumed that you do not wish to provide any further comments or feedback on the reports.

I also now enclose the most up to date draft reports for your reference.

If you have any questions, please do not hesitate to contact me on 0405 571 909 or at alistair.smith@atkinsglobal.com.

Yours sincerely,

SNC-LAVALIN ATKINS



Alistair Smith

Head of Environmental Services – Principal Planner
Australia

Engineering Services

Enclosed: Annual Environmental Report, July 2018 – December 2019
 Annual Environmental Report, January 2020 – December 2020

7.10 Appendix J – Consultation Responses February 2022

Alex Bamford

From: Sarah Conacher <sarah.conacher@dpi.nsw.gov.au>
Sent: Monday, 31 January 2022 7:24 pm
To: Smith, Alistair
Subject: RE: Q Station Annual Environmental Reports

Hi Alistair,

Thanks for providing the Seagrass Report from Eco Diver in 2018. Whilst informative, the report isn't the same standard of report that proponents would typically submit for development assessment (such as installation of new piles). Ecological consultants would typically perform an underwater survey and provide the methodology for seagrass assessment, using quadrats or tape measures. The survey would typically map the area of distribution for each species of seagrass and identify the length and density of the seagrass. For example:

Seagrass species were given the following codes:

Hal – *Halophila ovalis* (paddleweed)

Pos – *Posidonia australis* (strapweed)

Zos – *Zostera capricorni* (eelgrass)

The level of patchiness was also estimated using three categories:

A – Individual strands or small clumps (< 2 m diameter);

B – Medium sized patches (2 - 10 m diameter); or

C – Beds of relatively even distribution (> 10 m diameter).

Estimates of seagrass density were made by ranking each observation point using three categories:

1 – Low density (< 15% seabed cover);

2 – Medium density (15% - 50% seabed cover); or

3 – High density (> 50% cover).

Leaf length of seagrass was categorised as follows:

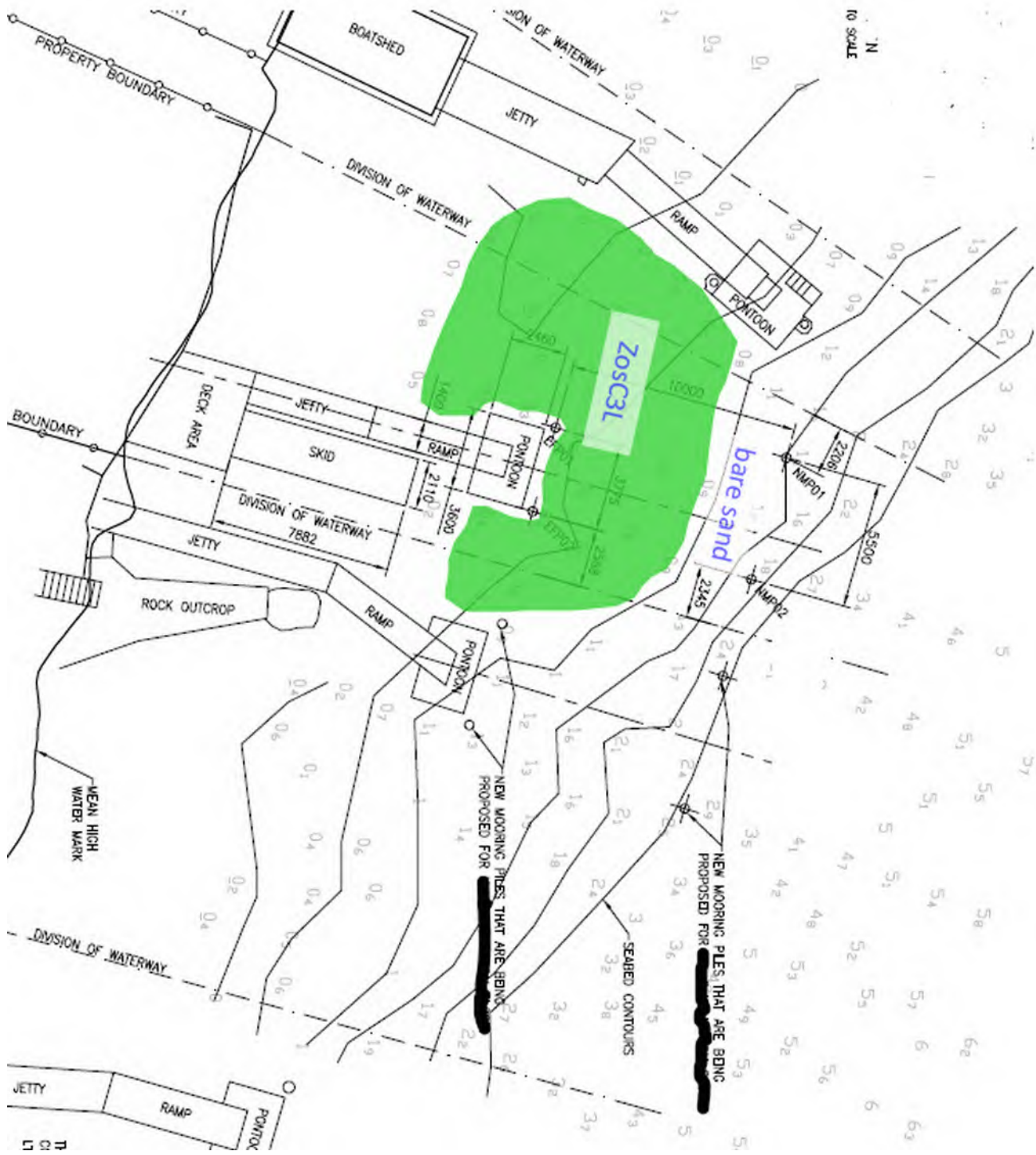
Halophila – S (short < 1 cm), M (medium 1 cm – 3 cm), L (long > 3 cm);

