

DRAFT CONSTRUCTION NOISE & VIBRATION MANAGEMENT PLAN

110 JACK LACHLAN ROAD, BEACHLANDS

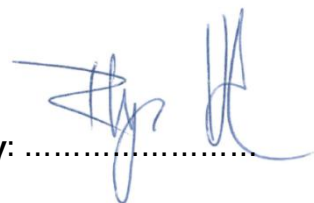
Report No. 26032 DCNVMP

Prepared for:

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1. INTRODUCTION

This draft Construction Noise and Vibration Management Plan (draft 'CNVMP') has been prepared for the development of 110 Jack Lachlan Drive, Beachlands. The purpose of a CNVMP is to describe the process by which noise and vibration during construction will be managed to the surrounding environment. This draft version has been prepared prior to consent being gained or contractor involvement. It has, therefore, been prepared in the absence of the consent conditions and knowledge of construction activities which, together, form the basis of a CNVMP. This draft, therefore, concentrates on the management and mitigation procedures and uses text boxes to identify where the consented conditions will require adding.

The draft CNVMP is on two sections, the first relating on the surrounding neighbours with the second relating to marine mammals.

Insert condition requiring a CNVMP.

2. KEY PERSONNEL AND THEIR RESPONSIBILITIES

The points of contact for this site will be as follows:

Table 1. Contact Details

Role	Name	Company	Phone	Email
Project Manager	TBC	TBC	TBC	TBC
Marine Ecologist	TBC	TBC	TBC	TBC

The Project Manager will be the principal point of contact for the duration of the construction and responsible for the implementation of the draft CNVMP.

3. LAND BASED EFFECTS

This section addresses the effects on the neighbours of the project. Effects on marine mammals are addressed in Section 4.

3.1. Construction Noise and Vibration Criteria

3.1.1. Construction Hours

Insert condition on construction hours.

3.2. Construction Noise Criteria

Insert condition on construction noise limits.

3.3. Construction Vibration Criteria

Insert condition on construction vibration limits.

3.4. Neighbours

The intent of this draft CNVMP is to minimise noise to all neighbours of the proposal. Where this draft CNVMP refers to Project Neighbours, it means all neighbours within 50m of the proposal. For clarity, these are identified below.

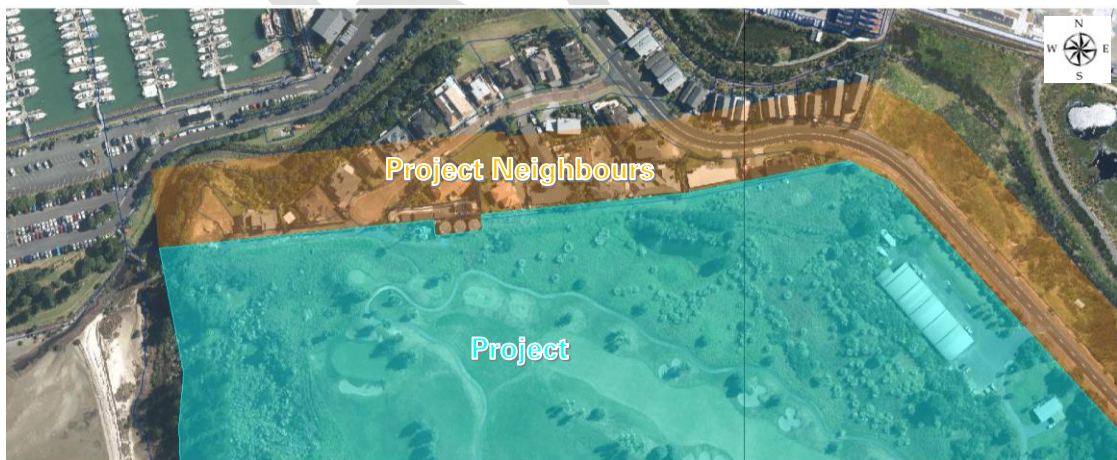


Figure 1. Project Neighbours to the North of the Project



Figure 2. Project Neighbours to the East of the Project

Figures 1 and 2 show all of the Project Neighbours, which can be summarised as:

