

Port Noise Management Plan



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1.0 INTRODUCTION

This Port Noise Management Plan has been prepared in accordance with Rule 28.15 and Appendix 33A of the City of Napier District Plan. This Plan is also in line with New Zealand Standard NZS 6809: 1999, “*Acoustics – Port Noise Management and Land Use Planning*” (the Standard) as it relates to Napier Port.

Where there is a conflict between the provisions of this Plan and the City of Napier District Plan, then the City of Napier District Plan provisions will prevail.

The Standard was produced to assist in addressing potential reverse sensitivity issues associated with the proximity between noise sensitive activities such as housing, and port activities. Application of the Standard requires a high level of co-operation between Napier Port and the Napier City Council¹. The wider community, through the Port Noise Liaison Committee, as recommended in the Standard, also has a role in relation to the management of port noise.

Napier Port has a statutory obligation to ensure that the emission of noise from port activities is minimised, consistent with practicality, safety and the efficient operation, use and development of the Port.

The noise management provisions in this Plan address the wider statutory requirements in addition to what is necessary to ensure compliance with the rules in the District Plan. This is to satisfy the requirements of Section 16 of the Resource Management Act (RMA), which requires every occupier of land, and of land or water in the coastal marine area, to adopt the best practicable option to ensure that the emission of noise does not exceed a reasonable level.

In addition, Section 17 of the RMA requires every person to “*avoid, remedy or mitigate*” any adverse effect on the environment arising from an activity carried on by, or on behalf of, that person, whether or not the activity is in accordance with a rule in a District or Regional Plan.

Napier Port also has responsibilities to manage noise in terms of occupational safety and health legislation and through its Environmental Management Plan². The provisions of this Port Noise Management Plan are consistent with the provisions of those other requirements.

¹ The Hawke’s Bay Regional Council has transferred its responsibilities for management of noise in the coastal marine area to the Napier City Council, and this transfer means that the Regional Council is involved in the Plan only through the Port Noise Liaison Committee.

² Environmental Management Plan, August 2013.

2.0 OBJECTIVES

The objectives of this Plan (in no priority order) are:

1. To comply with the City of Napier District Plan;
2. To provide the framework for the measurement, monitoring, assessment, and management of Port Noise;
3. To provide the framework for mitigation of noise effects where practicable;
4. To provide the framework for off-site acoustic treatment of affected houses;
5. To provide the framework for the reporting, processing and investigation of any complaints about noise and provide feedback to the complainant; and
6. To provide the framework within which the Port Noise Liaison Committee will operate.

The Port Noise Management Plan is an evolving document. The methods of mitigating and managing noise will be continually reviewed and revised, as new technologies/methodologies become available and as the port continues to grow and develops. In general, the Plan should comply with Appendix 33A of the Environment Court Consent Order.

This Plan will be reviewed at least every five years or at other times when considered appropriate to ensure that the proposed noise reduction measures reasonably reflect the best practicable options, and to identify and address any other relevant matters. Stakeholders will be consulted regarding the outcome of the review.

The plan will be updated internally, with approval of the updated plan granted by the Port Services Manager or CEO of Napier Port. Once approval has been granted, the final version will be referenced in the Napier Port Environmental Management Plan, and made available on the Napier Port website.

3.0 PORT NOISE MANAGEMENT

3.1 Overview

Under the Port Noise Standard, port noise is defined as:

“noise generated within a port, and includes noise from handling of cargo and passengers; operation of machinery and equipment; ships at berth; maintenance, repair, storage and administration activities; and vehicle/rail traffic only when it relates to port activities and is inside the port. Noise from vessels not at berth is excluded, as is noise associated with construction of permanent port facilities. Construction work should be evaluated using NZS 6803.”

Napier Port has a stated practice in its Environmental Management Plan to use appropriate and effective methods for minimising the environmental effects of activities at the port. However, Napier Port operates 24 hours per day, 7 days per week and the need for this management plan recognises that noise levels adjacent to the port may at times be higher than desirable. It balances the operational needs of the port with those of the community.

