

ACOUSTIC REPORT

Assessment of Noise and Vibration Effects

Otaihanga Retirement Village

Summerset Villages (Paraparaumu) Limited

NDY
A TETRA TECH COMPANY

CONFIDENTIAL

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1 INTRODUCTION

NDY have prepared an assessment of noise and vibration effects report for the Summerset Otaihanga development, located at 73 Ratanui Road, Paraparaumu. The project is predicted to comply with the Kapiti Coast Operative District Plan 2021 noise rules using standard acoustic methodologies for controlling noise and vibration to and from the site where applicable rules apply.

Fixed mechanical plant is expected as part of the development; equipment includes fans and condensers. These will be treated with standard acoustic solutions such as attenuators, screening and acoustic lining, as required once selections are available. Boundary noise emission compliance is predicted with standard treatment.

The construction noise and vibration are expected to comply with noise and vibration rules to the nearest receivers.

This Assessment of Noise and Vibration Effects has been prepared by Lewis Bullivant who is employed as Acoustics Section Manager by NDY a building services engineering consultancy. Lewis Bullivant is based in Auckland. In this report, he provides expert advice on a variety of noise and vibration matters relative to the Kapiti Coast District Plan.

He holds the qualifications of a First-Class Honours Bachelor of Engineering Degree in Acoustic Engineering. He is a full member of the Acoustical Society of New Zealand.

While this is not a matter before the Environment Court, Lewis Bullivant has read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 ('Code'), and has complied with that Code in the preparation of this report.

The data, information, facts and assumptions Lewis Bullivant has considered as part of this report are set out in this report. The reasons for the conclusions of the report are also set out in this report. Unless stated otherwise, the matters addressed in this report are within his expertise and he has not omitted to consider material facts known to him that might alter or detract from the opinions expressed.

1.1 PURPOSE

The purpose of this report is to assess the acoustic environmental effects of the proposed Summerset Village at 73 Ratanui Road, Paraparaumu. The village spans circa. 12.7 hectares, containing a mix of cottages, villas and townhouses, with a main building in the centre of the site.

1.2 OBJECTIVES OF STUDY

This report provides an analysis of:

- Operational noise produced by the typical day-to-day operation of the retirement village
- Noise and vibration associated with the construction of the village

1.3 EXECUTIVE SUMMARY

NDY have produced this acoustic assessment of environmental effects report for the Summerset Otaihanga site to assess:

- Operational noise to external receivers
- Construction noise and vibration to external receivers.

Using rooftop mechanical plant items that are typically found on similarly-sized projects, noise emission modelling shows that the operational noise is predicted to comply with the Operative District Plan limits.

Construction noise modelling has also been carried out with an extent of site boundary hoarding for external receivers that are close to the site, and we predict compliance with the construction noise limits. This is based on the hoardings being installed on the elevated sections following the boundary line.

We have proposed vibration limits based on published standards, which can be complied with by maintaining setback distances from the nearby receivers.

1.4 AUTHORITY

Authority to undertake this report was provided by Hayden Beaton of Summerset Management Group Limited.

1.5 INFORMATION SOURCES

- Resource Consent Issue drawings, Summerset, dated 15 October 2026
- Powell Fenwick report 'Summerset Otaihanga Consent Report for Emergency Generator Installation Acoustic and Mechanical' rev E, dated 28 October 2026
- NZS 6803:1999 *Acoustics - Construction Noise*
- AAAC Guideline for Interpreting and Applying NZS 6803-1999 v1.0
- DIN 4150-3 (1999): *Structural Vibration - Part 3: Effects of vibration on structures*
- BS 5228-1:2009+A1:2014 - *Code of practice for noise and vibration control on construction and open sites - Part 1: Noise*
- BS 5228-2:2009+A1:2014 - *Code of practice for noise and vibration control on construction and open sites - Part 2: Vibration*

2 TERMINOLOGY

2.1 GENERAL

CNVMP: Construction noise and vibration management plan.

Minimum setback distance (m): The minimum distance from a construction activity to the most affected facade on any neighbouring property that achieves compliance with the noise or vibration criteria.

2.2 NOISE

Decibel (dB): Noise levels are quantified in decibels, zero decibels being the threshold of audibility for a normally hearing young person and 140 decibels being a very loud sound that will cause discomfort or pain. The decibel scale is logarithmic. A doubling in subjective loudness would be represented by an increase in noise levels of 10 decibels (dB). A small change of 3dB would be just noticeable to most listeners.

A-weighted decibel (dBA): It is common practice to apply an "A" weighting to the sound pressure level in decibels. The A-weighting is applied to match measured sound to the response of the typical human ear. A-weighted decibels can be measured with a sound level meter which has been electronically adjusted in accordance with an international standard for A-weighting.

Time descriptors: The spread of noise over a time period can be expressed in various ways. Two of the most common for construction noise applications are:

- **L_{eq}:** The logarithmic average sound pressure level over the measurement period. According to the recommendations of the AAAC Guideline for Interpreting and Applying NZS 6803-1999, the L_{eq} time period should be 15 minutes, unless otherwise specified by the local authority's plan.
- **L_{max}:** The loudest single event over the measurement period.

2.3 VIBRATION

Peak particle velocity (PPV): The maximum absolute value of velocity. This is typically measured in three directions (x, y, z) where one of the directions normally runs parallel to a side wall of a building of interest and another is oriented vertically.

3 PROJECT DESCRIPTION

3.1 SITE LOCATION AND ZONING

Summerset Otaihanga is located at 73 Ratanui Road, Paraparaumu. The area is subject to the planning rules set out in the Operative Kapiti Coast District Plan 2021.

The Summerset site is zoned as 'General Residential Zone', outlined in Figure 1. The external sites surrounding Summerset Otaihanga are a mixture of 'General Residential Zone' and 'Rural Lifestyle Zone'.

