Before the Independent Hearing Panel
Appointed by the Timaru District Council

Under	Schedule 1 of the Resource Management Act 1991 (**RMA**)
In the matter of	Submissions on the Proposed Timaru District Plan
Between	**Various**
	Submitters
And	**Timaru District Council**
	Respondent

Liz White – Hearing F - Interim reply

Light and Noise

6 June 2025

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Introduction

1 My name is Liz White. I am a self-employed independent planning consultant (Liz White Planning). I prepared the s42A report on Light and Noise. I confirm that I have read all the submissions, further submissions, submitter evidence and relevant technical documents and higher order objectives relevant to my s42A report. I have the qualifications and experience as set out in my s42A report.

2 The purpose of this statement is to:

(a) respond to direction contained in Hearing Panel Minute 34; and

(b) provide an interim reply to the matters raised in evidence before the Proposed District Plan (PDP) Hearings Panel on the Light and Noise chapters (and other related provisions).

3 A final reply responding to the unresolved matters will be provided to the Hearing Panel at the conclusion of the hearing process. I note that the Panel directed the filing of the joint witness statement (JWS) between me and Ms Williams (for the Director-General of Conservation) in relation to lighting matters raised in Ms Williams evidence.[1] An extension of time for the filing of this has been sought and granted, and this matter is therefore not addressed in this interim reply.

4 The table attached at **Appendix A** contains my updated recommendations, including reasons, having regard to all of the evidence given by submitters before, during and after Hearing F (other than the JWS referred to above). That table also includes a section 32AA assessment for all amendments recommended since my section 42A report was published. The recommendations have been informed by additional technical advice received from Malcolm Hunt, addressing matters raised in evidence, which is contained in **Appendix D.** For completeness I note that technical advice has been received from Paul Wilson, a lighting expert, on the practicality and consequence of specific requests included in the evidence for the Department of Conservation. However, this will be filed with the JWS.

5 Marked up versions of the Light and Noise chapters, containing my updated recommendations, are **attached** at **Appendix B**.

[1] Minute 34, at [7].

Panel directions – Minute 34

6 The Panel made a number of directions or asked me to address specific questions. These are set out in **Appendix C**, along with my response to each (but excluding the joint witness statement on lighting which will be filed separately).

Liz White
6 June 2025

APPENDIX A
Issues Raised in Evidence / Submitter Presentations
Light and Noise – Hearing F

Note

1 *Status: The status of the issue reflects my understanding of the status of resolution as between those submitters who pre-circulated evidence for Hearing F. It does not attempt to reflect whether the issue is agreed between submitters who did not pre-circulate evidence for Hearing F.*

2 *Status: An asterisk (*) against the status denotes where I have made an assumption based on the amendments I have recommended. However, I am not certain as to that status because the amendments I have recommended are different to that sought by the submitter.*

3 *Relevant submitters: Relevant submitters are those who pre-circulated evidence for Hearing F. Other submitters who did not pre-circulate evidence may be interested in the issue (as submitters in their own right, or as further submitters) but they have not been listed here.*

4 *Orange shading identifies matters still outstanding; Green shading identifies matters resolved since my s42A summary.*

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
Remove wai taoka sites from definition of LSA.	LSA definition / mapping	Resolved	Rangitata Dairies [44] - Statement of Justin O'Brien, para 6.	
There is a gap in NOISE-R8 relating to land within the Port Zone which is not covered by either Port NCB. A daytime limit should be applied for the PORTZ outside Precinct 7.	NOISE-R8	Resolved*	Property Income [56.1] – Evidence of Michael Campbell, paras 2.24 – 2.25.	As noted in my Summary Statement (at paragraph 8(a)) I recommend the inclusion of a daytime noise limit for activities within the Port Zone, outside of Precinct 7, which was recommended in the acoustic evidence of Mr Walton[2] & Mr Hay[3]. This reflects that the redrafting of rule resulted in a 'gap' whereby only a night-time limit was included. Mr Hunt (refer Appendix D) agrees that it is appropriate to include a daytime limit, and he considers that the specific limit proposed for the

[2] Evidence of Gary Walton, paras 7.1 – 7.4.

[3] Evidence of Rob Hay, paras 49-54.

<table>
<tr><th>Issue</th><th>Relevant provision(s)</th><th>Status</th><th>Relevant submitter(s) / Evidence</th><th>Post-Hearing Officer's Interim Reply</th></tr>
<tr><td></td><td></td><td></td><td></td><td>daytime will suitably protect noise-sensitive residentially zoned sites. As noted in my Summary Statement, I do not however support changing the activity status for non-compliance with PER-1 from non-complying to discretionary. This is because it relates to where NOISE-S1 is not complied with, and for all other similar rules in the Noise Chapter which relate to compliance with NOISE-S1, non-compliance has a non-complying activity status. This differs from the remainder of NOISE-R8 because it is not subject to NOISE-S1.

In any case, I understood from Mr Walton's presentation to the Panel that he accepted the rationale as to why a non-complying status applies and that Mr Campbell was agnostic as to what status applies, so it does not appear to be an outstanding matter.

The recommended change to NOISE-R8.2 is:

<table>
<tr><td>NOISE-R8</td><td colspan="2">Noise from activities within the Port Zone</td></tr>
<tr><td>…</td><td>…</td><td>…</td></tr>
<tr><td><u>2. Port Zone outside Precinct 7</u></td><td><u>Activity status: Permitted</u>

<u>Where:</u>

<u>PER-1</u>
<u>NOISE-S1 is complied with; and</u>

<u>PER-2</u>
<u>On any day between 10pm and 7am the following day, noise generated must not exceed 45 dB LAeq (9 hours) when measured at or within any</u></td><td><u>Activity status where compliance not achieved with PER-2 or PER-3: Discretionary</u></td></tr>
</table>
</td></tr>
</table>

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
				<table><tr><td></td><td>*residentially zoned site, provided that any single 15 minute sound measurement level must not exceed 50 dB LAeq and 75 dB LAmax.* ***PER-3*** *On any day between 7am and 10pm, noise generated must not exceed 55 dB $L_{Aeq\ (15\ mins)}$ when measured at or within any residentially zoned site.* ~~*Note: For the purpose of Port Noise, daytime is defined as 7am to 10pm on any day, and night time is defined as 10pm to 7am the following day.*~~</td><td>***Activity status where compliance not achieved with PER-1: Non-complying***</td></tr></table> Under s32AA, I consider that the inclusion of a daytime noise limit to the area of the PORTZ that is outside Precinct 7 is appropriate, and will assist with ensuring that noise generated is of a level that is appropriate in relation to the purpose, character and qualities of the neighbouring residential zone, in accordance with NOISE-P1, and will be an efficient and effective way of achieving NOISE-O2.
Amend Table 24 to reflect that the Port Zone extends south, opposite GRZ and MRZ.	Table 24	Resolved	Property Income [56.2] – Evidence of Michael Campbell, paras 2.27.	

<table>
<tr><th>Issue</th><th>Relevant provision(s)</th><th>Status</th><th>Relevant submitter(s) / Evidence</th><th>Post-Hearing Officer's Interim Reply</th></tr>
<tr><td>Accepts recommendations on submission points.</td><td>LIGHT-O1, LIGHT-O2, LIGHT-P1, LIGHT-P3, LIGHT-R1.1, LIGHT-R1.2, LIGHT-S1, Table 23 and the definition of 'light sensitive area'.</td><td>Resolved</td><td>Fonterra [165.97-104] – Evidence of Susannah Tait, paras 11.2 and 11.6</td><td></td></tr>
<tr><td>Include new rule for light for Clandeboye site, reflecting the consent conditions already applying.</td><td>LIGHT-R1</td><td>Resolved</td><td>Fonterra [165.101] – Evidence of Susannah Tait, paras 11.3 – 11.5</td><td>As noted in my Summary Statement (at paragraph 8(b)) I agree with the inclusion of a new rule for light for Clandeboye site, reflecting the existing consent conditions already applying. The specific changes recommended are to add an exclusion for the Clandeboye site from LIGHT-R1.1 and the inclusion of the following rule as LIGHT-R1.3 (with consequential re-numbering of the previously recommended LIGHT-R1.3 to LIGHT-R1.4):

<table><tr><td>LIGHT-R1</td><td colspan="2">Artificial outdoor lighting outside ~~light sensitive areas~~</td></tr><tr><td>…</td><td>…</td><td>…</td></tr></table></td></tr>
</table>

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<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><td><u>3. Clandeboye Dairy Manufacturing Precinct</u></td><td><u>Activity status: Permitted</u>

<u>Where:</u>

<u>PER-1</u>
<u>All exterior lighting must be oriented so that light is emitted away from any adjoining and adjacent zones; and</u>

<u>PER-2</u>
<u>LIGHT-S2 is complied with; and</u>

<u>PER-3</u>
<u>The vertical illuminance level at a window of any residential unit on an adjoining property between 7am and 10pm does not exceed 10 lux; and</u>

<u>PER-4</u>
<u>The vertical illuminance level at a window of any residential unit on an adjoining property between 10pm and 7am does not exceed 1 lux.</u></td><td><u>Activity status where compliance not achieved: Discretionary</u></td></tr>
</table>
Under s32AA, I consider that the inclusion of this site-specific rule for the Clandeboye site is a more efficient way to achieve LIGHT-O1, as it will allow for lighting across the site to be subject to the same controls as currently apply under the resource consent to the mozzarella plant. I consider that the effective extension of the current consent conditions to any new lighting will still be effective at ensuring that artificial lighting
</td></tr>
</table>

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
				provides for the safe and efficient use of the Clandeboye site, while also being compatible with the character and qualities of and not compromising the health and safety of people in, the surrounding area, as per LIGHT-O1.
Clarification is needed confirming that Table 22 specifies lighting levels experienced at receiving zones.	Table 22	Resolved	Fonterra – Evidence of Susannah Tait, para 11.7	As noted in my Summary Statement (at paragraph 8(c)) I recommend that Table 22 is amended, as a clause 16(2) change, to be clear that the lighting levels apply based on the zoning of the property receiving (rather than emitting) the light. I consider that this was the intent of the table and related standard, and that this amendment would provide clarity and avoid confusion. The recommended change is to amend the title in the table as follows: ***Receiving Zone~~s and Areas~~***
Accepts recommendations on submission points.	NOISE-O1, NOISE-P1, NOISE-P7, NOISE-R8.1 and Table 24	Resolved	Fonterra [165.106, 165.108, 165.110, 165.112] – Evidence of Susannah Tait, para 12.21	
Application of Noise Control Boundary (NCB) to Clandeboye, extension of provisions to refer to the NCB, and new noise rule for managing noise from Clandeboye site.	Mapping, NOISE-O2, NOISE-P5, NOISE-P7, new Noise rule for Clandeboye site, NOISE-	Partially Resolved*	Fonterra [165.5, 165.107, 165.109-165.111, 165.113] – Evidence of Susannah Tait, paras 12.2 – 12.17	In the s42A Report (at paras 8.3.8 – 8.3.10), and based on the advice of Mr Hunt, I noted agreement in principle to apply a NCB to the Clandeboye site, but considered that the further information identified by Mr Hunt was required in order to undertake a full assessment of the request in accordance with s32 of the RMA. That requested information was provided through the evidence of Mr Hay. As advised in the Summary Statement (at paragraph 8(d)), having reviewed Mr Hay's evidence, Mr Hunt is supportive of including the NCB (with further

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
	R9, NOISE-R3 and NOISE-S4			explanation of this set out in Appendix D). For brevity, the suite of changes I recommend are set out in **Attachment 1** below. In terms of s32AA, I consider that the amendment to the objective is a more appropriate way to achieve the purpose of the RMA. Similar to the s32AA assessment provided in relation to the zoning and controls related to the site, I consider that recognition of the site in NOISE-O2 better provides for the efficient use and development of this well-established physical resource (s7(b)). It also recognises the contribution that this site makes to the economic and social wellbeing of the Timaru community, given the economic contribution of the Clandeboye site to the district and the region (s5(2)). It also aligns with SD-O6 in terms of better enabling the ongoing use of this site for particular business activities. I consider that the inclusion of a NCB for the Clandeboye site is a more appropriate way to achieve the objective PRECX-O1 recommended by Mr Maclennan, as it will assist in providing for the operation of dairy processing activities, while appropriately mitigating the noise effects of those operations on the adjoining rural zone. It will allow the site to continue to operate at noise levels that generally align with those determined through past consent processes to be appropriate, ensuring that the noise generated from the site continues to be compatible in the surrounding area and not of a level that would compromise the health and well-being of people and communities (as per NOISE-O1). In terms of the controls applying within the NCB, I consider these to be necessary and appropriate to ensure that activities within the recommended Precinct are not constrained by reverse sensitivity effects, as a result of noise sensitive activities establishing in proximity to the site, without appropriate acoustic insulation to mitigate the existing noise levels. As such, the controls will assist in achieving NOISE-O2.

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				With respect to the specific changes sought by Ms Tait, I do not agree with adding reference to the NCB in NOISE-P7, nor to applying a non-complying activity status where the permitted activity conditions are not met. I consider it important to note there are two different approaches taken in the notified plan to noise sensitive activities in different areas. The first is that within those areas identified in NOISE-P7, noise sensitive activities are not permitted at all – and instead are expressly non-complying activities. As such, noise sensitive activities are generally not anticipated in these areas. The second is that in those areas identified in NOISE-P5 (including the outer Port NCB, and areas within specified proximity to the railway line and State Highway), such activities are permitted, subject to the provision of appropriate levels of acoustic insultation. Where the specific insulation is not provided, a restricted discretionary status applies. (The only exception to this, is that within the Inner Port NCB, all noise sensitive activities require resource consent, as a restricted discretionary activity, allowing for the specific level of acoustic insulation to be considered through the consent process.) I consider that adding reference to the NCB in NOISE-P7 would "mix" the two different approaches and therefore result in an inconsistency with how these activities are managed in the identified higher noise environment. It would also result in conflict as to which policy direction applies (because under Ms Tait's amendments, both NOISE-P5 and NOISE-P7 would include direction in relation to this NCB). I also do not agree with applying a non-complying activity status to noise sensitive activities that do not meet the permitted activity requirements. Again, I consider that this would be inconsistent with the approach taken in other areas to which NOISE-R9 applies, and that there is no particular or compelling reason to depart from that approach in the case of the dairy manufacturing site.

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There is a gap in NOISE-R8.2 relating to land within the Port Zone which is not covered by either Port NCB. A daytime limit should be applied for the PORTZ outside Precinct 7.	NOISE-R8.2	Partially Resolved* - based on recommended change above	Fonterra [165.112] – Evidence of Susannah Tait, paras 12.18 – 12.20.	*Refer to response above in relation to Property Income [56.1] – Evidence of Michael Campbell.*
Supports inclusion of controls on lighting in the BPA.	Mapping and LIGHT provisions relating to the BPA	Resolved	Dir. General Conservation [166.8] – Evidence of Elizabeth Williams, paras 58 & 70.	
Apply the specific lux level limits that applied to LSAs in the notified PDP to sites within the BPA that are located within the General Rural Zone, Open Space and Recreation Zones.	LIGHT-R1.3 PER-1 and Table 22	Outstanding	Dir. General Conservation [166.123-166.124] – Evidence of Elizabeth Williams, paras 59 – 66	*Will be addressed in Joint Witness Statement.*
Amend rule applying to lighting in the BPA to specify that lighting must also point downwards.	LIGHT-R1.3 PER-3.1	Outstanding	Dir. General Conservation [166.123-166.124] – Evidence of Elizabeth Williams, para 69	*Will be addressed in Joint Witness Statement.*

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Amended Objective LIGHT-O1 does not adequately acknowledge the benefits of artificial lighting.	LIGHT-O1	Resolved	Primeport (further submission on Fonterra [165.98]) – Evidence of Tim Walsh, paras 83-84	*Refer Row (a) in Appendix C.*
Wording of where LIGHT-R1.1 applies is potentially confusing and would benefit from re-wording or addition of brackets.	LIGHT-R1	Resolved	Primeport [175.60] & TDHL [186.36] – Evidence of Tim Walsh, paras 85.	As noted in my Summary Statement (at paragraph 8(e)) I agree with amending LIGHT-R1.1 to be clearer about areas in which the rule does not apply. The change recommended is: ***All zones (excluding the ~~other than~~ Port Zone and Clandeboye Dairy Manufacturing Precinct) outside ~~Light Sensitive Areas~~ the Long-tailed Bat Habitat Protection Area Overlay*** Under s32AA, I consider that this change is minor and does not alter the intent of the rule, but rather it more clearly sets out where the rule does and does not apply and therefore avoids confusion. With respect to the exemption for Clandeboye, this is assessed above.
Accepts recommendations on submission points.	LIGHT-R1.2, LIGHT-S1	Resolved	Primeport [175.60] & TDHL [186.36] – Evidence of Tim Walsh, paras 86-87.	
Accepts recommendations on submission points.	Mapping - Port NCBs, NOISE-O2, NOISE-P5, NOISE-P7, NOISE-R8,	Resolved	Primeport [175.8, 175.62, 175.63, 175.64, 175.66-70] & TDHL [186.4,	

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	NOISE-R9, NOISE-R12, NOISE-S3, Table 24		186.38-39] – Evidence of Tim Walsh, paras 88-102.	
Accepts recommendations on submission points.	NOISE-R8 Height and building size references	Resolved	CRC [183.1, 183.4, 183.143] – Evidence of Deidre Francis, page 34	
Accepts recommendations on submission points.	Table 25	Resolved	KiwiRail [187.81] – Evidence of Catherine Heppelthwaite, para 6.0r.	
Replace 'anticipated' with 'permitted'.	NOISE-O2	Outstanding	KiwiRail [187.75] – Evidence of Catherine Heppelthwaite, para 7.2.	I note that 'anticipated' is used throughout the PDP and my recommended amendment to NOISE-O1 reflects this. It is used to provide clarity that it is not just activities existing in various zones which should be protected from reverse sensitivity, but also those which are expected, via the policy and rule framework, to be established in those zones.
Delete clauses (1) – (4) in the policy and rely on assessment matters. Amend the description of higher noise environments in the policy to replace "the railway line" with "within the	NOISE-P5	Partially Resolved* - based on recommended change above	KiwiRail [187.76] – Evidence of Catherine Heppelthwaite, para 7.3-7.5.	As noted in my Summary Statement (at paragraph 8(f)), on further reflection I agree with Ms Heppelthwaite that it is appropriate to delete clauses (1) – (4) in NOISE-P5, on the basis that the items set out to be taken into account are better suited as matters of discretion, and are already included as such in the relevant rules. While I had previously noted (para 8.7.12 of the s42A report) that the clauses provided guidance on matters to be considered in the consent process, I accept that this is achieved through the matters of discretion whereas consideration against the policy is more about whether any given proposal will sufficiently minimise adverse effects on the amenity

