

CHRISTCHURCH CITY COUNCIL

HEARING OF PROPOSED PLAN CHANGE 5E

Report and recommendations by Hearing Commissioners

Paul Thomas

Alan Matheson

Andrew Henderson

20 March 2023

Background and purpose

1. Plan Change 5E – Noise ('PC5E') and the supporting s32 evaluation documents, identifies that there have been issues raised in respect of the interpretation and application of Rule 6.1.7.2.1 – Sensitive activities near roads and railways. The matters that have been reviewed are:
 - a. Whether the option of achieving the specified noise reduction between the outside and inside of buildings is sufficient to protect sleep and amenity values of residential and other sensitive activities.
 - b. Whether the distances specified from roads or railways, within which the internal sound levels of buildings must not be exceeded, are sufficient to protect sleep and amenity values of residential and other sensitive activities.
 - c. Whether any alteration of or addition to, an existing building within the specified distances should be required to comply with the noise reduction requirements.
 - d. Whether the two-tiered approach to compliance and certification is appropriate and effective.
 - e. How appropriate and clear the exemptions to compliance with the rule are.
 - f. The current ventilation specifications where alternative forms of ventilation are required.
 - g. How acoustic experts calculate noise and whether this achieves the desired outcomes sought by the objectives of the plan.

Scope of changes

2. Following the review of the matters set out in the section "Background and purpose" of this report, PC5E proposed changes to Rule 6.1.7.2.1, which can be summarised as follows:
 - a. Removing the external to the internal noise reduction method of compliance with the rule;
 - b. Increasing the distances from State Highways and railway lines within which buildings need to comply with the noise reduction requirements;
 - c. Reducing the range of alterations and additions to existing buildings that need to comply with the noise reduction requirements;
 - d. Simplifying the compliance and certification process by reducing it from a two-tiered approach to one;
 - e. Specifying exemptions from the rule by listing the spaces within a building used for a sensitive activity which does not require noise insulation;
 - f. Updating ventilation specifications to ensure alternative forms of ventilation are required to comply with the Building Code;

- g. Providing greater specificity on how noise measurements should be determined, and which parts of a building would have to be considered as part of the assessment.

Section 42A Report

3. A comprehensive s42A report was prepared by Ms Abigail Stowell (Policy Planner, Christchurch City Council), noting that she was not the original author of PC5E or the s32 Report. In addition to the appendices providing submissions, district plan amendments and accept/reject tables, the s42A report also included the following appendices that provided additional information or illustration for the Panel:
 - Appendix 2 – Section 32AA evaluation
 - Appendix 7 – Acoustic Engineering Report and Advice
 - Appendix 8 – Christchurch PC5E Noise CBA Economic Assessment
 - Appendix 9 – Advice from Council Mechanical Engineer
 - Appendix 10 – Advice from Council Roading Department
 - Appendix 11 – Notes from Noise Expert’s Meeting
4. It was noted that the s42A report was prepared in December 2022. Mr Pizzey (Solicitor, Christchurch City Council) and Ms Stowell advised that there was only one area of further amendment proposed, as set out in the legal submissions and the summary of evidence presented by Ms Stowell. This was in response to the evidence from Ms Grinlinton-Hancock (KiwiRail), Mr Pearson (Waka Kotahi) and Mr Lewthwaite (Powell Fenwick), being the addition of the word “nearest” in relation to the measuring location for railway tracks and state highways and removing duplication. These are discussed within the relevant sections of this report.

Evidence heard

5. Dr Trevathan provided a statement of evidence on behalf of the Council that summarised the Acoustic Engineering Services (‘AES’) memo and report contained in Appendix 7 of the s42A report and the expert acoustic evidence that was circulated prior to the hearing. He confirmed his overall position that¹:
 - a. the Kāinga Ora submission proposes a completely new requirement that is not efficient at protecting people from noise, does not reduce unnecessary overdesign and cost, and is not supported by acoustic expert evidence; and
 - b. he agreed with the majority of the minor wording revisions suggested in other evidence (elaborated further on in Section 3 of his evidence).
6. Dr Trevathan assisted the Panel with his responses to questions, including the following:

¹ Refer to the evidence of Dr Trevathan, 13 February 2023, paragraph 1.8
Christchurch District Plan: Plan Change 5E - Noise - Recommendation Report - Final 20 March 2023

- a. agreement that a diagram or additional wording could assist in the interpretation of the measurement distances in the rule;
 - b. the measurement distances are ‘trigger’ distances only, with the purpose of requiring the undertaking of a modelling exercise to determine the actual noise levels;
 - c. if the sensitive activity is within the line that requires acoustic treatment, the 3dB reduction rate would require an acoustic engineer to determine what level of insulation is required to meet the rule;
 - d. the 3dB reduction rate does require a doubling of the mass of insulation;
 - e. the 3dB figure is used elsewhere in New Zealand;
 - f. the measured or predicted noise levels can either be physically measured or predicted by desk top exercise (in formation such as road surfaces, speed limits, make up of traffic are all readily available);
 - g. although the transport fleet will change to hybrid, electric and hydrogen over time, this will be a slow process, with the source of noise (predominantly tyre noise) remaining the same;
 - h. as buildings have a minimum life of 50 years, the likely future traffic noise levels for this minimum timeframe need to be taken into account; and
 - i. the 1 hour average is used for train noise to recognise the specific characteristics associated with this form of transport.
7. Dr Trevathan concluded that he considered the proposed rule provides a moderate outcome with respect to the amount of cost involved in the assessment of potential noise and the insulation/ventilation required to mitigate the noise.
 8. Mr D’Arth on behalf of Council provided a summary of his memo included as Appendix 9 to the s42A report. He noted that there is no maximum air temperature inside dwellings specified in the building code, and to prevent overheating a combination of a small mechanical ventilation system with a heat pump would be an energy efficient solution to provide comfortable indoor air temperatures at all times of the year.²
 9. Mr D’Arth also set out his agreement with most of the acoustic matters set out in the evidence of Mr Lewthwaite, noting some additional comments with respect to maximum space temperatures, number of air changes per hour and air flows in different rooms.³
 10. Mr D’Arth assisted the Panel with explanations of how heat pumps and ventilation systems work in tandem, and the manner in which they reduce outside noise entering a dwelling through the ventilation system. He also confirmed that there is potential duplication between the proposed rule and the provisions of the Building Act / Code.

² Refer to evidence of Mr D’Arth, 13 February 2023, paragraphs 5 & 6

³ Refer to evidence of Mr D’Arth, 13 February 2023, paragraphs 8 - 19

However, he noted that unless a specific and detailed ventilation system was prescribed on building consent plans, the type of ventilation installed would be left to the builder or electrician and it may not perform to the required level.

11. Mr Yeoman on behalf of Council provided a summary of the economic assessment report prepared by Formative Ltd and included as Appendix 8 to the s42A report. He reiterated that the assessment showed that PC5E would generate a better outcome for society as a whole, noting that for some landowners, the costs to mitigate the road or rail noise would be higher.
12. Mr Yeoman set out five points of agreement he had with the evidence presented on behalf of Waka Kotahi and KiwiRail from Dr Chiles, Waka Kotahi from Mr Pearson and KiwiRail from Ms Grinlinton-Hancock. There were no points of disagreement.
13. Mr Yeoman also discussed points of agreement and disagreement he had with the submission from Kāinga Ora (noting that there was no evidence provided by Kāinga Ora). In particular, he agreed that the s32 report did not address the development capacity that could be enabled by the NPS-UD. The subsequent Economic Assessment does provide that information and this report concludes that the impact of the rules on the housing supply are likely to be relatively small. Furthermore, the assessment shows that the additional costs that landholders will bear as a result of the rules are unlikely to impact the feasibility of development in areas subject to road and rail noise.
14. In response to questions from the Panel, Mr Yeoman reiterated that the issue of whether to subsidise a landowner for mitigation costs is a political matter to be addressed, not an economic matter. He also agreed that costs associated with mitigation will to some extent be reflected in land values.
15. Ms Stowell provided a summary of her evidence contained in the s42A report. She noted that due to the late lodging of evidence from Mr Lewthwaite, she had not been able to consult with Council officers and experts on a number of the matters that he had raised, noting that there were a number of points raised which she had 'partial agreement'⁴. The Panel agreed that a number of the matters raised by Mr Lewthwaite appeared helpful and should be considered further. Accordingly, the Panel encouraged the parties to work through those matters and provide an updated response in the Council right of reply.
16. Ms Stowell noted that some of the suggestions in submissions and evidence around adding additional provisions to the proposed rule (such as in relation to ventilation and temperature parameters) appear overly prescriptive, potentially duplicate the Building Act/Code and would be contrary to Strategic Objective 3.3.2.a.i.B in relation

⁴ Refer to evidence of Ms Stowell, 13 February 2023, paragraphs 8 – 10.

to minimising development controls and design standards so as to encourage innovation and choice.