Table 2. List of Project Neighbours

Road	Street Number
Tui Brae	6, 8, 10 – 20, 22 & 24
Jack Lachlan Drive	167 – 181 87 – 83 49 - 61
Lydiard Place	15, 19, 19, 26
Kibblewhite Avenue	1, 2, 3, 4, 6, 8
Kaiawa Street	31, 33, 36, 38, 40 42
Mahutonga Avenue	1
Doidge Street	31 - 36
Karo Road	1, 2

3.4. Mitigation

The underlying approach for controlling the effects of construction on the surrounding environment will be through the adoption of the Best Practicable Option (BPO). This means that regardless of the magnitude of effects from a construction activity, mitigation of that activity will still be considered and implemented where it is found to be both practicable and effective. Mitigation options include:

- a. Consideration of the site layout and the location of activities within the site with respect to sensitive receivers and, specifically, the Neighbouring Dwellings. Items on site, such as site sheds, could be used as temporary screening;
- b. Identify construction options for undertaking specific work and consider the noise and/ or vibration from each during their selection;
- c. Select appropriate construction equipment for the planned activity;
- d. Ensure all plant is well maintained;
- e. Use plant appropriately; and
- f. Consider the practicalities of using screens or enclosures to control noise from specific activities. This might include solid barriers constructed from a material such as plywood, or flexible acoustic barriers that could be supported by temporary structures such as scaffolding. Examples of suitable products are available from Ultimate Solutions (www.ultimate-solutions.co.nz), Flexshield (www.flexshield.co.nz) or Hushtech (www.duraflex.co.nz). Regardless of the barrier material, acoustic screens

must, as a minimum, break the line of sight between the source and receiver to be effective. Extending the screen past the line of sight will result in further reductions.

3.5. Training of staff

The Project Manager will be responsible for ensuring that all personnel working on site are appropriately inducted onto the site. In relation to the control of construction effects, a suitable induction will include the following:

- a. The roles of all those working on site with respect to controlling the adverse effects of construction noise and vibration;
- b. The individual's responsibility to control construction noise and vibration;
- c. The noise and vibration limits that construction noise must comply with;
- d. Critical receiver locations, shown in Figures 1 and 2/Table 2;
- e. Identify activities likely to result in high levels of noise and/or vibration;
- f. Confirmation that any mitigation installed on equipment by the original equipment manufacturer (OEM) is installed and operated as intended;
- g. Information about practical methods of controlling adverse effects;
- h. Requirements and procedure for neighbour liaison;

- i. Procedure for dealing with construction noise and/or vibration complaints;
- j. Approach to dealing with any activities that are suspected, or have been demonstrated to, breach the construction criteria.

The Project Manager shall provide all contractors working on site with the memo in Attachment A, which provides practical steps for managing construction effects on neighbours.

3.6. Equipment Maintenance

The Project Manager shall be responsible for ensuring that all plant used on site, including that of subcontractors, is properly maintained. Any mitigation introduced by the original equipment manufacturer must be installed and operated as intended.

3.7. Neighbour Liaison

Insert Condition on neighbour liaison.

Liaison with the Project Neighbours identified in Figures 1 and 2/Tab 2 will be via a letter drop or email. As a minimum, the liaison will commence at least five days prior to the beginning of works and, thereafter, on an approximate fortnightly basis. The correspondence shall:

- a. Describe the upcoming works, including their approximate duration;
- b. Provide contact details of the Project Manager;

- c. Invite neighbours to identify any particularly sensitive times. The contractor shall endeavour to work in accordance with any responses, where practicable.