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Rail Noise Boundary Control Overlay".				values and health and safety of occupants and minimise sleep disturbance from noise, as per the stem of NOISE-P5. The change recommended to NOISE-P5 is: *Require noise sensitive activities located in higher noise environments to be located and designed so as to minimise adverse effects on the amenity values and health and safety of occupants and minimise sleep disturbance from noise~~, while taking into account:~~* *~~1. the type of noise generating activity; and~~* *~~2. other noise sources in the area; and~~* *~~3. the nature and occupancy of the noise sensitive activity; and~~* *~~mitigation measures, including acoustic insulation, screening and topography~~.* *…* In terms of s32AA, I consider that the policy will still remain effective at achieving NOISE-O2, but will be more efficient, in terms of avoiding unnecessary duplication and overlap between matters of discretion and the policy. In regards to replacing "*the railway line*" with "*within the Rail Noise Boundary Control Overlay*", I do not agree with this change. The purpose of the policy and related rule framework is to address the potential for noise sensitive activities to establish in areas with higher noise levels, which could result in the "noisy" activities being contained by reverse sensitivity effects. With respect to rail, the noise is generated by trains travelling on railway tracks – not a wider range of noises within the designated rail corridor. As noted by Mr Hunt (refer Appendix D), applying the acoustic insulation requirements from the designation boundary would increase the area within which the requirement applies, and is not justified in terms of noise effects. As

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
				such, I consider the change is not necessary to achieve the outcome sought, and it would be an inefficient approach, as it would result in the costs of acoustic insulation being spread over a wider area than necessary to address potential reverse sensitivity effects.
Includes a rail vibration "alert overlay" in the PDP.	Planning Maps and Introduction to Noise Chapter	Partially Resolved* - based on recommended change above	KiwiRail [187.80] – Evidence of Catherine Heppelthwaite, paras 7.6-7.8; and Evidence of Michelle Grinlinton-Hancock, paras 3.3-3.5, 4.10-4.12.	As noted in my Summary Statement (at paragraph 8(h)), I agree with the inclusion of a rail vibration alert layer in the PDP planning maps and the inclusion of a corresponding note being added to the Introduction to the Noise Chapter. However, as the purpose of the alert layer is to highlight the vibration arising from trains, Mr Hunt and I both consider that the note and mapped area should relate to the railway line itself (being where the vibration is generated from), not the designation boundary. The recommended wording to include in the Introduction to the Noise Chapter is: *In addition to the provisions in this chapter, the planning maps include a Rail Vibration Alert layer. The purpose of this layer is to identify properties which may experience rail vibration effects and to alert property owners to the potential vibration effects. The layer is for information purposes only and there are no specific provisions applying to activities within the layer.* In terms of s32AA, the inclusion of an alert layer is for information purposes only. In this regard, I consider it useful, but note that it is not intended to assist in the achievement of any of the PDP objectives.
The acoustic insulation and ventilation requirements should apply within 100m (not 40m) of the rail designation boundary (not railway line).	NOISE-R9, NOISE-S3	Outstanding	KiwiRail [187.77-78] – Evidence of Catherine Heppelthwaite, paras 7.9-7.14; and Evidence of Michelle	For the reasons noted above, I do not agree with applying the acoustic insulation and ventilation requirements from the rail designation boundary. In terms of increasing the setback area within which the requirements apply from 40m to 100m, Mr Hunt (refer Appendix D) considers that the justification of the increase is based on assessing noise over a short,

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			Grinlinton-Hancock, paras 3.1-3.2, 4.1-4.9.	one hour period; whereas he considers it more consistent with international evidence to assess transportation noise on a 24 hour time period. He considers that the 40m setback area is the area which is most affected by rail noise and remains the appropriate area within which to apply the acoustic insulation and ventilation requirements. Based on his advice, I do not consider the increased distance sought to be necessary to achieve the outcome sought, nor efficient, as it would result in the costs of acoustic insulation applying to a much larger area than necessary to address potential reverse sensitivity effects. I also note that the s32 report attached to the evidence of Ms Heppelthwaite does not assess the costs and benefits of applying a different setback distance.
Exclude acoustic insulation from meeting NOISE-R9[4] PER-1.2 and add rail-specific acoustic insulation requirements in NOISE-S3.3	NOISE-R9, NOISE-S3	Outstanding	KiwiRail [187.77-78] – Evidence of Catherine Heppelthwaite, paras 7.9-7.14; and Evidence of Michelle Grinlinton-Hancock, paras 3.1-3.2, 4.1-4.9.	Mr Hunt (refer Appendix D) also addresses the request to add rail-specific acoustic requirements in NOISE-S3.3, which imposes an 'internal noise level' type insulation standard (rather than the proposed façade reduction requirement), but which would also allow for an alternative compliance pathway using the construction schedule in Table 25 in some specific cases. He maintains the view set out in the advice attached to the s42A Report (at pages 8-9) as to why he does not recommend the adoption of an internal noise level / indoor sound level. As I understand the internal noise level approach, it would require an understanding of the external noise received in any given scenario, in order to determine the level of insulation required to achieve the internal noise levels. This is a much less efficient approach if a rule does not state the external noise that is to be assumed (i.e. it requires obtaining information from KiwiRail about noise levels in each instance). I also note that the proposed rule relates only to achieving the indoor sound level with respect to "*noise*

[4] Ms Heppelthwaite's evidence refers to NOISE-R7 but I have assumed this is an error and it is intended to refer to NOISE-R9.

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				levels resulting from the railway". In instances where a site is within another area specified in NOISE-R9, this would result in two different requirements applying, and the internal sound level would require isolation of the noise received from the railway. From a plan user perspective, I consider it would be far less efficient to have overlapping requirements. I therefore continue to support applying the façade reduction method proposed in NOISE-S3. I also note that the s32 report attached to the evidence of Ms Heppelthwaite does not assess the costs and benefits of using a façade reduction rather than internal insulation standard.
Apply the noise controls to habitable additions and alterations and remove the recommended 20% threshold for changes to existing buildings.	NOISE-S3	Outstanding	KiwiRail [187.77-78] – Evidence of Catherine Heppelthwaite, paras 7.9-7.14; and Evidence of Michelle Grinlinton-Hancock, paras 3.1-3.2, 4.1-4.9.	In the s42A report, it was recommended that the acoustic insulation controls be amended to apply only to additions or alterations to habitable rooms that resulted in a 20% increase in floor area. Mr Hunt notes that the recommendation may have been interpreted as applying to a 20% increase in the floor area of the building overall, whereas as drafted, it applies to a 20% increase in the floor area of a habitable room. Mr Hunt has however suggested a minor edit to the wording of the standard to assist in its interpretation. In addition to this original advice, Mr Hunt (refer Appendix D) also notes the evidence of Dr Trevathan, which is that the 20% threshold is a way of demarcating between trivial and substantive 'alterations' to habitable rooms and agrees with Dr Trevathan that this will generally ensure money is not spent upgrading building elements where there may be minimal benefit to occupants. I therefore continue to support the recommended approach, as discussed in para 8.13.10 and as per the section 32AA assessment contained in para 8.13.22 of the s42A report. I do however support the following further minor clarification (to NOISE-S3.1.1) recommended by Mr Hunt, as follows:

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				Any habitable room in a new building used for a noise sensitive activity, ~~or~~ an alteration to an existing building or room that changes its use to a noise sensitive activity, or where the floor area of a habitable room within an existing building is increased by 20% or more, must be designed, constructed and maintained to achieve a minimum external to internal noise reduction for habitable rooms of not less than 35 dB Dtr,2m,nT,w + Ctr.
Increase the building setback required for sensitive activities from a railway line from 20m to 50m where an acoustic barrier is relied on for acoustic mitigation.	NOISE-R9 PER-2.b.	Outstanding	KiwiRail [187.77-78] – Evidence of Catherine Heppelthwaite, paras 7.9-7.14; and Evidence of Michelle Grinlinton-Hancock, paras 3.1-3.2, 4.1-4.9.	Mr Hunt has set out in his advice (refer Appendix D) the reasons why he does not agree with Mr Chiles' evidence. His view is that a receiving site screened in accordance with PER-2(b) would result in substantial screening of the site from rail noise, and that a 50m setback is not necessary to ensure rail noise effects experienced in the Timaru district are controlled to acceptable levels within new or altered habitable rooms. He also notes that acoustic screening theory indicates the effectiveness of an acoustic barrier actually decreases with distance. I accept this advice, and note that applying an increased distance would therefore result in the costs associated with the rule applying over a larger area, without the need for this to achieve the outcome sought. As such, I consider the request to be less efficient, and no more effective than the notified approach.
Extend requirement for artificial ventilation requirements to all types of habitable rooms and make amendments to ensure that temperatures are maintained between 18-25°C. Delete the matters of discretion #1, 3 & 4 in NOISE-S4.	NOISE-S4	Outstanding	KiwiRail [187.79] – Evidence of Catherine Heppelthwaite, para 7.15; and Evidence of Michelle Grinlinton-Hancock, paras 4.8-4.9	My view remains as set out in para 8.17.8 and 8.17.10 of the s42A Report. I reiterate that the request to include a cooling requirement appears to be inconsistent with the submitter's own guidance material, and that the removal of matters of discretion will result in a lack of guidance over what matters should be considered in a resource consent process.

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
Add "congregations within any places of worship" to definition of "noise sensitive activity".	Definition of 'noise sensitive activity'	Outstanding	KiwiRail [187.6] – Evidence of Catherine Heppelthwaite, para 7.16-7.19.	My view remains as set out in para 8.19.6-7 of the s42A Report. I still consider it unclear as to how "c*ongregations within any places of worship*" can be included in the definition, as congregations are gatherings of people, rather than being a clearly defined activity. Also, while I understand that the intent of the inclusion is to capture those places of assembly where speech communication and critical listening is essential, I continue to consider that places of worship also generate high levels of internal noise in any case. Given this, and the more limited use of these types of facilities, I continue to consider that it would be inefficient to require insulation of these.
Accepts recommendations on submission points.	NOISE-O1, NOISE-O2, NOISE-P1, NOISE-P5, NOISE-R9, Table 24	Resolved	Foodstuffs [193.4 – 193.9] – Evidence of Mark Allan, paras 21-32.	In the s42A Report (at paras 8.18.13and 8.18.15), I recommended that Table 24 be amended to apply a higher noise limit within the "*Medium Density Residential Zone at 18A Hobbs Street within 30m of the boundary of the adjacent Local Centre Zone".* As a result of the site having been subdivided, there is no longer a property numbered 18A Hobbs Street. To avoid confusion and be clear where the noise limit applies, I recommend that the area within 30m of the boundary with the LCZ instead be identified in the planning maps as a 'Specific Control Area' and Table 24 refer to this, as follows. *4. Within any part of a site in the following zones:* *a. Neighbourhood Centre Zone* *b. Local Centre Zone* *c. Mixed Use Zone* *d. Medium Density Residential Zone ~~at 18A Hobbs Street~~ within ~~30m of the boundary of the adjacent Local Centre Zone~~ the Hobbs Street Noise specific control area.* As a consequence of this, I recommend that the "Hobbs Street specific control area" be added the SCHED16B – Schedule of Specific Control Areas Layer.

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
				As this does not change the effect of the recommended rule, the s32AA assessment set out in para 8.18.18 still applies.
Remove Port Outer NCB overlay from 22 The Terrace.	Port Outer Noise Control Boundary Overlay	Outstanding	22 The Terrace [202.3] – Evidence of Timonthy Gresson.	My view remains as set out in para 8.3.7 of the s42A Report, which in turn is reliant on the advice of Mr Hunt, that there is no justifiable, noise-related reasons for why the Port Outer NCB overlay should be removed from this property. I further note that NOISE-R9 PER-2a provides an exemption from the noise insulation and ventilation requirements applying within this overlay, should it be demonstrated that 57 dB will not be exceeded on the most exposed part of the exterior of any habitable room. I do not agree that the application of the overlay places an unnecessary and unjustified burden, nor that it conflicts with the achievement of CCZ-O1.
Remove requirement from bird scaring devices rule to require these devices to be orientated away from sensitive receivers.	NOISE-R5 PER-3	Partially Resolved	HortNZ [245.93] – Evidence of Vance Hodgson, paras 23-28.	In my Summary Statement (at para 8(g)), I recommended amending the requirement in relation to the orientation of bird scaring devices, to allow for an exemption where an acoustic barrier meeting specified conditions, is located to intercept the line-of-sight between the device sound outlet and any noise sensitive activity. This was based on advice from Mr Hunt, that a noise barrier located close to the device sound outlet may be as effective at reducing harshness as facing the device away from sensitive receiver sites. Following the hearing, there were further discussion on this between Mr Hunt and Mr Reeves. The result of this is that Mr Hunt continues to consider that it is appropriate to retain controls on the orientation of bird scarers (for the reasons set out in Appendix D), while Mr Reeves continue to consider that such a control is not necessary (for the reasons set out in his evidence). However, should the Hearing Panel agree with Mr Hunt that such a control is appropriate, Mr Hunt and Mr Reeves have agreed on the following wording for PER-3:

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
				~~*Unless*~~ *Where located* ~~*at least*~~ *within 500m* ~~*from*~~ *of any building housing a noise sensitive activity on an adjoining site under different ownership, gas gun type b*~~*B*~~*ird*[5] *scaring devices must either:* 1. *be oriented with the direction of fire facing away from any noise sensitive activity on any adjoining site under different ownership; or* 2. *line-of-sight between the device sound outlet and any noise sensitive activity on any adjoining site under different ownership is intercepted by an acoustic barrier with a minimum surface mass of not less than 7 kg/m^2 measuring not less than 2m x 2m placed within 2m of the device, or a landform;* … Under s32AA, I consider that the further changes will result in a more efficient approach, that is still effective at achieving NOISE-O1. This is because they take into account that: - an acoustic barrier located close to the device sound outlet, or landform, can be as effective at reducing harshness as facing the device away from sensitive receiver sites is; and - non-gas gun type audible bird scarers do not emit impulsive type sounds like that emitted by 'gas guns', and therefore they are sufficiently managed through PER-2, without the need for additional controls on orientation.
Permit the use of bird scaring devices 30mins before sunrise.	NOISE-R5 PER-4	Resolved	HortNZ [245.93] – Evidence of Vance Hodgson, paras 29-43.	Mr Hunt (refer Appendix D) does not support the change, as it results in the ability to use these devices at times during the year which fall within the "night-time" period, where noise sensitive activities require protection from sleep disruption.

[5] Hort NZ [245.93]

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
				Notwithstanding this, I am conscious that in order to achieve their purpose (i.e. to scare birds away from crops), that there may be times when it is necessary to use these devices before 7am. Limiting the time of their use therefore potentially undermines their effectiveness. I also note that Mr Hodgson provides examples of bird scaring device rules from several other district plans, all of which apply a limit to half an hour before sunrise. This aspect of the notified rule is also not a control that has been rolled over from the Operative Plan. I agree with Mr Hodgson that in considering effects on sleep, consideration needs to be given to the outcomes sought in relation to the General Rural Zone (GRUZ). This includes that the purpose of the zone is to predominately provide for primary production (GRUZ-O1); and that the character and qualities of the zone are expected to comprise a working environment, including the generation of noise. I therefore recommend amending PER-4 as follows: *Bird scaring devices must only be used between half an hour before sunrise ~~7am~~ and ~~8pm~~ half an hour after sunset on any calendar day.* Under s32AA, I consider that the amendment will still assist in the achievement of NOISE-O1, which seeks for noise effects generated by activities to be compatible with the purpose, character and qualities of the receiving zone. In the GRUZ, noise associated with primary production activities is an anticipated part of the character and qualities of the zone, and because of the role that bird scaring devices play in providing for primary production, I consider the amendment better aligns with the intended purpose of the zone. I accept that there are costs arising from the approach, in terms of potential adverse effects on sleep, but I consider that these are outweighed by the benefits of the use of these devices to support primary production activities.
Remove requirement for frost fans to only be operated when	NOISE-RX PER-3	Outstanding	HortNZ [245.98] – Evidence of	Mr Hunt (refer Appendix D) supports retention of the control restricting the operation of frost fans to when the air at canopy is 2^{o}C or less.