Posidonia – S (short < 15 cm), M (medium 15 cm – 30 cm), L (long > 30 cm); or

Zostera – S (short < 5 cm), M (medium 5 cm – 15 cm), L (long > 15 cm).

These codes provide a description of the seagrasses within an area and are useful in determining the nature and ecological value of any seagrasses likely to be affected by the proposed works. For example, seagrass with shorter leaves and a lower density (e.g. ZosC1S) may have less ecological value compared with seagrass with longer leaves and a higher density (ZosC3L).

The seagrass map is then overlaid with the proposed development (e.g. a wharf, jetty or piles) to determine if there's any overlap or potential impact during construction or operation. Below is an example of a seagrass survey that we use to assess development proposals:



It's hard to compare changes in the seagrass (distribution, density or length) over time without detailed mapping. I'm not sure if this level of mapping is required for the routine reporting of the Q-Station, but is it required in order to assess development proposals.

Kind regards,
Sarah

Sarah Conacher | Fisheries Manager – Coastal Systems Unit
 NSW Department of Primary Industries | Fisheries
 12 Shirley Rd, Wollstonecraft NSW
 ALL MAIL TO: DPI Fisheries, Attn: R. Philips, 1243 Bruxner Hwy, Wollongbar NSW 2477
 T: 02 8437 4981 | M: 0419 314 437 | E: sarah.conacher@dpi.nsw.gov.au

PERMIT APPLICATION FORMS & FISH HABITAT POLICIES AVAILABLE AT:

<https://www.dpi.nsw.gov.au/fishing/habitat/protecting-habitats/toolkit>

Submit permit applications via email to: ahp.central@dpi.nsw.gov.au

Turnaround times: from date of receipt of application, please allow up to 28 days for Land Owners Consent, Permits and Consultations. Please allow up to 40 days for Integrated Development Applications.



DPI Fisheries acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.

