

DRAFT



WMSGROUP
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DRAFT NOISE MANAGEMENT PLAN

Rp 002 20230381 | 3 October 2023

Project: **MANANUI MINE**

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Report No.: **Rp 002 20230381**

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1.0 INTRODUCTION

The purpose of this Noise Management Plan (NMP) is to detail the procedures we will adopt to ensure that disturbance to neighbours bordering our site is avoided or minimised. Our aim is to adopt the best practicable options available to meet this objective while managing activities on site.

Key Elements of the Plan are:

- Avoid or minimise the impact of noise from our site to residential neighbours.
- Identification of the primary noise sources.
- Detailed steps to manage, as far as reasonably possible, noise from and around our premises that we have control over.
- Noise measurement to check compliance with the NMP through monitoring and feedback from neighbours and others to make appropriate adjustments to the NMP as necessary.
- Training staff to increase awareness of noise generated through their day-to-day activities.

A glossary of acoustic terminology is included in Appendix A for reference.

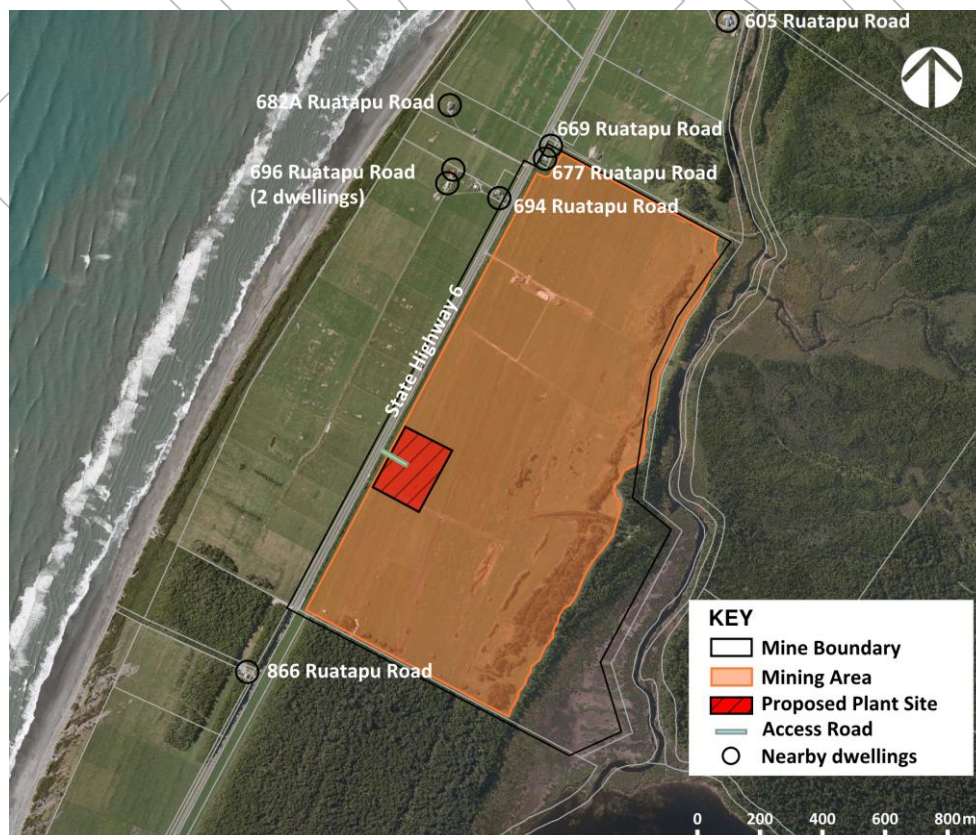
1.1 Background

The Mananui site operates a range of stationary and mobile mechanical plant for the extraction and processing of mineral sands which have the potential to generate noise.

Mining and Processing will occur 24 hours a day. Mobile equipment engaged in topsoil removal and remediation will only occur during the day.

The nearest dwellings are identified by the circles in the Figure 1

Figure 1: Mine site showing nearest neighbours



1.2 Potential noise emissions

The sound power of the on-site noise sources has been assessed in Marshall Day Acoustics *Assessment of Noise Effects (Feb 2023)* and are reproduced in Table 1 below. That assessment considers that, with appropriate noise mitigation and control measures, the noise emissions generated by the mining and processing activities will have acceptable effects. The following sections of the NMP detail the noise management risks, requirements, and procedures for all site noise.