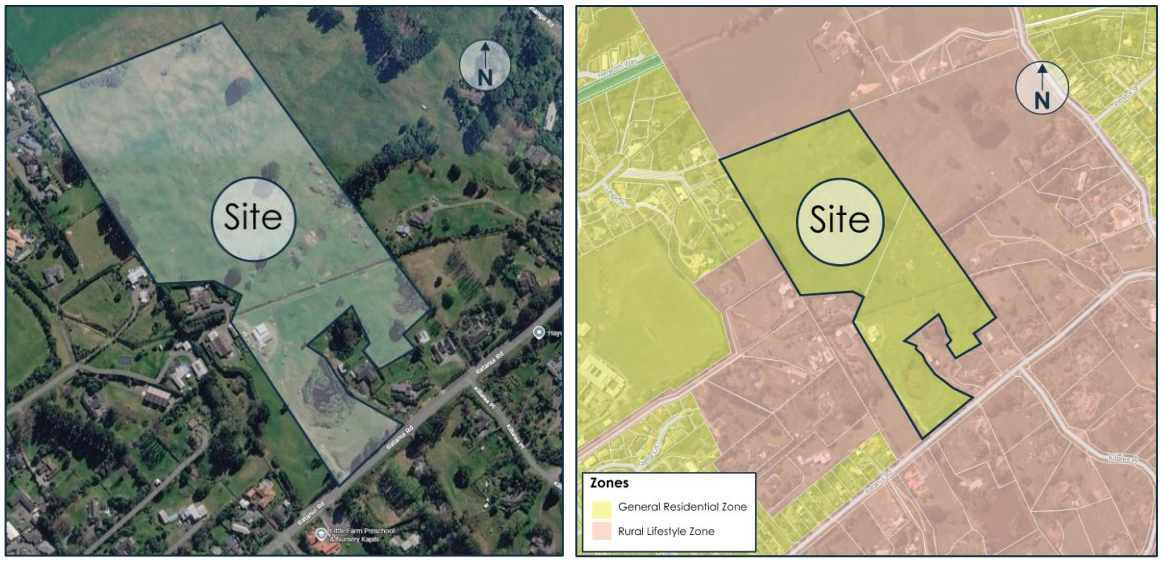


FIGURE 1. SUMMERSET DEVELOPMENT SITE LOCATION AND ZONING

The proposal is for the development of the Summerset landholding as a comprehensive retirement village, which includes a combination of low density one-to-two storey Independent Living Units (ILUs) in the form of villas, and a central main building (ranging 1-2 storeys) containing serviced apartments and aged care suites. The site plan is shown in Figure 2.



FIGURE 2. SITE PLAN

4 OPERATIVE KAPITI COAST DISTRICT PLAN 2021 RULES

4.1 OPERATIONAL NOISE LIMITS

4.1.1 NOISE-R1 - NOISE FROM ACTIVITIES LOCATED WITHIN THE RESIDENTIAL ZONE

The site is located within the General Residential zone, where noise rule NOISE-R1 applies. Table 1 outlines the operational noise emission limits.

Compliance locations in Rural Zones are at the notional boundary of any residential unit (excluding visitor accommodation which is not temporary residential rental accommodation). 'Notional boundary' in the Operative District Plan is defined as "*a line 20m from any side of a residential unit or other building used for a noise sensitive activity, or the legal boundary where this is closer to such a building*".

For external receivers zoned 'General Residential', the noise is assessed at or within the boundary of the subject site.

TABLE 1. NOISE EMISSIONS LIMIT (NOISE-TABLE 1 OF KAPITI COAST DISTRICT PLAN 2021)

NOISE WHEN MEASURED AT OR WITHIN THE BOUNDARY OF A SUBJECT SITE WITHIN:	DAYTIME (7AM TO 7PM)	EVENING (7PM TO 10PM)	NIGHT-TIME (10PM TO 7AM)	
	$L_{Aeq\ (15min)}$	$L_{Aeq\ (15min)}$	$L_{Aeq\ (15min)}$	L_{AFmax}
Residential Zones	50 dB	45 dB	40 dB	70 dB
Rural Zones	55 dB	45 dB	40 dB	70 dB

Noise measurements must be undertaken in accordance with the procedures set out in NZS6801:2008 Acoustics – Measurement of Environmental Sound and must be assessed in accordance with NZS6802:2008 Acoustics – Environmental Noise.

The noise limits outlined in Table 1 excludes activities provided for in Rules NOISE-R8 to NOISE-R15. The applicable activities that are excluded are:

1. *NOISE-R10 for noise from activities associated with construction or demolition (covered in section 4.1.2 below)*
2. *Any residential activity (excluding visitor accommodation which is not temporary residential rental accommodation) including non-commercial private gatherings, spontaneous social activities and non-commercial children's play;*
3. *Any warning devices used by emergency services for emergency purposes;*
4. *Noise from fixed plant that is used solely for emergency purposes. Examples of such equipment are alarms, standby generator sets that are used to supply electricity only at times of electrical supply failure, or for plant used only during life threatening situations such as smoke fans or sprinkler pumps and is not used to generate power for the national grid;*
5. *Vehicles on public roads or trains on rail lines, including at railway yards, railway sidings or stations and level crossing warning devices.*

4.1.2 EMERGENCY PLANT NOISE

The District Plan explicitly excludes noise limits for fixed plant that is used solely for emergency purposes (e.g. emergency standby generators, fire sprinkler pumps, smoke fans, etc.).

Due to the infrequent use, we recommend that the fire sprinkler pump be designed to be limited to a maximum noise level of 55dBA Leq when measured at 1m from the facade of an external residential receptor on any other zone. With this noise limit, the consent holder should ensure that the fire sprinkler pump is only tested during the daytime hours between 7am – 7pm.

