

Before an Independent Hearings Panel, Selwyn Proposed District Plan

STATEMENT OF PRIMARY EVIDENCE OF JEREMY WILLIAM TREVATHAN

On BEHALF OF SELWYN DISTRICT COUNCIL

NOISE CHAPTER

DATED 26 NOVEMBER 2021

INTRODUCTION

Qualifications and experience

- 1.1 My name is Jeremy William Trevathan. I am the Principal Acoustic Engineer and Managing Director of Acoustic Engineering Services Limited (AES), an acoustic engineering consultancy with offices in Auckland, Wellington and Christchurch. I hold the degrees of Bachelor of Engineering with Honours and Doctor of Philosophy in Mechanical Engineering (Acoustics) from the University of Canterbury. I am an Associate of the New Zealand Planning Institute, and a Member of the Acoustical Society of New Zealand (ASNZ). I am the AES Member Representative for the Association of Australasian Acoustical Consultants (AAAC), a judge for the Association of Consulting Engineers of New Zealand (ACE NZ) Innovate Awards, and a member of the MBIE College of Assessors. I was a member of the ASNZ working group advising the Ministry for the Environment (MfE) regarding the National Planning Standards (2019).
- 1.2 I have more than fifteen years' experience in the field of acoustic engineering consultancy and have been involved with a large number of environmental noise assessment projects throughout New Zealand. I have previously presented evidence at Council and Environment Court Hearings, and before Boards of Inquiry. I have acted on behalf of applicants, submitters and as a peer reviewer for Councils.

Code of conduct

- 1.3 I have read and agree to comply with the Code of Conduct for Expert Witnesses (Environment Court Practice Note 2014). I confirm this evidence is within my area of expertise, except where I state I am relying on facts or information provided by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope of evidence and background

- 1.4 In 2017, my company was engaged by the Selwyn District Council (SDC) to provide acoustic engineering advice in relation to the Proposed Selwyn District Plan.
- 1.5 We provided a preliminary review of a number of noise and vibration provisions within the Operative Selwyn District Plan, the relevant New Zealand Standards, as well as the District Plans in the adjoining Districts. Further to this preliminary review, we provided advice as requested on the Proposed Noise Chapter within the Proposed District Plan.
- 1.6 This evidence is limited to the matters raised in specific submission points received on the Noise Chapter of the Proposed Selwyn District Plan, which have been provided to me by Ms Vicki Barker.

2.0 DPR-0050 MR KIRNER

NOISE-REQ1 - Residential noise limits

- 2.1 Mr Kirner is concerned about the change in residential noise limits, particularly with regard to noise from heat pumps. He has requested that the residential noise limits are reduced and a penalty for Special Audible Characteristics is included.
- 2.2 The Proposed night-time noise limits within residential zones are 40 dB L_{Aeq} / 70 dB L_{Amax} between 0700 and 2200 hours, assessed in line with NZS6802:2008 *Acoustics - Environmental Noise*. The 40 dB L_{Aeq} noise limit is at the lower end of what recommended guidance suggests is appropriate for residential areas (and to prevent sleep disturbance). The requirement to assess noise in accordance with NZS6802:2008 will ensure a penalty for Special Audible Characteristics (SAC) would be applied, where appropriate. I therefore do not recommend any changes to the proposed rules.

3.0 DPR-0068 METROPORT CHRISTCHURCH

NOISE-REQ1 - PORTZ noise limits

- 3.1 MetroPort have requested that the noise limits for the PORTZ specifically state that construction noise is excluded.
- 3.2 The intention of the rule was that construction noise generated within PORTZ would need to comply with the construction noise limits outlined in NOISE-REQ2. However, the PORTZ noise limits do not specifically state that construction noise is excluded (apart from indirectly via reference to NZS6802:2008). The addition of “(excluding any construction noise)” would make the wording clearer.

NOISE-REQ2 - PORTZ construction noise limits

- 3.3 MetroPort have requested that the PORTZ is included within the REQ2 construction noise limit table. As the PORTZ is currently not included in this table, any construction activity on the surrounding sites would not have to comply with any noise limits when received within a PORTZ site. The Proposed change would result in this construction activity being required to comply with the recommended construction noise limits for industrial areas within NZS6803:1999 *Acoustics - Construction noise*.
- 3.4 While this is unlikely to be an issue in practice (as activities within the PORTZ are not noise sensitive), I have no issues with this change.

4.0 DPR-0215 WINSTONE AGGREGATES

NOISE-REQ1 - L_{AFmax}

- 4.1 Winstone Aggregates have requested an L_{AFmax} noise limit of 85 dB L_{AFmax} during the daytime period to allow for occasional increase in

noise levels. There is currently no proposed L_{AFmax} noise limit during the daytime period (in line with relevant guidance), which would mean the submitter would be able to generate L_{AFmax} noise levels at any level. Their proposed noise limits are more restrictive. I therefore recommend no changes.

