MATAKANUI

GOLD LIMITED

# Operational Noise & Vibration Management Plan

Date ~~27~~ xx June ~~2025~~2026

**~~DOCUMENT CONTROL~~**

| ~~Organization~~ | ~~Revision~~ | ~~Author~~ | ~~Comment~~ | ~~Date~~ | ~~Approved~~ |
|---|---|---|---|---|---|
| ~~Marshall Day Acoustics~~ | ~~R01~~ | ~~Juan Gaviria~~ | ~~Initial Draft for Internal Review~~ | ~~10 June 2025~~ | ~~TBC~~ |
| ~~Marshall Day Acoustics~~ | ~~R02 to 04~~ | ~~Juan Gaviria~~ | ~~Minor amendments~~ | ~~27 June 2025~~ | ~~TBC~~ |
| ~~Marshall Day Acoustics~~ | ~~R05~~ | ~~Jon Farren~~ | ~~Minor amendments~~ | ~~4 Sept 2025~~ | ~~TBC~~ |
| | | | | | |

# 1. ~~1. EXECUTIVE SUMMARY~~

This Noise and Vibration Management Plan (NVMP) outlines the strategies and procedures to effectively manage and mitigate noise and vibration impacts from the Bendigo-Ophir Gold Project. Our primary objective is to ensure compliance with all relevant noise and vibration criteria, as detailed in our resource consent conditions, and to minimize disturbance to surrounding residential and commercial properties. This plan identifies key noise sources from mining and processing activities, sets clear management objectives and targets, and details a robust approach to risk mitigation, including equipment selection, maintenance protocols, ~~blasting~~ procedures, and staff training. Through continuous monitoring, proactive complaint management, and a commitment to best practicable options, we aim to foster positive relationships with our neighbours and ensure environmentally responsible operations.

