



**METLIFECARE WHENUAPAI VILLAGE
STAGE 1 FAST TRACK ASSESSMENT**

Rp 001 20230077 | 10 February 2023

s 9(2)(a)

Project: **WHENUAPAI VILLAGE - RESOURCE CONSENT FAST TRACK: STAGE 1**

Prepared for: **Metlifecare Limited**

s 9(2)(a)

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Report No.: **Rp 001 20230077**

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Document Control

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1.0 INTRODUCTION

Metlifecare Limited has asked Marshall Day Acoustics Limited (MDA) to provide acoustic advice regarding the proposed retirement village at 99 Totara Road, Whenuapai.

The proposed site is shown in Figure 1.

Figure 1: Location of proposed residential development



The proposal is for a retirement village comprising of an aged care building and villas with approximately 135 independent living units and 50 care beds. The proposed development plan is shown in Figure 2.

Figure 2: Development Plan Map



The site is currently zoned *Future Urban* and is located near the Whenuapai Airbase. The Whenuapai Airbase Aircraft Noise Overlay does not extend over the subject site. However, we note that substantial acoustic monitoring and reporting was undertaken as part of (recently withdrawn) Plan Change 5 and Variation 1 to Plan Change 5. The Whenuapai Airbase Engine Testing Noise Overlay (proposed under Variation 1) provides updated noise contours reflective of the current acoustic situation. These contours can be found in Appendix B and do extend over the subject site. Whilst this has no statutory weight, the information provides the latest engine testing noise contours updated by the Minister of Defence.

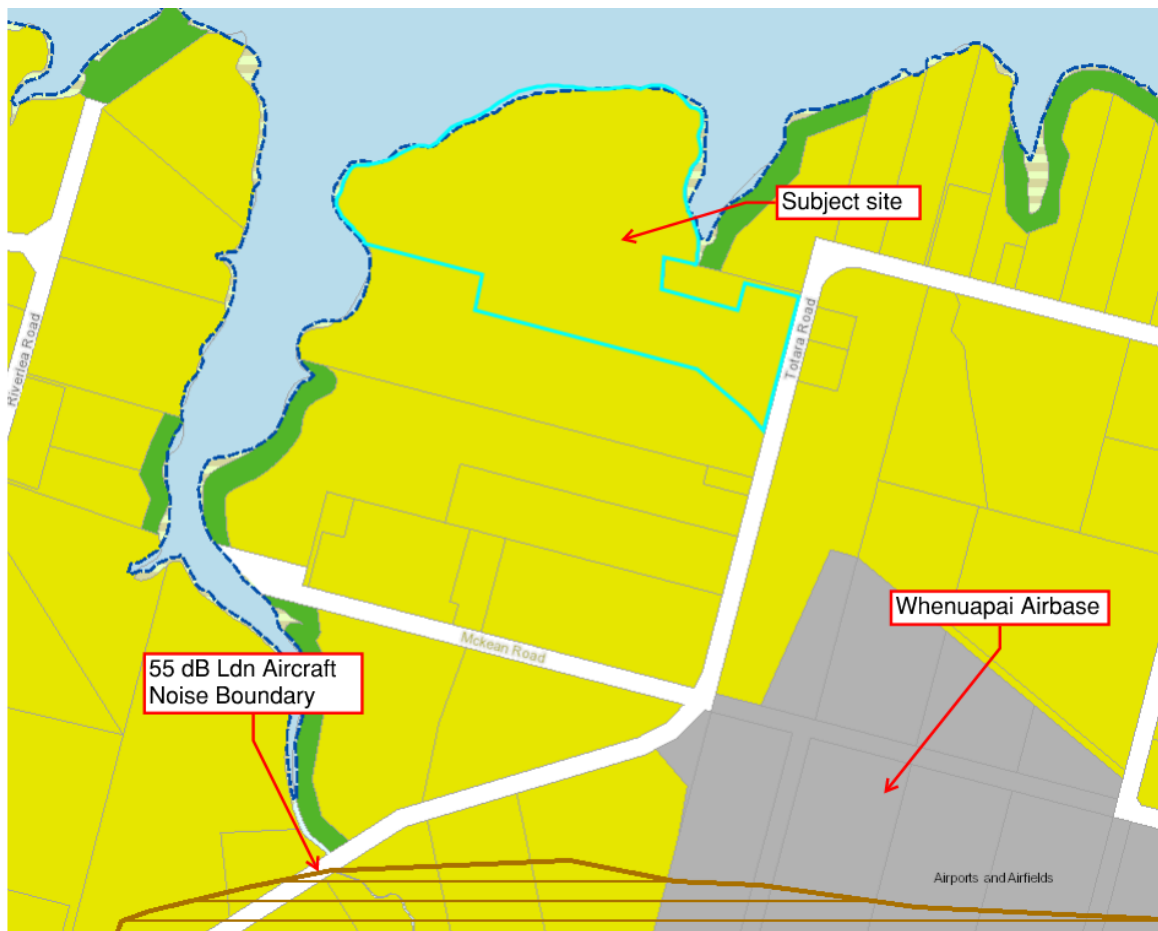
We have been asked by Metlifecare to summarise the Whenuapai Airbase noise related planning standards that may apply to parts of the proposed retirement village development and to identify the impact of this on the dwellings. To this end, we have considered the potential impact of the Engine Testing Noise Overlay and the related Plan Change 5 provisions.