17. Ms Stowell responded to a number of questions from the Panel with respect to the relevance of higher order planning documents, the application of the approach to such documents as set out in the *King Salmon* decisions and the relevance of the objectives and policies of the Christchurch District Plan. She confirmed that:
 - a. the objectives and policies of the Christchurch District Plan as set out in paragraph 6.1.1 and Appendix 4 of the s42A report, as well as the additional 12 objectives and policies provided to her from the Panel were the relevant ones;
 - b. in summary, there is a policy direction in the Christchurch District Plan that requires strategic infrastructure to **manage** adverse effects, while land use activities (particularly residential) have to **avoid** reverse sensitivity effects; and
 - c. the use of the word '*including*' in Policy 14.2.3.1 prior to the list of strategic infrastructure means they are examples rather than a restrictive list, which means this includes Collector Roads as well as Major and Minor roads.

18. Ms Stowell agreed that including the words "*...outside the Central City*" to the heading of Rule 6.1.7.2.1 would be the better location rather than as a NOTE at the end of the rule. She also agreed that the numbering within the proposed rule as contained in Appendix 13 of the s42A report needs to be corrected and that she would reconsider whether there is clarity around the term '*Railways*' in the rule given that a number of different terms are used within this part of the rule. She also would reconsider amending the wording of Rule 6.1.7.2.1.i.a by the addition of '*or similar*' and adding some examples of uninhabitable spaces as suggested by Mr Lewthwaite.⁵

19. The Panel invited Ms Stowell to address the matters raised in questions and information from the Panel in the Council's right of reply.

20. Ms Grinlinton-Hancock presented a statement of evidence on behalf of KiwiRail, focusing on the outstanding matter of where to take the railway measurement. She accepted that the measurement distance can be taken from an aerial photo and that there is no need to physically go into the designated area. Accordingly, the Council officer's recommendation for the measurement to be taken from the centre of the nearest track was accepted.

21. In response to a Panel question, Ms Grinlinton-Hancock agreed that CRPS objective 5.2.2 and Policies 5.3.8 and 5.3.9 are not relevant to KiwiRail as they only apply

⁵ Refer to evidence of Mr Lewthwaite, 8 February 2023, paragraph 26
Christchurch District Plan: Plan Change 5E - Noise - Recommendation Report - Final 20 March 2023

outside the Greater Christchurch area where KiwiRail does not have any railway assets.

22. Dr Chiles presented evidence on behalf of Waka Kotahi and KiwiRail and he confirmed his opinion that the proposed rule (with recommended amendments) is a moderate requirement to manage road and rail noise. He noted that while barriers and bunds could be cost effective for larger new developments, such options were not physically practical or cost effective for individual smaller developments.
23. With respect to the matter of ventilation and temperature control, Dr Chiles confirmed his opinion that specifying an inside temperate range to be achieved by air conditioning was required.
24. In response to a question from the Panel, Dr Chiles confirmed his support for the 3dB addition to predicted sound levels as it accommodated both growth in traffic volumes and provides an allowance for the high level of uncertainty.
25. Mr Pearson spoke to his evidence on behalf of Waka Kotahi and confirmed that he was comfortable with respect to the proposed location of the road measurement.
26. Mr Lewthwaite, on behalf of Powell Fenwick Ltd, presented his evidence and provided responses to questions from the Panel. Mr Lewthwaite also advised of the following:
 - a. the existing rule is wide open to different interpretations and needs to be rewritten to provide certainty;
 - b. the proposed ventilation and temperature provisions were not a duplication of matters that would be addressed through the building consent process, as although the consent plans may show ventilation required, the electrician or builder would put in their choice (which may just be a fan), the matter would not be subject to building consent compliance and hence road or rail noise would not be addressed;
 - c. a mechanical analysis is required where noise is an issue to confirm the ventilation requirements. For a small scale analysis (such as for a dwelling) this could add costs up to around \$5,000.00;
 - d. testing for internal noise compliance is difficult and expensive to measure, so need to rely on the modelling;
 - e. he was not aware of any complaints being made to Council with respect to noise from ventilation systems;
 - f. the measurement of air changes/hour will vary depending on a number of factors including wind direction/velocity, whether curtains or doors are open or closed; and

- g. a standard 2.5kw heat pump would be sufficient to achieve the necessary temperature.

Scope of Submissions

- 27. At Section 3 of our previous Recommendation Report on PC5 dated 17 June 2022, we addressed in some detail the legal issues relating to whether a submission is on the Plan Change. We identified, and in later sections applied, a series of tests to determine our jurisdiction to determine specific submissions. The Panel has had regard to these tests in relation to parts of the submissions from Kāinga Ora and Marshall Day Ltd.
- 28. Mr Pizzey also referred to these matters in his legal submissions.
- 29. With regard to the submission point on noise mitigation at source from Kāinga Ora, the Panel agreed with Mr Pizzey's assessment that it contained some ambiguity and possibly sought a decision that was outside the power of the Panel to recommend to Council⁶. The situation of there being no evidence provided by Kāinga Ora meant that clarification on its submission was not available to the Panel. However, having regard to the eight tests, the Panel was satisfied that the submission did not raise any matters related to Tests 1, 2, 3, 4 or 5 that had not been addressed in the s32 report, was out of left field or completely novel (such as noise reduction measures in the road corridor⁷). Accordingly, the Panel accepted the submission was in scope, but it was a matter of the relative weight to be attached to the submission.
- 30. The Panel considered the submission point from Marshall Day Ltd as to whether there should be an upper noise limit where the noise sensitive development should be avoided. No evidence was provided by Marshall Day, and as a result no clarification on its submission was available to the Panel. However, having regard to the scope tests, the Panel was satisfied that the submission did not raise any matters that put it out of scope. This issue is considered further under Issue 8 below.

Principal issues

- 31. Council's s42A report⁸ and the legal submissions⁹ addressed eight issues that were subject to submissions. This report addresses each of these issues in the same order as the s42A report, noting those that were/were not subject to either legal submissions or evidence at the hearing of PC5E.

Principal Issue 1: Approve PC5E

⁶ Refer to paragraph 19 of the CCC legal submissions, 8 February 2023

⁷ Refer to the table in Section 5.3, Issue 4, Option 2: *The roading authority, including noise reduction measures in the road corridor*

⁸ Refer to Section 8 of the s42A report, pages 17 - 38

⁹ Refer to paragraphs 16 and 21 - 42 of the CCC legal submissions, 8 February 2023

32. The s42A report¹⁰ sets out the seven submissions that support the plan change as proposed. No specific evidence was produced with respect to these submissions and the Panel concurs with the officer recommendation to accept the submissions in whole or part to enable amendments to be made.

Principle Issue 2: Removal of the façade reduction method option

33. The s42A report¹¹ notes that the meeting of the acoustic experts agreed to the removal of the façade reduction method as the internal noise level method provides certainty from an acoustic perspective.

34. The Panel generally concurs with the planning evidence of Ms Stowell on behalf of Council. The Panel indicated that the reference to the rule not applying in the Central City is better placed in the heading of the rule rather than as a 'Note' and Ms Stowell accepted that preference. The Panel noted that amended wording of the rule to remove duplication and to clarify other provisions will be provided in the Council right of reply.

Principle Issue 3: Scope of rule application

35. The s42A report¹² notes the only area of agreement with the submissions is in relation to applying the rule to the conversion of existing buildings to sensitive uses. The Panel concurs with that amendment and also concurs with rejecting the other amendments sought for the reasons set out in the s42A report, noting that no additional evidence was presented by the submitters in respect of these matters.

Principle Issue 4: Location of Noise Assessment

36. The s42A report¹³ notes the areas of agreement with submitters where rule clarity and user friendliness of the rule has led to recommended changes. The matter of the measurement location in relation to railways was addressed in the evidence of Dr Trevathan¹⁴ on behalf of Council and from Ms Grinlinton-Hancock on behalf of KiwiRail who accepted the Council position¹⁵.

