

*Honouring the past
by securing the future*

Noise Management Plan
for the conservation and adaptive re-use
of the Quarantine Station

Fifth Draft

May 2005



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Declaration and approval

This Noise Management Plan has been prepared to meet the requirements of Conditions 199 to 202 of the Conditions of Planning Approval for the conservation and adaptive reuse of the North Head Quarantine Station.

In preparing and granting approval for this Noise Management Plan all efforts have been made to comply with the Conditions of Planning Approval and relevant legislation. However, in the event of an inconsistency with this plan and any requirements of the Conditions of Planning Approval or relevant statutes; the Conditions of Planning Approval or the relevant statutes will prevail. Furthermore, the granting approval for this plan does not relieve the co-proponents of the obligation to obtain all other approvals from relevant authorities required under any other legislation.

Prepared by: Simon McArthur, General Manager, Mawland Hotel Management and Q-Station Pty Ltd

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This plan was presented to the Quarantine Station Community Committee at its meeting on 16 December 2004.

This plan was approved by:

Tony Fleming, Deputy Director-General, Parks and Wildlife Division on behalf of the Department of Environment and Conservation on 2005; and

Robert Black, Director, Urban Assessment Branch on behalf of the Department of Infrastructure, Planning and Natural Resources on2005.

Acknowledgments

This Draft Plan was prepared by Simon McArthur (Mawland Hotel Management).

Reviews and valuable input into various drafts were provided by Kristian Butcher (Mawland), Siân Waythe, Quarantine Station Environmental Manager (NSW NPWS) and Sylvia Nilsen (Department of Infrastructure, Planning and Natural Resources).

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1. Introduction

1.1 Approval condition requirements

The Quarantine Station Approval Condition 199 requires, as part of the Environmental Management Plan, the preparation and implementation of a Noise Management Plan. The plan is to address noise management with respect to construction and operation phases of the activity. The Plan shall include but not be limited to:

- a) Standards to be met, consistent with relevant EPA guidelines;
- b) Noise mitigation measures, including educational signage for visitors entering and exiting the site;
- c) Regular monitoring of both construction and operational activities and specifically
- d) Adaptive management measures

The Noise Management Plan has therefore been structured into procedures for:

- conservation and adaptation works; and
- ongoing operations (accommodation, restaurant etc.)

These two major sections then address approval conditions a to e in turn, in recognition that the two activities generate fundamentally different noise by fundamentally different people and thus require fundamentally different noise management strategies.

As part of the Environmental Management Plan (EMP), the Noise Management Plan must be reviewed by the Quarantine Station Environmental Manager and the Quarantine Station Community Committee, and approved by the Department of Conservation (DEC) and the NSW Department of Infrastructure, Planning and Natural Resources (DIPNR).

The Noise Management Plan will be reviewed every five years as part of the review of the EMP.

1.2 Legislative requirements

The Protection of the Environment Operations Act 1997 contains a number of special provisions in relation to noise. There is also a Noise Control Regulation under the Act. Special provisions relating to noise in the Act are as follows:

- sale of articles emitting more than prescribed noise or required to be fitted with noise control equipment;
- operation of plant;
- penalty for noise offences;
- power to seize articles for noise tests;
- noise control notices (regulatory authorities);
- noise abatement orders (local courts);
- noise abatement directions (police);
- police powers; and
- appeals.

Protection of the environment (noise control) regulation 2002

The main features of the noise control regulation that are relevant to the Quarantine Station activity are as follows.

- noise limits for in-service motor vehicles, including horns and intruder alarms;
- noise controls for in-service motor vessels - standards for noise control equipment, prohibition of 'offensive noise' and restrictions on use of sirens and sound systems;
- noise controls for in-service miscellaneous articles (as above) - mainly time of use restrictions; and
- inspection and testing requirements.

Industrial noise policy

The Industrial noise policy deals with the assessment and control of noise from industrial premises 'scheduled' under the primary legislation. It sets a noise limit for sources of +5dB(A) above background and specifies maximum noise levels from total industrial sources for specific land uses. The policy sets out a process to assess noise impact, potential noise mitigation strategies, and a process for achieving negotiated agreements between proponent, regulators and the community if limits cannot be met. Negotiation criteria include consideration of social and economic benefits and other factors where noise limits cannot be met.