2.0 NOISE PLANNING STANDARDS

2.1 Future Urban Zone (AUP Chapter E25)

The site is zoned *Future Urban Zone* in the AUP. The surrounding neighbours are also zoned *Future Urban Zone*. Whenuapai Airbase is located to the south-east of the site. The subject site is not affected by the Whenuapai Airbase Aircraft Noise Overlay. It is anticipated the Future Urban Zone will eventually be rezoned and the new zone provisions will then apply.

Figure 3: Subject site location



The maximum noise permitted for the *Future Urban Zone* (measured within the notional boundary) is given in Rule E25.6.3:

- 55 dB L_{Aeq} Monday to Saturday 0700 – 2200hrs
Sunday 0900 – 1800hrs
- 45 dB L_{Aeq} At all other times
- 75 dB L_{AFmax}

The AUP applies no noise rules for internal acoustic amenity in this zone.

2.2 Plan Change 5 Whenuapai Airbase Engine Testing Noise Contours

Metlifecare has asked MDA to address the impact of potential future planning standards relating to Whenuapai Airbase engine testing noise contours proposed in Plan Change 5 Variation 1 (PC5 Var1)¹.

Plan Change 5 was withdrawn on 16 June 2022, nonetheless we consider that it is good practice to address the proposed provisions in PC5 Var1 with respect to the proposed development to ensure a reasonable internal acoustic amenity for the dwellings. These provisions are not operative therefore this summary is provided as supplementary information only.

PC5 Var1 did not include the subject site, but the same engine testing noise provisions may eventually be sought in this area. If the PC5 Var1 provisions were implemented in this area, dwellings located on the south-east corner of the site will sit within the engine testing noise contours.

Figure 4 below shows an indicative overlay of the engine testing noise contours and the proposed retirement village. We do not have a digital copy of the engine testing noise contours at this stage therefore Figure 4 is indicative only.

Figure 4: PC 5 Var1 Engine Testing Noise Contours relative to the site



¹ Engine testing contours presented in Tonkin and Taylor report “Whenuapai Airbase – Engine Testing Noise Contours Plan Change 5” dated March 2021.

We estimate that approximately 7 villas in the proposed development site would be between the 57 and 65 dB L_{dn} contour but most dwellings within the site would be outside the contours.

The proposed provisions relating to the engine testing noise contours in PC5 Var1 set out the following restrictions:

- New activities sensitive to aircraft noise within the 65 dB L_{dn} noise boundary would be prohibited;
- New activities sensitive to aircraft noise between the 57 and 65 dB L_{dn} contour, would be subject to an acoustic insulation and ventilation standard, and activities that do not meet this standard would be non-complying.

The acoustic and ventilation requirements were as follows:

I616.6.10 Development within the aircraft engine testing noise boundaries

1. *Between the 57 dB L_{dn} and 65 dB L_{dn} noise boundaries as shown on Whenuapai 3 Precinct Plan 3, new activities sensitive to noise and alterations and additions to existing buildings accommodating activities sensitive to aircraft noise must provide sound attenuation and related ventilation and/or air conditioning measures:*
 - a. *To ensure the internal noise environment of habitable rooms does not exceed a maximum noise level of 40 dB L_{dn} ;*
 - b. *That are certified to the council's satisfaction as being able to meet the Standard I616.6.10(1)(a) by a person suitably qualified and experienced in acoustics prior to its construction; and*
 - c. *So that the related ventilation and/or air conditioning system(s) satisfies the requirements of New Zealand Building Code Rule G4 with all external doors of the building and all windows of the habitable rooms closed.*

In the following section of this report, we provide some indicative constructions that may be required to achieve the above performance standard.