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
the air at canopy height is 2°C or less, or amend to allow for operation to begin when the air temperature is 2.2°C above the 'critical temperature' of the crop being protected.	(recommended frost fan rule)		Vance Hodgson, paras 44-55.	This is because the rule allows for the night-time noise limits otherwise applying to be exceeded and therefore he does not support the removal of the control. With regards to the critical temperature, he notes that it appears that application of this control would be more restrictive than the limit proposed in PER-3. I consider that this matter is finely balanced, as similar to the discussion above in relation to bird scaring devices, I consider it important that the controls included in the PDP to address noise are not so restrictive that they undermine the effectiveness of the use of the fans. However, I note that the condition reflects what was sought in HortNZ's submission, which it stated was based on a recently commissioned review of frost fan provisions in different areas of New Zealand, and based on case law and best practice for frost fans. I also note that what is now sought is the removal of any condition limiting the circumstances in which these fans are operated, rather than an amendment to the condition to identify a level of control that provides operational flexibility, while still ensuring some controls on the operation to appropriately manage noise effects during the night-time period (noting the alternate 'critical temperature' approach would appear to be less flexible). In absence of some kind of limitation on the operation of frost control fans, I have concerns that simply deleting PER-3, which as stated in HortNZ's submission is based on case law and best practice, is not the most appropriate approach, and therefore recommend PER-3 is retained.
Amend NOISE-R9 to increase the distance from the State Highway 1 corridor (within which acoustic insulation requirements apply) from 80m	NOISE-R9	Outstanding	NZTA [143.118] – Evidence of Stuart Pearson, paras 3.3-3.8.	Mr Hunt has further considered this request in light of the evidence of Mr Chiles (refer Appendix D), and identifies two factors that do not appear to have been considered, as well as a reliance on mapping of noise exposure that has not been provided. Based on Mr Hunt's advice, I support retention of the application of the insulation requirements to within 80m rather than 100m of the State Highway,

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
to 100m where the speed limit is greater than 50km/h.				where the speed limit is above 50km/hr. In particular, I consider that Mr Hunt's comments indicate that applying the requirement over a larger distance would be inefficient, in that it might result in insulation being required in circumstances where it is not necessary to mitigate road noise. I also have concerns with relying on modelling that has not been provided to the Panel, as the evidential basis for the increase sought.
Replace the façade reduction metrics method with an 'internal noise level' approach to specifying acoustic insulation against state highway noise; and amend the matters of discretion.	NOISE-R9 PER-1, NOISE-S3	Outstanding	NZTA [143.119] – Evidence of Stuart Pearson, paras 3.9-3.13.	*Refer to response above in relation to KiwiRail [187.77-78] – Evidence of Evidence of Catherine Heppelthwaite and Michelle Grinlinton-Hancock.*
Increase the alternative compliance pathway that is based on a combination of notional noise screening and separation (NOISE-R9 PER-2(b)) from 20m to 50m from the state highway.	NOISE-R9 PER-2	Outstanding	NZTA [143.119] – Evidence of Stuart Pearson, paras 3.14-3.17.	The discussion set out in the row above in response to KiwiRail [187.77-78] in relation to increasing the distance at which this alternative compliance pathway is available, also applies here, but with respect to road traffic noise.
Remove the recommended 20% threshold for changes to existing buildings.	NOISE-S3	Outstanding	NZTA (further submission on Rooney Holdings Ltd [174.72]) – Evidence of Stuart Pearson, paras 3.18-3.22.	*Refer to response above in relation to KiwiRail [187.77-78] – Evidence of Evidence of Catherine Heppelthwaite and Michelle Grinlinton-Hancock.*

Issue	Relevant provision(s)	Status	Relevant submitter(s) / Evidence	Post-Hearing Officer's Interim Reply
Extend requirement for artificial ventilation requirements to all types of habitable rooms and make amendments to ensure that temperatures do not exceed 25°C.	NOISE-S4	Outstanding	NZTA [143.120] – Evidence of Stuart Pearson, paras 3.23-3.26.	*Refer to response above in relation to KiwiRail [187.79] – Evidence of Evidence of Catherine Heppelthwaite and Michelle Grinlinton-Hancock.*
Accepts recommendations on submission points.	NOISE-O2, NOISE-P5, 'Noise Sensitive Activity' definition	Resolved	NZTA [143.9, 143.116-117] – Evidence of Stuart Pearson, para 3.2.	
Amend noise limits applying to fixed noise sources associated with TMTA rather than applying NOISE-S2; and add notes to PER-2 and PER-3.	NOISE-R3	Outstanding	NZDF [151.13], Statement of Rebecca Davies - paras 5.1-5.5	My view remains as set out in the s42A Report at paras 8.10.6.
Apply a restricted discretionary activity status to non-compliance with any aspect of NOISE-R3.	NOISE-R3	Outstanding	NZDF [151.13], Statement of Rebecca Davies - paras 6.1-6.3	My view remains as set out in the s42A Report at paras 8.10.8.

ATTACHMENT 1

Section	Amendment
Planning maps	Include a new Noise Control Boundary (Clandeboye) Overlay as per below (set out in Figure 1 of the Evidence of Rob Hay): 
NOISE-O2	Amend NOISE-O2 as follows:

<table>
<tr><td></td><td>The Airport, Raceway, State Highway, railway lines, ~~and~~ the Port and Clandeboye Dairy Manufacturing Precinct and existing and anticipated activities ~~located~~ within commercial, mixed use and Industrial zones are not constrained by reverse sensitivity effects arising from noise sensitive activities</td></tr>
<tr><td>NOISE-P5</td><td>Amend NOISE-P5 as follows:
Require noise sensitive activities located in higher noise environments to be located and designed so as to minimise adverse effects on the amenity values and health and safety of occupants and minimise sleep disturbance from noise~~, while taking into account:~~
~~4. the type of noise generating activity; and~~
~~5. other noise sources in the area; and~~
~~6. the nature and occupancy of the noise sensitive activity; and~~
7. ~~mitigation measures, including acoustic insulation, screening and topography~~.

For the purpose of this Policy, higher noise environments include:
1. Commercial and Mixed Use Zones; and
2. Residential zones in close proximity to any General industrial zone and areas within the Port Noise Outer Control Boundary and within that part of the Medium Density Residential Zone and City Centre Zone located within the Port Noise Inner Control Boundary; and
3. locations in close proximity to a State Highway or the railway line; and
4. land within 300m of an existing or consented frost fan; and
5. land within the Clandeboye Noise Control Boundary.</td></tr>
<tr><td>NOISE-R9</td><td>Add “Within the Clandeboye Noise Control Boundary” to the left-hand column of NOISE-R9</td></tr>
<tr><td>New rule</td><td>Add the following rule to the Noise Chapter:

<table>
<tr><td>NOISE-RXX</td><td colspan="2">Noise from the Clandeboye Dairy Manufacturing Precinct</td></tr>
<tr><td>Clandeboye Dairy Manufacturing Precinct</td><td>Activity status: Permitted

Where:

PER-1
The maximum noise from operations, including all ancillary equipment, maintenance activities, and operation of all vehicles on site (including those entering and exiting the site), shall not exceed the following limits when measured at or beyond the Noise Control Boundary:</td><td>Activity status where compliance not achieved: Restricted Discretionary

Matters of discretion are restricted to:
1. the operational requirements of the Clandeboye Dairy Manufacturing Plant; and
2. the extent of non-compliance; and
3. the level, hours of operation, duration and character of the noise; and</td></tr>
</table>
</td></tr>
</table>

		1. 7am – 10pm: 55dB $L_{Aeq\ (15\ min)}$ 2. 10pm – 7am: 45dB $L_{Aeq\ (15\ min)}$ and 75 L_{AFmax}	4. the proximity and nature of nearby activities and the adverse effects they may experience from the noise; and 5. the existing noise environment; and 6. effects on amenity values and anticipated character of the receiving environment; and 7. effects on health and well-being of people; and 8. any noise reduction measures; and 9. the practicality of mitigating noise.
NOISE-S3	Add "**Within the Clandeboye Noise Control Boundary**" to the left-hand column of NOISE-S3.2		
NOISE-S4	Add "**Within the Clandeboye Noise Control Boundary**" to the left-hand column of NOISE-S4		

Appendix B

NOISE and LIGHT chapters

LIGHT

Introduction

Artificial outdoor lighting enables work, recreation, and entertainment activities to occur beyond normal daylight hours. It also enables night-time activities to be conducted safely and provides for site security. However, if outdoor lighting is poorly designed, controlled, located or orientated, it may adversely affect the amenity of neighbouring properties ~~and Light Sensitive Areas; result in a loss or reduction of views of the night sky~~[1]~~;~~ and potentially disturb wildlife. It may also affect human health and/or safety.

The provisions of the Light Chapter provide for adequate lighting to support night time activities and site security, while minimising potential adverse effects.

The Port Zone, recognises the industrial nature and scale of the port, its strategic importance and 24-hour operation. Due to the nature of operations at the port, a Light Management Plan (LMP) has been prepared by PrimePort, the managers and operators of the port, in collaboration with Council. It is envisaged that the LMP will act as a tool to minimise adverse effects of light spill on adjoining areas, while recognising the operational requirements of the port, many of which are existing. The Port Zone is therefore exempted from some of the provisions of this Chapter, but with some protection to neighbouring residential properties and a reliance on the LMP to minimise effects~~, particularly where outdoor artificial lighting is adjoining light sensitive areas~~[2]. While the PrimePort Lighting Management Plan 2022 does not form part of the District Plan, it can be downloaded from Council website.

Objectives

LIGHT-O1 Artificial outdoor lighting

The benefits of a~~A~~rtificial outdoor lighting in allowing ~~provides~~ for the safe and efficient use of the outdoors for a range of night-time activities are recognised[3], while: [4]

1. ~~is~~ being designed and located to minimise its adverse effects~~,~~;
2. ~~is~~ being compatible with the character and qualities of the surrounding area; ~~and~~
3. ~~protects the values and characteristics of light sensitive areas~~[5] minimising adverse effects on long-tailed bats[6]; and
4. not compromising the health and safety of people and communities, including road safety.[7]

~~LIGHT-O2 Benefits of artificial lighting~~[8]

~~The benefits of artificial lighting are recognised while any adverse effects generated do not compromise the health and safety of people and communities, including road safety.~~

Policies

LIGHT-P1 Appropriate artificial outdoor lighting

[1] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[2] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[3] Further submission of PrimePort – Evidence of Tim Walsh, paras 83-85.
[4] Synlait [163.5]
[5] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[6] Dir. General Conservation [166.8]
[7] Synlait [163.5]
[8] Synlait [163.5]

Provide for artificial outdoor lighting ~~appropriate to its environment~~[9] that:

1. provides for the safe and efficient use of the outdoors for a range of activities, including for night-time working, primary production[10], recreation and entertainment activities; and
2. ~~maintains the character and qualities of the surrounding area; and~~[11]
3. ~~-~~supports the social, cultural, and economic wellbeing and health and safety of people and communities~~, including road safety~~[12]~~; and~~
4. ~~minimises sky glow and light spill, and~~[13]
5. ~~protects the identified values and qualities of light sensitive areas~~[14].

LIGHT-P2 Intensity, location and direction of artificial outdoor lighting

Control the intensity, location and direction of any outdoor lighting in order to:

1A. maintain the character and qualities of the surrounding area[15]

1. ~~ensure that any artificial outdoor lighting~~[16] avoid~~s~~ adverse effects on ~~existing light sensitive areas,~~[17] other established uses and the safety of the[18] transport network; and
2. ~~achieve the internalisation of light spill within the site where the artificial outdoor lighting is located, and '~~[19]minimise any light spill onto adjoining sites; and
3. ~~minimise adverse effects on views of the night sky and intrinsically dark landscapes; and~~[20]
4. avoid adverse effects on the health and safety of people and communities in the surrounding area, including sleep disturbance; and
5. minimise adverse effects on long-tailed bats[21].

~~LIGHT-P3 Health and safety~~

~~Avoid all artificial outdoor lighting that does not meet the intensity, type, and direction requirements for light sensitive areas unless it is critical for health and safety reasons.~~[22]

Rules

Note: *Activities not listed in the rules of this chapter are classified as a permitted under this chapter. For certain activities, consent may be required by rules in more than one chapter in the Plan. Unless expressly stated otherwise by a rule, consent is required under each of those rules. The steps plan users should take to determine what rules apply to any activity, and the status of that activity, are provided in Part 1, HPW — How the Plan Works - General Approach.*

[9] Clause 10(2)(b) relating to Synlait [163.5]
[10] Federated Farmers [182.178], Hort NZ [245.88]
[11] Shifted to LIGHT-P2. Clause 10(2)(b) relating to Synlait [163.5]
[12] Shifted to LIGHT-P2.1. Clause 10(2)(b) relating to Synlait [163.5]
[13] Clause 10(2)(b) relating to Synlait [163.5]
[14] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.4], Rooney, A J [177.6], Hort NZ [245.12]
[15] Shifted from LIGHT-P1.2. Clause 10(2)(b) relating to Synlait [163.5]
[16] Clause 10(2)(b) relating to Synlait [163.5]
[17] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[18] Shifted from LIGHT-P1.3. Clause 10(2)(b) relating to Synlait [163.5]
[19] Clause 10(2)(b) relating to Synlait [163.5]
[20] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[21] Dir. General Conservation [166.8, 166.122]
[22] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]

LIGHT-R1	Artificial outdoor lighting ~~outside light sensitive areas~~[23]	
1. **All zones (~~excluding the other than~~[24] Port Zone and Clandeboye Dairy Manufacturing Precinct)[25] outside ~~Light Sensitive Areas~~ the Long-tailed Bat Habitat Protection Area Overlay[26]**	**Activity status: Permitted** **Where:** **PER-1** LIGHT-S1 and LIGHT-S2 are complied with.~~; and~~ ~~**PER-2**~~ ~~Outdoor artificial lighting that is visible from a Light Sensitive Area must not exceed the illuminance limits for the Light Sensitive Areas stated in Table 22; and~~[27] ~~**PER-3**~~ ~~If the outdoor artificial light is located adjoining a Light Sensitive Area, it must:~~ ~~1. be fully shielded (see Figure 18 – Lighting Fixtures); and~~ ~~2. have a colour corrected temperature of no greater than 3000K (warm white); and~~ ~~3. be installed in a manner that precludes operation between 10pm and 7am the following day; and~~ ~~4. meet the illumination levels set out in Table 22, when measured at boundary of the Light Sensitive Area.~~[28]	**Activity status when compliance not achieved with PER-1: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the matters of discretion of any infringed standard ~~**Activity status where compliance not achieved with PER-2 or PER-3: Non-complying**~~[29]
2. **Port Zone**	**Activity status: Permitted** **Where:** **PER-1** All exterior lighting must be oriented so that light is emitted away from any adjoining and adjacent ~~properties~~ zones[30]; and **PER-2**	**Activity status when compliance not achieved ~~with~~[32]: Discretionary**

[23] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[24] Evidence of Timonthy Walsh, para 85.
[25] Fonterra [165.101] - Evidence of Susannah Tait, paras 11.3-11.5
[26] Dir. General Conservation [166.8]
[27] Waka Kotahi [143.113], Silver Fern Farms [172.101]
[28] Rooney Holdings [174.69], Rooney, GJH [191.69], Rooney Group [249.69], Rooney Farms [250.69], Rooney Earthmoving [251.69], TDL [252.69]
[29] Waka Kotahi [143.113], Silver Fern Farms [172.101], Rooney Holdings [174.69], Rooney, GJH [191.69], Rooney Group [249.69], Rooney Farms [250.69], Rooney Earthmoving [251.69], TDL [252.69]
[30] Fonterra [165.102]
[32] Clause 16(2)

	LIGHT-S-2[31] is complied with; and **PER-3** The horizontal and vertical illuminance levels (above the background level) at the boundary of a residential zone between 10pm — 7am do not exceed 5 lux; and **PER-4** The vertical illuminance level at a window of an adjoining property in a residential zone between 10pm and 7am does not exceed 5 lux.	
3. Clandeboye Dairy Manufacturing Precinct[33]	**Activity status: Permitted** **Where:** **PER-1** All exterior lighting must be oriented so that light is emitted away from any adjoining and adjacent zones; and **PER-2** LIGHT-S2 is complied with; and **PER-3** The vertical illuminance level at a window of any residential unit on an adjoining property between 7am and 10pm does not exceed 10 lux; and **PER-4** The vertical illuminance level at a window of any residential unit on an adjoining property between 10pm and 7am does not exceed 1 lux.	**Activity status when compliance not achieved: Discretionary**
~~34~~. Long-tailed Bat Habitat Protection Area Overlay[34]	**Activity status: Permitted** **Where:** **PER-1** LIGHT-S1 and LIGHT-S2 are complied with; and **PER-2**	**Activity status when compliance not achieved with PER-1: Restricted Discretionary**[36] **Matters of discretion are restricted to:** 1. the matters of discretion of any infringed standard

[31] Clause 16(2)
[33] Fonterra [165.101] - Evidence of Susannah Tait, para 11.3-11.5
[34] Dir. General Conservation [166.8]
[36] Clause 10(2)(b) relating to Alliance Group [173.102, 173.103]

	The artificial outdoor lighting is for a temporary activity[35]; or **PER-3** In any Rural Zone or Open Space and Recreation Zone, the exterior artificial outdoor lighting must: 1. be fully shielded (see Figure 18 — Lighting Fixtures); and 2. have a colour corrected temperature of no greater than 2700K (warm white).	**Activity status when compliance not achieved with PER-2 or PER-3: Discretionary**
~~**LIGHT-R2**~~	~~**Outdoor artificial lighting for health and safety**~~[37]	
~~**Light Sensitive Areas**~~	~~**Activity status: Permitted**~~ ~~**Where:**~~ ~~**PER-1**~~ ~~The lighting is for health and safety purposes; and~~ ~~**PER-2**~~ ~~The lighting is for:~~ ~~1. a permitted temporary activity; or~~ ~~2. any other temporary activity that has a duration of no longer than six months;~~[38] ~~and~~ ~~**PER-3**~~ ~~LIGHT-S1 and LIGHT-S2 are complied with.~~	~~**Activity status when compliance not achieved: Non-complying**~~
~~**LIGHT-R3**~~	~~**Outdoor artificial lighting within Light Sensitive Areas not listed in LIGHT-R2**~~[39]	
~~**Light Sensitive Areas**~~	~~**Activity status: Permitted**~~ ~~**Where:**~~ ~~**PER-1**~~ ~~LIGHT-S1 and LIGHT-S2 are complied with; and~~ ~~**PER-2**~~ ~~The outdoor artificial lighting must:~~	~~**Activity status when compliance not achieved: Non-complying**~~

[35] Clause 10(2)(b) relating to Bonifacio, P [36.13], Rooney Holdings [174.70], Rooney, GJH [191.70], Rooney Group [249.70], Rooney Farms [250.70], Rooney Earthmoving [251.70], TDL [252.70]
[37] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[38] Bonifacio, P [36.13], Rooney Holdings [174.70], Rooney, GJH [191.70], Rooney Group [249.70], Rooney Farms [250.70], Rooney Earthmoving [251.70], TDL [252.70]
[39] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]

	~~1. be fully shielded (see Figure 18 — Lighting Fixtures); and~~ ~~2. have a colour corrected temperature of no greater than 3000K (warm white); and~~ ~~3. be installed in a manner that precludes operation between 10pm and 7am the following day.~~[40]	

Standards

LIGHT-S1	General lighting standards	
All zones (excluding Port Zone)	1. All exterior lighting must be oriented so that light is emitted away from any adjoining and adjacent properties; and 2. all artificial outdoor lighting must comply with: a. the horizontal and vertical illuminance levels for the relevant Zone or Area set out in Table 22 — Horizontal and vertical illuminance levels; and 3. where conformance with the limits set in Table 22 — Horizontal and vertical illuminance levels is to be determined by calculation, the calculation must be undertaken by a person who is professionally qualified and competent in the discipline of illumination engineering and be based upon: a. a maintenance factor of 1.0 (i.e., no depreciation); and b. the horizontal plane be calculated for a series of points along the property boundary at no greater than 2m spacings; and c. the vertical plane be calculated for a series of points along the property boundary at no greater than 2m spacings horizontally and vertically from ground level to a height equal to the height of 10m; and 4. where conformance with the limits set in Table 22 — Horizontal and vertical illuminance levels is to be determined by measurement, illuminance measurements must take place at the boundary at a height of 1.5m; and	**Matters of discretion restricted to:** 1. whether the artificial outdoor lighting is necessary, suitably designed and adequately mitigates the effects on the character and amenity of the surrounding area. 2. the number, type, placement, design, height, correlated colour temperature (CCT), orientation and screening of any lighting minimises light spill, glare, and artificial sky glow; and 3. the extent to which the amount of light emitted beyond the site between sunset and sunrise is minimised to control effects on indoor amenity values and sleep quality; and 4. whether it is consistent with best practice.