The Project Manager shall ensure there is a contact person available on site during work hours, and that their contact details are prominently displayed at all entrances to the site in a location that is clearly visible to the public; and

3.8. Complaints

A procedure will be put in place to ensure that the correct steps are taken to deal with complaints, with the following flow chart providing a suitable option. The flow chart includes information such as the day, date and time of the complaint, nature of the complaint, location of the complaint and, if available, the complainant's details to allow the contractor to inform the person of the outcome of the complaint.

3.9. Monitoring

Monitoring that is undertaken with the intent of demonstrating compliance with the requirements of this CNVMP shall be undertaken by a suitably qualified and experienced person. Monitoring shall be undertaken and reported in accordance with the requirements of NZS 6803 (for construction noise) and DIN4150 and E25.6.30.1 (for construction vibration).

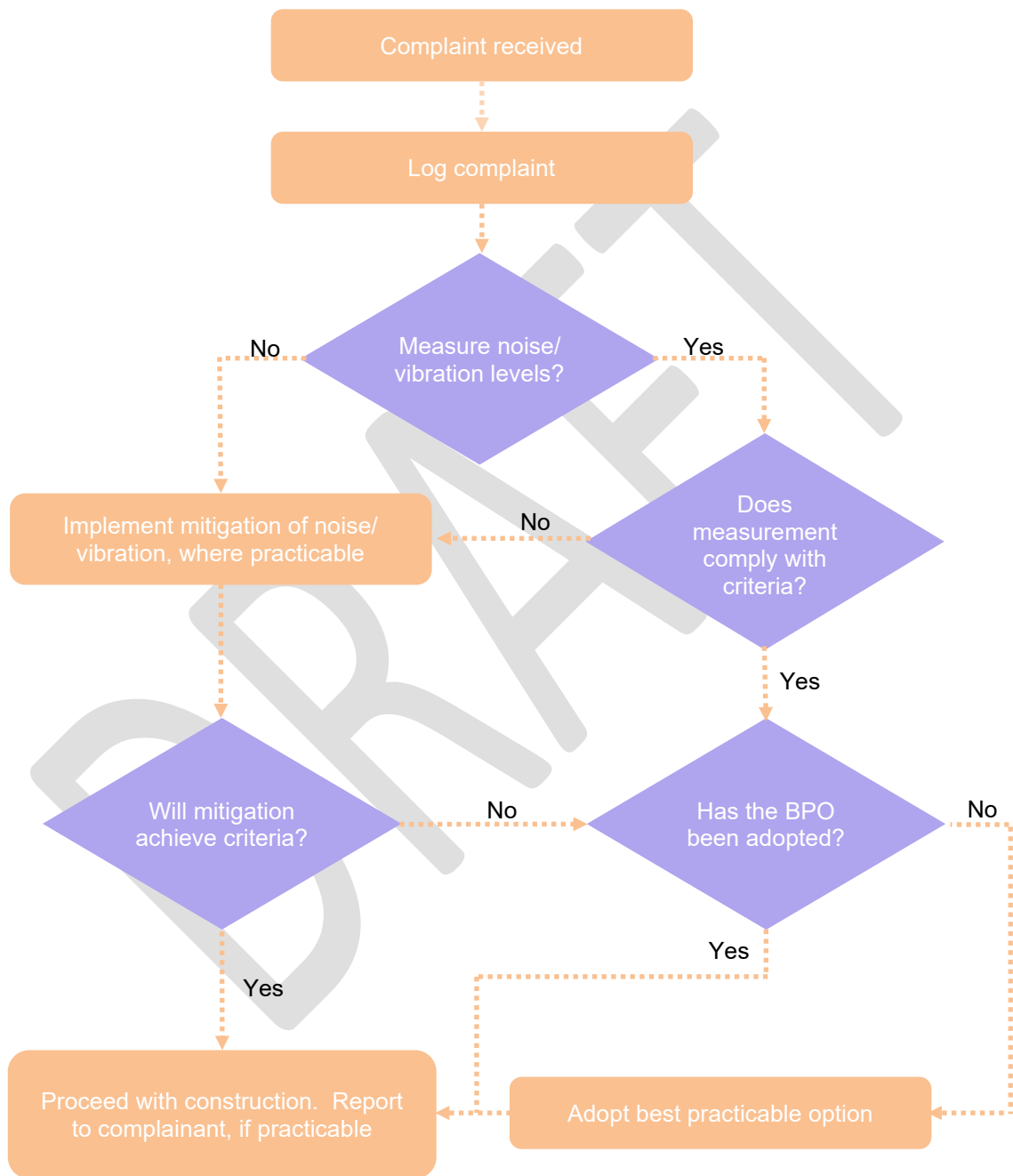
There are no such requirements for monitoring that is undertaken for information purposes.