Table 1: Sound power levels of mining plant and equipment

Quantity	Plant and equipment	Sound power level (L _{Aeq} basis), dB L _{AW}
Excavation		
1	Dredge (diesel)	107
2	Excavator (40 tonne)	102
1	Dozer (35 tonne)	105
1	Trommel screen (6 ft)	97
1	Diesel generator (with noise control)	97
1	220kW pump	99
1	Grader (16 tonne)	108
1	Loader (25 tonne)	109
3	Dump truck (40 tonne)	86 dB L _{AE} at 10m
Wet Concentrate Plant (WCP)		
1	Gravity Spiral concentrator (and associated plant)	106
2	Loader (25 tonne)	108
1	Diesel generator (with noise control)	97
2	Excavator (40 tonne)	102
1	200 kW Slurry pump	99

1.3 Contact Details

Contact details for relevant personnel are listed in Table 2. The MineManager is responsible for implementing this Noise Management Plan.

Table 2: Contact details

Role	Name	Organisation	Phone	Email
Site Manager	TBC	TBC	TBC	TBC
Acoustics Specialist	TBC	TBC	TBC	TBC

2.0 NOISE CRITERIA

We are required to comply with the following noise limits at the notional boundary of any residential dwelling. The notional boundary is a point 20 metres from the dwelling, or the site boundary, whichever is closer:

Site activities shall not exceed the following noise limits:

- 0700 - 2200 hours: 55 dB $L_{Aeq(15\text{ min})}$
- 2200 – 0700 hours: 45 dB $L_{Aeq(15\text{ min})}$ and 75 dB L_{AFmax}

Noise during the construction of the site buildings, access roads and planted bunds is controlled using the following recommend noise limits from New Zealand Standard NZS 6803: 1999 “Acoustics - Construction Noise” sets out the following noise limits:

Residential zones and dwellings in rural areas:

Table 3 – Recommended upper limits for construction noise received in residential zones and dwellings in rural areas

Time of week	Time period	Duration of work					
		Typical duration (dBA)		Short-term duration (dBA)		Long-term duration (dBA)	
		L_{eq}	L_{max}	L_{eq}	L_{max}	L_{eq}	L_{max}
Weekdays	0630-0730	60	75	65	75	55	75
	0730-1800	75	90	80	95	70	85
	1800-2000	70	85	75	90	65	80
	2000-0630	45	75	45	75	45	75
Saturdays	0630-0730	45	75	45	75	45	75
	0730-1800	75	90	80	95	70	85
	1800-2000	45	75	45	75	45	75
	2000-0630	45	75	45	75	45	75
Sundays and public holidays	0630-0730	45	75	45	75	45	75
	0730-1800	55	85	55	85	55	85
	1800-2000	45	75	45	75	45	75
	2000-0630	45	75	45	75	45	75

In Table 3:

- a) “Short-term” means construction work at any one location for up to 14 calendar days;
- b) “Typical duration” means construction work at any one location for more than 14 calendar days but less than 20 weeks; and

“Long-term” means construction work at any one location with a duration exceeding 20 weeks.

All noise related consent conditions are provided in Appendix B.

3.0 NOISE SOURCE RISK ANALYSIS

We will aim to minimise disruption to neighbours by assessing and managing the following noise issues:

Possible Risk	Level of risk	Actions which will be taken to mitigate the risk (if and when applicable)
Equipment and plant selection	High	<p>Plant and equipment procurement contracts will include maximum noise limits that will ensure that we will operate within our noise limits. Maximum noise limits are provided in Table 3.</p> <p>Where possible, low noise equipment/models will be selected in favour of noisy equipment.</p> <p>Exhaust silencers must be fitted to all mobile plant machinery.</p> <p>Power from the grid will be used in preference to diesel generators where practicable.</p>
Maintenance	High	<p>Vehicles and equipment shall be maintained to avoid unnecessary noise and vibration. This includes replacement of worn parts, maintenance of mufflers, lubrication of moving machinery to avoid squeaks and squeals, and appropriate operation of all equipment.</p>
Contractor Trucks	High	<p>Trucking contractors visiting the site will be informed of their expected behaviour on site to minimise noise including:</p> <ul style="list-style-type: none"> - following speed limit restrictions - no unnecessary sounding of horns - no unnecessary revving of engines - engine braking should be avoided - vehicles should be appropriately maintained
HMC loading	Medium	<p>Staff must exercise extreme care loading trucks. Metal-to-metal impacts should be avoided.</p>
Tonal reversing alarms	Medium	<p>All vehicles operating on site must not have tonal reversing alarms.</p>
Site vehicle behaviour	Medium	<p>Vehicles on the site shall follow speed limits and drive in a consistent steady manner.</p> <p>No amplified music is permitted inside vehicle cabs.</p> <p>Vehicle horns shall only be used in emergencies.</p>
Access Road	Low	<p>The access road and working surfaces in the loading areas shall be maintained free from potholes and corrugations to avoid unnecessary vehicle rattling and truck body slam.</p>
Staff behaviour	Low	<p>Staff shall minimise noise generation at all times as far as practical. For example, door slamming and mishandling of equipment should be avoided.</p>

Possible Risk	Level of risk	Actions which will be taken to mitigate the risk (if and when applicable)
Staff and visitor vehicles	Low	Signage shall be provided to advise staff and visitors of maximum speed limits on site.