[40] Bonifacio, P [36.12, 36.14], Alliance Group [173.103], Rooney Holdings [174.71], Rooney, GJH [191.71], Rangitata Island Dairy [221.4], Rooney Group [249.71], Rooney Farms [250.71], Rooney Earthmoving [251.71], TDL [252.71]

	5. where measurements of any illuminance above background levels from the use of artificial lighting cannot be made because the artificial lighting cannot be turned off, measurements may be made in areas of a similar nature that are not affected by the artificial lighting. The result of these measures may be used for determining the effect of the artificial lighting. ***Note**: Where a development is located on a site, which adjoins or is directly across a road from a different lighting category, the most sensitive classification of the two categories will apply when measured at their common boundary.*	
LIGHT-S2	**Traffic safety on roads**	
All zones	1. Outdoor artificial lighting operating on any site between sunset and sunrise must not exceed the threshold increment limit stated in Table 23, on any state highway, arterial or principal road, calculated within each traffic lane in the direction of travel; and 2. All exterior lighting must be oriented so that light is emitted away from any state highway or arterial or principal roads, or any oncoming traffic.	**Matters of discretion restricted to:** 1. any adverse effects of artificial outdoor lighting, including glare and light spill on the safety of road users.

Table 22 — Horizontal and vertical illuminance levels

	Receiving[41] Zones ~~and Areas~~[42]				
	~~Rural Lifestyle Zone;~~[43] Natural Open Space Zone; ~~Light Sensitive Areas~~[44]	General Rural Zone[45]	~~General~~ Rural Lifestyle[46] Zone; Settlement Zone; Open Space Zone; Māori Purpose Zone	General Residential Zone; Medium Density Residential Zone; Neighbourhood Centre Zone	Town Centre Zone; Local Centre Zone; Large Format Retail Zone; City Centre Zone;

[41] Clause 16(2) – Evidence of Susannah Tait, para 11.7
[42] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[43] HortNZ [245.89]
[44] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[45] HortNZ [245.89]
[46] HortNZ [245.89]

					Sports and Active Recreation Zone; General industrial Zone
Horizontal and vertical illuminance above the background level at a site boundary Times: 7am — 10pm	2 lux	10 lux	5 lux	10 lux	25 lux
Horizontal and vertical illuminance above the background level at a site boundary Times: 10pm — 7am	0.5 lux	5 lux	1 lux	2 lux	5 lux
Vertical illuminance at a window of an adjoining property in a residential zone Times: 7am — 10pm	1 lux	2 lux	2 lux	5 lux	15 lux
Vertical illuminance at a window of an adjoining property in a residential zone Times: 10pm — 7am	0 lux	1 lux	1 lux	2 lux	3 lux

Table 23 — Threshold Increment

	Zones and Areas			
Threshold increment	**Rural Lifestyle Zone;**	**General Rural Zone; Settlement Zone; Open Space Zone;**	**General Residential Zone;**	**Town Centre Zone; Local Centre Zone;**

	Natural Open Space Zone; ~~Light Sensitive Areas~~[47]	**Māori Purpose Zone**	**Medium Density Residential Zone; Neighbourhood Centre Zone**	**Large Format Retail Zone; City Centre Zone; Sports and Active Recreation Zone; General Industrial Zone; Port Zone**
	15 percent (based on adaption luminance of 0.1 cd/m^2)	15 percent (based on adaption luminance of 0.1 cd/m^2)	15 percent (based on adaption luminance of 1 cd/m^2)	15 percent (based on adaption luminance of 2 cd/m^2)

[47] Clause 10(2)(b) relating to Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]

Figure 18 — Lighting Fixtures

Definitions

~~LIGHT SENSITIVE AREAS~~[48]	~~Includes land in the following areas outside of the Port Zone:~~ ~~a. Wāhi tapu, Wāhi taoka and Wai taoka Overlays~~ ~~b. Significant Natural Areas Overlay~~ ~~c. Outstanding Natural Landscapes Overlay~~ ~~d. Visual Amenity Landscape Overlay~~ ~~e. the Rural Lifestyle Zone; and~~ ~~f. the Natural Open Space Zone.~~
OUTDOOR LIGHTING	means any fixed[49] exterior or interior lighting that emits directly into the outdoor environment.

[48] Rangitata Dairies [44.1], Dairy Holdings [89.4], Fonterra [165.15], Fenlea Farms [171.2, 171.4], Rooney, A J [177.6], Hort NZ [245.12]
[49] Fenlea Farms [171.5], Rooney Holdings [174.9], Rooney, A J [177.6] Rooney, GJH [191.9], Rooney Group [249.9], Rooney Farms [250.9], Rooney Earthmoving [251.9], TDL [252.9]

Map Changes

Delete the Light Sensitive Area Overlay.

NOISE

Introduction

The generation of noise is often a necessary part of many activities undertaken within the District. While it is important that such activities are able to operate, noise can result in potential adverse effects on people's health and wellbeing, and their enjoyment of the environment. Adverse effects associated with noise can vary depending on a number of factors, including scale, frequency, timing, duration and characteristics of the noise, the distance between the source and receiver, and any reduction measures. The background sound level can influence the acceptability or annoyance of noise, and this can also vary throughout the District.

Where noise sensitive activities are established near existing noise-generating activities, or areas where higher noise levels are to be expected, reverse sensitivity effects can arise, potentially resulting in the existing noise-generating activities being constrained, in terms of their ongoing operation or expansion. This is a particular concern for Regionally Significant Infrastructure and community facilities, including the Airport, Raceway, State Highway, railway line and the Port, which could be constrained if reverse sensitivity effects arise.

This Chapter controls the nature and timing of noise-generating activities, and manages new noise sensitive activities where these are located close to established noise-generating activities or zones which have or are expected to have elevated noise levels. However, there are a number of noise generating activities that this chapter does not manage including noise associated with residential activities, agricultural, emergency services, traffic, trains and aircraft. In addition to the provisions in this chapter, Section 16 of the RMA also imposes a requirement to ensure that noise levels are kept at a reasonable level by adopting the best practicable option. Part 12 of the RMA contains enforcement provisions including excessive noise directions, which are often used to manage excessive residential noise.

In addition to the provisions in this chapter, the planning maps include a Rail Vibration Alert layer. The purpose of this layer is to identify properties which may experience rail vibration effects and to alert property owners to the potential vibration effects. The layer is for information purposes only and there are no specific provisions applying to activities within the layer.[1]

The provisions in this chapter apply to all other chapters within this Plan, unless otherwise specified.

Objectives	
NOISE-O1	**Activities that generate noise**
Noise effects generated by activities are compatible with the purpose, character and qualities of each receiving[2] zone and do not compromise the health and well-being of people and communities.	
NOISE-O2	**Reverse sensitivity**
The Airport, Raceway, State Highway, railway lines, ~~and~~ the Port and Clandeboye Dairy Manufacturing Precinct[3] and existing and anticipated activities ~~located~~[4] within commercial, mixed use and Industrial zones are not constrained by reverse sensitivity effects arising from noise sensitive activities.	
Policies	
NOISE-P1	**Maintenance of zone character and qualities**

[1] KiwiRail [187.80] – Evidence of Catherine Heppelthwaite, paras 7.6 -7.8
[2] Silver Fern Farms [172.102] and Alliance Group [173.104]
[3] Fonterra [165.5, 165.107] – Evidence of Susannah Tait, paras 12.2 – 12.17
[4] Synlait [163.6]

Enable the generation of noise when it is of a type, character and level that is appropriate, having regard to:
1. the purpose, character and qualities of the zone that the activity is located in;
2. the nature, scale, frequency and duration of the noise generating activity;
3. methods of mitigation; and
4. the sensitivity of the surrounding environment.

NOISE-P2	Noise from Temporary Military Training Activities

Ensure that any noise effects from temporary military training activities are appropriately mitigated by managing their proximity to noise sensitive activities.

NOISE-P3	Noise from temporary events

Limit the frequency, character, scale and duration of noise generated by temporary events so that any noise effects are:
1. compatible with the level of amenity anticipated by the surrounding environment; or
2. within a range that can be tolerated within the surrounding environment given the temporary nature of the activity.

NOISE-P4	Aircraft operations and engine testing

Require the noise generated by aircraft operations and engine testing at Timaru/Richard Pearse Airport to be limited so that any adverse amenity effects on noise sensitive activities and health and safety of occupants (including sleep disturbance) are minimised as far as practicable.

NOISE-P5	Reverse sensitivity

Require noise sensitive activities located in higher noise environments to be located and designed so as to minimise adverse effects on the amenity values and health and safety of occupants and minimise sleep disturbance from noise~~, while taking into account:~~
~~1. the type of noise generating activity; and~~
~~2. other noise sources in the area; and~~
~~3. the nature and occupancy of the noise sensitive activity; and~~
~~4. mitigation measures, including acoustic insulation, screening and topography~~.[5]

For the purpose of this Policy, higher noise environments include:
1. Commercial and Mixed Use Zones; and
2. Residential zones in close proximity to any General industrial zone and areas within the Port Noise Outer Control Boundary and within that part of the Medium Density Residential Zone and City Centre Zone located within the Port Noise Inner Control Boundary; and
3. locations in close proximity to a State Highway or the railway line; and
4. land within 300m of an existing or consented frost fan[6]; and
5. land within the Clandeboye Noise Control Boundary[7].

NOISE-P6	Noise and vibration from blasting

Only allow blasting where adverse noise and vibration effects can be avoided or mitigated, as far as practicable, taking into account:
1. the type, character, scale and level of adverse noise effects; and
2. the character and sensitivity of the receiving environment; and
3. any recommendations made by a suitably qualified professional

[5] KiwiRail [187.76] – Evidence of Catherine Heppelthwaite, para 7.3
[6] HortNZ [245.98], NZ Fans [255.8]
[7] Fonterra [165.5, 165.109] – Evidence of Susannah Tait, paras 12.2 – 12.17

NOISE-P7	Noise sensitive activities within noise control boundaries

Within the Airport Noise Control Boundary Overlay, Port Noise Inner Control Boundary Overlay (excluding areas within the City Centre Zone and Medium Density Residential Zone) and the Raceway Noise Control Boundary Overlay, avoid:

1. subdivision, unless it will not facilitate the establishment of additional noise sensitive activities; and
2. noise sensitive activities, unless noise mitigation measures are implemented that avoid sleep disturbance and minimise other adverse effects on the amenity values of occupants.

Rules

Note: *Activities not listed in the rules of this chapter are classified as a permitted under this chapter. For certain activities, consent may be required by rules in more than one chapter in the Plan. Unless expressly stated otherwise by a rule, consent is required under each of those rules. The steps plan users should take to determine what rules apply to any activity, and the status of that activity, are provided in Part 1, HPW — How the Plan Works - General Approach.*

<table>
<tr><th>NOISE-R1</th><th colspan="2">Activities generating noise not otherwise specified in the Rules section</th></tr>
<tr><td rowspan="2">All zones</td><td>Activity status: Permitted

Where:

PER-1
NOISE-S1 is complied with; and

PER-2
NOISE-S2 is complied with.

This rule does not apply to noise generated by:
1. activities of a limited duration required for normal seasonal agricultural, horticultural and forestry activities, such as harvesting; and
2. normal residential activities, excluding ‘fixed plant’ such as heat pumps; and
3. light passenger vehicle movements, as defined by the Ministry of Transport vehicle type category dated 25.07.2018, on a site associated with residential use; and
4. vehicles operating on public roads, or trains operating on rail lines (including at railway yards, railway sidings or stations and level crossing warning devices); and
5. aircraft using airstrips and helicopter landing sites for activities in the rural zone that complies with GRUZ-R14; and
6. activities taking place within the Coastal Marine Area when assessing</td><td>Activity status when compliance not achieved with PER-2: Restricted Discretionary

Where:

RDIS-1
The noise limit in Table 24 — Noise Performance Standards is not exceeded by more than 10dB.

Matters of discretion are restricted to:
1. the matters of discretion of any infringed standard</td></tr>
<tr><td>Activity status when compliance not achieved with PER-1 or RDIS-1: Non-complying</td></tr>
</table>

	compliance with NOISE-R8 Noise from activities within the Port Zone; and 7. any warning device used by emergency services for emergency purposes; and 8. fixed plant that is solely used for emergency or training purposes, including standby generator sets used to supply electricity only at times of electrical supply failure, and plant used during life threatening situations such as smoke fans or sprinkler pumps; and 9. testing of fixed plant that is solely used for emergency purposes providing such testing occurs only for periods not exceeding 2 hours within any 30 day period, and only during the hours of 7am to 7pm; and 10. aircraft used for park management activities, using airstrips and helicopter landing sites in the NOSZ[8].	
NOISE-R2	**Noise from temporary events**	
All zones	**Activity status: Permitted** **Where:** **PER-1** NOISE-S1 is complied with; and **PER-2** Where the duration of the temporary event does not exceed six hours and the noise level generated does not exceed 75dB $L_{Aeq\ (15min)}$ and 85 L_{AFmax} within any residential zone between the hours of 10am and 10pm in any one calendar day, excluding noise from fireworks displays; and **PER-3** Where the duration of the temporary event exceeds six hours, or when the noise occurs between the hours of 10pm and 10am in any one calendar day, NOISE-S2 is complied with; and	**Activity status when compliance not achieved with PER-3: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the matters of discretion of any infringed standard. **Activity status when compliance not achieved with PER-2, PER-4 or PER-5: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the level, duration and character of the noise being generated; and 2. proximity and nature of nearby activities and the

[8] Helicopters Sth Cant. [53.18], NZAAA [132.22]

	PER-4 A Management Plan must be submitted to the Council no less than 30 days prior to the event setting out the methods that will be used to achieve compliance with PER-2 and PER-3; and **PER-5** Firework displays associated with temporary events must*:* 1. not exceed one hour in duration; and 2. occur between the hours of 10am and 10pm, except for New Year's Eve when they may take place up until 1am on New Year's Day.	adverse effects they may experience from the noise; and 3. the existing noise environment; and 4. effects on amenity values and anticipated character of the receiving environment; and 5. effects on health and well-being of people; and 6. any noise reduction measures; and 7. the practicality of mitigating noise or utilising alternative sites.
		Activity status when compliance not achieved with PER-1: Non-complying
NOISE-R3	**Noise from temporary military training activities**	
All zones	**Activity status: Permitted** **Where:** **PER-1** NOISE-S1 is complied with excluding the requirement to assess noise from weapons firing and/or the use of explosives using NZS 6802:2008 Acoustics – Environmental noise[9]; and **PER-2** For fixed noise sources, NOISE-S2 is complied with; and **PER-3** Any mobile noise sources must comply with the noise limits set out in Tables 2 and 3 of NZS6803:1999 Acoustics — Construction Noise, with reference to 'construction noise' taken to refer to a mobile noise source; and **PER-4**	**Activity status when compliance not achieved with PER-2: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the matters of discretion of any infringed standard**.** **Activity status when compliance not achieved with PER-3, PER-4 or PER-5: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the level, duration and nature of the noise being generated; and 2. proximity and nature of nearby activities and the adverse effects they may

[9] NZDF [151.13]

	Weapons firing and/or the use of explosives must: 1. occur between 7am and 7pm, and achieve either a 500m minimum separation distance to, or a peak sound pressure level of 95 dBC when measured within the notional boundary of, any building containing a noise sensitive activity; and 2. occur between 7pm and 7am, and achieve either a 1250m minimum separation distance to, or a peak sound pressure level of 85 dBC when measured within the notional boundary of, any building containing a noise sensitive activity; and 3. be notified to the Council, including details of the nature, duration and scale of activity, and any consultation that has been undertaken, at least 5 working days prior to the activity occurring; and **PER-5** Helicopter landing areas must comply with NZS6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas.	experience from the noise; and 3. the existing noise environment; and 4. effects on amenity values and anticipated character of the receiving environment; and 5. effects on health and well-being of people; and 6. any noise reduction measures; and 7. the practicality of mitigating noise or utilising alternative sites. **Activity status when compliance not achieved with PER-1: Non-complying**
NOISE-R4	**Construction noise**	
All zones	**Activity status: Permitted** **Where:** **PER-1** The noise from construction activities undertaken on a site must be measured, assessed, managed and controlled to comply with the requirements of New Zealand Standards NZS 6803:1999 Acoustics — Construction Noise.	**Activity status when compliance not achieved: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the level, hours of operation, duration and characteristics of the noise; and 2. proximity and nature of nearby activities and the adverse effects they may experience from the noise; and 3. the existing noise environment; and 4. effects on amenity values and anticipated character of the receiving environment; and 5. effects on health and well-being of people; and

		6. any noise reduction measures; and 7. the practicality of mitigating noise.
NOISE-R5	**Noise from bird scaring devices**	
All zones	**Activity status: Permitted** **Where:** **PER-1** NOISE-S1 is complied with excluding the requirement to assess impulsive noise from bird scaring devices using NZS 6802:2008 Acoustics – Environmental noise[10]; and **PER-2** Noise from any bird scaring device either: 1. must not exceed an ~~70dBC peak or un-weighted level~~ A-weighted SEL 55dB[11] measured within the notional boundary of any noise sensitive activity on any adjoining site under different ownership, and the device must not be used at a frequency of more than 12 times per hour; or 2. must not exceed ~~an 85dBC peak or un-weighted level~~ an A-weighted SEL 65dB[12] within the notional boundary of any adjoining noise sensitive activity on any site under different ownership, and the device must not be used at a frequency of more than 6 times per hour; and **PER-3** ~~Unless~~ Where located ~~at least~~ within 500m ~~from~~ of any building housing a noise sensitive activity on an adjoining site under different ownership, gas gun type b~~B~~ird[13] scaring devices must either: 1. be oriented with the direction of fire facing away from any noise sensitive activity on any adjoining site under different ownership; or 2. line-of-sight between the device sound outlet and any noise sensitive activity on any adjoining site under	**Activity status when compliance not achieved with PER-2, PER-3 or PER-4: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the level, hours of operation, duration and character of the noise; and 2. proximity and nature of nearby activities and the adverse effects they may experience from the noise; and 3. the existing noise environment; and 4. effects on amenity values and anticipated character of the receiving environment; and 5. effects on health and well-being of people; and 6. any noise reduction measures; and 7. the practicality of mitigating noise. **Activity status when compliance not achieved with PER-1: Non-complying**

[10] Clause 10(2)(b) relating to NZDF [151.16]
[11] Hort NZ [245.93]
[12] Hort NZ [245.93]
[13] Hort NZ [245.93]

	different ownership is intercepted by an acoustic barrier with a minimum surface mass of not less than 7 kg/m2 measuring not less than 2m x 2m placed within 2m of the device, or a landform;[14] and **PER-4** Bird scaring devices must only be used between half an hour before sunrise ~~7am~~[15] and ~~8pm~~ half an hour after[16] sunset on any calendar day.	
NOISE-RX	**Installation and operation of frost fans**[17]	
General Rural Zone	**Activity status: Permitted** **Where:** **PER-1** Noise from the frost fan must not exceed 55dB $L_{Aeq\ (15mins)}$ when measured at a distance of 300m, or within the notional boundary of any existing a building used for a noise sensitive activity on a site in different ownership, or at any zone boundary; and **PER-2** Frost fans are only used for: 1. the protection of crops from frost from bud break to harvest; or 2. maintenance purposes, undertaken only between 8am and 6pm Monday to Friday. **PER-3** Frost fans are only operated when the air at canopy height is 2^0C or less **PER-4** Evidence of installation of a frost fan meeting this standard shall be provided to Council including certification from an appropriately qualified and experienced acoustic engineer that the noise limits in 1 (above) are met and providing the location of the frost fan. **PER-5**	**Activity status when compliance not achieved: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the level, duration, frequency and character of the noise; and 2. the proximity and nature of nearby noise sensitive activities and the adverse effects they may experience from the noise; and 3. the existing noise environment; and 4. effects on amenity values and anticipated character of the receiving environment; and 5. effects on health and well-being of people; and 6. any noise reduction measures; and 7. operational requirements of frost fans; and 8. monitoring and reporting.