Environmental criteria for road traffic noise

This document sets non-mandatory goals for road traffic noise, and recommended alternatives for meeting these noise levels - planning, engineering design etc. Target noise levels are provided for all types of road developments, sensitive land uses, and land uses such as major industrial developments that have the potential to increase traffic noise levels through creating additional road traffic. Targets are provided for developments in areas where noise levels are already exceeded, but not to existing roads where no redevelopment is occurring.

Has a section on measuring traffic noise and preparing a noise impact assessment.

2. Standards to be met

2.1 Noise standards for conservation, adaptation and construction works

Noise standards for conservation, adaptation and construction works are set out in **Table 1**, sourced from the Environment Protection Authority (1994 and 1999). Noise management procedures for conservation, adaptation and construction activity have been developed based on the long term background +5 dB(A) criteria (construction time greater than 26 weeks).

Table 1 Noise level objectives for varying periods of construction

Period	Noise level objectives
4 weeks and under	The LA10 level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 20 dB(A)
Greater than 4 weeks and not exceeding 26 weeks	The LA10 level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 10 dB(A)
Greater than 26 weeks	The LA10 level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 5 dB(A)

2.2 Noise standards for road traffic

Criteria for traffic noise assessment have been taken from the Environment Protection Authority (1999). The relevant noise descriptors for traffic noise levels have been adopted from the EPA Guidelines

for "Land use developments with potential to create additional traffic on collector road". These guidelines specify the following desired criterion noise levels for collector roads:

- Day (7am-10pm): LAeq(1hr) = 60 dB(A)
- Night (10pm-7am): LAeq(1hr) = 55 dB(A)

Where the criterion levels are already exceeded, the EPA recommend that existing noise levels should be mitigated, where feasible and reasonable, to meet the noise criteria. In all cases, traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dB(A).

Road Traffic Noise (Operational)

The estimated traffic noise levels along Darley Road during Year 3 of the Proposal operation are presented in

Tables 2 and 3. The calculated noise levels include non Proposal and Proposal generated traffic.

Table 2 Estimated noise levels on Darley Road for reliance on road access to Quarantine Station

Time	Calculated Noise Level 1. LAeq(1hr)	EPA Guideline LAeq(1hr)	Exceedence	Estimated Quarantine Station Noise Contribution ² LAeq(1hr)	Acceptable
Weekday					
1600-1700 hrs	64.6	60	4.6	0.6	Yes
2030-2130 hrs	58.6	60	-	-	Yes
2300-0000 hrs	54.7	55	-	-	Yes
Weekend					
1600-1700 hrs	63.3	60	3.3	0.5	Yes
2030-2130 hrs	59.4	60	-	-	Yes
2300-0000 hrs	57.3	55	2.3	1.3	Yes

Notes:

1. Calculated traffic noise includes general traffic plus proposed Quarantine Station traffic.
2. Estimated noise levels for Year 3 of Proposal operation.

Table 3 Estimated noise levels on Darley Road for shared reliance on road and water access to Quarantine Station

Time	Calculated Noise Level 1. LAeq(1hr)	EPA Guideline LAeq(1hr)	Exceedence	Estimated Quarantine Station Noise Contribution ² LAeq (1hr)	Acceptable
Weekday					
1600-1700 hrs	64.3	60	4.3	0.5	Yes
2030-2130 hrs	58.2	60	-	-	Yes
2300-0000 hrs	55.1	55	0.1	-	Yes
Weekend					
1600-1700 hrs	62.4	60	2.4	0.3	Yes
2030-2130 hrs	58.9	60	-	-	Yes
2300-0000 hrs	57.1	55	2.1	1.3	Yes

Notes:

1. Calculated traffic noise includes general traffic plus proposed Quarantine Station traffic.
2. Estimated noise levels for Year 3 of Proposal operation
3. Not considered significant (within level of acceptability of modelling procedures)

The estimated road traffic noise levels presented in **Tables 2** and **3** indicate that with the operation of the historic ferry service to and from the Wharf Precinct, noise levels along Darley Road would be slightly lower than would be expected without the operation of the ferry service.