4.0 INDUCTION

All our staff will participate in noise induction training on their first day and at least once a year. More frequent training will be implemented if deemed necessary from repetitive noise complaints. The standard induction is provided below, and may be added to over time. A written record will be kept of everyone who has received the induction and when. Contractors will undertake the induction on their first visit to site and the standard induction may be altered to reflect contractors' specific roles.

There are several residential neighbours where noise criteria apply. To ensure criteria are achieved, all 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. Use of radios for communication, rather than shouting over distances, is encouraged.
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.
7. Noise enclosures should always have all doors/hatches closed when the equipment is in use.
8. All equipment is to be well maintained.
9. No work that could cause noise disturbance shall be conducted outside the hours of 0700h to 2200 h Monday to Sunday.
10. If you see anything/anyone making unnecessary noise then stop it/them. If the source cannot be stopped then report it to the Site 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 Site Manager. Staff shall assist the public to make contact with this person. Staff shall not enter into debate or argue with members of the public.
12. A written record of staff having received this induction shall be documented as follows:

Name	Company	Signed	Date

5.0 MAINTENANCE

We all need to be vigilant for any features on site that may increase noise and vibration and bring these to the attention of management. Our scheduled maintenance program is set out below.

5.1 Working Surfaces

Site roads and working areas must be kept free of potholes and undulations to avoid vehicle noise and vibration. A yearly inspection of surfaces shall be conducted on [DATE] and shall record:

- Any damage and what action will be taken.
- If no damage is found, this shall also be recorded.

5.2 Equipment

Equipment must be maintained to good working order as part of regular maintenance activities. This will include identifying and mitigating any atypical noises such as the rattling of a loose component, damaged mufflers or squeaking tracks.

6.0 NOISE MONITORING

The consent holder shall undertake compliance noise monitoring within 30 days of mining and processing operations occurring.

All noise monitoring shall be made available to the West Coas Regional Council within two weeks of completion of each monitoring visit. As required by condition 17.3.

As required by the consent conditions, noise monitoring shall be conducted by the following staff in accordance with:

- New Zealand Standard NZS 6801:2008 *Acoustics – Measurement of environmental sound*
- New Zealand Standard NZS 6802:2008 *Acoustics - Environmental Noise*
- New Zealand Standard NZS 6803: 1999 *Acoustics - Construction Noise*

Trained noise monitoring staff:

- [PERSON XXXX]

Noise monitoring will be conducted using the dedicated sound level meter kit detailed below which will be stored in site administration office. The calibrator will be verified by an accredited laboratory annually and the sound level meter and microphone biannually.

Equipment	Make	Model	Serial	Last verification
Sound level meter				
Software				
Microphone				
Calibrator				
Wind shield				
Tripod				
Other				

Monitoring will be conducted as follows,

- When the works start, to verify sound levels assumed for each of the major items of equipment, and to assess the effectiveness of noise control measures and implementation of this NMP.
- At regular intervals during the works, at least every four weeks, to check ongoing compliance with the construction noise criteria.
- During critical phases of construction, such as during the use of heavy earth moving machinery, rock breaking, and other noisy activities within 50 metres of neighbours.
- As required by a construction noise management schedule.
- If required, in response to construction noise related complaints.

Following each noise survey, the results will be reported on the survey report template and any issues discovered will be investigated.

If noise monitoring indicates that project noise criteria are being exceeded then the cause for the exceedance shall be investigated and the noise shall be mitigated as quickly as possible.

7.0 COMPLAINTS

We take any noise issues raised with us seriously and will commit to resolving any issues as quickly and effectively as possible.

The following procedure shall be followed for all noise complaints:

1. All noise and vibration complaints should be immediately directed to Mine Manager.
2. As soon as the complaint is received it will be recorded on the complaints register.
3. An initial response will be made and recorded. Depending on the nature of the complaint the initial response could be to immediately cease the activity pending investigation, or to replace an item of equipment. However, in some cases it might not be practicable to provide immediate relief. The complainant and, where necessary, the councils will be informed of actions taken within 48 hours of receiving the complaint.
4. Where the initial response does not address the complaint, further investigation, corrective action and follow-up monitoring shall be undertaken as appropriate. The complainant (and the councils, if applicable) will be informed of actions taken.
5. All actions will be recorded on the complaints register and the complaint will then be closed. The complaints register will be reported to the councils annually.