Section 2.4 of the Powell Fenwick report 'Summerset Otaihanga Consent Report for Emergency Generator Installation Acoustic and Mechanical' rev E, dated 28 October 2026, provides recommended noise limits for the operation of the generator.

4.2 CONSTRUCTION NOISE

We recommend construction activities be limited to the working hours of 7:30am to 6:00pm Monday to Saturday; this aligns with the hours where higher construction noise levels are allowed. The 6:30am to 7:30am period can be used for quiet activities such as setting up of equipment.

4.2.1 NOISE-R10 – CONSTRUCTION NOISE

Noise from activities associated with construction or demolition is covered under this noise rule, which states:

"*Construction noise must be measured and assessed in accordance with, and must comply with, NZS 6803:1999 Acoustics – Construction Noise.*"

4.2.2 NZS 6803:1999 ACOUSTICS – CONSTRUCTION NOISE

Construction will exceed 20 weeks in duration, categorising the works as 'long-term' construction under Standard NZS 6803:1999 and therefore the following construction noise limits will apply.

TABLE 2. RECOMMENDED UPPER LIMITS FOR LONG-TERM CONSTRUCTION NOISE RECEIVED IN RESIDENTIAL ZONES AND DWELLINGS IN RURAL AREAS (TABLE 2 OF NZS6803:1999)

TIME OF WEEK	TIME PERIOD	L_{EQ} (dBA)	L_{MAX} (dBA)
Weekdays	6:30am – 7:30am	55	75
	7:30am – 6:00pm	70	85
	6:00pm – 8:00pm	65	80
	8:00pm – 6:30am	45	75
Saturdays	6:30am – 7:30am	45	75
	7:30am – 6:00pm	70	85
	6:00pm – 8:00pm	45	75
	8:00pm – 6:30am	45	75
Sundays and public holidays	6:30am – 7:30am	45	75
	7:30am – 6:00pm	55	85
	6:00pm – 8:00pm	45	75
	8:00pm – 6:30am	45	75

As described in NZS 6803:1999 section 6 '*Measurement and Assessment of Construction Noise*', "Measurements, where practicable, should be made outside buildings used for activities which may be affected by construction noise. Measurements outside buildings should be made approximately 1m from the wall most exposed to the sound under investigation, and 1.2m to 1.5m above the relevant floor level. No adjustment to measured sound levels is made for facade effects (reflected sound from the structure)."

4.3 CONSTRUCTION VIBRATION

The District Plan does not provide specific standards regarding construction vibration. In lieu of this, it is proposed that German Standard DIN 4150-3 (1999) '*Vibrations in buildings – Part 3: Effects on structures*' be adopted. The construction vibration limits are designed to ensure the structural integrity of nearby buildings and are not for human comfort; the limits provided are well above the threshold of perceptibility.

According to DIN 4150-3, "short-term" vibration refers to vibration which does not occur often enough to cause structural fatigue, and which does not produce resonance in the structure being evaluated. "Long-term" vibration refers to all types of vibration not covered by the definition of short-term vibration.

The vibration limits (Table 3 and Table 4 below) refer to the evaluation of the effects of long-term vibration on structures. According to the standard, exceeding the values listed below does not necessarily lead to damage.

The external receivers are dwellings, which fall under 'Line 2' of the following tables.

TABLE 3. DIN 4150-3:1999 CONSTRUCTION VIBRATION LIMITS - LONG TERM (E.G. CONCRETE-BREAKERS/VIBRATORY ROLLERS)

LINE	TYPE OF STRUCTURE	GUIDELINE VALUES FOR VELOCITY, VI, IN MM/S OF VIBRATION IN HORIZONTAL PLANE OF HIGHEST FLOOR, AT ALL FREQUENCIES
1	Buildings used for commercial purposes, industrial building and buildings of similar design	10
2	**Dwellings and buildings of similar design and/or use**	**5**
3	Structures that, because of their particular sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	2.5

For Table 4 below, the short-term vibration limit graph lists 'Line 1' to 'Line 3'; refer to Table 3 above for the 'Type of Structure' for each line. For the buildings adjacent to the Summerset site, these are considered as 'dwellings and buildings of similar design and/or use' (line 2).

TABLE 4 – DIN 4150-3 VIBRATION LIMITS – SHORT-TERM (E.G. CONCRETE BREAKERS)

LINE	TYPE OF STRUCTURE	GUIDELINE VALUES FOR VELOCITY, v_i, (mm/s)			
		VIBRATION AT THE FOUNDATION AT FREQUENCY OF			VIBRATION AT HORIZONTAL PLANE OF HIGHEST FLOOR AT ALL FREQUENCIES
		1 Hz to 10 Hz	10 Hz to 50Hz	50 Hz to 100 Hz*	
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20-40	40-50	40
2	**Dwellings and buildings of similar design and/or occupancy**	**5**	**5 to 15**	**15 to 20**	**15**
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (e.g. listed buildings under preservation order)	3	3 to 8	8 to 10	8
* At frequencies above 100 Hz, the values given in this column may be used as minimum values.					

These short-term limits are to be assessed either at the foundation of the building in all three axes (x, y and z) or on the highest floor in the horizontal plane (x and y axes).

5 RECEIVERS

Figure 3 below outlines the nearest receivers to the Summerset site, with arrows indicating the buildings on the properties. For construction noise, this is assessed 1m from the wall most exposed to sound outside a building used for activities which may be affected by construction noise.



FIGURE 3. NEARBY RECEIVERS TO CONSTRUCTION NOISE AND VIBRATION

6 OPERATIONAL NOISE

6.1 FIXED MECHANICAL PLANT

At this early stage of the project, details of fixed external plant are not yet finalised and therefore we have allowed for the noise sources shown in Table 5 in our noise model. Note that these selections are above and beyond what we typically expect for a project of this use and size and therefore the below represents a worst-case assessment.