3.0 INDICATIVE ACOUSTIC INSULATION MEASURES

The acoustic insulation standard I616.6.10 requires buildings to be designed to ensure an internal noise environment in habitable rooms of not greater than 40 dB L_{dn} based on the outdoor aircraft noise defined at the site by the aircraft and engine testing noise boundaries.

Chapter J of AUP defines habitable rooms as follows:

Habitable room

Any room in a building used for a residential nesting table activity and in a care centre or healthcare facility with an overnight stay facility, excluding laundry, bathroom, toilet or any room used solely as an entrance hall, passageway, garage, or other space of a specialised nature occupied neither frequently nor for extended periods.

For proposed dwellings within the PC5 Var1 engine testing boundaries, the outdoor noise levels range from 57 to 64 dB L_{dn} . To achieve an indoor level of 40 dB L_{dn} a noise reduction of 17 to 24 dB would be required.

We have calculated the sound insulation performance for a generic top floor corner bedroom of standard lightweight building construction exposed to aircraft engine testing noise. Our calculations show the internal criterion of 40 dB L_{dn} can be achieved without additional acoustic insulation treatment.

The standard building construction used in our calculations is listed in Table 1. Other acoustically equivalent or superior constructions would also be suitable.

Table 1: Typical standard facade construction

Façade Element	Suitable Construction Details (or approved acoustically equivalent)
Glazing:	6 mm standard glass/12 mm air gap/6 mm standard glass
Wall:	Weatherboard on 45 x 90mm timber studs, with 10mm standard plasterboard and sound absorptive material ¹ in the cavity.
Roof:	Pitched roof with corrugate longrun roofing (minimum 0.55mm thick) on timber with a ceiling lining of one layer of 10mm standard plasterboard and sound absorptive material ¹ in the cavity.

1) Sound absorptive material such as R2.4 Pink Batts, Autex Greenstuff or approved equivalent.

This information is indicative only as compliance for a given dwelling would depend on the geometry and specific construction of the habitable spaces therefore each building design would need to be assessed individually.

We do note that, whilst additional acoustic mitigation measures are not required, ventilation measures would be required under standard I616.6.10. The design of the ventilation system to achieve the requirements of I616.6.10.c would be undertaken by a suitably qualified mechanical services engineer.

4.0 CONCLUSION

In the current AUP, the site is zoned *Future Urban Zone* and is outside of the Whenuapai Airbase Aircraft Noise Overlay. This means the site does not require specific acoustic treatment.

If the same Whenuapai Airbase engine testing noise provisions as PC5 Var1 are sought in this area, then the following may apply:

- New dwellings within the 57 – 65 dB L_{dn} engine testing contour are likely to meet the acoustic standards with typical building construction and mechanical ventilation.
- For the remainder of the lots that are outside the 57 dB L_{dn} engine testing contour, no acoustic insulation standards apply.

APPENDIX A GLOSSARY OF TERMINOLOGY

A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
dB	Decibel, the unit of sound level.
L_{dn}	The A-weighted 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) L _{Aeq} . L _{dn} is a measure of the cumulative noise exposure over time.
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. (8 h) 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 10 pm and 7 am.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.
Noise	A sound that is unwanted by, or distracting to, the receiver.

LEGEND

Engine Testing Contours

65 dB

57 dB

Precinct Boundary

PC5

NOTES:

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CLIENT: NEW ZEALAND DEFENCE FORCE

PROJECT: NZAF WHENUAPAI ENGINE TESTING CONTOURS

TITLE: NZDF WHENUAPAI AIRBASE - ENGINE TESTING CONTOURS - PC5

SCALE (A3): 1:25,000

FIG No: FIGURE D.

REV:

REV	DESCRIPTION	DES	CHK	DATE
0	First version	COBE	DAHU	4/03/21

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Figure No: FIGURE D.

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