The following sub sections identify the main noise sources and recommend measures that will enable identification of the best practical option to avoid, remedy or mitigate the effects as far as practicable.

3.2 Noise Sources

3.2.1 Container Handling

This is a fundamental port activity that involves transfer of containers from ship to shore and vice versa, relocation and storage around the port area.

Container vessels are worked at all hours of the day. Container handling associated with vessels takes place on, or alongside, wharf areas, so noise is reduced by distance to noise sensitive environments adjoining the port. However, container handling and storage activity also occurs relatively close to residential areas. Containers themselves can form a barrier to other noise sources, and may be used for that purpose (refer Section 3.3.4).

Mobile container cranes have their own operational sounds, however, being diesel/electric are not significant contributors to the port noise sound environment.

Large forklifts are the primary container moving machinery mode, and due to their diesel power units, are significant contributors to overall port noise. Most notably, a forty-foot container can weigh up to 32 tonnes, so there is a need to rev the forklift engine to generate the power required to lift it up into the air for stacking.

A common source of community complaint relates to noise at night from forklift engine revving, the use of tonal safety alarms, hard placement of containers on the pavement, and intermittent steel on steel impacts associated actuation of the lifting lugs on containers and the closing of ship hatch covers by operators.

Measures to mitigate engine revs are detailed in Section 3.3.2. A policy to avoid the use of tonal alarms is included in Section 3.3.3. The mitigation and management of steel on steel impacts is addressed in Section 3.3.4.

3.2.2 Log Marshalling

Log marshalling is a 24 hour per day activity involving the use of log loaders, logging trucks, high stackers and loading equipment on ships. Impact noises are generated when logs are stacked in a pile or placed in the hull of a vessel. To minimise the effect of the impact noises, log marshalling activities are prioritised at Wharf 1 to maximise the distance to Napier Hill residents. However, the northwest corner of the container terminal and hard stand areas of wharves 3 and 4 are used for overflow when required.

3.2.3 Ship Noise

The noise associated with ship movement and berthing is outside the port noise definition (refer Section 3.1). Once berthed, the main noise source is generators, which provide power to run winches, refrigeration plant (reefers), pumps, and ventilation systems and essential safety systems. Additional noises are generated when a vessel is loading or unloading.

The noise levels of ship's/plant and equipment are not within the control of Napier Port. However, it is important to identify the contribution of this source to overall noise received within and beyond the port.

Mitigation opportunities available to Napier Port are limited, although there may be some opportunities to berth noisy vessels in less intrusive locations (i.e. further away from noise sensitive environs), or facing the direction which most restricts noise reaching noise sensitive environs.

Napier Port will approach the owners/agents operating noisy vessels and seek improved noise management and/or the maintenance, repair or upgrade of noticeably noisy equipment. In the case of a chartered vessel, Napier Port may suggest considering alternative quieter vessels. However, many of the outcomes are outside Napier Port's control.

3.2.4 Abrasive Blasting

This activity can occur anywhere within the Port Industrial Zone on a temporary basis in association with equipment or structural maintenance.

The main noise source is from the discharge of compressed air at the blast nozzle. Other sources of noise include air compressors, ventilation systems and air releases.

Abrasive blasting is restricted, except in emergency situations, to daytime hours (7.00 am to 10.00 pm) and is an irregular and intermittent noise source. This activity will usually be

undertaken by contractors using their own Resource Consent. Napier Port will require, where practical, that the activity is undertaken in a controlled environment at the contractors' premises. Where the activity can only be undertaken within the Port Industrial Zone, the contract will require the operator to limit the noise effect of the operation to the minimum practicable level.

3.2.5 Container, Plant and Equipment Repair

Port workshops may generate intermittent and sometimes quite loud noise. Generally, repairs involve small numbers of items such as welding machines, compressors, and light vehicles. However, the principal activity centres on the maintenance of large items of operational plant and equipment. This work is sporadic, depending on the nature of breakdowns and the urgency of the work that is required.