From: Smith, Alistair <Alistair.Smith@atkinsglobal.com>

Sent: Friday, 28 January 2022 3:12 PM

To: Sarah Conacher <sarah.conacher@dpi.nsw.gov.au>

Subject: RE: Q Station Annual Environmental Reports

Sarah,

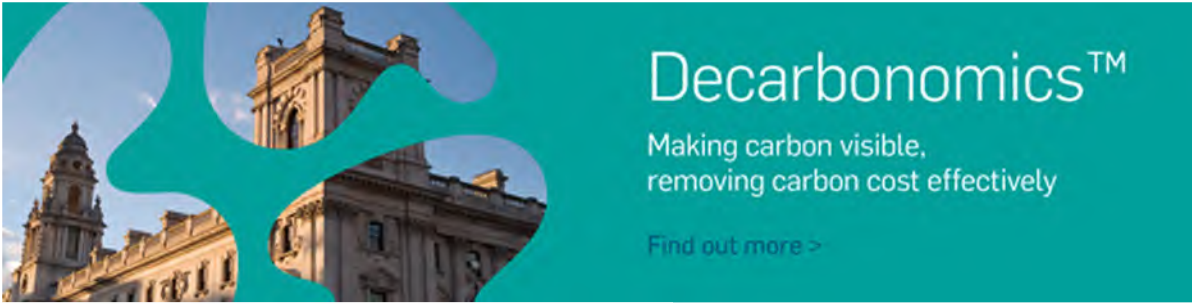
Attached again separately here also

Regards

Alistair Smith *MRRP (Dist.), BSc., NZPI*
Head of Environmental Services – Principal Planner
Australia
Engineering Services

 +61 2 8239 8700  +61 405 571 909

Atkins, member of the SNC-Lavalin Group
Level 17, 55 Clarence Street, Sydney, NSW 2000, Australia



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Member of the SNC-Lavalin Group

Company    

From: Sarah Conacher <sarah.conacher@dpi.nsw.gov.au>
Sent: 28 January 2022 15:08
To: Smith, Alistair <Alistair.Smith@atkinsglobal.com>
Subject: RE: Q Station Annual Environmental Reports

Hi Alistair,

Did you end up sending through the Seagrass Assessment undertaken by EcoDivers in 2018?
I can't seem to locate it in my inbox.

Thanks,
Sarah

Sarah Conacher | Fisheries Manager – Coastal Systems Unit
NSW Department of Primary Industries | Fisheries
12 Shirley Rd, Wollstonecraft NSW
ALL MAIL TO: DPI Fisheries, Attn: R. Philps, 1243 Bruxner Hwy, Wollongbar NSW 2477
T: 02 8437 4981 | M: 0419 314 437 | E: sarah.conacher@dpi.nsw.gov.au

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<https://www.dpi.nsw.gov.au/fishing/habitat/protecting-habitats/toolkit>

Submit permit applications via email to: ahp.central@dpi.nsw.gov.au

Turnaround times: from date of receipt of application, please allow up to 28 days for Land Owners Consent, Permits and Consultations. Please allow up to 40 days for Integrated Development Applications.



DPI Fisheries acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.

From: Smith, Alistair <filetransfercn@atkinglobal.com>
Sent: Wednesday, 19 January 2022 9:57 PM
To: Smith, Alistair <alistair.smith@atkinglobal.com>
Subject: Q Station Annual Environmental Reports

All - I have resent the same attachments for Q Station - because as soon as I sent it because I did not enter an expiry date in our file transfer system it automatically gave it a one day expiry! So not much use if any of you are away for one day tomorrow! Otherwise these files are exactly the same as the ones I just sent.

Regards

Alistair Smith

Files attached to this message

Filename	Size	Checksum (SHA256)
North Head Q Station - Annual Environmental Report - Jan to Dec 2020 (18-01-22).pdf	34.7 MB	064adbba7085efb4fdcc473a0b56d62d3bedb28a78e677e72a7f98fbce1ea0d3
North Head Quarantine Station - Annual Environmental Report - July 18 to Dec 18 (18-01-22).pdf	11.7 MB	bcc4cc87550230029eaa8579491762a5e8f53021e619e3141384e62eb76badfb

Please click on the following link to download the attachments:
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The attachments are available until: **Wednesday, 2 February.**

Message ID: FQ65qLPYdaU3TOnidvLCfO



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Alex Bamford

From: Smith, Alistair <Alistair.Smith@atkinsglobal.com>
Sent: Monday, 21 February 2022 2:10 pm
To: Alex Bamford
Subject: FW: Q Station 2018-2020 Environmental Reports comments

FYI

From: sandy@parklandplanners.com.au <sandy@parklandplanners.com.au>
Sent: 18 February 2022 18:11
To: Smith, Alistair <Alistair.Smith@atkinsglobal.com>
Subject: RE: Q Station 2018-2020 Environmental Reports comments

Hi Alistair

No further comments about the environmental reports have been received from QSCCC members.