[14] HortNZ [245.93]
[15] HortNZ [245.93] - Evidence of Vance Hodgson – paras 29-43.
[16] Hort NZ [245.93]
[17] HortNZ [245.98], NZ Fans [255.9]

	Records shall be kept stating the date, temperature, times and length of use of each frost fan and made available to Council on request. Records may include telemetry records.	
NOISE-R6	**Noise from aircraft engine testing at Timaru/Richard Pearse Airport**	
Timaru Airport Designation TDC-52	**Activity status: Permitted** **Where:** **PER-1** NOISE-S1 is complied with; and **PER-2** NOISE-S5 is complied with.	**Activity status when compliance not achieved with PER-2: Discretionary** **Activity status when compliance not achieved with PER-1: Non-complying**
NOISE-R7	**Noise from aircraft operations at Timaru/Richard Pearse Airport, other than aircraft engine test listed in NOISE-R6**	
Timaru Airport Designation TDC-52	**Activity status: Permitted** **Where:** **PER-1** Noise from aircraft operations must be measured and assessed in accordance with NZS6805:1992 Airport Noise Management and Land Use Planning; and **PER-2** NOISE-S6 is complied with.	**Activity status when compliance not achieved with PER-2: Discretionary** **Activity status when compliance not achieved with PER-1: Non-complying**
NOISE-R8	**Noise from activities within the Port Zone**	

1. Port Zone within Precinct 7	**Activity status: Permitted** **Where:** **PER-1** The maximum noise generated from activities is measured and assessed[18] in accordance with NZS 6809:1999 Acoustics Port Noise Management and Land Use Planning; and **PER-2** When measured ~~at any point at or~~ on any site not located within the Port Zone and[19] landward of the Port Noise Inner control boundary shown on the planning maps, the following noise limits apply:	**Activity status when compliance not achieved: Discretionary**

[18] PrimePort [175.66], TDHL [186.38]
[19] PrimePort [175.66], TDHL [186.38]

	1. the 5 day Ldn noise limit must not exceed 65 dB L_{dn}; 2. LA_{eq} 'night' (10pm to 7am) must not exceed 60 dB $L_{Aeq\ (9hours)}$ provided that no single 15 minute measurement will exceed 65 dB LA_{eq} and 85dBA L_{Amax} **PER-3** When measured ~~at any point at or~~ on any site not located within the Port Zone and[20] landward of the Port noise outer control boundary shown on the planning maps, the following noise limit applies: 1. on any day between 10pm to 7am the following day, noise generated must not exceed 52 dB $L_{Aeq\ (9hours)}$provided that no single 15 minute sound measurement level must not exceed 57 dB L_{Aeq} and 77 dB L_{Amax}; ***Note:*** *For the purpose of Port Noise, daytime is defined as 7am to 10pm on any day, and night time is defined as 10pm to 7am the following day*.	
2. Port Zone outside Precinct 7[21]	**Activity Status: Permitted** **Where:** **PER-1** NOISE-S1 is complied with; and	**Activity status when compliance not achieved with PER-2 or PER-3: Discretionary**

[20] PrimePort [175.66], TDHL [186.38]
[21] Property Income [56.1] and Fonterra [165.112], PrimePort [175.66], TDHL [186.38]

	PER-2 On any day between 10pm and 7am the following day, noise generated must not exceed 45 dB $L_{Aeq\ (9\ hours)}$ when measured at or within any residentially zoned site, provided that any single 15 minute sound measurement level must not exceed 50 dB LAeq and 75 dB $L_{Amax.}$ **PER-3** On any day between 7am and 10pm, noise generated must not exceed 55 dB $L_{Aeq\ (15\ mins)}$ when measured at or within any residentially zoned site.[22] ~~*Note: For the purpose of Port Noise, daytime is defined as 7am to 10pm on any day, and night time is defined as 10pm to 7am the following day.*~~[23]	**Activity status when compliance not achieved with PER-1: Non-complying**
NOISE-RX[24]	**Noise from the Clandeboye Dairy Manufacturing Precinct**	
Clandeboye Dairy Manufacturing Precinct	**Activity status: Permitted** **Where:** **PER-1** The maximum noise from operations, including all ancillary equipment, maintenance activities, and operation of all vehicles on site (including those entering and exiting the site), shall not exceed the following limits when measured at or beyond the Noise Control Boundary: 1. 7am – 10pm: 55dB$L_{Aeq\ (15\ min)}$ 2. 10pm – 7am: 45dB $L_{Aeq\ (15\ min)}$ and 75 $L_{AFmax.}$	**Activity status when compliance not achieved with: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the operational requirements of the Clandeboye Dairy Manufacturing Plant; and 2. the extent of non-compliance; and 3. the level, hours of operation, duration and character of the noise; and 4. the proximity and nature of nearby activities and the adverse effects they may experience from the noise; and 5. the existing noise environment; and 6. effects on amenity values and anticipated character of the receiving environment; and

[22] Property Income [56.1], Fonterra [165.112], PrimePort [175.66], TDHL [186.38] – Evidence of Gary Walton, paras 7.1 – 7,4; Evidence of Rob Hay, paras 49-54.
[23] Clause 16(2)
[24] Fonterra [165.5, 165.111] – Evidence of Susannah Tait, paras 12.2 – 12.17

		7. effects on health and well-being of people; and 8. any noise reduction measures; and 9. the practicality of mitigating noise.

NOISE-R9	Any new building for use by a noise sensitive activity and alterations to existing buildings for use by a noise sensitive activity (not listed in NOISE-R12)	
~~Any site w~~Within[25] 40m of a State Highway with a posted speed limit of 50 km/hr or less ~~Any site w~~Within[26] 80m of a State Highway with a posted speed limit greater than 50 km/hr ~~Any site w~~Within[27] 40m of the railway line Neighbourhood Centre Zone Local Centre Zone Large Format Retail Zone Mixed Use Zone Town Centre Zone City Centre Zone General Residential zone within 20m of the boundary with an Industrial zone Medium Residential zone within 20m of the boundary with an Industrial zone Outer Control boundary of the Port Noise Control Overlay	**Activity status: Permitted** **Where:** **PER-1** The building is acoustically insulated and ventilated in accordance with: 1. NOISE-S3 and NOISE-S4; and 2. the acoustic insulation must be assessed in accordance with ISO 717-1:2020 Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation; or **PER-2** An acoustic design certificate signed by a suitably qualified acoustic engineer demonstrates either: a. the level of noise incident on the most exposed part of the exterior of any habitable room can be shown under a reasonable maximum use scenario to not exceed the following noise limits at all points 1.5m above ground level, and any part of the floor levels above ground:	**Activity status when compliance not achieved with PER-1.1 or PER-2: Restricted Discretionary** **Matters of discretion are restricted to:** 1. the matters of discretion of any infringed standard. 2. for activities in breach of[30] **PER-2,** the matters of discretion ~~of~~ in[31] **NOISE-S3** **Activity status when compliance not achieved with PER-1.2: Non-complying**

[25] Clause 16(2)
[26] Clause 16(2)
[27] Clause 16(2)
[30] Clause 16(2)
[31] Clause 16(2)

General Rural Zone within 300m of any frost fan (including any frost fan for which a resource or building consent has been issued)[28] **Within the Clandeboye Noise Control Boundary**[29]	i. less than 55 dB $L_{Aeq(1h)}$ for rail noise; or ii. Less than 57 dB $L_{Aeq(1h)}$ for road noise; or iii. Less than 57 dB LAeq(1 hr) for port noise; or b. the building is at least 20 metres from all roads subject to the standard and/or the railway line and there is a solid building, fence, wall or landform that completely blocks the line-of-sight from all parts of all windows and doors to all parts of any road surface subject to the standard, or all points above 3.8 metres for railway track. ***Note**: This standard applies in addition to, and does not affect the requirements of, the Building Act 2004.*	
NOISE-R10	**Helicopter landing sites not addressed by GRUZ-R14**	
All zones	**Activity status: Permitted** **Where:** **PER-1** Flight movements must be for emergency purposes only such as medical emergencies, search and rescue or firefighting; or **PER-2** The helicopter landing site must not be located within any residential zone; and **PER-3** Take offs from any site must not exceed 10 per month; and **PER-4**	**Activity status when compliance not achieved with: Restricted Discretionary** **Matters of discretion are restricted to:** 10. the extent of non-compliance with **PER-3** and **PER-4**; and 11. the extent to which helicopter noise limits specified within Table 1 of NZS6807:1994 are complied with; and 12. the level, duration and character of the noise; and 13. proximity and nature of nearby activities and the adverse effects they may experience from the noise; and

[28] HortNZ [245.97], NZ Fans [255.10]
[29] Fonterra [165.5, 165.113] – Evidence of Susannah Tait, paras 12.2 – 12.17

	Noise from flight movements measured in accordance with NZS 6801:2008 Acoustics — Measurement of environmental sound must not exceed 70 dB L_{AFMax} between 10pm and 7am or 90 dB L_{AFMax} between 7am and 10pm at any residential zone or within the notional boundary of a building containing a noise sensitive activity.	14. the existing noise environment; and 15. effects on amenity values and anticipated character of the receiving environment; and 16. effects on health and well-being of people; and 17. noise mitigation measures; and 18. the practicality of utilising alternative sites.
NOISE-R11	**Noise from blasting**	
All zones	**Activity status: Discretionary**	**Activity status where compliance not achieved: Not applicable**
NOISE-R12	**New noise sensitive activities, alterations to existing buildings for use by a noise sensitive activity or subdivision to accommodate a noise sensitive activity**	
1. Port Noise Inner Control Boundary Overlay	**Activity status: Restricted Discretionary** **Where:** **RDIS-1** The activity is carried out within the Medium Density Residential Zone or City Centre Zone. **Matters of discretion are restricted to:** 1. proximity and nature of noise generating activities in the Port Zone and the adverse effects they may experience from the noise; and 2. the existing noise environment; and 3. noise mitigation measures; and 4. the extent to which reverse sensitivity from noise can be mitigated; and 5. effects on amenity values and anticipated character of the receiving environment; and 6. effects on health and well-being of people.	**Activity status where compliance not achieved: Non-complying**

2. **Airport Noise Control Boundary Overlay** **Raceway Noise Control Boundary Overlay**	**Activity status: Non-complying**	**Activity status where compliance not achieved: Not applicable**

Standards

NOISE-S1	**Noise measurement**	
All zones	Noise must be measured in accordance with NZS 6801:2008 Acoustics — Measurement of environmental sound and assessed in accordance with NZS 6802:2008 Acoustics — Environmental noise, unless otherwise specified by this District Plan.	**Matters of discretion are restricted to: Not applicable**
NOISE-S2	**Noise limits**	
All zones	Any activity must comply with the noise limits set out in Table 24 — Noise Performance Standards, at any site in separate ownership.	**Matters of discretion are restricted to:** 1. the level, duration and characteristics of the noise; and 2. proximity and nature of nearby activities and the adverse effects they may experience from the noise; and 3. the existing noise environment; and 4. effects on amenity values and anticipated character of the receiving environment; and 5. effects on health and well-being of people; and 6. any noise reduction measures; and 7. the practicality of mitigating noise or utilising alternative sites.
NOISE-S3	**Acoustic insulation**	
1. **Within 40m of a State Highway with a posted speed limit of 50 km/hr or less**	1. Any habitable room in a new building used for a noise sensitive activity, ~~or~~ an alteration to an existing building or room that changes its use to a noise	**Matters of discretion are restricted to:** 1. effects on the ability of existing or permitted activities to operate or

Within 80m of a State Highway with a posted speed limit greater than 50 km/hr **Within 40m of a railway line** **Large Format Retail Zone** **Town Centre Zone** **City Centre Zone** **<u>General Rural Zone within 300m of any frost fan (including any frost fan for which a resource or building consent has been issued)</u>** [32]	sensitive activity, <u>or where the floor area of a habitable room within an existing building is increased by 20% or more,</u>[33] must be designed, constructed and maintained to achieve a minimum external to internal noise reduction for habitable rooms of not less than 35 dB $D_{tr,2m,nT,w} + C_{tr}$. 2. Compliance with this standard must be achieved by ensuring habitable rooms are designed and constructed in a manner that accords with: a. Table 25 — Minimum construction requirements for external building elements of habitable rooms to achieve an advanced level of acoustic insulation; or b. an acoustic design certificate signed by a suitably qualified acoustic engineer stating the design proposed will achieve compliance with this standard. ***Note**: This standard applies in addition to, and does not affect the requirements of, the Building Act 2004.*	establish without undue constraint; and 2. any legal instrument proposed; and 3. mitigation of noise achieved through other means; and 4. the amenity of present and future residents of the site.
2. **General Residential zone within 20m of the boundary with an Industrial zone** **Medium Residential Zone within 20m of the boundary with an Industrial zone** **Neighbourhood Centre Zone**	1. Any habitable room in a new building used for a noise sensitive activity, ~~or~~ an alteration to an existing building that changes its use to a noise sensitive activity, <u>or where the floor area of a habitable room within an existing building is</u>	**Matters of discretion are restricted to:** 1. effects on the ability of existing or permitted activities to operate or establish without undue constraint; and 2. any legal instrument proposed; and 3. mitigation of noise achieved through other means; and

[32] HortNZ [245.97], NZ Fans [255.12]
[33] Rooney Holdings [174.72], Rooney, GJH [191.72], Rooney Group [249.72], Rooney Farms [250.72], Rooney Earthmoving [251.72], TDL [252.72]

Local Centre Zone **Mixed Use Zone** **All zones within the Outer Control boundary of the Port Noise Control Overlay** **Within the Clandeboye Noise Control Boundary**[34]	increased by 20% or more,[35] must be designed, constructed and maintained to achieve a minimum external to internal noise reduction for habitable rooms of not less than 30 dB Dtr,2m,nT,w + Ctr. 2. Compliance with this standard must be achieved by ensuring habitable rooms are designed and constructed in a manner that accords with: a. Table 26 — Minimum construction requirements for external building elements of habitable rooms to achieve a moderate level of acoustic insulation; or b. an acoustic design certificate signed by a suitably qualified acoustic engineer stating the design proposed will achieve compliance with this standard. ***Note**: This standard applies in addition to, and does not affect the requirements of, the Building Act 2004.*	4. the amenity of present and future residents of the site.
NOISE-S4	**Ventilation requirements**	
~~**All zones**~~[36] **Within 40m of a State Highway with a posted speed limit of 50 km/hr or less** **Within 80m of a State Highway with a posted speed limit greater than 50 km/hr** **Within 40m of the railway line**	1. The requirements of ~~minimum external to internal noise reduction levels in~~[38] NOISE-S3 must be achieved at the same time as the ventilation requirements of the New Zealand Building Code. An alternative means of ventilation must be provided within any study or bedroom	**Matters of discretion are restricted to:** 1. effects on the ability of existing or permitted activities to operate or establish without undue constraint; and 2. the effects of the non-compliance; and 3. the ability to provide the appropriate levels of

[34] Fonterra [165.5, 165.113] – Evidence of Susannah Tait, paras 12.2 – 12.17
[35] Rooney Holdings [174.72], Rooney, GJH [191.72], Rooney Group [249.72], Rooney Farms [250.72], Rooney Earthmoving [251.72], TDL [252.72]
[36] Clause 16(2)
[38] KiwiRail [187.79]