APPENDIX A GLOSSARY

A-weighting	A set of frequency-dependent sound level adjustments that are used to better represent how humans hear sounds. Humans are less sensitive to low and very high frequency sounds. Sound levels using an “A” frequency weighting are expressed as dB _{L_A} . Alternative ways of expressing A-weighted decibels are dBA or dB(A).
dB	Decibel. The unit of sound level.

L_{Aeq}	The equivalent continuous A-weighted sound level. Commonly referred to as the average sound level and is measured in dB.
L_{Amax}	The A-weighted maximum sound level. The highest sound level which occurs during the measurement period. Usually measured with a fast time-weighting i.e. L _{AFmax}
L_p	Sound pressure level. The sound level measured at distance from a source. Distinctly different from sound power level (L _w)
L_w	Sound Power Level. The calculated level of total sound power radiated by a sound source. Usually A-weighted i.e. L _{WA} .
Noise	A subjective term used to describe sound that is unwanted by, or distracting to, the receiver.
Notional boundary	A line 20 metres from any side of a dwelling, or the legal boundary where this is closer to the dwelling. This definition is from NZS 6802:2008.
Reference time interval	The time interval over which the time average A-weighted sound pressure levels is determined. Typically 15 minutes. This definition is from NZS 6802:2008.

APPENDIX B NOISE RELATED CONDITIONS OF CONSENT

1.	6.0 Management Plans
6.1	<p>The Consent Holder shall operate the site in accordance with the following management plans:</p> <ul style="list-style-type: none"> • Noise Management Plan • Fauna Management Plan • Dust Management Plan • Transport Management Plan • Water Management, Monitoring and Mitigation Plan • Erosion & Sediment Control Plan <p>(collectively Management Plans)</p>
6.2	<p>All Management Plans must include (where relevant):</p> <ol style="list-style-type: none"> a) The purpose of the plan; b) Reference to the relevant conditions; c) How each of the relevant conditions have been given effect to; d) Identification of procedures for implementing the relevant plan; e) Audit check lists; f) Monitoring programmes and/or protocols; g) Feedback mechanisms for adaptive management, including circumstances in which a material change to the management plan would be required; h) An organisational chart showing staff and contractor positions and responsibilities for plan implementation; i) Relevant training and induction procedures and schedules; j) Reporting procedures and format for providing the results of any monitoring or surveying required by the Management Plans.
6.3	<p>Site activities must not commence until the management plans required in condition 6.1 have been certified by the Consent Authorities</p>
6.4	<p>If the Consent Holder has not received a response from the Consent Authorities within one month of the date of submission of the management plans under Condition 6.1, the management plans must be deemed certified. If the response from the Consent Authorities is that they are not able to certify the management plans, the Consent Holder must consider any reasons and recommendations provided by the Consent Authorities, amend the management plans accordingly, and resubmit the management plans to the Consent Authorities</p>
6.5	<p>The Consent Holder may amend the management plans at any time to take into account:</p> <ol style="list-style-type: none"> a) Any positive measure/s to ensure the stated objectives of the management plans are achieved; b) Any required actions identified as a result of monitoring under these consents; and c) Any changes required to further reduce the potential for adverse effects as a result of actions identified in the Annual Work Programme. <p>Where management plans require the input of an appropriately qualified person, any amendments to those management plans must also be undertaken by an appropriately qualified person.</p>

	<i>Advice Note: Some management plans have ongoing annual review requirements which are required in order to avoid, remedy or mitigate effects. These specific review requirements are stipulated in the relevant conditions of this consent.</i>
6.6	Any amended Plans must be provided to the Consent Authorities within 20 working days of their review, for certification in accordance with Condition 6.1.
6.7	The Plans must not be amended in a way that contravenes the matters set out in the conditions for the respective Plans.
6.8	If the Consent Holder has not received a response from the Consent Authorities within one month of the date of submission of any reviewed management plan, the management plan must be deemed certified. If the response from the Consent Authorities is that they are not able to certify the management plan, the Consent Holder must consider any reasons and recommendations provided by the Consent Authorities, amend the management plan accordingly, and resubmit the management plan to the Consent Authorities.
6.9	A copy of the latest version of the Plans must be kept on site at all times and all key personnel must be made aware of the contents of each Plan and their responsibilities under each Plan.
6.10	Subject to any other conditions of these consents, all activities must be undertaken in accordance with the latest version of the Plans.