5.0 DPR-0343 CANTERBURY DISTRICT HEALTH BOARD

NOISE-R4, R5, R6 & R7 - Ventilation requirements

- 5.1 The CDHB submission requests specific wording for the mechanical ventilation system requirements within the Christchurch Airport (R4), Port Zone (R5), Dairy Processing Zone (R6), and West Melton Rifle Range (R7) Noise Control Overlays. The proposed wording is consistent with what is already proposed within the *NOISE-R3 Noise Sensitive Activity* rule relating to the State Highway and Railway Network Noise Control Overlays.
- 5.2 These rules all relate to situations where external noise is elevated, so buildings containing noise sensitive uses must be designed to ensure internal noise levels are appropriate. As this will typically require external windows to be closed, a mechanical system is often provided to replicate in part the ventilation and cooling that occupants may otherwise rely on open windows for.
- 5.3 There is not a consensus nationally on whether these types of systems should just provide ventilation, or also thermal comfort - and if so what the design parameters should be. As a result, in 2020 there were 121 differently worded rules of this type, appearing in District Plans throughout New Zealand.
- 5.4 It is appropriate that this common aspect of all the rules in the Plan that CDHB have identified be consistent, and I am cautious about proposing another bespoke wording. The specific wording requested by the CDHB is in line with the current Waka Kotahi guidance and

has therefore been tested more than some other approaches, and implemented frequently in practice. I therefore support the requested change.

NOISE-R5, R10, R12, REQ1 - L_{Aeq} & L_{AFmax}

- 5.5 The CDHB submission requests that in all instances where a specific time frame is not already stated for the L_{Aeq} parameter, the text is amended to refer to " L_{Aeq} (15 min)".
- 5.6 NZS6802:2008 *Acoustics - Environmental Noise*, which is referenced in the Noise and Vibration Metrics National Planning Standard, provides guidance for setting noise limits. This standard states in section 8.2.2 that '*the reference time interval (t) should be stipulated in minutes for any noise limit applicable to a specific site, for example, L_{Aeq} (15 min). The default value for (t) shall be 15 minutes.*'. Therefore, while the (15 min) has proved in practice to be confusing in some situations due to the 'Rating Level' approach in the Standard (which means the reported noise level is not technically a 15 minute L_{Aeq} level), that is an underlying issue with NZS6802:2008, and on balance I support this change.
- 5.7 The submission also requests that in REQ1 the text is amended to refer to the " L_{AFmax} ", as opposed to " L_{Amax} ". Again that is technically correct, so I support this change.

NOISE-R8 - Darfield Gun Club contours

- 5.8 CDHB has identified that while there is a 50 dB L_{AFmax} noise control overlay in the planning maps, this noise level is not included within NOISE-R8, and have suggested that for frequent shooting noise 50 dB L_{AFmax} is an appropriate criterion.
- 5.9 The Operative District Plan includes reverse sensitivity requirements for the Living 2 zoned properties identified in the

Darfield ODP. These rules require any new dwelling outside of the 60 dB L_{AFmax} noise contour to be designed to achieve a design internal noise level of 35 dB L_{AFmax} in all habitable spaces (except bedrooms). Primary outdoor living areas associated with any new residential dwelling must also be screening to achieve a noise level not exceeding 50 dB L_{AFmax} .

- 5.10 With regard to noise indoors, I note that a typical dwelling will provide a reduction in the order of 15 dB with windows open. It follows that an external noise level of 50 dB L_{AFmax} would result in internal noise levels of 35 dB L_{AFmax} .
- 5.11 With regard to noise in outdoor areas, the guidance suggests that there will be little risk of reverse sensitivity effects where noise levels are 50 dB L_{AFmax} or below.
- 5.12 Therefore, I agree with the CDHB conclusion that 50 dB L_{AFmax} is appropriate for the lower level of the range in both NOISE-R8 b. and c. I believe that this was the original intention of these Rules.

NOISE-REQ1 - GRUZ noise limits

- 5.13 CDHB has noted an inconsistency in the noise limits in NOISE-REQ1 from the DPZ applying at GRUZ. Line 2 currently requires all zones, excluding PORTZ, to comply with specific noise limits at the GRUZ. However, line 5 of this same table then includes different noise limits from the DPZ when received at the GRUZ, while line 5 includes specific noise limits between the DPZ.
- 5.14 As the intention of the rule is for the specific DPZ noise limits to apply, I recommend that the suggested wording change is adopted to exclude DPZ from the line 2 noise limits.

NOISE-REQ1 & REQ2 - KNOZ noise limits

- 5.15 The CDHB has requested more stringent noise limits for KNOZ. This would result in a reduction of 5 dB in the daytime noise limit, and an L_{AFmax} noise limit during the night-time period. The noise limits would also apply at the notional boundary of any noise sensitive activity as opposed to at any point within the site. More stringent construction noise limits would also apply.
- 5.16 The Proposed District Plan currently treats the KNOZ as a Business zone from a noise perspective, which is in line with the zoning within the Operative District Plan. We understand that while education and research activities are primarily currently undertaken within the zone, residential and visitor accommodation are also permitted activities.
- 5.17 From a noise perspective a zone that permits such a wide range of uses will involve some compromise. More restrictive noise limits would better protect future residential and visitor accommodation activities, but may unduly restrict other activities anticipated in the zone. I consider that further planning input is required to determine what the priorities are in the KNOZ, and then the noise limit approach may need to be modified accordingly.