Neighbourhood Centre Zone **Local Centre Zone** **Large Format Retail Zone** **Mixed Use Zone** **Town Centre Zone** **City Centre Zone** **General Residential zone within 20m of the boundary with an Industrial zone** **Medium Residential zone within 20m of the boundary with an Industrial zone** **Outer Control boundary of the Port Noise Control Overlay** **Within the Clandeboye Noise Control Boundary**[37]	unless an acoustic design certificate signed by a suitably qualified acoustic engineer is provided that states the design of any bedroom or any study as proposed will comply with the NOISE-S3 acoustic insulation standards with windows open. 2. Ventilation systems where installed must ~~generate sound levels not exceeding~~: a. generate sound levels not exceeding[39] 35 dB LAeq(30s) 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. ***Note:*** *This standard applies in addition to, and does not affect the requirements of, the Building Act 2004.*	ventilation through other means; and 4. the amenity of present and future residents of the site.
NOISE-S5	**Noise from aircraft engine testing**	
Timaru Airport Designation TDC-52	1. Noise generated by aircraft engine testing must not exceed 55dB $L_{Aeq\ (16\ hours)}$ between the hours of 7am and 11pm on any calendar day, when measured within the notional boundary of any noise sensitive activity in the General Rural Zone that is outside the Airport Designation. 2. All aircraft engine testing, other than testing associated with essential unscheduled aircraft engine maintenance, must take place between 7am and 11pm. 3. Any aircraft engine testing associated with essential	**Matters of discretion are restricted to: Not Applicable**

[37] Fonterra [165.5, 165.113] – Evidence of Susannah Tait, paras 12.2 – 12.17
[39] KiwiRail [187.79]

	unscheduled aircraft maintenance that takes place between 11pm and 7am must not exceed 55dB $L_{Aeq\ (8\ hours)}$ and 80dB L_{AFmax} within the notional boundary of any noise sensitive activity in the General rural zone outside the Airport Designation, and is limited to no more than 20 occasions per year. 4. Where practical, all aircraft engine maintenance and testing associated with essential unscheduled aircraft must take place between the hours of 7.00am and midnight, and the total duration of engine testing must not exceed 1 hour in any 11pm to 7am period. On each occasions the date, time, duration and reason for the engine testing must be recorded and made available to the Timaru District Council within 10 days upon request. 5. The Airport operator must maintain a register of any complaints received relating to noise from any activities within the Airport, that records the date, time, duration and cause of the complaint, together with the name and address of the complainant. A copy of this Register must be made available to the Timaru District Council within 10 days upon request.	
NOISE-S6	**Noise from aircraft operations**	
Timaru Airport Designation TDC-52	1. The Timaru Airport must be operated so that noise from aircraft operations (aircraft landing and taking off, aircraft taxiing and aircraft flying along any flight path within the Airport Noise control boundary overlay) do	**Matters of discretion are restricted to: Not Applicable**

	not exceed 65dB L_{dn} outside the airport noise control boundary overlay. Aircraft noise must be calculated as a 3-month rolling logarithmic average in accordance with NZS 6805:1992 using records of actual aircraft operations. 2. Standard 1 above does not apply to: a. aircraft landing or taking off in an emergency; and b. aircraft using the Airport as a planned or essential alternative to landing at another scheduled airport; and c. emergency flights required to rescue persons from life threatening situations or to transport patients, human organs or medical personnel in medical emergency situations; and d. flights required to meet the needs of a national or civil defence emergency declared under the Civil Defence Act 1983; and e. flights certified by the Minister of Defence as necessary for reasons of National Security in accordance with Section 4 of the Act; and f. aircraft undertaking firefighting duties; and g. military aircraft movements; and h. aircraft using the Airport in preparation for and participation in air shows. 3. A report detailing the calculated noise levels at the Airport Noise Control Boundary Overlay must be	

	prepared by the airport operator and forwarded to the Council every five years or on request. The first such report must be forwarded to the Council within six months of this standard becoming operative. 4. In order to audit compliance with this standard, noise level monitoring must be carried out for a minimum of three months every five years with the resulting report forwarded to the Council within one month of that monitoring being completed.	

Table 24 — Noise performance standards

Receiving zone and assessment location	Time period	Noise limit
1. a. Within the notional boundary of a building used for a noise sensitive activity in the following zones: i. General Rural Zone ii. Rural Lifestyle Zone iii. Settlement Zone iv. Natural Open Space Zone v. Open Space Zone vi. Sport and Active Recreation Zone vii. Māori Purpose Zone; and b. Within any part of a site in the General Residential Zone	7.00am — 7.00pm	50 dB $L_{Aeq\ (15\ min)}$
	7.00pm — 10.00pm	45 dB $L_{Aeq\ (15\ min)}$
	10.00pm — 7.00am	40 dB $L_{Aeq\ (15\ min)}$ 70 dB L_{AFmax}
2. Within any part of a site in the Medium Density Residential Zone, except where otherwise specific in 4. below [40] ~~but, where noise is generated from within the Port Zone, excluding those sites located between the~~	7.00am — 7.00pm	55 dB $L_{Aeq\ (15\ min)}$
	7.00pm — 10.00pm	50 dB $L_{Aeq\ (15\ min)}$
	10.00pm — 7.00am	45 dB $L_{Aeq\ (15\ min)}$ 75 dB L_{AFmax}

[40] Clause 10(2)(b) relating to Foodstuffs [193.9]

~~Terrace and the Main South Railway Line~~[41].		
3. Within any part of a site in the following zones: a. Large Format Retail Zone b. Town Centre Zone c. City Centre Zone d. ~~General Industrial Zone,~~[42] ~~excluding those sites located to the east of the Main South Railway Line and forming part of, or adjoining the Port of Timaru~~[43].	7.00am — 10.00pm	65 dB $L_{Aeq\ (15\ min)}$
	10.00pm — 7.00am	65 dB $L_{Aeq\ (15\ min)}$ 75 dB L_{AFmax}
4. Within any part of a site in the following zones: a. Neighbourhood Centre Zone b. Local Centre Zone c. Mixed Use Zone d. Medium Density Residential Zone ~~at 18A Hobbs Street~~ within ~~30m of the boundary of the adjacent Local Centre Zone~~ Hobbs Street Noise specific control area.[44]	7.00am — 10.00pm	60 dB $L_{Aeq\ (15\ min)}$
	10.00pm — 7.00am	60 dB $L_{Aeq\ (15\ min)}$ 75 dB L_{AFmax}
5. Within any part of a site a site in the General Industrial Zone, excluding any adjacent site in the General Industrial Zone held under common ownership.[45]	7.00am — 10.00pm	75 dB $L_{Aeq\ (15\ min)}$
	10.00pm — 7.00am	75 dB $L_{Aeq\ (15\ min)}$

Table 25 — Minimum construction requirements for external building elements of habitable rooms to achieve an advanced level of acoustic insulation

Building Element	Minimum Construction Requirements

[41] Clause 16(2).
[42] Southern Proteins [140.19], Barkers [179.23], Hilton Haulage [168.9], North Meadows [190.13], J R Livestock [241.31]
[43] PrimePort [175.69], TDHL [186.39]
[44] Foodstuffs [193.9]
[45] Southern Proteins [140.19], Barkers [179.23], Hilton Haulage [168.9], North Meadows [190.13], J R Livestock [241.31]

<table>
<tr>
<td>External walls</td>
<td>
1. Wall cavity infill of fibrous insulation, batts or similar, with a minimum density of 9kg/m^3; and
2. cladding and internal wall lining complying with either Option A, B or C below:
<table>
<tr><td>Option A</td><td>Light cladding: timber weatherboard or sheet materials with surface mass between 8kg/m^2 and 30kg/m^2 of wall cladding</td><td>Internal lining of minimum 17kg/m plasterboard, su as two layers of 10mm thick high density plasterboard, on resilient/isolating mountings</td></tr>
<tr><td>Option B</td><td>Medium cladding: surface mass between 30 kg/m^2 and 80kg/m^2 of wall cladding</td><td>Internal lining of minimum 17kg/m plasterboard, su as two layers of 10mm thick high density plasterboard</td></tr>
<tr><td>Option C</td><td>Heavy cladding: surface mass greater than 80kg/m^2 of wall cladding</td><td>No additional requirements</td></tr>
</table>
</td>
</tr>
<tr>
<td>Roof/ceiling</td>
<td>
1. Ceiling cavity infill of fibrous insulation, batts or similar, with a minimum density of 7kg/m^3; and
2. ceiling penetrations, such as for recessed lighting or ventilation, must not allow additional noise break-in; and
3. roof type and internal ceiling lining complying with either Option A, B or C below:
<table>
<tr><td>Option A</td><td>Skillion roof with light cladding: surface mass up to 20kg/m^2 of roof cladding</td><td>Internal lining of minimum 25kg/m plasterboard, su as two layers of 13mm thick high density plasterboard</td></tr>
<tr><td>Option B</td><td>Pitched roof with light cladding: surface mass up to 20kg/m^2 of roof cladding</td><td>Internal lining of minimum 17kg/m plasterboard, su as two layers of 10mm thick high</td></tr>
</table>
</td>
</tr>
</table>

			density plasterboard
	Option C	Heavy roof cladding: surface mass greater than 20kg/m^2 of roof cladding	No additional requirements
Glazed areas	1. Timber or aluminium frames with full compression seals on opening panes (excludes glazed sliding doors or windows) 2. glazed areas shall be less than 35% of each room floor area 3. double-glazing with: a. a laminated pane of glass at least 6mm thick; and b. a cavity between the two panes of glass at least 12mm deep; and c. a second pane of glass at least 4mm thick; or d. any other glazing with a minimum performance of Rw 33dB.		
Exterior doors to any habitable room	Solid core exterior door, minimum surface mass 20kg/m^2, with compression seals; or other door sets with minimum performance of Rw 30dB		

Table 26 — Minimum construction requirements for external building elements of habitable rooms to achieve a moderate level of acoustic insulation

Building Element	Minimum Construction Requirements	
External Walls of Habitable Rooms	**Stud Walls**	
	Exterior cladding	20mm timber or 9mm compressed fibre cement sheet over timber frame (100mm x 50mm).
	Cavity infill	Fibrous acoustic blanket (batts or similar of a minimum mass of 9kg/m^3) required in cavity for all exterior walls. Minimum 90mm wall cavity.
	Interior lining	One layer of 12mm gypsum plasterboard; or Where exterior walls have continuous cladding with a mass of greater than 25kg/m^2 (e.g. brick veneer or minimum 25mm stucco plaster), internal wall

		linings need to be no thicker than 10mm gypsum plasterboard.
	Combined superficial density	Minimum not less than 25kg/m^2 being the combined mass of external and internal linings excluding structural elements (e.g. window frames or wall studs) with no less than 10kg/m^2 on each side of structural elements.
	Mass Walls	
	Wall construction & lining	190mm concrete block, strapped and lined internally with 10mm gypsum plaster board, or 150mm concrete wall.
Glazed Areas of Habitable Rooms	**Glazed areas**	
	Glazed areas up to 10% of floor area	6mm glazing single float.
	Glazed areas between 10% and 35% of floor area	6mm laminated glazing.
	Glazed areas greater than 35% of floor area	Require a specialist acoustic report to show conformance with the insulation rule.
	Frames of glazed areas	
	Frames:	Frames shall be aluminum window frames with compression seals.
Roof over Habitable Rooms	**Skillion Roof**	
	Cladding	0.5mm profiled steel or 6mm corrugated fibre cement, or membrane over 15mm thick ply, or concrete or clay tiles.
	Sarking	17mm plywood (no gaps).
	Frame	Minimum 100mm gap with fibrous acoustic blanket (batts or similar of a mass of 9kg/m^3).
	Ceiling	Two layers of 10mm gypsum plaster board (no through ceiling lighting penetrations unless correctly acoustically rated). Fibrous acoustic blanket (batts or similar of a minimum mass of 9kg/m^3).

	Combined superficial density	Combined mass of cladding and lining of not less than 25kg/m^2 with no less than 10kg/m^2 on each side of structural elements.
	Pitched Roof (all roofs other than skillion roofs)	
	Cladding	0.5mm profiled steel or tiles, or membrane over 15mm thick ply.
	Frame	Timber truss with 100mm fibrous acoustic blanket (batts or similar of a minimum mass of 9kg/m^3) required for all ceilings.
	Ceiling	12mm gypsum plaster board.
	Combined superficial density	Combined mass with cladding and lining of not less than 25kg/m^2.
Floor of habitable room	**Floor areas open to outside**	
	Cladding	Under-floor areas of non-concrete slab type floors exposed to external sound will require a cladding layer lining the underside of floor joists of not less than 12mm ply.
	Combined superficial density	Floors to attain a combined mass not less than 25 kg/m^2 for the floor layer and any external cladding (excluding floor joists or bearers).
Doors of Habitable Rooms	**External Door to Habitable Rooms**	
	Superficial density & perimeter seals	Solid core door (min 25 kg/m2) with compression seals (where the door is exposed to exterior noise).

Definitions

BIRD SCARING DEVICE	~~M~~means a device used for the purpose of disturbing or scaring birds including gas guns and[46] avian distress alarms when being used specifically for bird scaring.
NOISE SENSITIVE ACTIVITY	means: a. Residential activities; b. Visitor accommodation; c. Educational facility; d. Healthcare activities; and e. Sleeping areas within Marae complexes[47] (building only).

[46] Hort NZ [245.7]
[47] Clause 16(2)

General Rural Zone Chapter – GRUZ-S4

GRUZ-S4	Setbacks for sensitive activities	
General Rural Zone	1. No new sensitive activity may be established within 500m from: a. the closest outer edge of any paddocks, hard-stand areas, structures or buildings used to house stock, or treatment systems, used for an intensive primary production activity; and b. an existing farm effluent disposal area; and c. a lawfully established quarry or mine. 2. No new building for a sensitive activity may be erected within 20m from any other site boundary in a different ownership where a primary production activity is being conducted, unless the site existed prior to 22 September 2022, in which case a 10m setback applies; 3. No new building for a sensitive activity may be erected within 20m of an existing shelter belt. 4. No new noise sensitive activity may be established within 100m of an existing or consented frost fan.[48] Except that these setbacks do not apply to a new sensitive activity being established within the same site on which a lawfully established: intensive primary production activity; effluent disposal; quarry or mine; is located. **Note:** The **Canterbury Regional Council** regulates the discharge of contaminants into air from animal effluent in the **Canterbury Air Regional Plan**.	Not applicable

[48] NZ Fans [255.27]

APPENDIX C

Response to Specific Directions / Questions in Minute 34 - Light and Noise - Hearing F

Item	Direction	Officer's Response
(a)	In conjunction with Mr Walsh, provide a revision of LIGHT-O1.	I agree in principle that the objective needs to acknowledge in some way the "benefits" of the use of lighting. However, in terms of the actual wording, I had some concerns around the Mr Walsh's drafting. Having discussed this further with him, we have agreed the following wording: *The benefits of a~~A~~rtificial outdoor lighting in ~~provides~~ allowing for the safe and efficient use of the outdoors for a range of night-time activities are recognised, while...* We consider that this drafting appropriately includes reference to the benefits of lightning, but reflects the way that lighting can enable these activities to occur (rather than being focussed on enabling the lighting) as one of the benefits to be recognised. The change from "provides" (or in Mr Walsh's version, "enabling") to "allowing" is because the words "enabling" or "providing for" are usually used in policies, and something different is intended here (i.e. not enabling/providing for the activities, but rather recognising how lighting allows for activities to be undertaken). With respect to Mr Walsh's request to list specific activities in the objective, we have agreed not to include this. Inclusion of a list could unintentionally narrow the objective – whereas the recommended text refers to the use of outdoors for a range of activities – without limiting what those activities are. In any case, there does not appear to be scope for this part of the amendment (as this is not within the range of changes sought, nor does it reflect wording included in the notified wording of LIGHT-O2 supported by the submitter). As previously noted in para 7.2.12 of the s42A Report, I consider the changes recommended to LIGHT-O1 (to combine it with LIGHT-O2) to be relatively minor, in that they do not alter the intent of the original drafting. Rather, I stated that the original s32 evaluation still applies, with the changes providing much clearer direction about the outcomes sought and avoiding unnecessary duplication across two objectives. As the additional changes set out above reinstate some of the specific wording contained in LIGHT-O2 as notified, this assessment still applies.
(b)	Provide a joint statement with Ms Williams, in relation to the Light provisions, responding to the lighting sought in the Evidence of Ms Williams, which considers s32AA and in particular the	*An extension of time for the filing of this statement to 17 June has been sought and granted. The technical advice received from Paul Wilson, a lighting expert, will be filed with the JWS.*

Item	Direction	Officer's Response
	practicalities of complying with the lux limits sought in that evidence, and any recommended changes to the Light rules as a result. Ms White indicated that she would likely need to seek technical advice from a lighting expert. If this occurs, the advice is to be shared with Ms Williams to inform the s32AA analysis and joint statement.	
(c)	Provide information about the complaints received by Council regarding: (i) Frost fans, and (ii) bird scaring devices, which includes information about where these complaints have been received.	The Council has advised me that: (i) only one complaint has been received in relation to frost fans, received in February 2023 and pertaining to operations by M A Orchards in the vicinity of Kerrytown Road. (ii) they have three recorded complaints about bird scarers, summarised as followed: 1) 12 July 2015 - Complaints about bird scarers at the wastewater treatment ponds going all might every 45 seconds 2) 25 February 2017 - Complaints about bird scarers in the vicinity of Pleasant Point Highway making a lot of noise, with constant gun sounds over the area, and querying the times/curfew for use of these. 3) 6 March 2017 - Complaints about noise from bird scarers in the vicinity of Pleasant Point Highway, with them starting at 4am for the last couple of weeks. Appears to relate to the orchard near the raceway, but database notes that there is another one over the back of Rolling Ridges Road.
(d)	Provide recommendations regarding Ms Pulls request regarding the deletion of marae and papakāinga from the definition of Noise Sensitive Activity.	The PDP includes **two** definitions – one for "sensitive activities" and one for "noise sensitive activities". "Sensitive activity/ies" is used in: - SD-O9, which relates to rural areas and seeks to manage the adverse effects of new sensitive activities on primary production; - EI-R27 & EI-R29, which are rules relating to activities within the National Grid Yard - Provisions in the Hazardous substance chapter (HS-O2, HS-P3, HS-R3) in terms of proximity between major hazard facilities and sensitive activities - The GRUZ, RLZ & MPZ Chapters, in terms of how potential conflicts between sensitive activities and primary production activities are managed (GRUZ-O2, GRUZ-O4, GRUZ-P5, GRUZ-R2, GRUZ-R3, GRUZ-R11,

Item	Direction	Officer's Response
		GRUZ-R16, GRUZ-R23, GRUZ-S4 & GRUZ-S5; and RLZ-P8, RLZ-R4 and RLZ-R5; and MPZ-R4 and MPZ-R5) - GIZ-O3.2, seeking that the use and development of the GIZ is not compromised by the establishment of sensitive activities. The definition of "sensitive activities" was considered in Hearing A. "Noise sensitive activity/ies" is only referred to in the provisions in the Noise Chapter and in one rule in GRUZ (GRUZ-R14, PER-3.2) which relates the proximity of airports and landing sites to noise sensitive activities. Reference to noise sensitive activities is also made in the Introduction to the MUZ Chapter, but not used within the rules. The Memorandum on behalf of Te Rūnanga o Ngāi Tahu (dated 31 May 2024) addresses the definition of "sensitive activity/ies" (not "noise sensitive activity/ies"). I have however considered the matters raised in it by Ms Pull as they might also apply to noise sensitive activities. I firstly note that Ms Pull's view (para 2.16) is that a single definition of 'sensitive activities' may not be appropriate, in terms of managing reverse sensitivity effects, as this is dependent on the location, scale and type of activity. I consider that the distinction in the PDP for 'noise sensitive activities' aligns with Ms Pull's view, as this targets the management of potential reverse sensitivity effects relating to noise to those activities which are considered to be sensitive to noise (rather than capturing activities that might not be sensitive to noise, but might be to other effects). With respect to papakāika (papakāinga), I note that the notified definition of noise sensitive activity/ies does not include papakāika (papakāinga). I consider that the reasons given by the s42A Report Author for Hearing A on why this should not be included in the "sensitive activity/ies" definition applies equally to "noise sensitive activities", in that the definition of papakāika (papakāinga) is broad and includes a range of activities that are not sensitive to noise. Where there are activities sensitive to noise that would also fall within the definition of papakāika (papakāinga), these are already captured in the noise sensitive activity definition, e.g. a whare would also fall within the definition of a residential activity. With respect to "marae (building only)", Ms Pull states that "*A 'marae' is the courtyard in front of a meeting house and likely is not the intended area requiring protection*." I agree that a courtyard is not sensitive to noise and therefore should not be captured. I assume that what was intended by the definition was to capture those areas within a wider marae complex which are used for sleeping purposes. I do not agree that these should be excluded from the definition, because otherwise the plan objectives (both NOISE-O2 and MPZ-O2) could be compromised. In addressing Ms Pull's point, while still capturing sleeping areas in marae complexes, the definition could be amended as follows:

Item	Direction	Officer's Response
		Noise Sensitive Activity means: *…e. Sleeping areas within Marae complexes (buildings only).* I note that Te Rūnanga o Ngāi Tahu did not submit on the definition of 'noise sensitive activities'. However, I consider that the change could be made under clause 16(2) as a point of clarification.