37. The Panel concurs with that amendment and also concurs with rejecting the other amendments sought for the reasons set out in the s42A report.

¹⁰ Refer to Section 8.3 of the s42A report

¹¹ Refer to Section 8.4 of the s42A report

¹² Refer to Section 8.5 of the s42A report

¹³ Refer to Section 8.6 of the s42A report

¹⁴ Refer to paragraph 3.1 of Dr Trevathan's evidence, 13 February 2023

¹⁵ Refer to paragraph 20 of this Report

Principle Issue 5: Ventilation

38. The s42A report¹⁶ discusses the differences of opinion with respect to temperature control and air flow rules between the experts (including the noise standards associated with mechanical ventilation). The Panel questioned the experts with regard to this matter as it was concerned that the proposed rules were potentially duplicating the provisions of the Building Act/Code, were imposing significant additional cost (with respect to professional assessment, compliance, administration/monitoring and operation) or were prescribing a level of rule detail (rather than an outcome) that was potentially contrary to *Strategic Objective 3.3.2 – Clarity of language and efficiency*.
39. As noted in Paragraph 16 of this Report, the Panel invited Council to undertake further discussions with submitters with respect to this matter and to provide the Panel with an update in its Right of Reply.
40. The Council response relating to ventilation is set out in the Reply Planning Assessment of Ms Stowell and addresses the following matters:
- (a) The need for “...*appropriately qualified and experienced designer...*” clause. The Panel notes that the parties have agreed that this clause is not necessary and that the provisions of clause G4 of the Building Code can be relied on. The Panel concurs with this agreement and the proposed wording¹⁷; and
 - (b) The need for stating minimum air flows. The Panel notes that Ms Stowell has discussed this matter with Mr Lewthwaite and they have agreed that the provisions of clause G4 of the Building Code or any amendments or replacement of the clause can be relied on. The Panel concurs with this agreement and the proposed wording¹⁸.

Issue 6: Financial burden on landowners to mitigate effects generated by others

41. The s42A report¹⁹ notes that there was only the one submission from Kāinga Ora with respect to this matter. All of the evidence presented to the Panel was from Council experts in support of the Council position, with no evidence being provided by Kāinga Ora.

¹⁶ Refer to Section 8.7 of the s42A report

¹⁷ Refer to paragraphs 3 – 8 of the Council Right of Reply – Planning Assessment of Abigail Stowell, 24 February 2023

¹⁸ Refer to paragraphs 9 - 14 of the Council Right of Reply – Planning Assessment of Abigail Stowell, 24 February 2023

¹⁹ Refer to Section 8.8 of the s42A report

42. As discussed in Paragraph 17 of this Report, the policy direction set out in the Christchurch District Plan can be summarised as being that strategic infrastructure is required to **manage** the adverse effects arising from its operation, while land use activities (particularly residential activities) are required to **avoid** reverse sensitivity effects on strategic infrastructure. This is most succinctly set out in Residential Policy 14.2.3.1 – *Avoidance of adverse effects on strategic infrastructure*.
43. The Panel is of the opinion that none of the policy situations set out in the *King Salmon* decision arise (such as ambiguity, conflict or void), that would require any recourse to or reliance on higher order documents. No changes to the Canterbury Regional Policy Statement ('CRPS') have been made (especially with respect to Chapter 6 – *Recovery and rebuilding of Greater Christchurch*) and the only new higher order document that is relevant and has been introduced is the National Policy Statement on Urban Development (2020) ('NPS-UD'). Consideration and analysis of the higher order statutory and other instruments has been undertaken in both the s32 Report and the s42A Report²⁰. The Panel concurs with and adopts that analysis of the relevant higher order planning documents.
44. The Panel understands that Council is currently preparing Plan Change 14 to meet the requirements of the NPS-UD, but that is some months away. No evidence was presented that the provisions within PC5E were in any way contrary to or did not give effect to the policy direction in the NPS-UD with respect to contributing to "...well-functioning urban environments..." (refer in particular to Policies 1, 6 and 8 of the NPS-UD).
45. The Panel considers that Chapter 6 of the CRPS represents the most up to date expression of what a well-functioning urban environment means for Christchurch. The Panel also considers that the Christchurch District Plan is a recent planning document that has been prepared to give effect to the CRPS, along with other recovery plans and strategies prepared following the Canterbury Earthquakes.
46. The Panel concurs with the planning evidence of Ms Stowell and the legal submission from Mr Pizzey²¹ on behalf of Council that the submission from Kāinga Ora should be rejected.

Issue 7: Consistency with the National Policy Statement on Urban Development (NPS-UD)

47. The matter is addressed in the s42A report²² noting the further planning analysis and economic assessment that has been undertaken to address this submission. The

²⁰ Refer to part 5 of the s42A report

²¹ Refer to paragraph 19 of the Council legal submissions, 8 February 2023

²² Refer to Section 8.9 of the s42A report

Panel’s consideration is set out in paragraphs 42 – 47 previously and we concur with the planning evidence of Ms Stowell.

Issue 8: Upper external noise limit

48. The s42A report²³ notes that there is only one submission from Marshall Day on this issue. No evidence was provided to the Panel from the submitter. Accordingly, the Panel gave little weight to the submission. The Panel agrees with Ms Stowell that the matter does have some merit. However, as noted in the previous decision recommendation report, the Panel is of the opinion that PC5 is in the form of a “*mid-term tidy up*”. However, it considers the issue raised, while being within scope, raises wider issues than the specific matters contained in PC5E and should be considered later alongside a wider and more in-depth review of the Noise Chapter.

Section 32AA Report

49. As discussed in this report, comprehensive s32 and s42A reports were prepared by the Council. The s42A report also contained a s32AA²⁴ report and included a s32AA assessment within each relevant section throughout Section 8 of the s42A report.

50. Following the hearing of submissions, the Council continued with further discussions with submitters and provided a s32AA analysis in the form of an additional planning assessment by Ms Stowell, to support any further changes as part of the Council Right of Reply.

51. The Panel has adopted the 32AA assessment provided and this is attached at **Appendix 3**.

Recommendation

52. It is recommended that the Christchurch City Council make the following decisions as set out in **Appendix 1** – Recommended Decision:


- a. Delete current Rule 6.1.7.2.1 – *Sensitive activities near roads and railways* and replace with new Rule 6.1.7.2.1– *Sensitive activities near roads and railways outside the Central City*;
- b. Insert new matters of discretion to Rule 6.1.8 – Matters of discretion; and
- c. Insert new Rule 6.1.7.2.3 – Sensitive activities near roads in the Central City.

²³ Refer to Section 8.10 of the s42A report

²⁴ Refer to Appendix 2 of the s42A report

53. It is recommended that the Christchurch City Council accept and reject the submissions as set out in **Appendix 2** – Table of Submissions with Recommended Decisions and Reasons.

Appendix 1 - PC5E Noise Recommended Decision

 <p>Christchurch City Council</p>	<p>Resource Management Act 1991 Christchurch District Plan Proposed Plan Change</p>	<p>5E</p>
--	---	-----------

DISTRICT PLAN AMENDMENTS

Note: For the purposes of this plan change, any unchanged text is shown as normal text, and text proposed to be added by the plan change as notified is shown as **bold underlined** and text to be deleted as ~~**bold strikethrough**~~.

Text in **green** font identifies existing terms defined in Chapter 2 – Definitions. Where a term is defined in the newly added bold text, it will show as **bold underlined green** text.

Text in **blue and underlined** font shows links to other provisions in the e-plan or to external documents. These have pop-ups and hyperlinks, respectively, in the on-line Christchurch District Plan.

Changes recommended by the Independent Hearings Panel is shown as **bold underlined in red** for additional text and ~~**bold strikethrough in red**~~ for text to be deleted. Where the additional text includes a defined term, this is shown as **red bold dotted underline**.