Equipment solely for use in an emergency is covered in the later section (6.2) of this report.

TABLE 5. EXAMPLE OUTDOOR PLANT USED FOR NOISE EMISSION MODELLING

ASSUMED EQUIPMENT	SOUND POWER LEVEL (PER UNIT), L_{EQ}
15 x Mitsubishi PURY M500YNW	71 dBA
2 x Trane CGAF 100 SE Chiller	88 dBA
8 x AHUs (assumed Airpak AP25-65, 1780L/s)	85 dBA



FIGURE 4. MASTERPLAN SHOWING INDICATIVE LAYOUT OF RETIREMENT VILLAGE DEVELOPMENT

To consider a feasible worst-case in our noise model, all the noise sources were located on the main building rooftop, with no acoustic screening. With no screening, the noise emissions from on-site plant are predicted to be less than 35 dBA at the facade of the most affected external receiver(s). This therefore comfortably complies with the noise emissions limits in Table 1, without any acoustic mitigation required. This demonstrates that a reasonable selection of fixed external plant is expected to readily comply with the operational noise limits.

The noise contour from plant is depicted in Appendix A: CadnaA Noise Modelling for Operational Noise.

6.2 EMERGENCY PLANT

6.2.1 GENERATOR

An acoustic assessment of the emergency backup generator is contained within the Powell Fenwick report 'Summerset Otaihanga Consent Report for Emergency Generator Installation Acoustic and Mechanical' rev E, dated 28 October 2026.

6.2.2 DIESEL FIRE PUMP

The main building is expected to house an emergency diesel fire pump. As the selections of this equipment are not yet finalised, the following worst-case noise levels have been allowed for in our noise model.

TABLE 6. ASSUMED EMERGENCY EQUIPMENT

ASSUMED EQUIPMENT	SOUND POWER LEVEL, L_{EQ}
3-cylinder 1.8L diesel fire pump	105 dBA

With no acoustic screening is in place, we predict the noise level at the facade of the nearest external receiver to be 46 dBA. This comfortably complies with the NDY nominated noise limits for emergency plant in section 4.1.2. The noise contour is found in Appendix A: CadnaA Noise Modelling for Operational Noise.

7 CONSTRUCTION NOISE AND VIBRATION

Construction activities are recommended to be limited to the hours of 7:30am to 6:00pm during weekdays and from 7:30am to 4:00pm on Saturdays.

NDY's assessment of construction noise and vibration effects is set out below.

A construction noise and vibration management plan (CNVMP) outlining reasonable mitigation measures could be required by Council as a Resource Consent condition. From the nominated activities occurring on site, we predict site hoarding and setback distances to be sufficient for achieving the noise/vibration limits.

7.1 NOISE

7.1.1 CONSTRUCTION ACTIVITIES

Table 7 shows the expected loudest construction activities, which are based on discussions with the Summerset construction team. Also shown is the minimum setback distance from facade of nearby receivers for noise limit compliance, with no mitigation measures in place.

TABLE 7. EXPECTED HIGH NOISE-GENERATING CONSTRUCTION ACTIVITIES

Equipment	SOUND PRESSURE LEVEL (SPL) AT 10m, L_{Aeq}	INFORMATION SOURCE	MINIMUM SETBACK DISTANCE, WITHOUT MITIGATION, METERS
Excavator (30T)	75 dB	BS 5228-1 C.2, Ref 16	24m
Vibratory Roller (9T)	75 dB	BS 5228-1 C.5, Ref 20	25m
Wheeled Loader (170kW)	76 dB	BS 5228-1 C.2, Ref 28	28m
Lorry (26T)*	83 dB*	BS 5228-1 C.11, Ref 19	34m
Dozer (28T)	79 dB	BS 5228-1 C.2, Ref 11	38m
Vibratory Compactor (60kg)	83 dB	BS 5228-1 C.5, Ref 29	57m
Rock Breaker (23T)	85 dB	BS 5228-1 C.9, Ref 12	75m

*These are reported as L_{max} levels in the Standard. The minimum setback distances are based on compliance with L_{max} limits.

7.1.2 MITIGATION – SITE HOARDINGS (NOISE BARRIERS)

To comply with construction noise limits, site hoarding will be required for an extent of the site boundary, as shown in Figure 5. With the site hoarding, construction noise is predicted to comply with the limits for all the nominated equipment above.

The site hoarding specification is outlined in Table 8.



FIGURE 5. NON-PERFORATED SITE HOARDING EXTENT

TABLE 8 – SITE HOARDING SPECIFICATIONS

LOCATION OF HOARDING	HOARDING SPECIFICATIONS
Site hoarding	Height: 2.4m Surface weight: 6kg/m^2 Material options: 15mm plywood, 9mm fibre cement sheet, etc.
Localised for rock-breaking	Height: 2.0m Surface weight: 3kg/m^2 Material options: Flexible vinyl barrier

All noise barrier hoardings are to be:

- Solid and free of gaps
- Hard against or sealed down to the ground
- Installed on the higher elevation section along the site boundary
- Sufficiently robust to last the duration of the construction works without structural failure or gaps appearing

Gates and doors within a noise barrier hoarding are permitted, provided a sufficient overlap is incorporated around the perimeter of the opening panel where it meets the fixed hoarding, and the gate/door closes with minimal gaps.

7.2 CONSTRUCTION NOISE MODELLING

NDY have used the 3D noise modelling software CadnaA to predict the construction noise emissions from the various construction activities. The following subsection outline the predicted noise levels from each activity, with the site hoarding implemented. This is shown in Figure 6 to Figure 12.