In general, monitoring of construction noise and/or vibration shall be undertaken:

1. To investigate a complaint;

2. At the commencement of any activity that is expected to approach or exceed the noise and vibration limits, such as demolition and piling; and
3. As required.

Figure 3. Flowchart for Addressing Complaints



3.10. Contingency Plan

If noise or vibration from a construction activity is found to exceed their respective criteria, the activity shall be modified as soon as it is practical to do so. The Project Manager, and any relevant sub-contractor (including a noise and/or vibration expert, if necessary), shall assess the activity to determine what, if any, mitigation can be implemented. Monitoring will be used to demonstrate the effectiveness of the mitigation.

If it is not considered practicable for an activity to comply with the construction criteria, consent will be required from Auckland Council to vary the conditions of consent.

4. EFFECTS ON MARINE MAMMALS

4.1. Scope and Construction Methodology

This Section of the CNVMP relates to the protection of marine mammals and penguins from the installation of the percussive and vibrated piles that may be required for the construction of the wastewater outfall structure only. Should other underwater activities be required, this CNVMP will require updating prior to the commencement of the activity.

The outfall will be constructed approximately 2km from the coast in nominally 5m of water. A coffer dam will be installed using a barge mounted piling rig. Sheet piles will initially be vibrated into place before being driven into the stiffer, underlying material. 200 blows per day are anticipated over a one week installation period.

The removal of the coffer day, some six months later, will require the piles to be vibrated out over a one week period.

Should the piling requirements differ significantly from the above, this CNVMP will require updating prior to the commencement of the activity.

4.2. Conditions of Consent

Insert underwater noise condition.

4.3. Mitigation and Management

4.3.1. Staff

Throughout the piling, a designated Marine Mammal Observer (MMO) shall remain on the piling rig barge in an elevated position that allows them a clear view of the sea surrounding the piling rig. More than one MMO may be required. The MMO must have completed a Department of Conservation (DoC) recognised training course as a Trained Observer. The MMO shall be provided with a list of the marine mammals and penguins of interest. The list provided by the marine ecologist is included in Appendix B.

4.3.2. Mitigation

The following mitigation will be implemented:

- a. A soft dolly will be fitted between the sheet pile and hammer to lessen the noise from the impacts.
- b. A bubble curtain will be placed about the perimeter of the area to be piled and used for the duration of the piling. The bubble curtain must remain in contact with the seafloor and produce consistent bubbles along its length.
- c. Piling shall be limited to day light hours only to provide good visibility for the MMO.

- d. A marine Mammal Observation Zone (MMOZ) shall be established. As a minimum, the MMOZ shall extend the following distances from the piling rig.

Extent of MMOZ from Piling Rig

Species Group	LF Cetaceans	HF Cetaceans	VHF Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds*
MMOZ extent (m)	320	200	610	270	200

* Includes the kororā/little penguin

- e. The MMO shall monitor the MMOZ prior to the commencement of piling. Piling shall not start until the MMOZ has been free of any species of interest for a minimum of one consecutive 30 minute period.
- f. Piling shall commence with a soft start for a minimum of 30 minutes and, thereafter, gradually increased in intensity.
- g. Piling shall stop if the MMO notes one of the species of interest within the MMOZ. The restart procedure will be as e. and f. above.

