

BEFORE THE HUTT CITY COUNCIL

Proposed District Hearings Panel

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Proposed Lower Hutt District Plan, **Hearing Stream 7**

**EXPERT EVIDENCE OF JAMIE EXETER ON BEHALF OF WINSTONE
AGGREGATES (ACOUSTIC & VIBRATION)**

Dated 30 September 2026

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Comments in response from Jamie Exeter, acoustic & vibration expert on behalf of Winstone Aggregates

1. I have reviewed the Section 42A Officer's Report dated 15 September 2026 and the Statement of evidence of Malcolm J. Hunt (Noise & Acoustics), 10 September 2026.

Quarry Zone noise limits (NOISE-APP1)

2. Paragraphs 14 and 15 of Mr Hunt's evidence state:

14. Submission point 444.18 of Winstone Aggregates seeks the noise limit for activities in the Quarry Zone between 07:00 and 19:00 be subject to a 68 dB LAeq limits in place of the 65 dB LAeq limit proposed in NOISE-APP1. The submitter implies this adjustment is justified because the operative district plan LA10 noise units are to be replaced by LAeq type limits, with an adjustment also to the duration of 'daytime' which changes 7am to 10pm versus to 7am to 7pm.

15. National Planning Standards require the noise Chapter to be based on NZS6801:2008 Acoustics – Measurement of Sound and NZS6802:2008 Acoustics – Environmental Noise with the latter mandating the adoption of LAeq as the preferred noise unit. According to the definitions for each of these measurement units, these units measure similar numerically with no need to apply any adjustment. In fact, as differences between measured LA10 and LAeq values for the same sound result in a $LA10 = LAeq + 1 \text{ to } 3 \text{ dB}$, changing to an LAeq unit implies a small extra amount of noise is permissible when LA10 units are replaced by LAeq, set at the same numerical value. The difference may be closer to zero for constant type sound sources⁴. In reality, the actual difference value (between 1 and 3 dB) is a function of the variability in the levels of sound under investigation. In summary, there is no clear technical reason to apply a 3 dB adjustment as sought when changing from LA10 to LAeq noise limits, or in relation to changing the definition of 'daytime' as proposed. On this basis, the requested of submission point 444.18 is not recommended to be adopted.

3. For clarify, I note a typo in Mr Hunt's evidence. The notified PDP noise limit for the Quarry Zone in NOISE-APP1 is 67 dB L_{Aeq} not 65 dB L_{Aeq} . I also note that the Operative District Plan (**ODP**) noise limit for the Extraction Area is 70 dB L_{A10} , so the numerical difference between the ODP limit and the notified PDP limit is -3 dB.
4. Mr Hunt notes below Paragraph 15 of his evidence that in his experience amendments to district plans in New Zealand where noise limits transition from L_{A10} to L_{Aeq} are not accompanied by an adjustment to the numerical decibel limit, and (at Paragraph 15) that this results in a slightly less stringent noise limit being adopted. I agree with Mr Hunt on these points.
5. I also agree with Mr Hunt that the reason it is slightly less stringent is because measured L_{A10} levels are generally 1-3 dB higher than measured L_{Aeq} levels for the same noise source (without considering averaging).
6. In my experience, noise generated by quarries is typically continuous and variable and the measured difference between measured L_{A10} and L_{Aeq} levels is approximately 3 dB.
7. I therefore consider that there are technical reasons for changing the numerical noise limits when adjusting from an L_{A10} limit assessed under the 1991 Standards to an L_{Aeq} limit assessed under the 2008 Standards. I expect these reasons were considered when proposing a limit of 67 dB L_{Aeq} in NOISE-APP1 to replace the operative limit of 70 dB L_{A10} .
8. My view is that if an adjustment is to be made to the numerical limits for the difference between the noise descriptors, then the difference between the 1991 and 2008 Standards in terms of the adjustments that must be applied to measured noise levels should also be considered. To account for this, the noise limit should be increased by 1 dB to 68 dB L_{Aeq} .
9. There are two possible consequences of Mr Hunt's view:
 - a. The first is that by recommending that the relief sought is declined, the notified PDP limit of 67 dB L_{Aeq} would be adopted. This would

result in a permitted limit that is 1 dB lower than the existing ODP limit.