6.0 DPR-0370 FONTERRA LIMITED

NOISE-REQ1 - DPZ noise limits

- 6.1 Fonterra have requested that the noise limits for the DPZ specifically state that construction noise is excluded.
- 6.2 Similar to the PORTZ rules discussed above, it is the intention of the rule that construction noise generated within DPZ would need to comply with the construction noise limits outlined in NOISE-REQ2. However, the DPZ noise limits are 'cumulative' noise limits and do

not specifically state that construction noise is excluded. I support the proposed clarification.

7.0 DPR-0371 CHRISTCHURCH INTERNATIONAL AIRPORT LTD

NOISE-R4 - Ventilation requirements

7.1 CIAL have requested that the additional statement '*and provides satisfactory internal thermal conditions*' is added to the Rule relating to mechanical ventilation systems.

7.2 As discussed in section 5 above, the CDHB has also requested specific wording to ensure that the ventilation systems installed provide an appropriate internal environment. For the reasons I have outlined in that section, I consider that the CDHB proposed wording is preferable, and addresses the intention of the request by CIAL.

8.0 DPR-0401 COOLPAK COOLSTORES LTD

NOISE-REQ1 - GRUZ noise limits

8.1 Coolpak have opposed the change in the daytime noise limits in rural zones from 60 dB L_{A10} in the Operative District Plan to 55 dB L_{Aeq} in the Proposed District Plan.

8.2 The 55 dB L_{Aeq} limit within the Proposed District Plan is in line with all relevant guidance for rural zones, including NZS6802:2008 referenced in the relevant National Planning Standard. I therefore do not support the Coolpak request.

9.0 DPR-0420 SYNLAIT MILK LIMITED

DPZ-SCHED1 - Change noise control overlay

- 9.1 Synlait has requested that the Noise Control Overlay relevant to their operation be amended to allow for the rail siding which is already consented, as well as for future growth. Synlait have provided a Noise Control Boundary produced by Marshall Day Acoustics, with no other context. I am not aware of the origin of the Noise Control Boundary which was included in the Proposed District Plan. It is larger than the Noise Control Boundary in the Operative District Plan, but smaller than that attached to the Synlait submission.
- 9.2 I am aware that cumulative noise emissions from the Synlait site may be already producing a contour which travelled outside the Noise Control Boundary in the Operative District Plan because Synlait's 'Project White' consent was processed without considering cumulative noise - and so it may be reasonable to include a larger Noise Control Boundary which reflects the cumulative noise which has already been Consented. However, the Noise Control Boundary in the Proposed District Plan was not large enough to accomplish that in some areas, and larger than required in others. The Noise Control Boundary attached to the Synlait submission is larger than required in most directions.
- 9.3 I understand that SDC considers that further evidence and analysis would be required in relation to an even larger Noise Control Boundary, which also enabled "future growth".

10.0 DPR-0080 MR HINDIN

- 10.1 Mr Hindin has requested that the proposed extension to the Synlait Noise Control Boundary is not adopted, and that instead the onus is placed on Synlait to reduce noise levels. As above, the origins of the

Synlait Noise Control Boundary need to be clarified. Once this is completed further comment on Mr Hindin's submission can be provided.

11.0 DPR-0448 NEW ZEALAND DEFENCE FORCE

NOISE-R13 - Blasting noise

- 11.1 The NZDF have requested that the 115 dB Lzpeak limit applying at the boundary of a site which appears within the R13 Blasting Activity rule, is replaced with a 120 dB Lzpeak limit at the façade of any building containing a habitable room.
- 11.2 There are already specific blasting noise limits within the Proposed District Plan within R9 for Temporary Military Training Activities and R2 for Construction Activities. Therefore, the R13 rule would apply to any other blasting activity which does not fit into one of these categories. I am not aware of any NZDF activities which would fit within this category - that is, involving blasting that is not temporary, and is not associated with construction.
- 11.3 I note that currently the wording for R13 states '*Any blasting activity, other than for construction activity which is provided in NOISE-R2...*' In order to make it clear that this rule does not also apply to any blasting activity associated with Temporary Military Training Activities this could be amended to '*Any blasting activity, other than for construction activity which is provided in NOISE-R2, and Temporary Military Training Activities which is provided in NOISE-R9.*'
- 11.4 I have considered whether R13 should be consistent with R2. However, R2 relates to blasting associated with construction - and it is reasonable that ongoing blasting comply with a more stringent limit.

12.0 DPR-0453 MIDLAND PORT, LYTTTELTON PORT COMPANY LIMITED

NOISE-REQ2 - Construction noise limits

- 12.1 In line with the discussion in section 3 above the Midland Port has also requested that PORTZ is included within the construction noise limit table. I consider this to be reasonable.

End