Each of the figures show areas where the machinery is expected to operate. Red areas show where noise levels are predicted to be above 70dB L_{Aeq} or 85 dB L_{Amax}. Exceedances only occur if the noise incident on the facade of an external receiver is red (if the red covers the building of an external receiver). The figures therefore

show that any elevated noise levels are contained within the site, and compliance is expected at the external residential receptors.

7.2.1 EXCAVATOR WORK

Figure 6 below shows the predicted noise levels from excavator works (with a 30T excavator). NDY predict compliance with noise limits at the nearest receivers, with the site hoarding in place. If excavator work is required within 3m of the facade of a receiver, a 15T (or smaller) excavator is to be used.

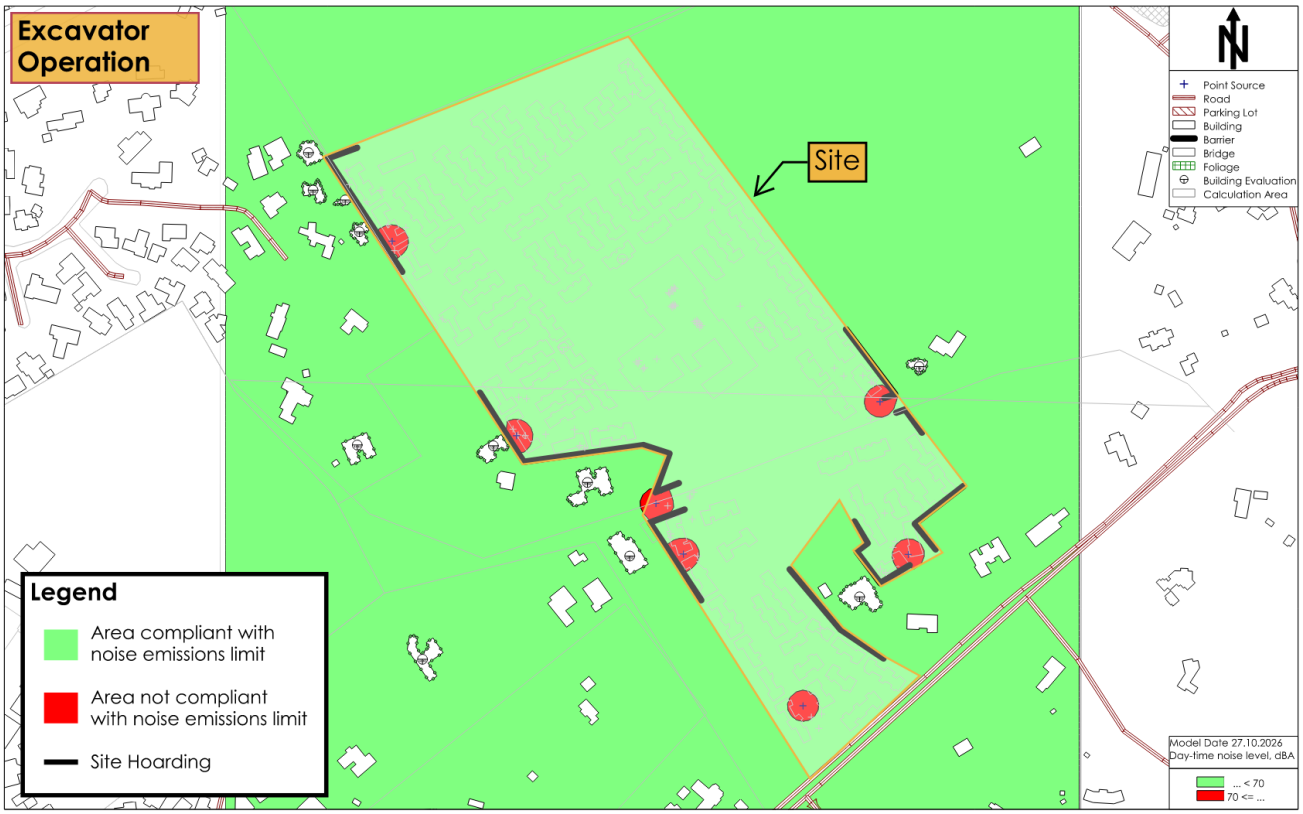


FIGURE 6. CADNAA MODELLING FOR EXCAVATOR WORKS

7.2.2 VIBRATORY ROLLING

CadnaA vibratory rolling noise modelling results are shown in Figure 7, we predict compliance with noise limits with the site hoarding in place.