Regards,
Sandy

Sandy Hoy
Chair
Quarantine Station Community Consultative Committee

ph. 0411 191 866
sandy@parklandplanners.com.au
PO Box 41, FRESHWATER NSW 2096

From: sandy@parklandplanners.com.au <sandy@parklandplanners.com.au>
Sent: Thursday, 20 January 2022 3:48 PM
To: 'Smith, Alistair' <Alistair.Smith@atkinsglobal.com>
Subject: RE: Q Station 2018-2020 Environmental Reports comments Sandy Hoy

All good Alistair, thank you

Regards,
Sandy

From: Smith, Alistair <Alistair.Smith@atkinsglobal.com>
Sent: Thursday, 20 January 2022 12:19 PM
To: sandy@parklandplanners.com.au
Subject: RE: Q Station 2018-2020 Environmental Reports comments Sandy Hoy

Hi Sandy,

If you are able to download and distribute amongst your members please that would be appreciated.

Amended comments template attached.

I would appreciate a co-ordinated response from the QSCCC rather than comments to be received from all members

Regards

Alistair Smith *MRRP (Dist.), BSc., NZPI*
Head of Environmental Services – Principal Planner
Australia
Engineering Services

+61 2 8239 8700 +61 405 571 909

Level 17, 55 Clarence Street, Sydney, NSW 2000, Australia

Company

From: sandy@parklandplanners.com.au <sandy@parklandplanners.com.au>
Sent: 20 January 2022 11:06
To: Smith, Alistair <Alistair.Smith@atkinsglobal.com>
Subject: RE: Q Station 2018-2020 Environmental Reports comments Sandy Hoy

Hi Alistair

Thank you for your email advising of an extension of time for the QSCCC to make comments on the Q Station Annual Environmental Reporting.

I sent the QSCCC members (6 QSCCC community members, NPWS, Mawland) the information and links to documents as discussed with Cheryl Cahill in December. Given that I needed to have had a unique code linked to my email address to access the documents via your link, I now realise that the QSCCC members may not have been able to access the documents because they also needed a unique code linked to their emails.

Could you please resolve this problem so the QSCCC members can access your documents. Otherwise I can send the reports to them via Hightail or similar.

The comments template sent by Cheryl is attached. Could you please adapt your comments sheet with the revised closing date and contact email if you are now the contact person.

Given that my comments made on 7 January are mine and not on behalf of the QSCCC, and that respondents are listed in the reports, would you prefer that I ask the QSCCC members to send you their comments directly, or that they send their comments to me and I compile them and send them to you as a combined QSCCC response?

Happy to discuss over the phone if easier.

Regards,
Sandy

Sandy Hoy
Chair
Quarantine Station Community Consultative Committee

ph. 0411 191 866
sandy@parklandplanners.com.au
PO Box 41, FRESHWATER NSW 2096

From: Smith, Alistair <Alistair.Smith@atkinglobal.com>
Sent: Wednesday, 19 January 2022 6:08 PM
To: sandy@parklandplanners.com.au
Subject: RE: Q Station 2018-2020 Environmental Reports comments Sandy Hoy

Sandy,

Further to our conversation yesterday, please find attached a letter addressing the opportunity for additional comments on the Q Station Annual Environmental Reporting, if QSCCC would like to make any further comments. As I mentioned if you are able to provide comment prior to 16 February 2022, which is the date given in the letter then that would be very much appreciated.

The reports with their respective appendices will be file transferred to you given their size

Any questions feel free to give me a call.