Both **Tables 2** and **3** indicate that where expected traffic noise levels exceed the EPA's guidelines for collector roads, the increase arising from the Proposal would not be more than 2 dB(A) and would therefore comply with the road traffic noise criteria. In summary the results in **Tables 2** and **3** conclude that traffic noise generated by both scenarios would be within acceptable limits.

2.3 Noise standards for operations (particularly restaurant)

The New South Wales Liquor Administration Board and Department of Gaming and Racing specify guidelines for protecting nearby residences against intrusive noise impacts from licensed premises. It is not mandatory to comply with all these guidelines, and imposed licensing conditions vary from development to development.

However, these guidelines are useful when assessing potential noise impacts associated with bar or restaurant operations. Standard license conditions often specified by The Liquor Administration Board for premises licensed to serve alcohol include:

- the LA10 noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) by more than 5 dB between 7.00 am and midnight at the boundary of any affected residence; and
- the LA10 noise level emitted from the licensed premises shall not exceed the background noise level in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) between midnight and 7.00 am at the boundary of any affected residence.

These guidelines apply only at the residential properties outside of a development. However, for the purposes of this assessment, they are also assumed to apply to the Quarantine Station operational activities.

Approval Condition 201 requires that:

- there will be no amplified music in outdoor areas;
- other amplified noise in outdoor areas shall be limited to that necessary for essential interpretive purposes, such as guided tours; and
- amplified indoor music or noise shall not exceed the LAeq noise level of 50 dB(A) as measured 20 metres away from the edge of the building in which the music or noise is being generated. This level may be amended via the noise management plan, or a variation to the plan, with the approval of the DEC.

3. Noise management for conservation, adaptation and construction

Table 4 Strategies for noise management during conservation, adaptation and construction works

Environmental Strategies	Responsibility	Timeframe	Status	Compliance Record [#]	Ongoing Audit Requirement
3.1 Hours of activity					
NP1. All construction activities, including entry and departure of heavy vehicles, shall be restricted to the following hours: <ul style="list-style-type: none"> ▪ during daylight savings (summer) 7am to 6pm Monday to Friday and 8am to 1pm Saturday; ▪ at other times (winter) 7am to 5pm Monday to Friday and 8am to 1pm Saturday; and ▪ Sundays or public holidays no work is to be undertaken except for emergency works or minor, low noise activities such as painting. 	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP2. Construction hours will be clearly defined in all subcontracts and shall be monitored and enforced on a daily basis by the Construction Manager.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
3.2 Traffic into and out of site					
NP3. Maintain all deliveries within the same hours of activity identified in NP1.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP4. Seek to concentrate deliveries during mornings.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP5. Securely fix tailgates and cover all loads on all vehicles transporting materials to and from the site.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
3.3 Mitigating activity driven noise					
NP6. Exchange operational programs (conference, function and tour bookings and locations) with construction programs (building and site works) to coordinate noise activity with minimal operational activity.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP7. Include minimal impact and mitigative measures within environmental training units for relevant tradespersons.	MHM	From commencement of construction		Induction training notes	No
NP8. Avoid warming up plant and machinery near residential dwellings before specified hours of activities and minimise the duration to that essential for safe operation.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP9. Maintain exhaust-silencing attachments on all diesel-powered equipment ¹ .	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	No

¹ If the electricity supply proves unreliable and the sewer is affected, there may be a need to install a generator would need to be brought onto the site to power the pump out of the system prior to it over flowing. This noise associated with this machine will be unavoidable but not excessive.

[#] Suggestion only. Other documentary evidence may be used to substantiate compliance.