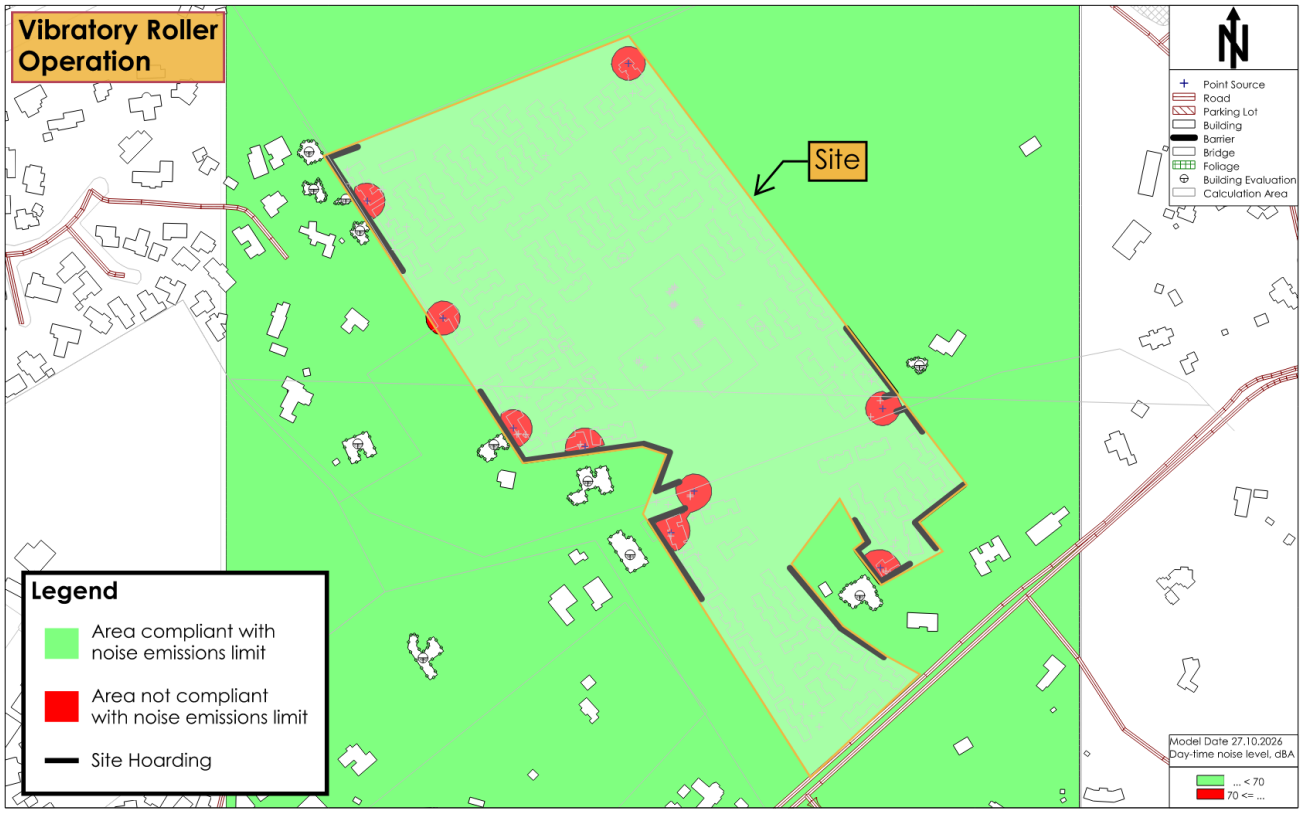


FIGURE 7. CADNAA NOISE MODELLING FOR VIBRATORY ROLLING

7.2.3 CONSTRUCTION LOADER

CadnaA loader noise modelling results are shown in Figure 8. We predict compliance with noise limits with the site hoarding in place.

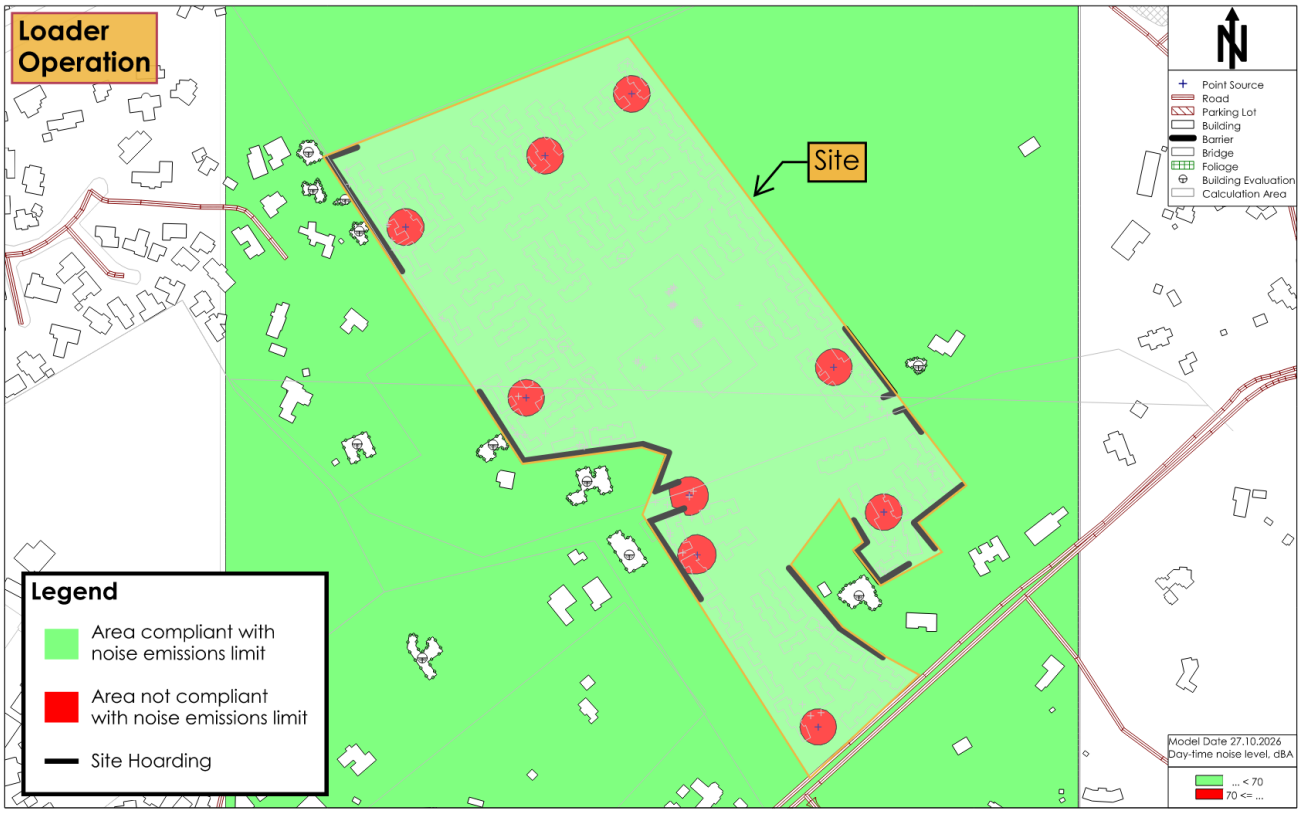


FIGURE 8.CADNAA NOISE MODELLING FOR LOADER

7.2.4 LORRY

CadnaA Lorry noise modelling results are shown in Figure 9, we predict compliance with noise limits with the site hoarding in place. Note that the levels presented in this figure are L_{max} levels, to follow the provided data.