Most activity takes place during daytime, but occasionally essential repair work is done at night. Work is, wherever practicable, carried out within specialised workshop facilities which provide an acoustic buffer to the surrounding environment. The size of some plant and equipment, however, means that some maintenance work is required to be carried out where the plant and equipment is positioned within the port.

The location and construction of the port workshops means that a large proportion of this noise is mitigated due to the distance to hillside residents.

Container repair produces similar noises to those listed above. During the peak season (January – June) working hours extend to seven days/week during daylight only. This activity is subject to specific rules in the District Plan rule 28.15.2, and Napier Port will continue to seek means to reduce the potential noise from this activity.

3.2.6 Vehicle and Train Movements

Containers, goods and people arrive and depart from the port by either road vehicle or train.

The port has a strictly-enforced speed limit of 20 kilometres per hour in the container terminal and depot area and 30 kilometres per hour elsewhere, reducing the noise levels and ensuring a safer site. Vehicle speeds are monitored by Port Security.

Uneven surfaces on roads and other areas used for vehicle movement accounts for some of the noise produced by road vehicles. Napier Port has a maintenance regime, under its 10-year Asset Management Plan, for the internal port roads and other surfaces on which vehicles operate, to ensure that these are kept to a high standard.

A corridor of land between the port and Breakwater Road is designated for rail activities in the City of Napier District Plan. This restricts Napier Port's influence on movements and shunting activities, and therefore, noise emissions from rail movements are excluded from the port noise limits. Nonetheless, Napier Port will encourage rail operators to adopt equipment and methods for reducing noise output (refer Section 3.3.6).

3.2.7 Other

Other noise can occur at times – for example loud radios or raised voices. Such noise is usually avoidable and is addressed through a continued commitment to staff training, education and signage (refer Section 3.3.1 and 3.3.4).

Napier Port has a general equipment maintenance policy, which is intended to minimise noise as well as address safety and efficiency (refer Section 3.3.2).

3.3 Mitigation and Management

3.3.1 Training

Staff and contractors will participate in an induction training session prior commencing work, with attention given to the following matters:

- The noise rules in the District Plan and Environment Court Consent Order (aligned)
- Identification of activities that generate high noise levels and/or noise complaints
- The sensitivity of residential receivers on Napier Hill, particularly at night, and any operational requirements and constraints identified through communication and consultation with the Port Noise Liaison Committee
- Noise mitigation and management procedures in this plan

Awareness of current noise issues will be addressed using noticeboards, staff newsletter and further training sessions where appropriate.

3.3.2 Equipment

Noise is considered in the procurement of new equipment and is included in RFP specifications. It is a key consideration along with other factors such as efficiency, appropriateness and cost. For example, new forklifts are now selected with larger, quieter engines, requiring less revs to undertake tasks.

In general, when selecting equipment, where practicable:

- Prioritise quieter models/options
- Prioritise electric motors over diesel engines
- Prioritise rubber tracked equipment over steel tracked equipment
- Equipment must be suitably sized for the proposed task
- Equipment must be maintained and fitted with exhaust silencers and engine covers
- Avoid tonal safety alarms (refer Section 3.3.3)

This policy also extends to the upgrade of existing equipment where appropriate and practicable. Specific recent initiatives include:

- Forklift safety alarms have been replaced with flashing lights, revving restricting governors have been installed for use at night, to better manage their use and noise impact
- Cranes have software installed that automatically controls the rate of descent near the ground to reduce the impact noise from containers landing on the wharf
- Rail gates now electronically controlled to avoid additional engine revving if locomotives come to a standstill
- Tug Te Mata fitted with enhanced noise mufflers to reduce engine noise

3.3.3 Safety Alarms

Safety alarms are important to ensure the safety of those working at the port. Therefore, some vehicles are equipped with reversing alarms or, in the case of some equipment, warning alarms. The intermittent nature of these alarms and the tone that is generated by

some types of alarm make them audible at a significant distance, and, given the nature of the operations, the noise of the alarms occur regularly.