Amend the District Plan as follows:

1. Insert new rule 6.1.7.2.1 – Sensitive activities near roads and railways **outside the central city**.

6.1.7.2.1 – Sensitive activities near roads and railways outside the central city

- ~~**i-**~~ **a.** Any **part of an** addition of a whole room to an existing **building**, or any part of a new **building**, intended for a **Sensitive Activity**, ~~**or the conversion of an existing building so that it may be used for a sensitive activity**~~ within the distances specified from a **road** or a railway network, shall be designed and constructed so that noise from **road** or railway sources will not exceed internal sound design levels specified in ~~**the table**~~ **Table 1.** below, ~~**except where:**~~
 - i.** the space is ~~**one of the following non-habitable and only able to be occupied in a transient manner such as – plant rooms, lift shafts, storage spaces,**~~ stairwells, bathrooms, laundry rooms, toilets, pantries, walk-in wardrobes, corridors, clothes drying rooms, or entrance areas; ~~**or**~~
 - ii.** the nearest façade of the **building** is at least 50 metres from all state highways, ~~**and railways tracks, and rail sidings,**~~ and there is a solid **building, fence, wall** or landform that blocks the line-of-sight from all parts of all **windows** and doors to all parts of any state **highway road** surface or all points 3.8 metres above railway tracks.

[Note: The following is for information only and is not part of the plan change. Exceptions i. and ii. above have been transferred (with wording changes) from the end of Table 1 to the beginning of Table 1]

Table 1: Internal sound design levels near roads and railways

Measurement point for road or railway	Distance (metres)	Internal design sound levels (i)	
		Bedrooms	Other habitable spaces and spaces used for other sensitive activities:
Centre of the nearest railway track including railway sidings on private property	100	35dB L_{AeFg} (1h)	40dB L_{AeFg} (1h)
Nearest Boundary edge of the nearest marked traffic lane of any State Highway, or the nearest sealed edge of the road where there is no marking.	100	40dB L_{AeFg} (24h)	
Nearest edge of the nearest Marked-marked traffic lane of any Major or Minor Arterial road, or the nearest sealed edge of the road where there is no marking.	40		
Nearest edge of the nearest Marked-marked traffic lane of any Collector Road, or the nearest sealed edge of the road when there is no marking.	20		

Except where:

- a. the space is one of the following—storage spaces, stairwells, bathrooms, laundry rooms, toilets, pantries, walk-in wardrobes, corridors, clothes drying rooms, or entrance areas; or
- b. the sound incident on the most exposed part of the proposed façade of the affected space is less than 55 dB $L_{Aeq}(1h)$ for rail noise or 57 dB $L_{Aeq}(24h)$ for road traffic noise.
- c. the nearest façade of the building is at least 50 metres from all state highways, railways, and rail sidings, and there is a solid building, fence, wall or landform that blocks the line of sight from all parts of all windows and doors to all parts of any state highway road surface or all points 3.8 metres above railway tracks.

- ii. b. Compliance with this Rule 6.1.7.2.1. i shall be demonstrated by either:
 - i. providing the Council with a design report before construction at the same time as the building consent application, which is prepared by a suitably qualified acoustics specialist, stating that the design proposed is capable of meeting the required internal noise levels; or

- ii. providing Council with a report at the same time as the building consent application, which is prepared by a suitably qualified acoustics specialist, stating that the sound incident on the most exposed part of the proposed façade of the affected space is less than 55 dB $L_{Aeq}(1h)$ for rail noise or less than 57 dB $L_{Aeq}(24h)$ for road traffic noise.
- c. Compliance with Rule 6.1.7.2.1.a. and Rule 6.1.7.2.1.b. is not required if the exceptions in Rule 6.1.7.2.1 a. i. or ii. apply.
- iii. d. Determination of the internal design sound levels, including any calculations, shall be based on the following considerations in accordance with the following requirements:
- a. i. Railway noise shall be deemed:
- A. to be 70dB $L_{Aeq}(1h)$ at a distance of 12 metres from the edge of the nearest railway track or the centre of the track where it is a rail siding; and
- B. to reduce at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres;
- b. ii. Road noise is to be based on either:†
- A. measured or predicted noise levels plus 3 dB added to predicted sound levels; or
- B. based on calculated from forecast traffic in 20 years' time.
- ~~c. Where no traffic lane is marked, the distances shall be measured from 2m on the roadward side of the formed kerb measured from the nearest edge of the road. The classification of roads is shown in Appendix 7.5.12 Road Classification System.~~
- d. iii. Any external noise levels shall be assessed at the location of the most exposed part of the each proposed façade of the affected space(s).
- e. iv. Any calculations of noise for the purpose of determining internal noise levels shall take into account all of the relevant external elements of a habitable space at the same time, including roof areas and walls.
- f. v. Internal design sound levels shall be achieved in conjunction with the ventilation requirements of the New Zealand Building Code, or an amendment to or replacement of the Building Code. If windows are required to be closed to achieve the internal design sound levels, then a mechanical ventilation system is and an air conditioning unit are required.
- iv. e. Mechanical ventilation systems shall meet the following specifications when running:
- a. i. Mechanical ventilation must satisfy clause G4 of the New Zealand Building Code, or any amendment to or replacement of that clause, as if the windows and external doors cannot be opened; and
- b. Achieve a minimum of 7.5 litres of air per second per person; and
- c. ii. 35 dB $L_{Aeq}(30s)$ at night time in bedrooms when measured 1 metre away from any grille or diffuser; and
- d. iii. 40 dB $L_{Aeq}(30s)$ in any other space when measured 1 metre away from any grille or diffuser.
- f. Air conditioning units shall meet the following specifications when running:
- a. i. 35 dB $L_{Aeq}(30s)$ at night time in bedrooms when measured 1 metre away from any grille or diffuser; and
- b. ii. 40 dB $L_{Aeq}(30s)$ in any other space when measured 1 metre away from any grille or diffuser.

2. Insert new matters of discretion.

6.1.8 Rules – Matters of discretion

(...)

- xii The extent to which achieving the standard may give rise to adverse effects on the heritage values associated with a building listed in Appendix 9.3.7.2 (Schedule of Significant Historic Heritage) that outweigh the benefits of noise insulation.

Advice note: Specialist heritage advice may help determine the appropriateness of any building solutions to manage the adverse effects of noise from roads and railways.

3. Delete current rule 6.1.7.2.1 Sensitive activities near roads and railways.

6.1.7.2.1 Sensitive activities near roads and railways

- a. ~~The following activity standards apply to new **buildings**, or alterations or additions to existing **buildings**, intended for a **sensitive activity**:~~

- i. ~~External sound insulation – Any new **building** intended for a **sensitive activity**, and any alteration or addition to an existing **building** intended for a **sensitive activity**, located within 80 metres of the boundary of any state highway or railway designation, or within 20 metres of the edge of the nearest marked traffic lane of a **collector road**, or within 40 metres of the edge of the nearest marked traffic lane of a Main Distributor, Local Distributor or **arterial road**, shall either:~~

~~A. be designed and constructed to achieve a minimum external to internal noise reduction of 30 dB $D_{tr,2m,nT,w} + C_{tr}$ to any **habitable space**; or~~

~~B. be designed and constructed to meet with the following indoor design sound levels:~~

~~I. Rail noise inside bedrooms between 22:00 hours and 07:00 hours – 35 dB $L_{Aeq}(1h)$;~~

~~II. Rail noise inside **habitable spaces** excluding bedrooms – 40 dB $L_{Aeq}(1h)$;~~

~~III. **Road** traffic noise inside all **habitable spaces** – 40 dB $L_{Aeq}(24hr)$; and~~

~~IV. Rail and **road** traffic noise within any other **building** intended for a **sensitive activity** – maximum value recommended in AS/NZS2107:2000.~~

~~except where either:~~

~~I. the sound incident on the most exposed part of the outside of the **building** is less than 55 dB $L_{Aeq}(1h)$ for rail noise or 57 dB $L_{Aeq}(24h)$ for **road** traffic noise; or~~

~~II. the nearest façade of the **building** is at least 50 metres from all state highway and railway designations and there is a solid **building**, fence, wall or landform that blocks the line of sight~~

from all parts of all **windows** and doors to all parts of any state highway **road** surface or all points 3.8 metres above railway tracks.