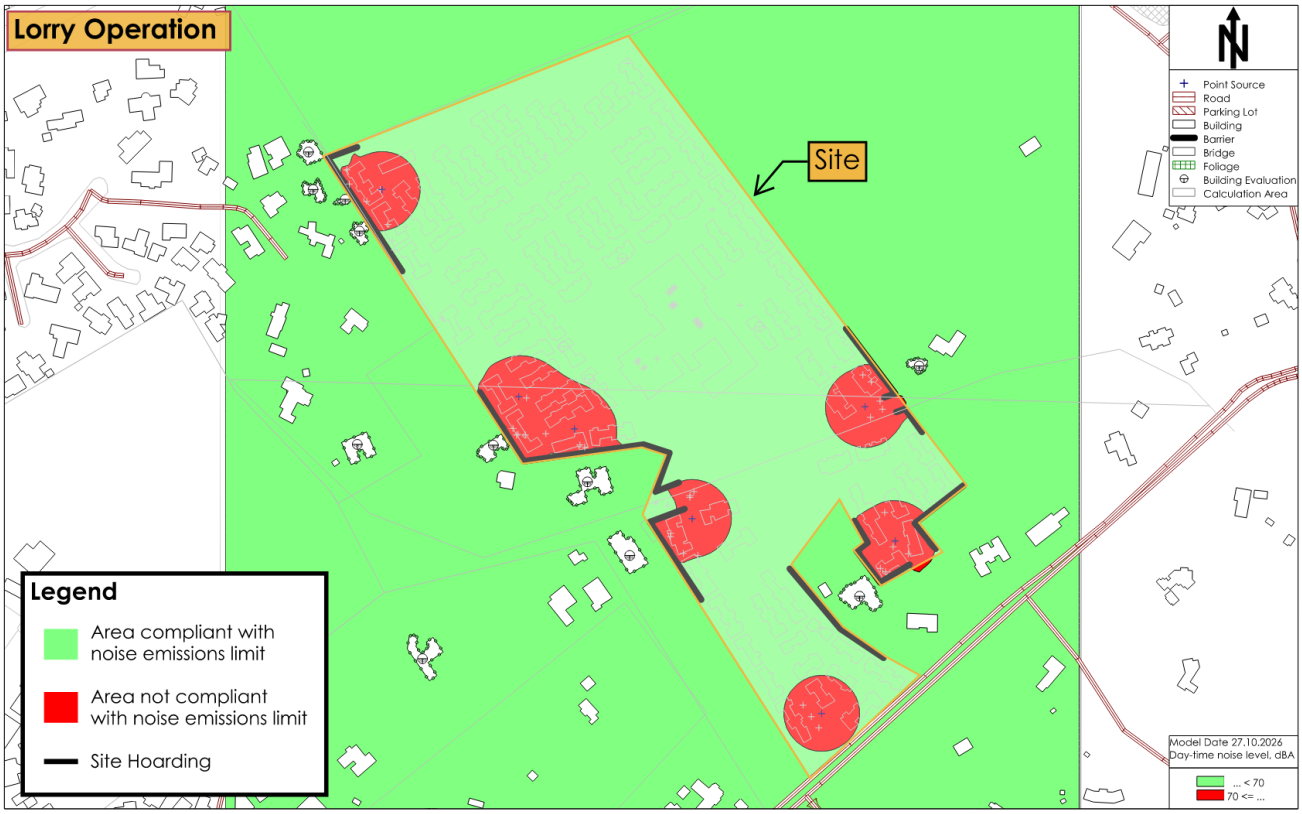


FIGURE 9.CADNAA NOISE MODELLING FOR LORRY

7.2.5 DOZER

CadnaA dozer noise modelling results are shown in Figure 10, we predict compliance with noise limits with the site hoarding in place.



FIGURE 10.CADNAA NOISE MODELLING FOR DOZER

7.2.6 VIBRATORY COMPACTOR

CadnaA vibratory compactor noise modelling results are shown in Figure 11, we predict compliance with noise limits with the site hoarding in place.