# ~~2. INTRODUCTION~~

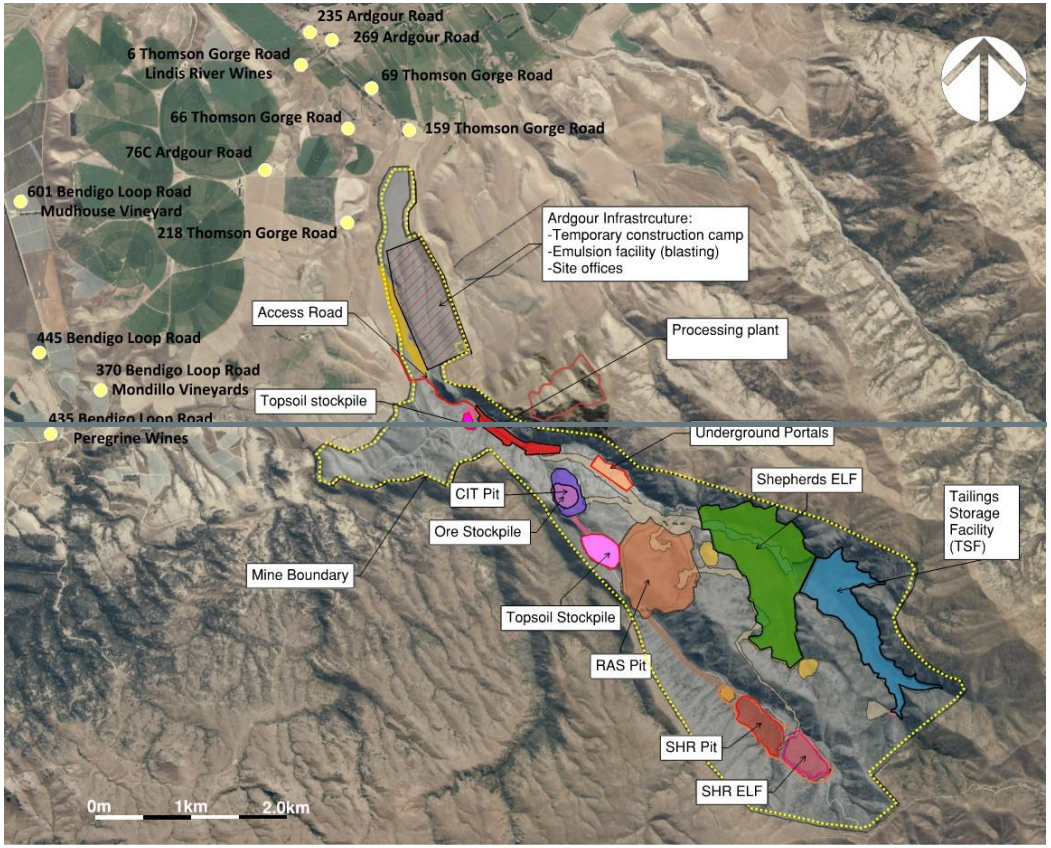
## ~~2.~~1. ~~1~~ Purpose

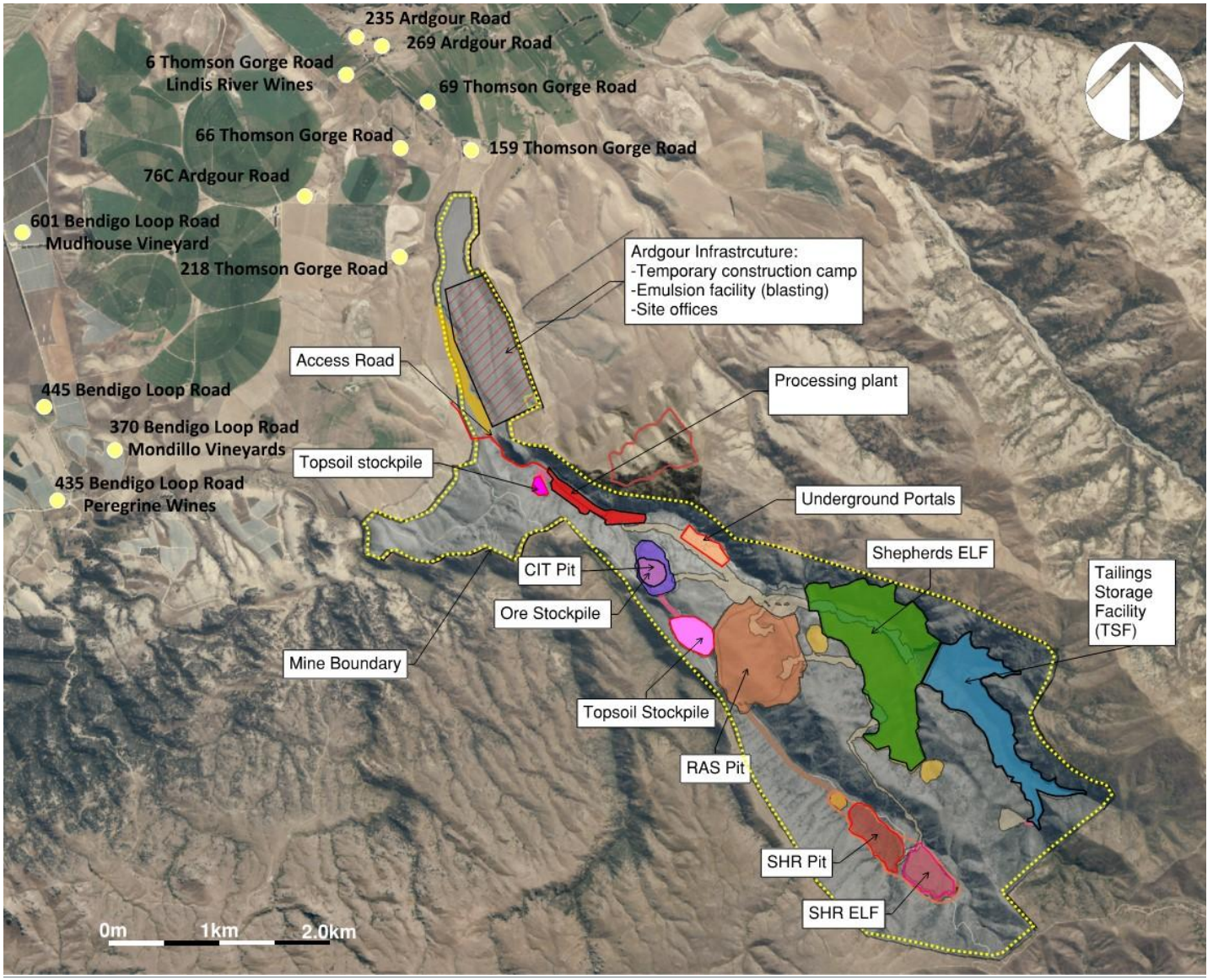
The purpose of this Noise and Vibration Management Plan (NVMP) is to detail the procedures we will adopt to ensure that disturbance to neighbours bordering our site is avoided or minimised. Our aim is to adopt the best practicable options available to meet this objective while managing activities on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

# 2. ~~2. Key Environmental Factor/s~~ KEY ENVIRONMENTAL FACTORS

The Bendigo-Ophir Gold Project operates a range of stationary and mobile mechanical plant which have the potential to generate noise. There are several residential dwellings and commercial properties, including vineyards located to the north and west, as identified in Figure 1. The closest residential receiver to site infrastructure and mining operations is located at 218 Thomson Gorge Road. Both the site and surrounding properties are zoned Rural Resource Area in the Central Otago District Plan.