- ii. Compliance with **Rule 6.1.7.2.1** can be achieved by either:
 - A. providing the **Council** with a design report (prior to construction) and a design certificate (prior to occupation) prepared by a suitably qualified acoustics specialist stating the design proposed is capable of meeting activity standard a.i.; and/or
 - B. conforming to the acceptable solutions listed in **Appendix 6.11.4** Noise Attenuation Construction Requirements.
- iii. For the purposes of ventilation systems, compliance with **Rule 6.1.7.2.1** shall be confirmed by providing the product specifications; or a design certificate (prior to occupation) prepared by a suitably qualified acoustics specialist, stating the design proposed is capable of meeting the activity standards.
- iv. Rail noise shall be deemed to be 70 **L_{AEG}** (1h) at a distance of 12 metres from the edge of the track, and shall be deemed to reduce at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres;
- v. Compliance with **Rule 6.1.7.2.1** a.i.B. shall be confirmed by providing the **Council** with a design report prepared by a qualified acoustic engineer demonstrating compliance, prior to any **sensitive activity** or alteration occurring. The design shall take into account future permitted use of the **collector roads** and **arterial roads**, and railway and state highway designations outside the **Central City**, either by the addition of 2 dB to predicted sound levels or based on forecast traffic in 20 years' time.
- vi. The indoor design sound levels in **Rule 6.1.7.2.1** a.i.B shall be achieved at the same time as the ventilation requirements of the **New Zealand Building Code**. If **windows** are required to be closed to achieve the indoor design sound levels then an alternative means of ventilation shall be required within bedrooms.
- vii. Where no traffic lane is marked, the distances stated shall be measured from 2 metres on the roadward side of the formed kerb. The classification of **roads** is shown in **Appendix 7.5.12** Road Classification System.
- viii. Ventilation systems where **installed** shall:
 - A. generate sound levels not exceeding
 - I. 35 dB **L_{AEG}** (30s) at night time in bedrooms; and
 - II. 40 dB **L_{AEG}** (30s) in any other **habitable space** (excluding bedrooms) when measured 1 metre away from any grille or diffuser; and
 - B. provide an adjustable airflow rate of up to at least 6 air changes per hour.

4. Insert new rule 6.1.7.2.3 Sensitive activities near roads in the Central City

6.1.7.2.3 Sensitive activities near roads in the Central City

- a. **The following activity standards apply to new buildings, or alterations or additions to existing buildings, intended for a sensitive activity:**
 - i. **External sound insulation - Any new building intended for a sensitive activity, and any alteration or addition to an existing building intended for a sensitive activity, located**

within 40 metres of the edge of the nearest marked traffic lane of a Main Distributor, Local Distributor or arterial road, shall either:

- A. be designed and constructed to achieve a minimum external to internal noise reduction of 30 dB $D_{tr,2m,nT,w} + C_{tr}$ to any habitable space; or
 - B. be designed and constructed to meet with the following indoor design sound level:
 - I. Road traffic noise inside all habitable spaces – 40 dB L_{Aeq} (24hr); and
- ii. Compliance with rule 6.1.7.2.3.a.i is not required where the sound incident on the most exposed part of the outside of the building is less than 55 dB L_{Aeq} (1h) for rail noise or 57 dB L_{Aeq} (24h) for road traffic noise, and this is confirmed in a report which is prepared by a suitably qualified acoustics specialist and is provided to Council at the same time as the building consent application.
- iii. Compliance with Rule 6.1.7.2.3.a.i shall be demonstrated by either:
- A. providing the Council with a design report (prior to construction) and a design certificate (prior to occupation), which is prepared by a suitably qualified acoustics specialist stating the design proposed is capable of meeting activity standard a.i.; and/or
 - B. conforming to the acceptable solutions listed in Appendix 6.11.4 Noise Attenuation Construction Requirements.
- iv. For the purposes of ventilation systems, compliance with Rule 6.1.7.2.3 shall be confirmed by providing the product specifications; or a design certificate (prior to occupation) prepared by a suitably qualified acoustics specialist, stating the design proposed is capable of meeting the activity standards.
- v. Compliance with Rule 6.1.7.2.3 a.i.B. shall be confirmed by providing the Council with a design report prepared by a qualified acoustic engineer demonstrating compliance, prior to any sensitive activity or alteration occurring.
- vi. The indoor design sound levels in Rule 6.1.7.2.3 a.i.B shall be achieved at the same time as the ventilation requirements of the New Zealand Building Code. If windows are required to be closed to achieve the indoor design sound levels then an alternative means of ventilation shall be required within bedrooms.
- vii. Where no traffic lane is marked, the distances stated shall be measured from 2 metres on the roadward side of the formed kerb. The classification of roads is shown in Appendix 7.5.12 Road Classification System.
- viii. Ventilation systems where installed shall:
- A. generate sound levels not exceeding
 - I. 35 dB L_{Aeq} (30s) at night time in bedrooms; and
 - II. 40 dB L_{Aeq} (30s) in any other habitable space (excluding bedrooms) when measured 1 metre away from any grille or diffuser; and
 - B. provide an adjustable airflow rate of up to at least 6 air changes per hour.

APPENDIX 2

PROPOSED PLAN CHANGE 5E - NOISE

TABLE OF SUBMISSIONS WITH RECOMMENDED DECISIONS AND REASONS

Submitter	Submission No.	Decision No.	Request	Decision Sought		Recommendation and Reasons
Marshall Day Acoustics	S25	S25.1	Oppose in part	<i>Retain an option for a façade reduction method and updated acceptable solutions for compliance.</i>		Reject Acoustic experts agreed that the internal noise level method provides certainty and is the preferable method.
			Further submission No.	Further Submitter	Support / Oppose	
			FS11.13	Kāinga Ora	Support	Reject
		S25.2	Amend	<i>Amend clause (i) of 6.1.7.2.1 to clarify the application of the rule to existing buildings with changed use to a sensitive activity.</i>		Accept The rule should apply equally to new and conversions to buildings where sensitive activities are to be undertaken.
			Further submission No.	Further Submitter	Support / Oppose	
			FS11.14	Kāinga Ora	Support	Accept

Submitter	Submission No.	Decision No.	Request	Decision Sought		Recommendation and Reasons
		S25.3	Amend	Amend rule 6.1.7.2.1 to include a <i>further qualification such as 'Collector Roads with a traffic volume greater than XXXX vehicles per day (AADT)'. The actual number of vehicles will require further analysis to confirm.</i>		Reject The noise experts agreed that the 57 dB exemption was an adequate way to filter out low noise collector roads.
			Further submission No.	Further Submitter	Support / Oppose	
			FS11.15	Kāinga Ora	Oppose in part	Reject
		S25.4	Amend	Amend the wording in clause iii.d. to read <i>"External noise levels shall be assessed at the location of the most exposed part of each proposed façade of the affected space(s)."</i>		Accept All façades need to have noise protection.
		S25.5	Amend	Amend the rule (6.1.7.2.1) to provide clarity of the requirements. Specifically, the rule should include features/ specifications for a ventilation system such as the need to maintain the façade sound insulation and achieve suitable internal temperatures while windows are closed. In addition, the reference to Building Code G4 is irrelevant.		Accept in part Compliance with clause G4 of the Building Code was agreed by the noise experts as the best method for achieving mechanical ventilation and a specific additional rule was required for air conditioning. While the final wording is different to that proposed following the noise experts meeting, it has been agreed following the hearing.
		S25.6	Amend	Amend the rule to <i>"consider an upper external noise limit above which the overall design of the noise-sensitive development must be considered."</i> This is in the absence of a requirement in the plan to consider external		Reject Setting an outdoor noise level is impractical as uses for outdoor areas and associated tolerances vary widely.