For reasons of occupational health and safety, it is not desirable for alarms, particularly on vehicles, mobile plant, cranes and ships cranes, to be muted at any time. However, the use of tonal reversing or warning alarms should be avoided where practicable (suitable alternatives may include flashing lights, broadband audible alarms, reversing cameras inside vehicles, use of a banksman/dogman). Tenants on Napier Port will be encouraged to use alternative alarms, however their own companies policies may not align with this plan.

3.3.4 General Measures

Noise complaints can arise despite compliance with the rules/limits. To avoid complaints, general mitigation and management measures include, but are not limited to:

- Avoid unnecessary noise, such as shouting, the use of horns, loud site radios, rough handling of material and equipment, and banging or shaking excavator attachments
- Avoid steel on steel contact where practicable (e.g. wood supports for the container wash area) and take care to minimise impact where required (e.g. stacking containers)
- Avoid high engine revs and observe speed limits on the port and public roads
- Mitigate track squeal from tracked equipment, such as excavators (may include tensioning and watering or lubricating the tracks regularly)
- Minimise activity duration near sensitive receivers
- Utilise buildings and/or container stacks as noise barriers where practicable
- Position generators away from the Port boundary where practicable
- Maintain smooth paved surfaces to avoid pot holes and corrugations
- Undertake maintenance and repairs for port plant and equipment within workshop buildings and avoid the use of hammers to remove dents in containers where practicable (e.g. use hydraulic jacks)

3.3.5 Night-Time Activities

Port Napier operates continuously, 24 hours per day. However, where practicable, activities with the potential to result in sleep disturbance should be prioritised during the day or early evening. Note that people tend to be less disturbed by low frequency, continuous engine noise (e.g. reefer), than intermittent noise (e.g. engine revs) or activities with special audible character (e.g. reversing beepers, whistling, banging tailgates or shouting).

3.3.6 Tenants, Contractors and Independent Operators

Napier Port will include as part of the obligations in its leasing and licensing agreements wherever possible, a requirement for tenants, contractors and independent operators to comply with this Plan.

With rail operators, while not in a position to require changes, Napier Port will work with and encourage the adoption of practical opportunities to reduce noise output and effects during the night-time period. This includes minimising track squeal through track maintenance and the use of dash pots on corners, and minimising train movements and the use of horns at night between 10pm and 7am where practicable.

The District Plan addresses noise from construction separately from port operations. Likewise, construction noise management is not addressed by this Plan. It should be addressed separately on a project specific basis. Nonetheless, the objective will be to adopt the best practical option to avoid, remedy or mitigate the noise effects as far as practicable.

3.4 Monitoring and Reporting

Port Napier will:

- Maintain and operate a permanent noise monitoring station at the location on the map in Section 7. The Port may vary the location of the monitor station due to operational requirements. Where this occurs, the Port will liaise with the Council and inform the Committee accordingly.
- Carry out monitoring to calibrate and ensure that the Port Noise Contour Map provides an accurate representation of Port Noise during a busy five-day operating period.
- Provide the latest results of the monitoring to each meeting of the Port Noise Liaison Committee. The copy of the Port Noise Contour Map in Section 7 will be replaced annually.
- Report results in accordance with the noise limits in Appendix 33A (2) and Rule 28.15(a-d) of the Environment Court Consent Order.