- b. The second is that Mr Hunt recommends the ODP L_{A10} noise limit is adopted but in terms of L_{Aeq} without any adjustment. This would result in a permitted noise limit that is 2 dB higher than the existing ODP limit.

- 10. The s42A report states in paragraphs 218-220 that the requested limit is rejected based on adopting the evidence of Mr Hunt. However, Mr Hunt's evidence suggests that the PDP noise limit should be numerically the same as the operational noise limit. As noted above, this would make it 70 dB L_{Aeq} which is 2 dB higher than my recommended limit.
- 11. I have recommended that a limit of 68 dB L_{Aeq} is adopted. This will be 2 dB more stringent than Mr Hunt's suggestion and 1 dB higher than the PDP limit. My proposed limit of 68 dB L_{Aeq} will enable the same approximate level of noise effects as the ODP limit of 70 dB L_{A10} .
- 12. I therefore remain of the opinion that adopting a limit of 68 dB L_{Aeq} is appropriate.

Construction noise

- 13. Mr Hunt states the following as part of Paragraph 23 of his evidence in response to submission point 444.19 regarding compliance with construction noise limits at unoccupied buildings being required by the proposed construction noise standard under NOISE-APP2:

...I consider there can be practical difficulties in determining whether buildings are occupied or not at the time compliance is assessed. NOISE-R2 requires a restricted discretionary resource consent would need to be obtained where the NOISE-APP2 noise limits are not complied with, which could include unoccupied buildings. I accept the submission point in part as I agree there would be no useful purpose in insisting compliance with NOISE-APP2 if it can be reliably established that the building would not be occupied during proposed construction works.

11. Mr Hunt recommends the following approach in Paragraph 24 of his evidence:

I therefore recommend, in situations where unoccupied buildings may receive noise more than the NOISE-APP2 limits, these situations be given an improved compliance pathway within NOISE-R2.2 for situations where construction noise may exceed the relevant noise limit at buildings known to be unoccupied during the construction work period. To achieve this, I recommend a matter of discretion be included in NOISE-R2.2 that considers, as a matter of discretion whether it can be established that building(s) at which non-compliance occurs are not occupied during the construction works.

12. The s42A report adopts Mr Hunts advice and states at Paragraph 223:

I agree that whether buildings are occupied, and for what purpose, is relevant to whether noise is acceptable. However, I do not think the relief sought can be implemented, as it would oblige Council in taking enforcement action to prove the use of the building at the time, an impractical task in the usually short-term and reactive nature of responding to construction noise complaints.

13. I do not support the approach recommended by Mr Hunt because:

- a. Construction noise is not typically assessed at buildings where there are no occupants to be affected.
- b. The proposed approach requires the same level of detail to be obtained regarding the potential occupation of a building during the construction works.
- c. Construction noise assessments provided at the consenting stage should be based on all neighbouring buildings potentially being occupied during proposed construction works.
- d. Complaints are not received for construction noise levels at unoccupied buildings and, in my experience, residents are not concerned about construction noise levels at times when they are

not present to be affected. My experience is that residents will typically be supportive of higher construction noise levels when they are not home because it often means the works can progress faster.

- e. Access would need to be granted before undertaking compliance monitoring on private land. Information on the occupation of buildings and sensitive times for noise can be obtained during this process.
- f. Undertaking the noisiest works at times when neighbouring buildings are known to be unoccupied (e.g. through communication with residents / occupants) is a mitigation measure commonly adopted to reduce construction noise effects.

- 14. In my view there is no effects-based reason to apply the permitted standard in the way proposed and that it could lead to unnecessary restrictions being imposed on construction works.