**Figure 1: Proposed mine layout and nearest receivers**




235 Ardgour Road
269 Ardgour Road
6 Thomson Gorge Road
Lindis River Wines
69 Thomson Gorge Road
66 Thomson Gorge Road
159 Thomson Gorge Road
76C Ardgour Road
601 Bendigo Loop Road
Mudhouse Vineyard
218 Thomson Gorge Road
Ardgour Infrastrcuture:
-Temporary construction camp
-Emulsion facility (blasting)
-Site offices
Access Road
Processing plant
445 Bendigo Loop Road
370 Bendigo Loop Road
Mondillo Vineyards
Topsoil stockpile
435 Bendigo Loop Road
Peregrine Wines
Underground Portals
Shepherds ELF
CIT Pit
Tailings Storage Facility (TSF)
Ore Stockpile
Mine Boundary
Topsoil Stockpile
RAS Pit
SHR Pit
SHR ELF
0m
1km
2.0km

### 2.~~3.~~1 Potential noise emissions

The sound power of the on-site noise sources has been assessed in Marshall Day Acoustics *Assessment of Noise Effects (December 2024)* 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 processing plant equipment used in the noise model**

| Quantity | Plant and equipment | Source noise data $L_{A10}$ ~~Basis~~ | Source height (m) |
|---|---|---|---|
| **Processing plant** | | | |
| 1 | Primary crusher | 119 dB $L_{AW}$ | 16 |
| 1 | Secondary crusher | 120 dB $L_{AW}$ | 5 |
| 1 | SAG Mill | 118 dB $L_{AW}$ | 5 |
| 1 | Ball Mill | 115 dB $L_{AW}$ | 5 |
| 1 | Tracked conveyor | 88 dB $L_{Aw}$/metre | 25* |
| 4 | Pumps | 110 dB $L_{AW}$ | 8 |
| 3 | Screw Compressors | 105 dB $L_{AW}$ | 1.8 |
| 2 | Front End Loader | 111 dB $L_{AW}$ | 3 |
| 1 | Miscellaneous allowance | 124 dB $L_{AW}$ | 25 |
| **Mining equipment** | | | |
| 2 | 200-250 tonne excavators | 118 dB $L_{AW}$ | 4 |
| 3 | CAT D10 Bulldozers | 108 dB $L_{AW}$ | 4 |
| 3 | Rotary drill | 112 dB $L_{AW}$ | 4 |
| 1 | 40 tonne Excavator mounted 160 Drills | 102 dB $L_{AW}$ | 4 |
| 2 | 100 tonne water trucks | 103 dB $L_{AW}$ | 2 |
| 10 | 165 tonne Haul truck CAT 777D | 89 | 4 |

| Quantity | Plant and equipment | Source noise data ~~$L_{A10}$ Basis~~ | Source height (m) |
|---|---|---|---|
| **Auxiliary fleet** | | | |
| 1 | 15 tonne loader CAT 930k | 110 dB $L_{AW}$ | 2 |
| 1 | 32 tonne grader CAT 16G | 73 dB $L_{WA}$/metre | 2 |

* Highest point

## ~~2.4. Condition Requirements~~

## 3. NOISE CRITERIA

*The applicable consent conditions will be inserted here*

### 3.1. Operational Noise

During the operation phase of the project, we are required to comply with the following noise limits at the notional boundary of any residential dwelling~~.~~ existing at the time consent is granted. 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 $L_{Aeq\ (15\ min)}$
- 2200 – 0700 hours: 40 dB $L_{Aeq\ (15\ min)}$ and 75 dB $L_{AFmax}$