Submitter	Submission No.	Decision No.	Request	Decision Sought		Recommendation and Reasons
				noise levels in 'external amenity spaces' (outdoor spaces).		This matter could be considered as part of a wider ranging review of the noise provisions at a later date.
			Further submission No.	Further Submitter	Support / Oppose	
			FS11.16	Kāinga Ora	Oppose in part	Reject
		S25.7	Amend	To “consider including a minimum acoustic standard (that may be relaxed compared to the new building standard) for noise-sensitive activities in heritage buildings to avoid significant adverse noise effects on occupants.” [Rule 6.1.7.2.1 and Matters of discretion 6.1.8(xii)]		Reject A practical minimum standard for heritage buildings will vary between buildings and their use. The matter of discretion will address this variability.
Powell Fenwick	S41	S41.1	Amend	Questions the clarity of the wording in i. of the notified provisions, particularly whether it might be better to replace “measurement point for road or railway” in i. with “datum”		Reject The datum is not specific and the noise experts agreed that the proposed measurement locations are the better ways in which to measure noise.
		S41.2	Amend	Questions the clarity of the wording in i. of the notified provisions, particularly whether or not “Marked traffic lane...” is the centre of or closest edge of?” and “are all classified roads are marked?”		Accept The rule has been amended to make the edge of the road the measuring point.
		S41.3	Amend	Points out that “iii.c. could be moved to an earlier position in the rule.”		Accept

Submitter	Submission No.	Decision No.	Request	Decision Sought	Recommendation and Reasons
					The rule has been deleted as it is not required with the amendments to the measuring locations.
		S41.4	Amend	PF asks to include <i>“the words “or similar” or “such as” or “typically briefly occupied spaces”</i> in i.a.	Accept The rule has been amended to refer to ‘non-habitable’ spaces along with examples which satisfies the intent of the submission point.
		S41.5	Amend	To improve clarity, PF suggests amending wording in ii. <i>“... before construction”</i> and making it clear that the relevant documentation is required with the building consent application.	Accept The rule has been amended to clarify when a report is required which satisfies the intent of the submission point.
		S41.6	Amend	PF is concerned with the wording in point iii.d. of the notified provisions and states <i>“each façade has different exposure levels, and these should be able to be assessed separately.”</i>	Accept The rule wording has been amended to refer to each exposed façade which satisfies the intent of the submission point.
		S41.7	Amend	PF considers iv.b. to be an <i>“unnecessary duplication with iv.a. and only is correct for double bedrooms – other spaces will have other requirements in NZBC”</i> and <i>“suggests deleting this.”</i>	Accept The rule has been amended to require mechanical ventilation in accordance with the Building Code and with an air conditioning standard.
Kāinga Ora	S42	S42.1	Oppose	Kāinga Ora asks that PC5E be withdrawn.	Reject No other submitter sought rejection of PC5E and Kāinga Ora provided no evidence in support of its submission

Submitter	Submission No.	Decision No.	Request	Decision Sought	Recommendation and Reasons
		S42.2	Oppose	Kāinga Ora opposes in particular <i>“Rule 6.1.7.2 in so far as i. requires landowners to manage effects generated by other parties;”</i>	Reject The policy direction in the Christchurch District Plan requires strategic infrastructure to manage adverse effects, while land use activities (particularly residential) have to avoid reverse sensitivity effects. The plan change does not seek to alter this policy direction nor did Kāinga Ora provide any evidence in support of its submission.
		S42.3	Oppose	Kāinga Ora opposes in particular <i>“Rule 6.1.7.2 in so far as it increases the distance required to provide noise insulation incorporating an additional 2,832 properties.”</i>	Reject The acoustic experts agreed on the distance requirements and only some properties would be undertaking major changes that would also require additional noise insulation.
		S42.4	Oppose	Kāinga Ora opposes in particular <i>Rule 6.1.7.2 in so far as it applies the 35dB LAeq (1h) limit for bedrooms at all times of day, not just at night time.”</i>	Reject People sleep at different times of the day (such as shift workers, children, sick) and working from home requires quiet working space.
		S42.5	Oppose	Kāinga Ora opposes in particular Rule 6.1.7.2 because it is <i>“not accompanied by detailed maps with site-specific assessment considering topography and natural features.”</i>	Reject The rule takes into account the mitigation effect of topography and other buildings if they block the line of sight.
		S42.6	Oppose	Kāinga Ora opposes in particular Rule 6.1.7.2(ii) in so far as it requires <i>“all development within the setback distance to provide an assessment by an acoustics specialist;”</i>	Reject It is accepted that there is an additional step and assessment required in the building process, but the additional cost is outweighed by the significant amenity benefits accruing to residents

Submitter	Submission No.	Decision No.	Request	Decision Sought	Recommendation and Reasons	
					living in a house that for a minimum is likely to be there for 50 years.	
		S42.7	Oppose	Kāinga Ora opposes in particular Rule 6.1.7.2(iii)(b) so far as it requires “ <i>potential future effects generated along the corridors to be mitigated.</i> ”	Reject The rule provides for future traffic volumes to be forecast which does not preclude there being a reduction in traffic volumes.	
KiwiRail	S27	S27.1	Supports	Supports the changes outlined in the Proposed Plan Change 5E as proposed and support that the rule includes private sidings to ensure consistent mitigation approaches.	Accept The rule has been amended to refer to ‘nearest railway track’ removing any distinction between main and siding tracks.	
			Further submission No.	Further Submitter	Support / Oppose	
		FS11.19	Kāinga Ora	Oppose	Reject	
		S27.2	Amend	KiwiRail suggest an alternative wording as follows: <i>Boundary to any railway designation, or the centre of the railway track where this is located on private property.</i>	Accept The rule has been amended for measurements to be taken or deemed a specific distance from the track which does not require physically entering any property.	
			Further submission No.	Further Submitter	Support / Oppose	
			FS10.2	Lyttelton Port Company	Support	Accept
			FS11.20	Kāinga Ora	Oppose	Reject
		S27.3	Amend	KiwiRail suggest the following amendment: ‘ <i>to be 70 laeq(1h) at a distance of 12 metres from the edge of the track; and’...</i>	Accept The acoustic experts agreed with this amendment.	

Submitter	Submission No.	Decision No.	Request	Decision Sought		Recommendation and Reasons
			Further submission No.	Further Submitter		Support / Oppose
			FS10.3	Lyttelton Port Company	Support	Accept
		S27.4	Amend	KiwiRail suggest a minor correction to change 'diffuse' under 6.1.7.2.1.(iv)(c) to 'diffuser'.		Accept This is a spelling correction
Lyttelton Port Company	S7	S7.5	Support	The rule captures rail sidings on private properties. Internal design measures better manage reverse sensitivity effects. Agrees with aim to simply certification process, provided the process is still robust.		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the recommended amendments
Carter Group Ltd	S15	S15.22	Support	Retain provisions in PC5E as notified		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the recommended amendments
AMP Capital Palms Pty Limited	S16	S16.11	Support	Retain provisions in PC5E as notified		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the recommended amendments
TEL Property Nominees Ltd (TEL)	S17	S17.8	Support	Retain provisions in PC5E as notified		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the recommended amendments

Submitter	Submission No.	Decision No.	Request	Decision Sought		Recommendation and Reasons
Peebles Group Ltd	S30	S30.16	Support	Agree with supporting the amendments proposed within PC5E and also agree with seeking to retain the provisions in PC5E as notified		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the proposed amendments
			Further submission No.	Further Submitter		Support / Oppose
			FS14.22	Hospitality Zealand Limited	New Support	Accept
Waka Kotahi	S32	S32.4	Support	PC5E is retained in its entirety		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the proposed amendments
			Further submission No.	Further Submitter		Support / Oppose
			FS11.22	Kāinga Ora	Oppose	Reject
Halswell Hornby Riccarton Community Board	S40	S40.15 and S40.16	Support	Retain distances from roads and railways and include matter of discretion around historic heritage buildings		Accept The submission supports the proposed rule, which is more efficient and effective in its administration following the proposed amendments

Appendix 3 - PC5E Noise S32AA Report

Council Right of Reply – Planning Assessment of Abigail Stowell

24 February 2023

**BEFORE THE HEARINGS PANEL
CHRISTCHURCH DISTRICT PROPOSED PLAN CHANGE 5E**

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of Proposed Plan Change 5E to the Christchurch
District Plan: Noise sensitive activities

COUNCIL RIGHT OF REPLY - PLANNING ASSESSMENT OF ABIGAIL STOWELL

24 FEBRUARY 2023

Christchurch City Council
53 Hereford Street, Christchurch, 8011
PO Box 73016, Christchurch, 8154
Solicitor: BK Pizzey
Tel: 03 941 5550 / 027 553 9368
Email: Brent.Pizzey@ccc.govt.nz

1. My full name is Abigail Stowell. I have prepared the section 42A report on PC5E – Noise Sensitive Activities near Roads and Railways dated 14th December 2022.
2. I here respond on matters raised at the hearing on Plan Change 5E – Noise Sensitive Activities near Roads and Railways. I confirm that I am complying with the Environment Court Practice Note 2023 in preparing this further assessment.