3.5 Engagement

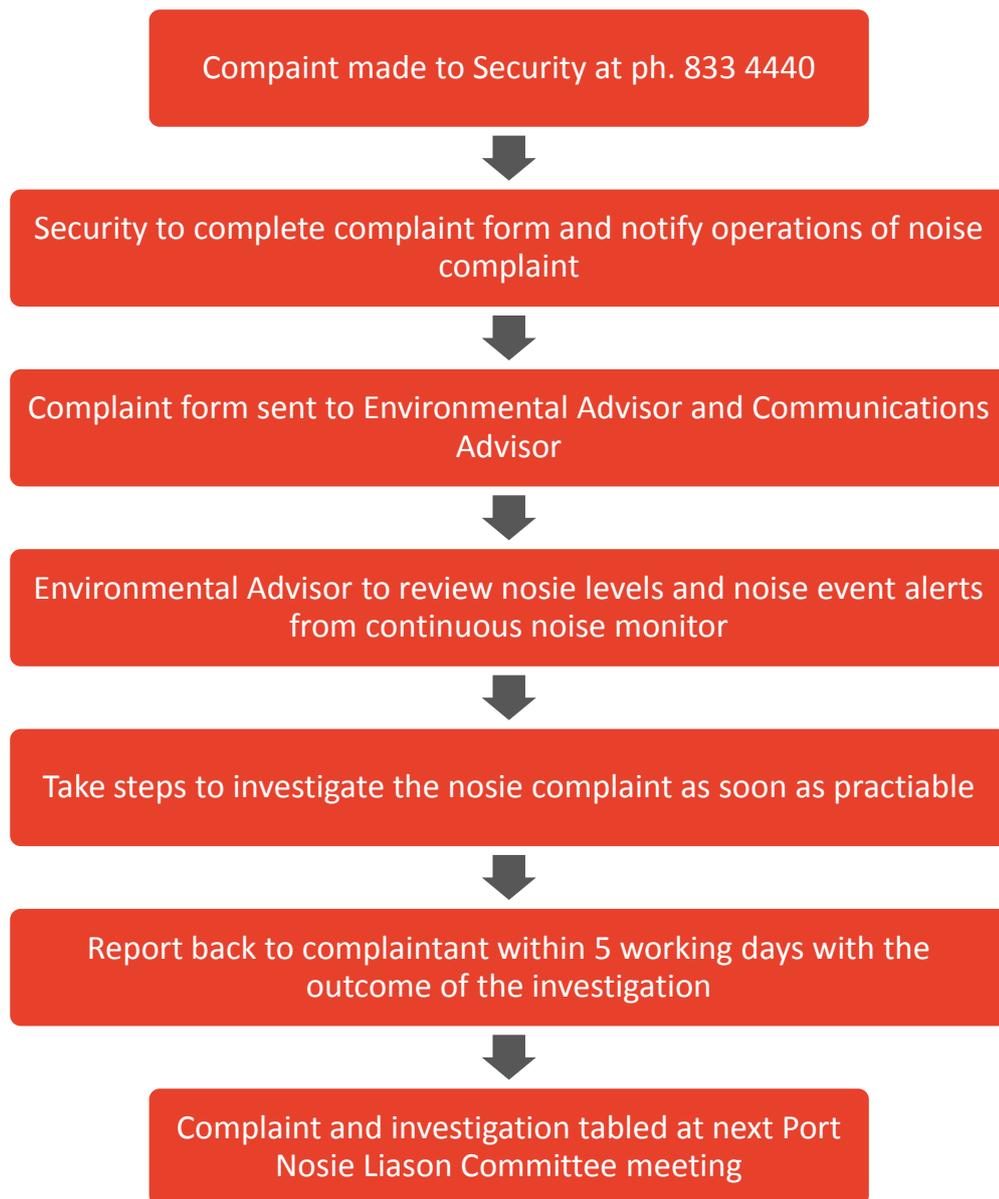
The Port Napier [website](#) has a page on community noise. It includes a summary of this noise management plan (the full version is available for download), information on acoustic treatment of houses (refer Section 5.0) and how to make a noise complaint (refer Section 3.6). Furthermore, the Port Noise Liaison Committee meetings ensure regular community engagement (refer Section 4.3).

3.6 Complaints

Napier Port will maintain a register of noise complaints. Whenever a complaint is received, Napier Port will:

- a) Record the Name, address, contact details, time and date of the complainant;
- b) Record the complaint details of noise event including; description of noise (e.g. One off Clang or bang or continuous/ongoing noise) any possible/likely cause, and the location of the noise within the Port; Investigate the noise complaint as soon as practicable;
- c) Resolve or mitigate the noise issue if possible;
- d) Record what steps are taken to investigate and remedy the noise complaint;
- e) Report back to the complainant the outcome of the investigation;
- f) Advise the Napier City Council of the complaint within 7 days of it being advised
- g) Report the details of the complaint and any action taken to the next meeting of the Port Noise Liaison Committee.