APPENDIX A – MEMO TO STAFF**Project: 110 Jack Lachlan Drive****MEMO TO ALL STAFF & WORKERS**

There are noise sensitive neighbours in close proximity to the works, where noise and vibration criteria apply. To ensure construction noise and vibration are minimised, staff are responsible for good noise and vibration management.

1. When arriving at work, please drive slowly on site and keep revs to a minimum. Keep stereos off and do not slam doors.
2. No shouting or swearing on site. Either walk over and talk to somebody or use a radio/phone.
3. Be careful with tools and equipment. Place them down and do not drop them.
4. Do not drag materials on the ground. Place them down when you arrive at the work area.
5. Equipment and vehicles should not be left running when not in use.
6. When loading trucks, try not to drop material from a height. Load softer material at the bottom.
7. Noise enclosures should always have all doors/hatches closed when the equipment is in use.
8. Stationary equipment such as pumps and generators should be located away from neighbours.
9. All equipment is to be well maintained.

10. If you see anything/anyone making unnecessary noise, please stop it/them. If the source cannot be stopped, then report it to the Project Manager.
11. It is essential that good relationships are maintained with the local community. Any queries from members of the public should be responded to politely and referred to the Project Manager. Staff shall assist the public in contacting this person. Staff shall not enter into debate or argue with members of the public.

APPENDIX B – SPECIES OF INTEREST

Marine Mammals

Common name	Species name	NZTCS	IUCN	Resident in Hauraki Gulf
Arnoux's beaked whale	<i>Berardius arnuxii</i>	Data deficient	Least concern	
Bryde's whale	<i>Balaenoptera edeni brydei</i>	Threatened – Nationally critical	Least concern (<i>Balaenoptera edeni</i>)	Yes
Cuvier's beaked whale (goose-beaked whale)	<i>Ziphius cavirostris</i>	Data deficient	Least concern	
False killer whale	<i>Pseudorca crassidens</i>	At Risk – Naturally uncommon	Near threatened	
Gray's beaked whale	<i>Mesoplodon grayi</i>	Not Threatened	Least concern	
Humpback whale	<i>Megaptera novaeangliae</i>	Non-resident native - Migrant	Least concern	
Long finned pilot whale	<i>Globicephala melas</i>	Not Threatened	Least concern	
Pygmy sperm whale	<i>Kogia breviceps</i>	Data deficient	Least concern	
Southern bottlenose whale	<i>Hyperoodon planifrons</i>	Data deficient	Least concern	
Southern right whale	<i>Eubalaena australis</i>	At Risk - Recovering	Least concern	
Sperm whale	<i>Physeter macrocephalus</i>	Data deficient	Vulnerable	
Leopard seal	<i>Hydrurga leptonyx</i>	At Risk – Naturally uncommon	Least concern	

Common name	Species name	NZTCS	IUCN	Resident in Hauraki Gulf
New Zealand fur seal	Arctocephalus forsteri	Not Threatened	Least concern	Yes
Sub Antarctic fur seal	Arctocephalus gazella	Non-resident native - vagrant	Least concern	
Hector's dolphin	Cephalorhynchus hectori	Threatened – Nationally Vulnerable	Endangered	
Bottlenose dolphin	Tursiops truncatus	Threatened – Nationally Endangered	Least concern	Yes
Common dolphin	Delphinus delphis	Not Threatened	Least concern	Yes
Dusky dolphin	Lagenorhynchus obscurus	Not Threatened	Least concern	
Orca	Orcinus orca	Threatened – Nationally Critical	Data deficient	Yes

Penguins

Common name	Species name	NZTCS	Endemism
Northern Blue Penguin	Eudyptula minor iredalei	At Risk - Declining	NZ endemic subspecies