Appendix D

Malcolm Hunt report

MALCOLM HUNT CONSULTING

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Date of Issue:	**4 June 2025**
To: **Copy to;**	Timaru District Council c/- Jen Vella, Legal advisor Anderson Lloyd Council's section 42A Reporting Officer, Liz White, consultant planner
Project :	Proposed District Plan Noise Chapter – Response to Noise Matters Raised Within Expert evidence
Prepared By :	Malcolm Hunt, Malcolm Hunt Associates

Proposed District Plan – Advice Regarding Noise Expert Testimony For Inclusion in Council's section 42A Report

This document sets out my advice regarding expert noise evidence (and evidence by others) submitted as expert evidence pertaining to submissions on certain technical aspects the Noise Chapter of the Proposed Timaru District Plan. My recommendations on the matters raised and reasons for each recommendation are set out **APPENDIX A** attached. The expert evidence I have responded to are those which the s42A officer (Liz White) has asked for my comment on.

My recommendations outlined below should be read in conjunction with my earlier technical advice to Council which was appended to the s42A Report "Other District-wide Matters - Light; Noise" by Liz White (Appendix 3 Noise - Memorandum from Malcolm Hunt). I confirm my qualifications and experience remain as detailed within that earlier memo.

I confirm that have prepared this advice in accordance with the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. I also confirm the issues addressed in this review are within my area of expertise except where I state that I am relying on the evidence or advice of another person or published reports.

Malcolm Hunt
Bachelor of Science
Master of Engineering[mech]
RSH Diploma in Public Health

Appendix A – Response to Noise Issues Raised with Expert Testimony Associated With Submissions on the Proposed Timaru District Plan

<table>
<tr><th>Submitter</th><th>Evidence Reviewed</th><th>Issue Identified & Response</th></tr>
<tr><td>Submitter-56-Property-Income-Fund-No.-2-Ltd</td><td>Gary Walton (Noise)
Michael Campbell (planning)</td><td><u>Noise From Port Zone not in Precinct 7</u>
Mr Walton's evidence comments on, and supports new NOISE-R8(2) noise standard applying to the "Port Zone outside Precinct 7". This new standard deals with an earlier omission which omitted a daytime noise limit. However, a suitable daytime limit is now proposed to be added to NOISE-R8.2 PER-2 as "...On any day between 7am and 10pm, noise generated must not exceed 55 dB LAeq (15 min) when measured at or within any residentially zoned site". This issue is also discussed within the evidence of Rob Hay for Fonterra who also supports this amendment, see discussion below. In summary, I support the addition of a noise limit for daytime in the manner proposed. This is an acceptable upper limit for daytime that will suitably protect noise-sensitive residentially zoned sites.
<u>Reference to NZ Standards</u>
Mr Walton rejects the 'non-compliant' activity status applying when compliance with NOISE-R8(1)PER-1 is not achieved and considers 'discretionary' more appropriate. However, I can confirm for consistency reasons the plan deliberately promotes use of the two main 'generic' noise standards (NZS6801 and NZS6802) which apply throughout the Noise Chapter. Notwithstanding this, there are situations where the use of alternative appropriate noise standards are stipulated. This is enabled under NOISE-S1 by the words "....unless otherwise specified by this District Plan". This enables appropriate alternative standards to be applied where necessary (e.g. NOISE-R8 refers to the port noise std NZS6809). Mr Walton and Michael Campbell both imply the Noise Chapter does not allow the use of other standards. I disagree as I consider the Noise Chapter refers to the correct range of NZ Standards. To my mind, it would represent a significant "failure" if the NZ Standards stipulated in each section of the noise chapter are not adopted by plan users. In that case, the resultant NOISE-S1 non-complying activity status would be correctly applied in my view. In my view NZS6801 and NZS6802 adequately deal with the majority of noise emission situations covered in the Noise Chapter. In some cases (construction noise, airport noise, port noise etc.) it is technically necessary to refer to alternative NZ standards and this flexibility is provided for within the Noise Chapter.</td></tr>
<tr><td>Submitter 245 - HortNZ</td><td>Charlotte Wright (Policy Advisor HortNZ)

William Reeve (Noise)</td><td><u>Frost Fan Noise - Temperature Setting For Commencing Operation</u>
Frost fan operation controls NOISE-RX Installation and operation of frost fans at PER-3 are sought to be either removed entirely or modified to allow the frost fan to commence operation when the air temperature is 2.2° C (4° F) above the 'critical temperature' of the crop being protected. As PER-1 permits noise to exceed the usually applied night time noise limits at sensitive receiver sites, to assist both plan users and for Council officer's who may have to enforce such standards, I consider the district plan noise standards should provide clear and unequivocal guidance regarding the conditions under which frost fans may operate. Thus, I do not support removal of PER-3.

Regarding amending the thermal threshold of 2 degrees C set out in PER-3, following the hearing I have investigated the submitter's request to modify PER-3 so that frost fan operations are permitted to commence when the air temperature is 2.2° C (4° F) above the 'critical temperature' of the crop being protected. As no evidence has been provided as to what the 'critical temperature' is for typical crops protected using frost fans in the Timaru district, I have deferred to a verifiable research report on critical temperatures for a wide range of crops typically protected from frosts published in 2005 by the Food and Agriculture Organization of the United Nations[1]. Chapter 4 of this report (Frost Damage: Physiology And Critical Temperatures) sets out, at Table 4.5, critical temperatures for over 130 horticultural crop species. I summarise the published range of critical temperatures for the 130 fruit and vegetable species set out in Table 4.5 as follows. The right hand column adjusts these values by adding 2.2 degrees C as sought by the submitter;

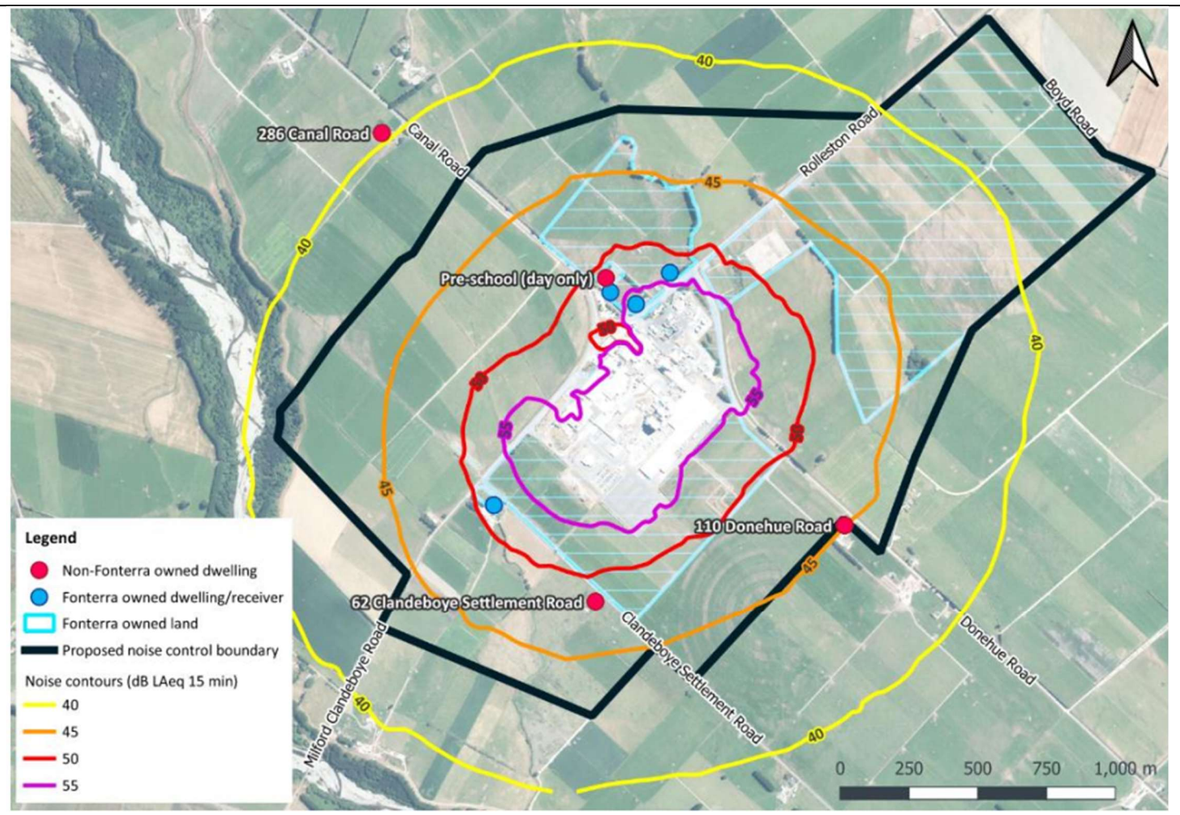
<table>
<tr><th>Summary statistic</th><th>Data As Published</th><th>Data as published +2.2 degrees</th></tr>
<tr><td>Median</td><td>-0.9 degrees</td><td>1.3 degrees</td></tr>
<tr><td>Average</td><td>-1.3 degrees</td><td>0.9 degrees</td></tr>
<tr><td>Minimum</td><td>-15.7 degrees</td><td>-13.5 degrees</td></tr>
<tr><td>Maximum</td><td>-0.1 degrees</td><td>2.1 degrees</td></tr>
</table>

It can be seen from this summary data that the critical temperature plus 2.2 degrees C is not, in general, above the 2 degrees C standard of PER-3. Only 1 species in Table 4.5 (Witloof chicory) resulted in 2.2° C above the 'critical temperature' exceeding the 2 degree threshold of PER-3. Thus, I do not support the submitter's request to amend PER-3 as it appears this would result in frost fans commencing operations at colder temperatures than that specified in PER-3 which I do not believe is what the submitter intended.

<u>Bird Scaring Devices - Hours of Operation</u>
The submitter's expert seeks NOISE-R5 PER-4 be amended so that hours of operation for audible bird scaring devices may commence half an hour before sunrise instead of the currently proposed 7am. Note, the adjustment for the evening has already reflected the submitter's request to enable bird scaring devices to operate until half an hour after sunset. I have given consideration to the improved protection afforded by the 'half an hour before sunrise' start time, however owing to potential sleep disruption, I do not support early operation of bird scaring devices as requested. During the longest day period during December, the change sought would allow bird</td></tr>
</table>

[1] Frost Protection: fundamentals, practice, and economics. Volume 1 by Richard L Snyder (University of California, Atmospheric Science, Department of Land, Air and Water Resources - Davis, California, USA 0 and J. Paulo de Melo-Abreu, Technical University of Lisbon, Instituto Superior de Agronomia (ISA), Departamento de Ciencias do Ambiente, Apartado 3381, 1305-905 Lisboa, Portugal. Published by Food and Agriculture Organization of the United Nations, Rome, 2005 (https://www.fao.org/4/y7223e/y7223e00.htm#Contents).

		scaring devices to commence at 4.30am which is considered to be firmly within the period of the night needed to be protected from sleep disturbance. The noise associated with bird scaring devices is permitted up to SEL 55 to 65 dB – a level of noise compatible with daytime at sensitive receiver sites but would be a source of sleep disruption (especially if bedroom windows are open during warmer months). While the earlier operating time would no doubt provide growers with more flexibility to deal with crop damage by birds, I consider noise impact on people during night times (as early as 4.30am) to be unacceptable. I note some crops (apples) reach maturity in late January early February would be adequately protected affected by a 7am start however, the issue is one of sleep protection and starts as early as 4.30am for emitting noise as high as 55 to 65 dB at rural residences is too early in my opinion. Bird Scaring Devices - Distance Setbacks and Orientation The evidence of Ms Wright and Mr Reeve both interpret NOISE-R5 PER-3 permitted activity standard as meaning "*the bird scaring device would need to be set back 500 metres and oriented away from noise sensitive activities"*. The misinterpretation is that these witnesses imply PER-3 require a distance setback and direction of fire to both apply at the same time, regardless of the noise output of the device, or how it is screened. However, a careful reading of NOISE-R5 PER-3 indicates that if the bird scaring unit is located less than 500m from any building housing a noise sensitive activity, then the bird scaring device must be oriented with the direction of fire facing away from any noise sensitive activity on any adjoining site. PER-2 sets out the noise emission limits to be complied with. There is no minimum setback distance requirement, instead the noise limits must be complied with at sensitive receiver locations. In noise effect terms, it is compliance with the stated limits that will control overall noise effects. PER-3 is intended to reduce the harshness of the received bird scaring noise when received within proximal distance to the device, not affecting in any way the allowable level. The harshness effect is reduced at 500m or more from the device. Thus, only if the unit is placed within 500m of a sensitive receiver would it be necessary to mitigate the harshness of the device sound. I agree with Mr Reeve that bird scaring devices are quite directional with significantly more sound emitted in the direction of fire. Taking this fact into account, the directionality control required by PER-3 means that more effective bird scaring would take place over the crop area lying between the device and the sensitive receiver where the device is located closer than 500m. Although the noise limits of PER-2 needs to be complied with, locating the device as close as possible to any residence on a neighbouring property whilst remaining compliant with PER-2 and orienting the device away from the sensitive receiver will, due to the noise emission pattern biased towards the firing direction, result in a broader, wider area of the crop being covered by bird scaring sound at levels sufficient to protect the crop. Following the hearing I have undertaken further discussions with Mr Reeves, acoustic advisor to Hort NZ. The result of this is that I remain of the view that it is appropriate to retain controls on the orientation of bird scarers to deal with the harshness of sound from gas-gun type bird scaring devices located less than 500m from any building housing a noise sensitive activity while Mr Reeves continues to consider that such a control is not necessary (for the reasons set out in his evidence). Mr Reeves and myself were able to agree that PER-3 (if approved to be included within NOISE-R5) should only apply to gas-gun type bird scaring devices. Also we agreed that orienting the direction of fire or screening of the noise source requirement of PER-3 is not needed when the line-of-sight between the device sound outlet and any noise sensitive activity on any adjoining site under different ownership is intercepted by the landform (hills, escarpments, etc). Therefore, should the Hearing Panel decide such a control is appropriate, Mr Reeves and myself have agreed on the following wording for PER-3: **PER-3** Where located within 500m of any building housing a noise sensitive activity on an adjoining site under different ownership, gas gun type bird scaring devices must either: 1. be oriented with the direction of fire facing away from any noise sensitive activity on any adjoining site under different ownership; or 2. line-of-sight between the device sound outlet and any noise sensitive activity on any adjoining site under different ownership is intercepted by an acoustic barrier with a minimum surface mass of not less than 7 kg/m2 measuring not less than 2m x 2m placed within 2m of the device, or a landform. ~~or have line-of-sight between the device sound outlet and any noise sensitive activity blocked by the intervening landform~~; and
Submitter 165 - Fonterra Limited	Rob Hay (Noise) Susannah Tait (planning)	Proposed Clandeboye Noise Control Boundary (NCB) Following on-going discussions and requests for information to enable assessment of the proposed Clandeboye NCB, this issue has evolved significantly over recent times following expert discussions. A request was made within my recommendations attached to the s.42A report for advice for details on the NCB and the extent to which noise from the Clandeboye site would exceed the PDP permitted activity noise standard in the area, including beyond the NCB. Recent information provided within the evidence of Mr Hay has enabled me to assess the extent of the rural areas affected beyond the NCB, when operating at maximum noise emission levels compliant with the NCB. Although encapsulating a wider area, the affected land is largely already affected up to 45 dB by the existing resource consent held for the site. I recommend approval of the NCB as depicted in Figure 1 of Mr Hay's evidence. In recommending approval, it is important for the panel to understand the NCB line itself does not signal the outer extent of night time noise effects of Clandeboye operations. The actual 'effects area' is that area which exceeds the normal GRUZ permitted activity noise standard – this covers a wider area than the NCB itself. This is the area encapsulated by the YELLOW line in the following diagram (Figure 2 of Mr Hay's evidence);



The earlier s.42A response to the NCB noted the proposal sets noise limits 5 dB above the permitted activity noise standard of the PDP and does not include a lowered 'evening' noise limit applicable between 7pm and 10pm. No such effects assessment has been provided, however, I accept that lowering of allowable noise limits to PDP levels could not be contemplated due to existing resource consents covering all noise emitted from the Clandeboye site. As per para 44 of Mr Hay's evidence, the level of amenity provided in the consent (without an evening noise limit) is equivalent to maximum guidance in NZS 6802:2008. I therefore accept the day/night LAeq and LAMax noise limits applied via the NCB provisions are not likely to result in unreasonable adverse noise effects on people living in or visiting the local area

Acoustic Insulation Standard Applying Within NCB

Fonterra's submission includes a request that NOISE-R9 be amended so that acoustic treatment is required to be applied to any habitable room in a new building used for a noise sensitive activity, or an alteration to an existing building that changes its use to a noise sensitive activity located within the NCB. NOISE-R9 sets out a requirement for acoustic insulation (and associated room ventilation requirements) within noisy environments and is supported as an important mitigation measure should any new (or altered dwellings) be located within the NCB. However, NOISE-R9 refers to acoustic insulation standard NOISE-S3 which sets out both a 'moderate' and 'advanced' acoustic insulation standard. I understand Mr Hay has advised that the 'moderate' acoustic insulation standard should be applied – that being NOISE-S3.2 PER-1 (>30 dB). I agree with Mr Hay's statement at para 78 of his evidence where he states this level of noise reduction would be appropriate for preservation of sleep amenity even at the mst exposed locations, provided the minimum ventilation requirements of NOISE-S4 are also complied with.