Installer qualifications for mechanical ventilation systems

3. In his evidence at paragraphs 14 - 16¹ Mr Mark Lewthwaite of Powell Fenwick raised the point that the proposed rule does not specify qualifications or experience of mechanical ventilation or air conditioning designers but only requires specific noise and airflow criteria be met. Mr Lewthwaite noted that this raises the questions of who designs the ventilation systems and if they are competent to do so and later in his paragraph 19 how compliance would be assessed. Mr. Lewthwaite’s suggestions are to add an *“appropriately qualified and experienced designer...”* clause or *“deemed to comply”* options.
4. I have considered this evidence and have discussed it with relevant Council staff and Mr Lewthwaite. Following this I have formed the opinion that an *“appropriately qualified and experienced designer...”* or *“deemed to comply”* clause as suggested by Mr. Lewthwaite is overly prescriptive and contrary to the District Plan Objective 3.3.2a.i.B *The District Plan, through its preparation, change, interpretation and implementation: Minimises the number, extent and prescriptiveness of development controls and design standards in the rules, in order to encourage innovation and choice.*
5. However, I do support the essence of Mr. Lewthwaite’s concern, that there should be some level of certainty that the system provided will be fit for purpose.
6. Following discussions with Council building specialists, Mr. Lewthwaite, Dr Trevathan and Dr. Stephen Chiles (who expressed an opinion on this matter at the Noise Experts’ Meeting) we have agreed that the rule should be amended to state that:

Mechanical ventilation systems shall meet the following specifications while running: Satisfy clause G4 of the New Zealand Building Code, or an amendment to or replacement of that clause, as if the windows and external doors cannot be opened; and achieve a minimum of 7.5l of air per person per second

7. The reasoning for the addition of the words *“as if the windows and external doors cannot be opened”* is that when an application for building consent is lodged with the Building Consent Authority (BCA), the BCA assesses whether that application complies with the rules in the District Plan. The building consent application will need to clearly state what mechanical ventilation system is going to be installed and that the specifications of that

¹ Ibid pp.2-3

system ensure that the rule's standard will be met. This provides some assurance that the appropriate mechanical ventilation system will be properly identified in the building consent documents.

8. Without this amendment the BCA would assess whether the openable elements of the building comply with the Building Code. If the windows and external doors provided sufficient ventilation then that would be the end of the check.
9. The reason for removing the requirement to *achieve a minimum of 7.5l of air per person per second* is threefold.
10. First, Council's building consent specialists advise that the set airflow is one current, acceptable solution for the Building Code requirement in Clause G4.3.1 "*Spaces within buildings shall have means of ventilation with outdoor air that will provide an adequate number of air changes to maintain air purity*". It is possible for the Building Code to be satisfied in other ways. District Plan objective 3.3.2a.i.B quoted above requires prescriptiveness be minimised. Preventing full use of the Building Code would be prescriptive.
11. Secondly, 7.5 l of air per person per second is a lower airflow than that required in some buildings including hospitals and education facilities. Those buildings are subject to the proposed rule. This may confuse users who are developing such facilities as although that section of the rule requires only 7.5 l of air per person per second more would be required to meet the Building Code referred to in the first part of the clause.
12. Lastly, acceptable solutions to the Building Code may change and it would be unwieldy to have old solutions required by the District Plan and new ones required by the amended Building Code.
13. I have discussed and agreed these three points with Mr Mark Lewthwaite of Powell Fenwick. This supersedes earlier discussions about prescribed flow rates.
14. I propose to add the words "or an amendment to or replacement of that clause" because counsel informs me that this is required by the "Incorporation by Reference" clause 31 in Schedule 1 of the Act if the Plan intends that a change to the Building Code is incorporated by reference into the District Plan.

Cumulative noise levels

15. During our discussions Mr. Lewthwaite also raised a concern that noise limits are only placed on air conditioners and mechanical ventilation systems individually. However, two complying devices if placed closer than two metres together may cumulatively produce noise above the acceptable limit.

16. I have discussed this with Council staff and consultants and with Dr. Stephen Chiles who gave evidence for Waka Kotahi and KiwiRail. They agree that the cumulative noise levels may exceed the limits imposed by the rule by up to 3dB.
17. However, I have agreed with Mr. Lewthwaite, Dr. Chiles and advisors for Council that I will not be advising inclusion of a clause limiting cumulative noise levels on the following grounds:
 - a. The cumulative noise would only exceed the noise limit if the air conditioning and mechanical ventilation were placed within 2m of each other. This is not common practise.
 - b. Cumulative noise levels would be 3dB at most but could also be lower.
 - c. The inconvenience and cost to the developer of complying with this clause could be significant.

Rule 6.1.7.2.3 applying to Distributor Roads only

18. Mr Lewthwaite, in paragraph 33 of his evidence², notes that rule 6.1.7.2.3 applies to *distributor roads only*. *As the Four Avenues border the Central City and are classified as major arterial roads there would seem to be a gap in acoustic insulation coverage for sensitive activities on the perimeter of the Central City.*
19. I agree with Mr Lewthwaite. That is an unintended gap. I propose the following amendment to 6.1.7.2.3

a.i. External sound insulation - Any new building intended for a sensitive activity, and any alteration or addition to an existing building intended for a sensitive activity, located within 40 metres of the edge of the nearest marked traffic lane of a Main Distributor~~or~~, Local Distributor or arterial road, shall either:
20. Mr Lewthwaite, in his evidence³, raises concerns about the operation of the rule for the parts of dwellings which are essentially unoccupied but do not fit into the list of excluded spaces in the rule and may, as a result, require acoustic insulation.
21. In my evidence at the hearing I acknowledged that the definition does not fully address all possible scenarios; however, I considered that his proposal to add “or similar” would introduce the risk of users changing the way they classify the purpose of rooms so as to avoid insulation requirements, for example bedrooms being named “storage rooms”.

² Ibid p.5

³ Statement of Evidence of Mark Douglas Lewthwaite on behalf of Powell Fenwick Consultants Ltd Acoustic and Mechanical, 8th February 2023, p.4

22. Commissioner Matheson suggested that I consider whether Mr Lewthwaite's concern could be addressed by altering what is an exhaustive list to one that has the potential to include other unoccupied or non-habitable spaces.
23. I agree with using the term "non-habitable" because it removes the possibility of occupants reclassifying their use of potentially habitable spaces to avoid insulation requirements, but allows the addition of spaces that the list overlooks.
24. The term "non-habitable" is not defined in the District Plan and so will carry its ordinary meaning.
25. However, non-habitable only addresses the issue for residential activities and there are other, non-residential activities subject to the rule. Commissioner Matheson raised the possibility of using the word "unoccupied"; however, I consider that this does not address the "reclassifying" risk that I described above as it relates only to the current state of the space i.e. a space can be unoccupied at the time of assessment and occupied at a later date.
26. I therefore recommend the following:

non-habitable and only able to be occupied in a transient manner such as...

27. This wording excludes spaces such as pantries and toilets which can be occupied but only in transient manner. The use of "such as" rather than "including" indicates that the items following help to define what is meant by the phrase "*non-habitable and only able to be occupied in a transient manner*".

When design reports from acoustic experts are needed

28. There was discussion at the hearing about whether the drafting intent was that a design report from an acoustic specialist was required to establish compliance with the three exceptions to the noise insulation standard, being (a) about non-habitable spaces; (b) extent of external noise; and (c) distance and landform. In particular, it was reasonably queried whether an acoustic specialist report should be required to establish compliance with exceptions (a) and (c).
29. My intent, and the Council's intent, is that compliance with exemptions a. and c. do not need a report from an acoustic engineer. However, an acoustic specialist should be required for exemption b. to demonstrate that the sound incident on the exposed part of the house is less than the prescribed level.

30. As a solution I propose to separate exemption (b) from the list of exemptions and include it as a separate option under section ii. of the rule, which states how compliance with the rule is to demonstrated so that it reads as follows:

ii. Compliance with this rule shall be demonstrated by either:

a. providing the Council with a design report before construction at the same time as the building consent application, which is prepared by a suitably qualified acoustics specialist, stating that the design proposed is capable of meeting the required internal noise levels; or

b. Providing Council with a report at the same time as the building consent application, which is prepared by a suitably qualified acoustics specialist, stating that the sound incident on the most exposed part of the proposed façade of the affected space is less than 55 dB LAeq(1h) for rail noise or 57 dB LAeq(24h) for road traffic noise.

except that a design report is not required if the exceptions in 6.1.7.2.1 i a. or b. apply.

31. Further, I recommend relocating the exemptions proposed in the S42A as (a) and (c) so that they are above Table 1 to clearly indicate that the limits in Table 1 do not apply in these cases.