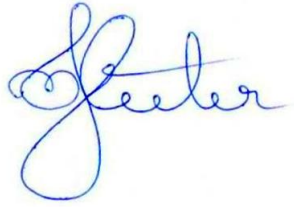
Construction vibration

- 15. Mr Hunt discusses vibration amenity standards at Paragraphs 59 to 70 of his evidence and does not support amending NOISE-R5.1(a) to apply numerical PPV vibration limits.
- 16. To clarify, my recommendations for peak particle velocity (**PPV**) vibration limits to control amenity effects only relate to vibration generated by construction works. This may not have been made clear in my previous evidence.
- 17. I agree with Mr Hunt that PPV limits are a broad measure because they don't consider duration or frequency content. There are metrics and standards that are better aligned with human response to vibration (e.g. DIN 4150-2).

18. However, other Standards that I am aware of are too complex to adopt as a permitted standard. The complex guideline limits in those Standards are difficult to predict levels for and monitor compliance against.
19. PPV limits provide a simplified approach for plan-users to determine whether consent will be required for construction vibration. They provide a clear threshold for requiring consent and an assessment of effects relevant to the degree of the infringement and the timing, duration, frequency, and nature of the vibration.
20. There are practical efficiencies in being able to monitor compliance against amenity and building damage standards using the same metrics at the same location and by using the same equipment and methodology. It is also practical to predict PPV levels at the resource consent stage to determine compliance or otherwise.
21. The use of PPV limits for permitted construction vibration amenity limits has been adopted in other District Plans including the Auckland Unitary Plan, the Dunedin 2nd Generation District Plan, and the Napier Operative District Plan.
22. A limit of 2 mm/s PPV has been the permitted standard in Auckland for approximately 10 years and has been applied to a significant number of construction projects I have been involved with. I am not aware of issues with monitoring or enforcement, or with the limit being unnecessarily restrictive. My experience is that the AUP limits have been successful in managing vibration across the city over a period when there has been significant construction in dense urban environments.
23. Subjective assessments are an important part of determining potential effects of construction vibration. However, in my view, they are not an appropriate reference for a permitted standard because there would be no certainty for the plan user, Council, or the receivers on whether consent is required. In my view there is significant risk that the threshold will change depending on who is interpreting the standard.

24. My recommended permitted threshold of 2 mm/s PPV during the daytime is based on typical effects of temporary construction vibration within buildings. The recommended 0.3 mm/s PPV at night is based on avoiding sleep disturbance by ensuring that construction vibration is not perceptible or high enough to wake people inside dwellings between 10:00 pm and 7:00 am.
25. This is supported by guidance on construction vibration in Table B.1 of the British Standard BS 5528–2:2009 which describes the following effects:
- *0.3 mm/s PPV: Vibration might be just perceptible in residential environments.*
 - *1 mm/s PPV: It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.*
26. These descriptions are consistent with my experience in monitoring construction vibration within dwellings.
27. In my experience, a limit of 2 mm/s PPV within occupied buildings is not unreasonably restrictive and is only unlikely to be exceeded by projects that would not already require consent for other reasons. It would not allow for unreasonable effects given the variable, transient, and intermittent nature of construction vibration in most cases. Additionally, most construction projects that may generate perceptible construction vibration within dwellings would be required to provide notice of the works and any perceptible vibration to the nearest receivers.
28. Mr Hunt raises a concern (at paragraph 63) about vibration being difficult to monitor at night where a dwelling is already subject to nominally continuous vibration levels of 0.3 – 0.5 mm/s PPV from sources such as road traffic. These vibration levels could cause annoyance and sleep disturbance at night. Construction vibration is likely to generate intermittent and transient vibration events. If these events are not noticeable or measurable in the context of existing vibration levels, they are unlikely to generate additional effects or complaints.

29. I remain of the opinion that adopting PPV limits in the permitted standard for controlling construction vibration amenity effects will provide a better outcome than the proposed subjective standard.



JAMIE EXETER

Dated 30 September 2026