The complaints process is shown overleaf.



4.0 PORT NOISE LIAISON COMMITTEE

4.1 Functions

The functions of the Port Noise Liaison Committee are;

- Determine fair and reasonable criteria to select which houses should be recommended to the Port to receive acoustic treatment (Section 5.0);
- Make recommendations to Napier Port as to which houses identified in the yearly contour plan should receive acoustic insulation;
- Prepare and maintain a list of one or more builders recommended for the acoustic treatment work;
- Receive and consider the results of sound level monitoring;
- In general, the functions of the Committee will align with Appendix 33C of the Environment Court Consent Order;
- Help both port users and residents alike, to understand and appreciate each other's respective positions and concerns.

4.2 Membership

The Port Noise Liaison Committee has a membership that aims to include the port operators and users, the local councils and resident representatives that may be affected by noise caused by the Port.

The Port Noise Liaison Committee shall comprise of a minimum 8 members, appointed by, (but not limited to) the following organisations;

- The Port Operator (2)
- Port Users (2)
- Napier City Council (1)
- Hawke's Bay Regional Council (1)
- Seascape Environment Society Inc (2) and/or residents within the Port Noise Boundary (2)

The Port Noise Liaison Committee shall have the power to alter the makeup of its membership pursuant to a resolution passed by at least 8 of its members.

4.3 Meetings

The Port Noise Liaison Committee shall meet in private at Napier Port. The meeting shall not be open to the public or media, but members may disclose matters discussed at the meeting unless it is agreed that a certain matter is to remain confidential.

Napier Port shall chair the meeting for the Port Noise Liaison Committee. The Port Noise Liaison Committee will meet at least twice annually.

An agenda will be circulated to members 1 week prior to the meeting, and minutes of the meeting circulated not more than 3 weeks following the meeting or as soon as practicable.

Napier Port will provide secretarial support, and undertake any administration required by the Port Noise Liaison Committee.

Port Noise Liaison Committee

Venue	Boardroom, Port of Napier
Date	Six Monthly
Time	To be Advised

In reaching any decision the Port Noise Liaison Committee shall, in good faith, endeavour to achieve consensus.

4.4 Budget

Napier Port will provide a budget to provide/facilitate the efficient running of the Committee.

4.5 Recommendations

Recommendations raised by Committee members, whether outside of the meetings or within meetings, shall be considered by Napier Port. The feasibility and benefit of recommendations will be evaluated and reported at the next Liaison Committee meeting, and if they are to be included in the Noise Management Plan.

5.0 ACOUSTIC TREATMENT OF HOUSES

5.1 District Plan Requirements

Appendix 33B of the City of Napier District Plan includes port noise mitigation requirements for existing noise sensitive activities consented before the Port Noise Boundaries were established in 1994¹. 'Houses' are the only relevant 'noise sensitive activity' on Napier Hill, therefore, these terms are used interchangeably.

The port must facilitate and financially contribute to the acoustic treatment of houses:

- Within 65 dBA $L_{dn, 5day}$ on the Port Noise Contour Map in Section 7; or
- Where monitoring demonstrates that port noise exceeded 65 dBA $L_{eq, 15min}$ between 10pm and 7am on more than three occasions (more than 24 hours apart) during any rolling 12-month period.

The acoustic treatment must achieve an indoor design level of 45 dBA $L_{dn, 5day}$ in habitable spaces with all windows and doors open unless adequate ventilation is provided.

No houses are currently eligible for these provisions.

5.2 Port Napier Noise Mitigation Package

In 2017, Napier Port, Seascape Environment Society, residents' representatives and members of the Port Noise Liaison Committee agreed on a voluntary extension to the District Plan requirements in Appendix 33B (refer Section 5.1). It will be offered to houses between 60 and 65 dB $L_{dn, 5day}$ on the Port Noise Contour Map in Section 7. Furthermore, a lower spatial average indoor design criterion of 40 dBA $L_{dn, 5day}$ will be offered, further improving indoor amenity.