Environmental Strategies	Responsibility	Timeframe	Status	Compliance Record [#]	Ongoing Audit Requirement
NP10. Maintain all mobile plant equipment to an efficient condition and operate correctly.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP11. Concentrate noisy electrical activity (such as saws and planers) close to the area of work and where it has least potential to travel across and out of the site, such as: <ul style="list-style-type: none"> • inside buildings where the work is needed; • inside temporary works buildings, such as A24, A14-17, A11 and A28-29 for refinements and initial assembly; and • on inland rather than coastal sides of buildings. 	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP12. Require tradespersons to avoid playing music outside or from their vehicles.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP13. Interchange very loud activities (such as jack hammers) with quieter activities (where practical).	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP14. Consider using mobile barriers to assist buffer significant noise that is affecting operationally significant areas.	MHM	From commencement of construction		Induction training notes & Environmental Audit Records	Yes
NP15. If any sustained noise is expected that cannot be mitigated by the above or other reasonable measures, provide information to local residents regarding the activity, duration and complaints procedure.	MHM	From commencement of construction		Mail out.	Yes

[#] Suggestion only. Other documentary evidence may be used to substantiate compliance.

4. Noise procedures for operations

Table 5 Strategies for noise control during operations

ENVIRONMENTAL STRATEGIES	Responsibility	Timeframe	Status	Compliance Record [#]	Ongoing Audit Requirement
4.1 Hours of activity					
NP16. The hours of operation for specific uses shall be as follows: <ul style="list-style-type: none"> ▪ Restaurant in building A6, closed to the public by 11pm; ▪ Conferences and functions, no organised visitor activity past 11pm; and ▪ Night tours, the main night tour to conclude by 11pm and the late Ghost tour by midnight. 	MHM	From commencement		Induction training notes & Environmental Audit Records	Yes
4.2 Traffic into and out of site					
NP17. Marketing will encourage visitors to access the site by ferry rather than vehicle, seeking up to 50% of visitors arriving by water.	MHM	From commencement		Marketing material & monitoring reports	Yes
NP18. Independent day visitors may only drive into the site as far as the CP1 car park, and must then take a people mover to the rest of the site.	MHM	From commencement		Signage	No
NP19. Buses will not enter the site beyond the completed CP1 (or beyond the loop road from A26 to S12 to S5 until then).	MHM	From completion of CP1		Induction training notes & Environmental Audit Reports	Yes
NP20. Service providers and contract vehicles may only access and exit the site between 7am and mid-day (excludes conservation and construction vehicles).	MHM	From commencement		Contracts, Induction training notes & Environmental Audit Reports	Yes
4.3 Mitigating activity driven noise					
NP21. No amplified music shall occur in outdoor areas of the site, to reduce noise impacts upon little penguins and long nosed bandicoots.	MHM	From commencement		Minimal Impact Codes & Environmental Audit Reports	Yes
NP22. Other amplified noise in outdoor areas shall be limited to that necessary for essential interpretive purposes, such as guided tours.	MHM	From commencement			
NP23. A Minimal Impact Code that addresses how staff and visitors can mitigate their noise will be prominently displayed via interpretive signs and displays within the A26 waiting shelter and A14-17 visitor centre, and within guest compendiums (as detailed in the Visitor Management Plan.	MHM	From commencement		Minimal Impact Code	No
NP24. Store waste bottles for removal from the site alongside building A24 (where noise can be muffled).	MHM	From commencement		Waste Management Plan	Yes
NP25. Maintain exhaust-silencing attachments on all diesel-powered equipment.	MHM	From commencement		Induction training notes & Environmental Audit Reports	Yes

[#] Suggestion only. Other documentary evidence may be used to substantiate compliance.

5. Monitoring and adaptive management

The Integrated Monitoring and Adaptive Management System (IMAMS) will provide for monitoring of noise indicators and adaptive management responses. The IMAMS is currently in preparation.

6. References

Environment Protection Authority, 1994, *Environmental Noise Control Manual*.

Environment Protection Authority, 1999, *Environmental Criteria for Road Traffic Noise*.

Mawland Hotel Management 2004, *Revised Draft Integrated Monitoring and Adaptive Management System for the conservation and adaptive reuse of the North Head Quarantine Station*.

Suggestion only. Other documentary evidence may be used to substantiate compliance.