Other miscellaneous corrections

32. A Commissioner queried the consistency within the proposed rules of the terms used to describe railways . I have discussed this with Ms Grinlinton-Hancock, planner for Kiwirail. I propose amending the terms as per her advice, except that KiwiRail prefer the term “rail corridor” and I have kept “rail network” because it is consistent with the rest of the District Plan.

33. I have also made changes to correct spelling errors and numbering identified at the hearing and have added the phrase “or nearest sealed edge of the road where there is no marking” to the relevant roads in Table 1 to improve the clarity of the rule. Further, I have added “or an amendment to or replace of the Building Code” after references to the Building Code to make sure that this rule does not become outdate in the event the Building Code Changes. These are reflected in the revised proposed rules.

Further Assessment of Objectives and Policies in the District Plan

34. The S32 and S42A reports intended to consider the relevant objectives and policies in the District Plan; however, as noted by Commissioner Matheson, they did not refer to a number of relevant objectives and policies.

35. A full assessment of how the proposed rule relates to the additional policies and objectives follows.

Objective 3.3.7 Urban growth, form and design

- a. *A well-integrated pattern of development and infrastructure, a consolidated urban form, and a high quality urban environment that:*
- ix. *Promotes the safe, efficient and effective provision and use of infrastructure, including the optimisation of the use of existing infrastructure; and*
36. The proposed rule ensures that sensitive activities near roads and railways are adequately insulated to ensure that the occupants are not exposed to levels of noise which may be detrimental to their health and wellbeing. This allows for urban form to consolidate around infrastructure without compromising the quality of the indoor environment. The outcome is liveable houses near roads and railways which is essential in achieving this objective to protect this infrastructure from reverse sensitivities and thus enable their safe, efficient and effective use.

Objective 7.2.1 – Integrated transport System for Christchurch District

- a. *An integrated transport system for Christchurch District:*
- iii. *that supports safe, healthy and liveable communities by maximising integration with land use;*
37. The proposed rule ensures that sensitive activities will only be exposed to safe, healthy and liveable levels of noise, enabling a transport system to operate among these activities in an integrated manner.

Policy 7.2.1.8. Effects from transport infrastructure

- a. *Avoid or mitigate adverse effects and promote positive effects from new transport infrastructure and changes to existing transport infrastructure on the environment, including:*
- iii. *noise, vibration and glare;*
- iv. *amenity and effects on the built environment;*
38. The proposed rule implements this policy by providing a way to mitigate noise and detrimental amenity effects from transport infrastructure on the surrounding built environment, in particular those buildings housing sensitive activities.

Objective 7.2.2 Adverse effects from the transport system

- a. *Enable Christchurch District's transport system to provide for the transportation needs of people and freight whilst managing adverse effects from the transport system.*

39. The proposed rule implements this objective by providing a method of managing adverse effects of the transport system so that the system is enabled to provide for the transportation needs of people and freight.

Policy 7.2.2.1 Effects from the strategic transport network

- a. *To manage any adverse effects from the ongoing use, repair, and development of the strategic transport network, whilst recognising the national and regional scale and economic importance of this network, and the role of the strategic transport network in the recovery of Christchurch.*

40. The proposed rule provides a method of managing adverse effects of the strategic transport network (being state highways, major arterial roads and the rail network) on noise sensitive activities which still allows that network to fulfil its role in the economic recovery of Christchurch.

Policy 7.2.2.3b Effect on adjacent land uses to transport zone

- a. *Manage the adverse effect(s) of an activity within the Transport Zone so that the effects of the activity are consistent with the amenity values and activity of adjacent land uses, whilst providing for the transport network, in particular the strategic transport network to function efficiently and safely.*
- b. *To ensure adjacent land uses are designed, located and maintained in such a way as to avoid reverse sensitivity effects on the strategic transport network.*

41. The word *whilst* in clause (a) suggests that the requirement that the adverse effects of activities within the transport zone are managed is to be achieved subject to providing for a functioning transport network. The efficient and safe functioning of the transport network is the primary consideration. Roads and railways are all in the transport zone. These activities do not function without producing noise and noise can adversely affect sensitive activities located nearby. The S42A report considered managing the noise at source and concluded that this would be impractical, costly and that society would be worse off than if the noise was managed by the receptors. The proposed rule reflects this conclusion and provides for the primary consideration of clause (a), the safe and efficient functioning of the transport network while managing adverse of the activities within the transport zone in the most practical, and economically reasonable way available, requiring acoustic insulation. This is in line with clause (b) by ensuring that land uses for noise

sensitive activities are designed to avoid reverse sensitivity effects on the strategic transport network.

Objective 8.2.3 a. Infrastructure and transport

- a. *Subdivision design and development promotes efficient provision and use of infrastructure and transport networks.*
42. The proposed rule allows for the efficient use of the transport network by encouraging design which protects against reverse sensitivity effects associated with the generation of noise.

Policy 8.2.3.5. Adverse effects on infrastructure

- a. *Ensure that the requirements of infrastructure, including their ongoing operation, development and maintenance, are recognised in subdivision design, including any potential for adverse effects (including reverse sensitivity effects) from subdivision.*
43. While not directly relevant to subdivision, the rule ensures that any development intended for noise sensitive activities, that results from subdivision is adequately acoustically insulated so as to protect the operation of roading infrastructure from reverse sensitivities. Therefore the rule is in line with this policy.

Objective 14.2.3 Strategic infrastructure

- a. *Development of sensitive activities does not adversely affect the efficient operation, use, and development of Christchurch International Airport and Port of Lyttelton, the rail network, the National Grid and the identified 66kV and 33kV electricity distribution lines and the Heathcote to Lyttelton 11kV electricity distribution line, the state highway network, and other strategic infrastructure.*
44. The rule protects sensitive activities from the noise generated by the rail network and the state highway network. This allow such activities to occur near these networks while avoiding reverse sensitivity effects on these networks.

Policy 14.2.3.1 Avoidance of adverse effects on strategic infrastructure

- a. *Avoid reverse sensitivity effects on strategic infrastructure including:*
 - i. *Christchurch International Airport*
 - ii. *the rail network;*
 - iii. *the major arterial road and minor arterial road network*
 - iv. *the Port of Lyttelton;*

- v. *the National Grid and the 66kV and 33kV electricity distribution lines and Heathcote to Lyttelton 11kV electricity distribution line identified on the planning maps.*

45. The proposed rule enables avoidance of reverse sensitivity effects on the rail network and major and minor arterial roads from noise sensitive activities locating nearby. The use of the term “including” in this rule suggests that it is not limited to the succeeding list. Given the nature of the list it is reasonable to assume that it could also apply to collector roads. The rule also protects collector roads. Therefore the proposed rule is in agreement with this policy.

Policy 15.2.4.2. Design of new development

- c. *Require residential development to be well-designed and laid out by ensuring a high quality healthy living environment including through:*
 - iii. *minimising disturbance from noise and activity in a centre (and the potential for reverse sensitivity issues to arise).*
46. The rule supports this policy by requiring residential development near roads and railways be designed with appropriate acoustic insulation to minimise disturbance from noise and to promote a high quality living environment.

Policy 15.2.4.6 Strategic Infrastructure

- a. *Provide for the effective development, operation, maintenance and upgrade of strategic infrastructure and avoid adverse effects of development on strategic infrastructure through managing the location of activities and the design of stormwater areas. This includes but is not limited to, avoiding sensitive activities within commercial zones located within the 50 dB Ldn Air Noise Contour and within the Lyttelton Port Influences Overlay Area.*
47. The proposed rule is in line with this policy as far as it relates to roads and railways in that it manages sensitive activities located near road and railways by ensuring these buildings are adequately acoustically insulation. This protects roads and railways from the adverse effects of reverse sensitivities generated by development.
48. In conclusion, the above objectives and policies in the District Plan provide a strong direction for balancing managing noise at source with requiring developers of sensitive activities within the receiving environment to manage the effects of noise so as to protect the efficient functioning of the road and rail networks. This is what the proposed rules seeks to do. Kāinga Ora’s submission sought to shift this balance towards managing noise at source. To accept Kāinga Ora’s proposal to change the balance in the proposed rule

would therefore be contrary to the relevant objectives and policies in the Christchurch District Plan.

Abigail Stowell

24 February 2021