Houses must have all council building consent/s approved. Napier Port will identify eligible houses and inform property owner(s) that they are eligible for acoustic treatment and seek interest in the mitigation package. If interested, the house will be included on a list for consideration by the Port Liaison Committee. The Port Noise Liaison Committee will select which houses should be recommended to the Port to receive acoustic treatment in the current financial year (refer Section 4.1).

The mitigation for eligible houses is typically prioritised and staged in the following order:

1. Ensure windows and doors form an air tight seal when closed. Windows may require fitting and/or replacement of rubber seals. In some cases, windows may need to be rehung to ensure they are square in the frame. In exceptional cases, window frames may need to be replaced or a secondary glazing system retrofitted inside the existing frame.
2. Install ventilation and air conditioning system(s) to provide suitable air supply and thermal comfort with the windows closed. In some cases, existing systems only require supplementary ventilation or air conditioning.

¹ Post 1994, new or altered houses and other new noise sensitive activities within the Port Inner Noise Boundary are controlled activities, addressed by rules 6.12 – 6.14 and 7.13 as appropriate. Other new or altered houses within the wider Port Noise Boundary have minimum sound insulation requirements set out in rules 6.27.2, 7.26.2 and 8.22.2.

3. If the indoor design criteria are not achieved following Stages 1 and 2, an acoustic consultant should be engaged to provide façade sound insulation recommendations that enable design compliance and provide a noticeable improvement.

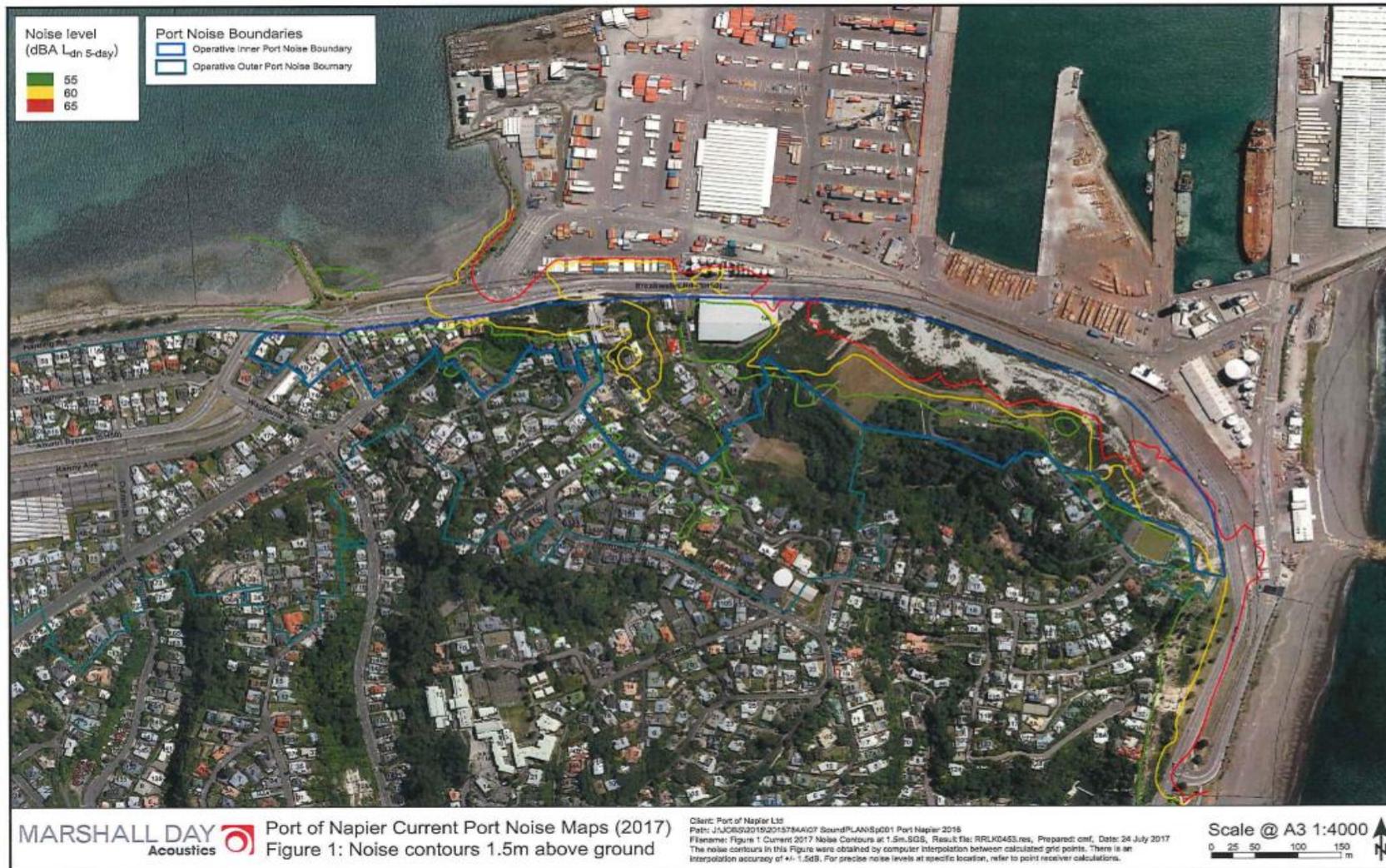
Napier Port will facilitate the process and has currently offered to financially contribute 100% of the costs for stages 1 and 2. Napier Port will financially contribute 50% of the cost of stage 3, with up to a maximum total of \$50,000 contribution for mitigations required on each property. The financial contributions include re-statement of painting and decorating disturbed by improvements, acoustic reports and ventilation system design.