Regards

Alistair Smith *MRRP (Dist.), BSc., NZPI*
Head of Environmental Services – Principal Planner
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Level 17, 55 Clarence Street, Sydney, NSW 2000, Australia

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From: sandy@parklandplanners.com.au <sandy@parklandplanners.com.au>
Sent: 07 January 2022 20:08
To: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Subject: Q Station 2018-2020 Environmental Reports comments Sandy Hoy

Hi Cheryl

Please find attached my comments on the Q Station 2018-2020 reports.

I am away for work next week. If you have any questions about my comments please email or call me.

Regards,
Sandy

Sandy Hoy
Director
Parkland Planners

ph. (02) 9452 6377
mob. 0411 191 866

sandy@parklandplanners.com.au
PO Box 41, FRESHWATER NSW 2096
www.parklandplanners.com.au

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From: Cathy G <griffin.cathy@gmail.com>
Sent: Friday, 21 January 2022 5:13 pm
To: Sandy Hoy
Cc: Chad Weston; Rebecca Yit; Max Player; Suzanne Stanton; Adele Heasman; Candy Bingham; Doug Sewell; Jenny Wilson; Virginia Macleod; Smith, Alistair
Subject: Re: FW: Quarantine Station Annual Environmental Reports 2018-19 and 2020 - Invitation to Comment

thanks Sandy,
I have read the report and have no comments to record. Congratulations to the team who prepared the report.
Regards
Cathy Griffin

On Thu, Jan 20, 2022 at 4:44 PM <sandy@parklandplanners.com.au> wrote:

Dear QSCCC members

Further to my email below, NPWS and Mawland have been granted an extension of time to submit the Q Station Annual Environmental Reports covering July 2018-December 2019 and January 2020-December 2020. DPIE has also requested, because the initial consultation period was over Christmas and New Year and closing on 14 January, that the stakeholder consultation period be extended to 16 February 2022.

I made comments on both reports on 7 January as the initial closing date of 14 January coincided with a work trip last week. My comments, and others from relevant government departments, have been included in revised versions of both reports which I will send to you via Hightail because of their large file size.

If you wish to comment on the revised environmental reports please use the included comments template in Word and email it to me by **Monday 14 February**. SNC-Lavalin Atkins prefers that I compile the comments from QSCCC members and that I send them the 'combined' comments by Wednesday 16 February.

If you have any questions about this please let me know.

Regards,

Sandy

Sandy Hoy

Chair

Quarantine Station Community Consultative Committee

ph. 0411 191 866

sandy@parklandplanners.com.au

PO Box 41, FRESHWATER NSW 2096

From: sandy@parklandplanners.com.au <sandy@parklandplanners.com.au>

Sent: Wednesday, 15 December 2021 5:01 PM

To: 'Chad Weston' <Chad.Weston@environment.nsw.gov.au>; Rebecca Yit <Rebecca.Yit@environment.nsw.gov.au>; Max Player <mplayer@mawlandgroup.com.au>; Suzanne Stanton <sstanton@mawlandgroup.com.au>; 'Adele Heasman' <Adele.Heasman@parliament.nsw.gov.au>; Cathy Griffin <griffin.cathy@gmail.com>; 'Candy Bingham' <candy.bingham@northernbeaches.nsw.gov.au>; 'jenwilson@fastmail.com.au' <jenwilson@fastmail.com.au>; 'Virginia Macleod' <virginia.macleod@gmail.com>

Cc: 'cheryl.cahill@atkinglobal.com' <cheryl.cahill@atkinglobal.com>

Subject: Quarantine Station Annual Environmental Reports 2018-19 and 2020 - Invitation to Comment

Dear QSCCC members

You are invited to review and comment on the newly revised Quarantine Station Annual Environmental Reports for the reporting periods July 2018 – December 2019 and January 2020 – December 2020.

Please see below for the file transfer link to the reports and a comments template, which should be downloaded by 29 December.

<https://FiletransferCN.atkinglobal.com/message/IKKknVXvX8ysnhdB6XgUz3>

Message ID: IKKknVXvX8ysnhdB6XgUz3

[Download Files](#)

If you miss the 29 December deadline please let me know and I will send you the reports using another link.