## 3.2. Construction Noise

Noise during the construction of the site buildings and plant, access roads and 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 2 – Recommended upper limits for construction noise received in residential zones and dwellings in rural areas*

| Time of week | Time period | 'Long-term duration' noise limits (dBA) | |
|---|---|---|---|
| | | $L_{eq}$ | $L_{max}$ |
| Weekdays | 0630-0730 | 55 | 75 |
| | 0730-1800 | 70 | 85 |
| | 1800-2000 | 65 | 80 |
| | 2000-0630 | 45 | 75 |
| Saturdays | 0630-0730 | 45 | 75 |
| | 0730-1800 | 70 | 85 |
| | 1800-2000 | 45 | 75 |
| | 2000-0630 | 45 | 75 |
| Sundays and public holidays | 0630-0730 | 45 | 75 |
| | 0730-1800 | 55 | 85 |
| | 1800-2000 | 45 | 75 |
| | 2000-0630 | 45 | 75 |

*In table 2: "Long-term" means construction work at any one location with a duration exceeding 20 weeks.*

All noise related consent conditions are provided in **Error! Reference source not found.**.

## 3.3. Blasting Noise and Vibration

Blasting activities must be measured and assessed in accordance with Appendix J of Australian Standard AS 2187-2:2006 *Explosives – Storage and use Part 2: Use of explosives*.

Blasting must be managed to ensure that in any calendar year, 95% of airblast levels do not exceed 115 dBL, with a maximum of 120 dBL, when applied at any point within the notional boundary of any rural dwelling.

Blasting vibration shall not exceed a peak component particle velocity of

~~5mm/s for 95% in any calendar year, with a maximum of 10 mm/s 3.4.~~ **Responsibilities**

| Role | Responsibilities |
|---|---|
| Site Manager | • The Site Manager is responsible for implementing this Noise Management Plan |
| Acoustics Specialist | • Provide expert guidance and develop noise mitigation strategies to minimize potential noise and vibration impacts at nearby receivers.<br>• Conduct noise and vibration assessments and compliance monitoring.<br>• Advise on appropriate noise control technologies and best practices.<br>• Review and update the NVMP as required. |
| All Site Personnel | • Participate in noise induction training.<br>Adhere to all procedures and guidelines outlined in this NVMP.<br>• Minimize noise generation through good work practices (e.g., avoiding unnecessary revving, dropping materials, shouting).<br>• Report any excessive noise or vibration issues to their supervisor or the Site Manager. |
| Maintenance Manager | • Ensure all plant and equipment are regularly maintained to prevent unnecessary noise and vibration.<br>• Oversee the fitting and maintenance of exhaust silencers and other noise reduction components.<br>• Coordinate repairs for equipment identified as a source of excessive noise.<br>• Ensure access roads and working surfaces are maintained to minimize vehicle rattling and associated noise. |

## 3.~~5~~3. Key assumptions and uncertainties

Key assumptions and uncertainties that underpin this NVMP include:

- **Assumptions:**
  - The sound power levels of plant and equipment listed in Table 1 are representative of typical operational conditions.

- Noise mitigation measures, such as acoustic barriers and enclosures where specified in the noise assessment (Marshall Day Acoustics Assessment of Noise Effects, December 2024), will be implemented effectively.
- Operational activities will generally adhere to the planned schedules and methodologies.
- Meteorological conditions (e.g., wind speed and direction, temperature inversions) will be considered during sensitive periods and adjusted for in operations where practicable.

**Uncertainties:**

- Variability in actual operating procedures and equipment usage on site may lead to deviations from modelled noise levels.
- The long-term performance and effectiveness of noise control measures may degrade over time without proper maintenance.
- Unforeseen operational requirements or changes in mining methods could introduce new noise sources or alter existing noise profiles.
- Public perception of noise may vary, and individual sensitivities could lead to complaints even when compliance with limits is achieved

# 4. MANAGEMENT OBJECTIVES

## 4.1. Objective 1/Condition 1: Compliance with Operational Noise Limits

**Objective:** To ensure that operational noise emissions from the Bendigo-Ophir Gold Project comply with the specified noise limits at the notional boundary of any residential dwelling as per consent conditions.