2.	10.0 Complaints and Non-Compliance
10.1	Upon receipt of any complaint, the Consent Holder must promptly investigate the complaint, take action to remedy or mitigate the cause of the complaint and inform the Consent Authorities within 48 hours of the report, of the details of the complaint and the action taken.
10.2	The Consent Holder must maintain a complaints register for all aspects of operations in relation to these consents. The register must be available to the Consent Authorities at all times and must: <ul style="list-style-type: none"> a) detail the date, time and type of complaint; b) cause of the complaint; and c) the action taken in response to the complaint.
10.3	Complaints which may infer non-compliance with the conditions of these consents, must be referred to the Consent Authorities within 48 hours of the report.
10.4	In the event of any breach of compliance of the conditions of these consents, within 5 working days of becoming aware of any breach the Consent Holder must provide written notification to the relevant Consent Authorities which explains the cause of the breach, and if the cause was within the control of the Consent Holder, steps which were taken to remedy the breach and steps which must be taken to prevent any further occurrence of the breach. <i>Advice Note: This consent condition does not replace the compliance and enforcement responsibilities of the Consent Authorities.</i>

3. 12.0 Hours of Operation	
12.1	<p>The mining and processing activities must comply with the following hours of operation:</p> <ul style="list-style-type: none"> ○ Topsoil stripping and rehabilitation works – 0700-2200 7 days a week ○ Mining Activities – 24 hours a day / 7 days a week ○ Processing Plant Activities - 24 hours a day / 7 days a week ○ Heavy Mineral Concentrate Trucking Activities - 24 hours a day / 7 days a week <p><i>Advice Note: In addition to condition 12.1, further noise restrictions are contained in Condition 16.0 Noise.</i></p>
4. 17.0 Noise	
17.1	<p>The Consent Holder must operate the site in general accordance with the Noise Management Plan (NMP) prepared by Marshall Day Acoustics dated October 2023.</p> <p>As a minimum, the NMP shall include:</p> <ul style="list-style-type: none"> a) The person responsible for implementing the NMP b) Applicable noise conditions relating to noise c) Training of staff relating to how to minimise noise and vibration d) Maintenance schedule for site access road surfaces to avoid excessive noise and vibration e) Activity risk analysis for noise generation f) Method for handling complaints. <p><i>Advice Note: All Management Plans are required to adhere to the requirements of Condition 6.0.</i></p>
17.2	<p>Mining activities shall be conducted such that the following noise limits are not exceeded within the notional boundary of any dwelling existing at the date consent is granted:</p> <ul style="list-style-type: none"> • Daytime: 55 dB $L_{Aeq(15\ min)}$ • Night-time: 45 dB $L_{Aeq(15\ min)}$ and 75 dB L_{AFmax} <p>“Notional boundary” means a line 20 metres from the façade of any building used for residential activity, or the legal boundary of the site on which the building is located where the boundary is closer to the building than 20 metres.</p> <p>Noise shall be measured and assessed using New Zealand Standard NZS 6801:2008 “Acoustics - Measurement of environmental sound” and NZS 6802:2008 “Acoustics - Environmental Noise”, respectively.</p>
17.3	<p>The consent holder shall undertake compliance noise monitoring within 30 days of mining and processing operations occurring.</p> <p>All noise monitoring shall be made available to the West Coas Regional Council within two weeks of completion of each monitoring visit.</p>
17.4	<p>Construction activities such as the formation of site roads, building structures and earth bunds for noise control purposes shall be planned and managed in accordance with New Zealand Standard NZS 6803:1999 “Acoustics - Construction Noise”.</p>

	<p>Mining activities (excluding construction activities) must not occur within the following setback distances from the notional boundaries of 669, 677 and 694 Ruatapu Road at the following times:</p> <ul style="list-style-type: none"> • 85 metres between 0700 and 2200 hrs, and • 115 metres between 2200 and 0700hrs. <p>If compliance monitoring carried out under condition 17.3 above confirms that the noise limits in condition 17.2 can still be achieved, the setbacks may be reduced to a point where the compliance limit is reached. The revised setback distances must be confirmed in the compliance monitoring report prepared by a suitably qualified acoustic professional and supplied to Council prior to the setbacks being reduced.</p>
17.5	3 metre high noise control bunds shall be constructed for the minimum extent shown in Schedule 3.
17.6	Mining operations shall utilise the best practicable option to minimise noise at all times. This includes regular replacement of worn parts, maintenance of mufflers, lubrication of all moving parts to avoid speaks and squeals, and appropriate operation of all equipment.
17.7	Site vehicles shall not be fitted with tonal or beeper reversing alarms.