Your comments on the reports are welcome by **14 January 2022**. To streamline this process, a comments template (.docx Word document) is enclosed as one of the four documents in the download. On completion of your review, please return the completed comments template or other correspondence to Cheryl Cahill at cheryl.cahill@atkinsglobal.com by 14 January 2022.

The original reports covering 2018 to 2020 were deemed non-compliant by DPIE earlier this year. As a result the Quarantine Station co-proponents (NPWS and Mawland) have been working together with consultants SNC-Lavalin to prepare and produce the reports which comply with DPIEs latest reporting guidelines. The latest documentation represents a revision of material previously presented to the committee for their review in 2021. The newly revised reports contain additional detail not provided in the original reports and have been formatted with the aim of assessing compliance of activities against the Conditions of Planning Approval for Quarantine Station.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to 'issues associated with visitor impacts arising from the activity'.

If you have any questions regarding the reports please don't hesitate to contact Bec Yit at Rebecca.Yit@environment.nsw.gov.au

Regards,

Sandy

Sandy Hoy

ph. (02) 9452 6377

mob. 0411 191 866

PO Box 41, FRESHWATER NSW 2096

Alex Bamford

From: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Sent: Tuesday, 18 January 2022 5:34 pm
To: Smith, Alistair
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments
Attachments: Q Station Annual Environmental Report - TfNSW comments - 14.01.2022.pdf

Hi Alistair

I confirm that we do not require further time to review the Annual Environmental Reports for Q Station provided on 15 December 2021.

Regards

Meredith Morris
Portfolio Leasing Manager | Maritime Commercial & Community
Property Asset Management
Commercial, Performance & Strategy
Infrastructure & Place | **Transport for NSW**

T 8849 2577 M 0434 904 256
33 James Craig Road, Rozelle NSW 2039



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From: Smith, Alistair <Alistair.Smith@atkinglobal.com>
Sent: Tuesday, 18 January 2022 1:49 PM
To: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Meredith,

As discussed in our phone conversation today, further to our letter of 15 December 2021, National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) have been granted an extension of time for the submission of the Annual Environmental Reports for Q Station covering the following two periods:

- July 2018 – December 2019
- January 2020 – December 2020

In addition to this the Department of Planning, Industry & Environmental (DPIE) requested that we extend the period of stakeholder consultation for comment due to the original consultation period being provided over the Christmas/New Year shutdown period. They requested that we extend it for a further 4 weeks (or as agreed otherwise with the relevant party).

I note your comments received 14 January (attached) following the original consultation period, and confirm these will be responded to in the final report delivered to DPIE. As we discussed you stated you were happy that you had adequately reviewed the reports in making your comments and do not require further time/review of the reports for the periods mentioned above. If you could please confirm this is the case by reply email that would be appreciated so we can record that.

Regards

Alistair Smith *MRRP (Dist.), BSc., NZPI*
Head of Environmental Services – Principal Planner
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Engineering Services

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Level 17, 55 Clarence Street, Sydney, NSW 2000, Australia

Company

From: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Sent: 14 January 2022 17:45
To: Rebecca Yit <Rebecca.Yit@environment.nsw.gov.au>; Alex Bamford <alex@BamfordConsultants.net>; sstanton <sstanton@mawlandgroup.com.au>
Cc: Smith, Alistair <Alistair.Smith@atkinsglobal.com>
Subject: FW: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Bec, Alex and Suzanne,

See attached comments from TfNSW (Maritime) on the annual reports.

Thanks,
Cheryl

From: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Sent: 14 January 2022 15:09
To: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Cc: Joseph Pascuzzo <Joseph.Pascuzzo@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Cheryl

Please find attached comments regarding the Q Station Annual Environmental Reports for 2018/2019 and 2020 on behalf of Transport for NSW as landlord of the wharf.

Kind regards
Meredith

Meredith Morris
Portfolio Leasing Manager | Maritime Commercial & Community
Property Asset Management
Commercial, Performance & Strategy
Infrastructure & Place | **Transport for NSW**

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33 James Craig Road, Rozelle NSW 2039



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From: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Sent: Wednesday, 12 January 2022 2:52 PM
To: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Meredith,

I was following up on the Q Station annual reports previously provided and wish to remind you that the deadline for receipt of comments, prior to finalisation of the reports for issue to DPIE, is this Friday 14th January 2022 COB. If you need me to re-send the documents (as the link would have expired), please let me know via return email.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

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From: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Sent: 17 December 2021 15:56
To: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Cheryl

Thank you for your email.