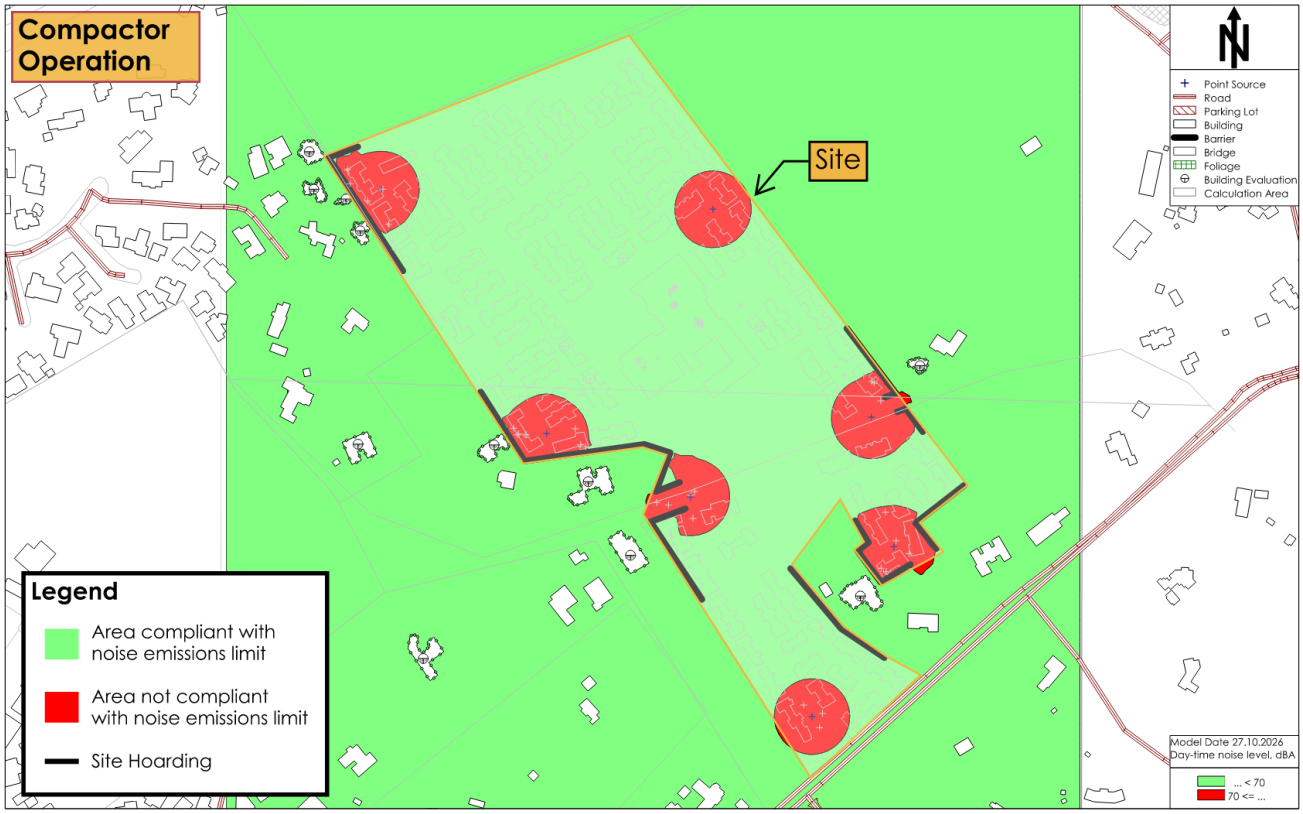


FIGURE 11.CADNAA NOISE MODELLING FOR VIBRATORY COMPACTOR

7.2.7 ROCK BREAKER

In the unlikely event rock breaking is required, noise modelling results are shown in Figure 12. Where rock breaking may be required in an area that is unshielded from external receivers at a distance less than the minimum setback distance (in Table 7), localised screening in Table 8 will need to be used to allow rock breaking at a distance as close as that specified in Table 9 (for vibration compliance) below.

If rock breaking is occurring within 20m of the facade of an external receiver, localised hoarding to be used in conjunction to the site hoarding that will be in place. The vibration setback distances for rock breaking must still be adhered to.



FIGURE 12.CADNAA NOISE MODELLING FOR ROCK BREAKING

7.3 VIBRATION

Table 9 shows the minimum setback distances from the facade of an external receiver to comply with the vibration limits. In maintaining the setback distances, compliance with vibration criteria is predicted.

TABLE 9 – EQUIPMENT VIBRATION: MINIMUM SETBACK DISTANCES FOR COMPLIANCE

EQUIPMENT	INFORMATION SOURCE	MINIMUM SETBACK DISTANCE
Vibratory roller 13t / 106kW (Cat CB13)	Cat data sheet and BS 5228-2	20m
Rock breaking (32T excavator w/ rock breaker)	Caltrans 2013	15m

7.3.1 VIBRATORY ROLLER

The villas on the west boundary are generally setback 2-5m from the site boundary. On the east boundary, villas are set back 5m from the boundary. The setback distances for vibratory roller compliance in Table 9 are relative to the external receiver buildings. This results in some areas near the site boundary where vibratory rolling would not comply with the vibration limits.

In such instances where compaction is required at a distance less than 20m from the nearest receptors, a non-vibratory means of compaction will be required. This must be done with any vibration function turned off, or with compaction machinery that does not product significant vibration (e.g. padfoot roller).

8 CONCLUSIONS

For an assessment of operation noise, we have assumed large plant to be located exposed on the rooftop of the main building. This consisted of 15 condenser units, 2 chillers, and 8 AHUs; noise from plant readily complies with the operation noise emissions limits of the Kapiti Coast Operative District Plan (in part).

We have further assessed noise emissions for the diesel fire pump. The District Plan limits do not apply to this plant. As emergency plant will be used infrequently, we propose this plant to have a higher noise emissions limit of 55 dBA at all times. This will be on the basis that testing of the diesel fire pump be limited to the daytime hours of 7am – 7pm. Against these criteria, the assumed equipment readily complies.

For construction noise and vibration to external receivers, we predict compliance with construction noise limits with an extent of site perimeter hoarding (see Figure 5), and setback distances for vibration mitigation. With site hoarding in place, the areas of compliance are pictured throughout section 7.2. In order to ensure correct implementation of site hoarding and setback distances to avoid potential exceedances, NDY recommended that a Construction Noise and Vibration Management Plan (CNVMP) is prepared by a suitably qualified acoustic consultant and submitted to Kapiti Coast District Council no less than 15 working days prior to works commencing.

9 APPENDIX A: CADNAA NOISE MODELLING FOR OPERATIONAL NOISE

Operational Noise



Emergency Fire Pump Noise

Site

Fire Pump location

Point Source
Road
Parking Lot
Building
Barrier
Bridge
Foliage
Building Evaluation
Calculation Area

Legend

Area compliant with noise emissions limit

Area not compliant with noise emissions limit

Model Date 27.10.2026
Night-time noise level, dBA

... < 55
55 <= ...

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