**Condition Reference:** Section ~~23~~.1 - Operational Noise.

### 4.1.1. Key Risks

We will ~~aim to~~ minimise disruption to neighbours by assessing and managing the following noise issues. Risk levels are categorised as High, Medium, or Low based on the potential impact on neighbouring properties and frequency of occurrence:

| Possible Risk | Level of risk | Actions which will be taken to mitigate the risk (if and when applicable) |
|---|---|---|
| Equipment and plant selection | High | 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 1.<br><br>Where possible, low noise equipment/models will be selected in favour of noisy equipment<br><br>Exhaust silencers must be fitted to all mobile plant<br><br>Power from the grid will be used in preference to diesel generators where practicable |
| Maintenance | High | 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 |

| ~~Possible Risk~~ | ~~Level of risk~~ | ~~Actions which will be taken to mitigate the risk (if and when applicable)~~ |
|---|---|---|

| | | |
|---|---|---|
| Blasting | High | (Refer to Blasting Noise and Vibration Management Plan)<br>A regular blasting schedule and time of day will be established and notified to residents to avoid potential startle effects. |
| Trucks | High | Staff and contractor trucks visiting the site will be informed of their expected behaviour on site to minimise noise including:<br>- following speed limit restrictions ~~no unnecessary sounding of horns no unnecessary revving of engines engine braking should be avoided~~<br>- no unnecessary sounding of horns<br>- no unnecessary revving of engines<br>- engine braking should be avoided<br>- vehicles should be appropriately maintained |
| Material Handling | Medium | Staff must exercise extreme care loading trucks. Metal-to-metal impacts should be avoided. |
| Site vehicle behaviour | Medium | Site vehicles shall follow speed limits and drive in a consistent steady manner.<br>No amplified music is permitted inside vehicle cabs.<br>Vehicle horns shall only be used in emergencies. |
| Access Roads | Low | 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. |
| ~~Possible Risk~~ | ~~Level of risk~~ | ~~Actions which will be taken to mitigate the risk (if and when applicable)~~ |
| Staff behaviour | Low | Staff shall minimise noise generation at all times as far as practical. For example, shouting, door slamming, and mishandling of equipment should be avoided. |

| | | |
|---|---|---|
| Staff and visitor vehicles | Low | Signage shall be provided to advise staff and visitors of maximum speed limits on site. |
| Recreational users of CIT Battery Walking Track | Low | Part of CIT Battery walking track will be temporarily closed in public DOC land during blasting if within 500m radius. |

## 5. 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. 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.
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. Work conducted between 2200 and 0700 must comply with the night-time noise limit of 40 dB $L_{Aeq\ (15\ min)}$ and 75 dB $L_{AFmax}$
10. If you see anything/anyone making unnecessary noise then stop it/them. If the source cannot be stopped then report it to 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 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 |
|---|---|---|---|
| | | | |

## 6. MAINTENANCE

All staff must actively monitor 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.

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 has been taken.
- If no damage is found, this shall also be recorded.

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.

## 6.1. Objective 4/Condition 4 7. NOISE AND VIBRATION MONITORING

*[This section will be updated to reflect the consent conditions and/or the Company's environmental monitoring protocol. Sample text is provided below but noise monitoring requirements would normally have some of the following elements ~~○ Initial monitoring during blasting trials~~ ]*

~~Regular compliance~~Recommended noise monitoring requirement:

- ~~○~~ Compliance monitoring on ~~yearly basis~~receipt of complaints or other appropriate timeframe
- Monitoring to verify noise levels from a particular piece of plant ~~○~~
- ~~○~~ A regime for reporting measurements to Central Otago District Council as required
- ~~○~~ 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 and vibration monitoring will be conducted using the dedicated instrumentation 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 | | | | |

| Equipment | Make | Model | Serial | Last verification |
|---|---|---|---|---|
| Wind shield | | | | |
| Tripod | | | | |
| Other | | | | |

~~Monitoring may be conducted as follows,~~

~~During initial blasting trials~~

- ~~When the works start to verify the sound levels assumed for each of the major items of equipment, and to assess the effectiveness of noise control measures and implementation of this plan.~~
- 
- ~~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 mitigated as quickly as possible.

## 8. COMPLAINTS

*[The complaints procedure should be updated to reflect the conditions of consent including response timeframes and notification processes. Sample text is provided below.]*

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 Site 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 council will be informed of actions taken.
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 council] will be informed of actions taken.
5. All actions will be recorded on the complaints register and the complaint will then be closed

## 9. CHANGE MANAGEMENT

| Item | Section | Summary of change | Reason for change | Complexity of change | Date |
|---|---|---|---|---|---|
| 1. | | | | ☐ Minor<br>☐ Moderate<br>☐ Major | |
| 2. | | | | ☐ Minor<br>☐ Moderate<br>☐ Major | |
| 3. | | | | ☐ Minor<br>☐ Moderate<br>☐ Major | |
| 4. | | | | ☐ Minor<br>☐ Moderate<br>☐ Major | |