I will ensure the documents are downloaded prior to 29/12/21 and provide a response as soon as possible.

Regards

Meredith Morris
Portfolio Leasing Manager | Maritime Commercial
Property Asset Management
Commercial, Performance & Strategy
Infrastructure & Place | **Transport for NSW**

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33 James Craig Road, Rozelle NSW 2039



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From: Cahill, Cheryl <Cheryl.Cahill@atkinsglobal.com>
Sent: Wednesday, 15 December 2021 3:17 PM
To: Meredith Morris <meredith.morris@transport.nsw.gov.au>
Subject: RE: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Hi Meredith,

I have recently sent you a large file transfer link to download files associated with the Q Station Annual Environmental Reports. These were sent to you as the dominated agency representative for review and comment.

The file transfer link will expire on 29/12/21, so please ensure the reports are downloaded prior to this time.

If you have any questions or want any clarifications, please feel free to contact me via email or 0405 635 333.

Thanks and regards,
Cheryl

Cheryl Cahill, *B Bus, BAppSc (EnvSc)*
Senior Environmental Consultant
Environment & Geoscience
Engineering, Design and Project Management

Tel: +61 2 8239 8700
Mob: 0405 635 333

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From: Cahill, Cheryl <filetransfercn@atkinsglobal.com>
Sent: 15 December 2021 14:42
To: meredith.morris@transport.nsw.gov.au
Subject: Q Station Annual Environmental Reports - Invitation to review reports and provide comments

Dear Meredith,

Please refer to the attached files.

SNC-Lavalin has been engaged by the National Parks and Wildlife Service (NPWS) and Mawland Quarantine Station Pty Ltd (Mawland) to prepare the latest Annual Environment Reports for the Quarantine Station (Q Station), located in Sydney Harbour National Park at North Head, Manly. These reports cover the reporting periods, from July 2018 – December 2019 and January 2020 – December 2020.

In accordance with Conditions 221, 224-225 of the CoPA, copies of the Annual Environment Reports are to be made available to selected stakeholders for their review and comment. You are invited to comment on these reports and in accordance with Condition 221, it is requested that stakeholders review the documentation with regard to ‘issues associated with visitor impacts arising from the activity’.

It would be greatly appreciated if you could please provide any comments or remarks on these reports by 14 January 2022. To streamline this process, a comments template is enclosed. On completion of your review, please return the completed comments template or other correspondence to the email noted below by 14 January 2022. If no response is received by this date, it will be assumed that you do not wish to provide any comments or feedback on the reports.

If you have any questions, please do not hesitate to contact me on 0405635333 or at cheryl.cahill@atkinsglobal.com.

Regards,

Cheryl Cahill

Files attached to this message

Filename	Size	Checksum (SHA256)
comments template.docx	95.9 KB	79c1dae6cd77ea5a907ef4881e7aad7dcdaa71f6276a6a3b62d9c6497655167b
TfNSW 15122021.pdf	409 KB	331170eb4f0d982819d36597931f40bceec8d425e44f50d27a28ddf7ba3775312

Filename	Size	Checksum (SHA256)
North Head Q Station - Annual Environmental Report - July 18 to Dec 19 Final.pdf	12.7 MB	b80b5bb799394ac67d2ebb68ddfd1a0ea2259b0222ecb0b562fcb682869c968c
North Head Q Station Annual Environmental Report Jan to Dec 2020 Final 20211215.pdf	37.5 MB	c1fd2b765fae5200f91377f5e6dbb5c298fc70a824475ee891261ba9ddcab508

Please click on the following link to download the attachments:
<https://FiletransferCN.atkinsglobal.com/message/6szzFgv5QJRuqD9hM0uetY>

This email or download link can be forwarded to anyone.

The attachments are available until: **Wednesday, 29 December.**

Message ID: 6szzFgv5QJRuqD9hM0uetY

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