The obligations of the property owner will align with those set out in Appendix 33B, parts 4 (a), (b) and (d).

6.0 GLOSSARY

NZS 6809:1999	New Zealand Standard NZS 6809:1999 “Acoustics – Port Noise Management and Land Use Planning”
dB	Decibel. The unit of sound level. Expressed as a logarithmic ratio of sound pressure P relative to a reference pressure of $P_r=20 \mu\text{Pa}$ i.e. $\text{dB} = 20 \times \log(P/P_r)$
dBA	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) to more closely approximate the frequency bias of the human ear.
$L_{Aeq}(t)$	The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level. The suffix “t” represents the time period to which the noise level relates, e.g. (8h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10pm and 7am.
$L_{A90}(t)$	The A-weighted noise level equalled or exceeded for 90% of the measurement period. This is commonly referred to as the background noise level.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.
L_{dn}	The day night noise level which is calculated from the 24 hour L_{Aeq} with a 10 dB penalty applied to the night-time (2200–0700 hours) contribution L_{Aeq} .
Frequency	The number of pressure fluctuation cycles per second of a sound wave. Measured in units of Hertz (Hz).
Hertz (Hz)	Hertz is the unit of frequency. One hertz is one cycle per second. One thousand hertz is a kilohertz (kHz).
Noise	A sound that is unwanted by, or distracting to, the receiver.
Ambient	The ambient noise level is the noise level measured in the absence of the intrusive noise or the noise requiring control. Ambient noise levels are frequently measured to determine the situation prior to the addition of a new noise source.
Special Audible Characteristics	Distinctive characteristics of a sound which are likely to subjectively cause adverse community response at lower levels than a sound without such characteristics. Examples are tonality (e.g. a hum or a whine) and impulsiveness (e.g. bangs or thumps).

7.0 PORT NOISE CONTOUR MAPS





MARSHALL DAY Acoustics  Port of Napier Current Port Noise Maps (2017)
 Figure 1A: Noise contours 1.5m above ground

Client: Port of Napier Ltd
 Path: Z:\JOB\810015\2015794\07 SoundPLAN\Sp001 Port Napier 2016
 Filename: Figure 1A Current 2017 Noise Contours at 1.5m.SGS. Result file: R\IL\K0453.res. Prepared: cmt, Date: 24 July 2017
 The noise contours in this Figure were obtained by computer interpolation between calculated grid points. There is an interpolation accuracy of +/- 1.5dB. For precise noise levels at specific location, refer to point receiver calculations.

Scale @ A3 1:4000