Port Zone Outside Precinct 7

As raised by the experts on behalf of submitter 56 (Property Income Fund No. 2 Ltd) this submitter supports the addition of a daytime (0700 to 2200) noise limit of 55 dB LAeq (15 min) to activities undertaken within the Port Zone (and not within Precinct 7). I support this amending NOISE-R8.2 PER-2 to add the words "…On any day between 7am and 10pm, noise generated must not exceed 55 dB LAeq (15 min) when measured at or within any residentially zoned site". I agree with the other experts in support of this change where they state noise at this limit would be consistent with the existing level of amenity in the ODP and is appropriate given the existing environment.

Memorandum

Submitter 175 186 PrimePort Limited and TDHL	Jeremy Trevathan (Noise)	I have reviewed the evidence of Dr Trevathan regarding port noise issues and response to submitter concerns. I generally agree with all of the evidence of DrTrevathan. I note at para 33 to 38 Dr Trevathan discusses methods for specifying acoustic insulation in district plans – notably, the façade reduction method (units being Dtr,2m,nT,w + Ctr) as adopted in the PDP and the 'internal noise level' method based on indoor measured LAeq levels, as preferred by submitters KiwiRail and Waka Kotahi. Dr Trevathan sets out his assessment that each methodology has its own merits, and both could be used to provide adequate protection of new dwellings from port noise. While somewhat equitable in his opinion on this topic, it is notable this expert does not promote any changes to the units adopted within NOISE-S3 which sets acoustic insulation standards using the 'façade reduction method' (units being Dtr,2m,nT,w + Ctr).
Submitter 187 KiwiRail Holdings Ltd	Catherine Heppelthwaite (Planning) Michelle Grinlinton-Hancock (Planning) Stephen Chiles (Noise & Vibration)	<u>Request For Reverse Sensitivity Measures to be applied within 100m of Rail Alignment</u> Rail traffic on the Main South Line passing through the Timaru district is discussed within the evidence of Dr Chiles, Ms Grinlinton-Hancock and Ms Heppelwite. It is the evidence of KiwiRail witnesses that it is appropriate to apply the acoustic insulation requirements out to 100m from the rail alignment whereas NOISE-R9 requires acoustic insulation (and ventilation) be applied to any new or altered building housing a noise sensitive activity located within 40m of the rail alignment. I consider the request to apply reverse sensitivity noise protection out to 100m is based on assessing rail noise over a short, one hour period with KiwiRail assuming there would be two freight trains every one hour period over the whole day which I consider over-estimates daily rail noise typically experienced in the Timaru district., Dr Chile's has avoided dealing with the whole day effects of rail noise which would be much lower if the typical daily rail traffic through the Timaru district is taken into account. Dr Chiles states at para 7.5 that the use of 24-hour averages in this instance would significantly under-represent adverse noise effects from freight train pass-bys. He confuses the issue at para 7.5 by making reference to the 15 minute assessment period recommended within NZS6802, however this is irrelevant as NZS6802 states (at clause 1.2.1) that this Standard is not to be used for the assessment of transportation noise. I consider that the lower level of noise effects indicated when rail noise is averaged over 24 hours is the correct answer when viewed on the basis of the international evidence. The preferred methods assessing transport noise within NZ (and almost universally adopted internationally) is to assess transportation noise on a 24 hour time period. This is the basis for assessing noise from road traffic, ports, airports and heliports in NZ. Para 2.4 of Dr Chiles 'Appendix A' implies there is some evidence pointing to international noise annoyance response curves being generally applicable for the New Zealand population. If this is the case, then NZ should adopt the 24 hour noise assessment basis for assessing rail noise annoyance found internationally. I have resisted adopting the 1 hour effects assessment promoted by Dr Chiles as I consider this to be inconsistent with methods adopted elsewhere and over-emphasises the short-duration noise effects of rail movements. Apart from some work completed by Marshall Day Acoustics some years ago (referred to at para 5.5 of Dr Chile's evidence) the 1 hour metric does not appear to have found favour among other NZ noise experts. That is not to say I do not support measures to address reverse sensitivity noise and vibration effects of the Main South Line. Rather, I consider NOISE-R9 is correctly worded so that acoustic insulation (and ventilation) be applied to any new or altered building housing a noise sensitive activity located within the most affected areas which is, in my view, located within only the first 40m measured from the rail track. <u>Economic Assessment of Options to Manage Adverse Rail Noise Effects</u> I have considered the information set out in Appendix 3 to Ms Heppelthwaite's evidence entitled "Economic Assessment of Options to Manage Adverse Rail Noise Effects". I have particularly investigated information on compliance costs provided in Section 8 where cost estimates are provided for new dwellings required to achieve the indoor rail standards promoted by KiwiRail. I consider the cost information provided (typically a few percent of the building construction costs) to be inaccurate and poorly researched. As stated in the report, the cost estimates provided and being relied upon are those derived from cost to mitigate <u>road traffic noise</u>. No costings are in fact provided to mitigate rail noise received within buildings. <u>Rail Noise Reverse Sensitivity Measures</u> The proposed PDP approach to addressing indoor rail noise effects is set out in NOISE-S3.1 which requires a minimum external to internal noise reduction for habitable rooms of not less than 35 dB Dtr,2m,nT,w + Ctr where the new or modified habitable room is to be constructed within 40m of a railway line. I consider this standard adequate based on the information provided on train noise levels. I consider this standard when implemented (along with the companion ventilation requirements of NOISE-S4) will reduce indoor rail noise to levels commensurate with health guidelines including criteria to protect sleep. KiwiRail have not accepted this approach of the PDP and request that a <u>Rail Noise Control Boundary Overlay</u> be placed on the planning maps which extends 100m outwards from the edge of the rail designation boundary. To achieve reduced indoor rail noise levels within new or altered habitable rooms within this corridor KiwiRail request NOISE-S3 be amended by adding a new subsection 3 which imposes an 'internal noise level' type insulation standard. This requires noise from the railway is not to exceed 35 dB LAeq(1hr) within any new or altered habitable room located within 100m from the edge of the rail designation boundary. KiwiRail has also requested an alternative compliance pathway which may be achieved if the building is a single-storey framed residential building with habitable rooms designed, constructed and maintained in accordance with the construction schedule in Table 25 - *Minimum construction requirements for external building elements of habitable rooms to achieve an advanced level of acoustic insulation*. While I appreciate this alternative compliance pathway may provide a method of compliance in place of achieving the specified level of rail noise indoors, this proposal is not preferred. There is no evidence provided which indicates for noise effect reasons why it is necessary to apply the Table 25 type building construction (designed to achieve not less than 35 dB Dtr,2m,nT,w + Ctr) where rooms are located as far as 100m from the railway alignment. At these distances received rail noise levels (reduced by distance) do not, in my opinion, justify the type of building construction set out in Table 25. I do not consider rail noise effects within 40m to 100m from the rail line in the Timaru district to warrant the costs and compliance issues involved with implementing acoustic insulation and ventilation at such distances from the rail line where in fact the outdoor rail noise effects would be consistent with outdoor noise arising from typical permitted activities or local traffic noise. The reasons why Council are not advised to adopt an 'internal noise level' approach to specifying acoustic insulation as requested by KiwiRail have been well traversed in the advice to the s.42A reporting officer and elsewhere, suffice to say the façade reduction method (using units Dtr,2m,nT,w + Ctr) offers many advantages when the specific needs of district plan users and Council's roles and functions are considered. As above, Dr Trevathan has outlined the pro's and con's of the two options for specifying acoustic insulation in district plans and has not recommended any changes to the façade reduction method adopted in NOISE-S3. I do not support the distance being measured from the designation boundary as KiwiRail's own safety precautions will mean the designation boundary is a much closer to the receiver than the rail track on which the trains are travelling. Measuring from

		the designation boundary therefore artificially adds additional distance to the overlay which I consider not to be justified in noise effect terms. It is worth noting the discussion of rail noise levels set out in section 5 of Appendix A to Dr Chiles's evidence which forms the basis of Dr Chiles's reverse sensitivity noise mitigation measures are in fact rail noise levels measured from the rail track, not the rail designation. 60m Rail Vibration Alert Area Overlay My earlier advice Memo included in the s.42A planner's report set out five reasons (a to e) why I did not support KiwiRail's original request for a received vibration standard to apply so that property builders and developers would have to implement difficult and costly measures to address rail vibration received within sensitive environments established within proximal distance to rail tracks. After considering the evidence of KiwiRail's expert, I consider those reasons remain relevant. I consider the imbalance evident in the KiwiRail original request is likely to remain unless or until KiwiRail proactively implement measures to address vibration from unwelded tracks, adopt modern sleepers and ballasting techniques to reduce vibration and embark on a programme to replace motive units and rolling stock with new units that reduce rail-side vibration which (according to data set out with Dr Chile's Appendix A) appear excessive and unreasonable in some cases. Although Dr Chiles discusses possible methods to control rail vibration, I consider Appendix A to Dr Chile's evidence and the evidence of Ms Grinlinton-Hancock on behalf of KiwiRail lacks factual evidence that measures adopted to date have been effective in managing rail-induced vibration. For the above reasons I support, in principle, the proposal of Ms Grinlinton-Hancock which amends KiwiRail's request so that the method for dealing with rail vibration reverse sensitivity effects is via the inclusion of a rail vibration alert layer in lieu of controls on the levels of rail vibration received within new or altered buildings containing sensitive activities. In general, I support the proposal on page 19 of Ms Heppelthwaite's evidence to insert wording into the Noise Chapter to establish a 'Rail Vibration Alert Area Overlay' which has the purpose to advise property owners of the potential vibration effects but leaves with the site owner to determine an appropriate response. However, I do not support the wording as proposed because the overlay area does not have the purpose of delineating a "vibration sensitive area" as Ms Heppelthwaite's proposed wording seems to indicate. In my experience, sensitivity to vibration is determined by the types of activities undertaken on the land affected. I understand the overlay is proposed to be placed across all types of adjacent sites and land zonings adjacent to the rail designation. In some cases the land uses involved would not be, or likely to be, sensitive to vibration (e.g. rural land, recreational reserves or industrial sites). In addition, for the reasons I outline above, I do not support the distance being measured from the railway designation boundary. Modifications to Existing Habitable Rooms Both Dr Chiles and Ms Heppelwite are concerned regarding the permissiveness of the '20% floor area' threshold for implementing the appropriate acoustic insulation (and ventilation) standards when changes are made to existing buildings. However, Ms Heppelthwaite appears to have interpreted the amendment to mean '20% of the floor area of the whole dwelling'. The proposed changes to NOISE-S3.2 PER-1 clearly reads "*where the floor area of a habitable room within an existing building is increased by 20% or more*". It is erroneous for Ms Heppelthwaite to suggest (as she does at para 7.9(iii)) that the 20% amendment could potentially enable "two extra bedrooms and up to four additional people (two persons per room)". Para 8.13.10 of the s.42A report confirms the advice Council received from Mr Hunt was a recommendation that the acoustic insulation standard (and accompanying ventilation requirements) only be applied for existing buildings "*where the floor area in a habitable room within an existing building is increased by 20% or more "*. While it is incorrect to infer the amendment enables the floor area of the whole building to be increased by 20% before the acoustic insulation / ventilation requirements need to be applied, I consider a minor wording change to NOISE-S3.2 PER-1 to specifically refer to "room" may avoid such errors in interpretation. I recommend NOISE-S3.2 PER-1 be further amended as follows; "Any habitable room in a new building used for a noise sensitive activity, an alteration to an existing building or room that changes its use to a noise sensitive activity, or where the floor area of a habitable room within an existing building is increased by 20% or more.....". The 20% habitable room area threshold is supported by Dr Trevathan who sees the 20% standard as a way of demarcating between trivial and substantive 'alterations' to habitable rooms (para 42). He considers this will generally ensure money was not spent upgrading building elements where there may be minimal benefit to occupants. I support that view. Ventilation Requirements & Thermal Comfort KiwiRail seek an amendment to NOISE-S4.2 so that ventilation systems provide both cooling and heating within treated habitable rooms. This matter was covered in some detail in my original advice attached to the s.42A report. For those reasons I disagree that the words "*provide cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C*" should be included within NOISE-S4.2. Alternative Compliance Pathway - Building Setback to Rail Lines KiwiRail have requested increasing the building setback for noise sensitive activities (NOISE-R9 PER-2(b)) from 20m to 50m from the railway line. This is one of two possible compliance pathways to avoid the need for acoustic treatment of habitable rooms, the other pathway (PER-2(a)) being a received noise level threshold value. The setback is applied where the location receiving rail noise is screened by a solid building, fence, wall or landform that completely blocks the line-of-sight from all parts of all windows and doors and at all points above 3.8 metres above the railway track (underlining added). Dr Chiles indicates the increase setback to 50m is necessary because the wording of PER-2(b) only requires "nominal line-of-sight screening". I do not agree that the wording of PER-2 can be interpreted as "nominal" or result in a minor degree of acoustic screening (Dr Chiles comments such noise screening often only results in two or three decibels reduction at houses). I do not agree with this assessment. I consider a receiver site screened to the minimum degree set out within PER-2(b) would result in substantial screening of the receiver site from rail noise and that a 50m setback is not necessary to ensure the effects typical of rail noise experienced in the Timaru district are controlled to acceptable levels within new or altered habitable rooms. Acoustic screening theory indicates the effectiveness of an acoustic barrier actually decreases with distance. This means, depending on the

		circumstances, increasing the minimum distance from 20m to 50m may increase received noise which would offset any decrease in received noise due to greater distance from the rail alignment. Overall, I do not recommend building setback for noise sensitive activities (NOISE-R9 PER-2(b)) be increased from 20m to 50m from the railway line.
Submitter 143 Waka Kotahi	Stuart Pearson (Planning) Stephen Chiles (Noise)	<u>Extension of Highway Noise Effects Area From 80m to 100m</u> NZTA sought amendments to NOISE-R9 to increase the distance from the State Highway 1 (SH1) corridor where the speed limit is greater than 50km/h from 80m to 100m representing the maximum distance from the road within which acoustic insulation and ventilation standards would apply to noise sensitive activities. At para 5.2 Dr Chiles states he possesses "evidence" from noise exposure mapping of state highway 1 in the Timaru district which demonstrates that a distance of 100 m from SH1 is warranted where the speed limit is above 50 km/h, however no evidence of this mapping has been provided. There are two important factors that do not appear to have been considered; 1. The actual difference in received traffic noise at a distance of 80m from the highway compared to 100m from the highway is quite minor owing to the way sound propagates away from a trafficked road. Sound propagates as a 'line source' as it moves away from the traffic stream with the rate of reduction over distance (without any allowance for ground absorption) being 3 dB reduction per doubling of distance from the road (10 times the log of 2). This means the difference in received noise at 80m is less than 1 decibel (10 times log(100/80)) greater than the level received at 100m. This minor acoustic difference of <1 dB falls well within the 3 dB Dr Chiles describes within his approach to noise modelling (page 3 of Appendix A to his evidence) that he states is to allow for 'inherent modelling uncertainty'. 2. All road traffic noise models are based on the principle that vehicle speed has quite a determinative effect on roadside noise levels. Speeds limits above 50 km/hr applying along State Highway 1 in the Timaru district are not set to a constant 100 km/hr but instead vary in many places with consequent variations in roadside noise levels. For example I understand speed limit through Glenavy on SH1 was reduced is 60kph, and south of Glenavy, the speed limit is 80kph. These are examples of locations where new or altered habitable rooms may be developed in the future and where it would not be appropriate to assume a received level of road traffic noise based on maximum speed limits adopted along state highway 1 elsewhere in the district (namely 100 km/hr). Overall, I do not recommend amending NOISE-R9 to increase the distance from the State Highway 1 (SH1) corridor from 80m to 100m where the speed limit is greater than 50km/h. <u>NOISE-S3 Acoustic Insulation Standard</u> NZTA seeks amendments to PER-1 within NOISE-R9 to remove the requirement for insulation against highway noise to be specified using the façade reduction metrics of NOISE-S3 (Dtr,2m,nT,w + Ctr) and instead rely on an 'internal noise level' approach to specifying acoustic insulation. As per the above response to a similar request by KiwiRail on this same issue, the various merits of the two different approaches have been well traversed elsewhere, suffice to say the façade reduction method offers significant advantages when the specific needs of district plan users and Council's roles and functions are considered. As above, Dr Trevathan has outlined the pro's and con's of the two options for specifying acoustic insulation in district plans and has not recommended any changes to the façade reduction method adopted in NOISE-S3. Thus, I do not support amendments to PER-1 within NOISE-R9 to replace the requirement for insulation against highway noise to be specified using the façade reduction method with the requested alternative 'internal noise level' method based on levels of highway noise received indoors. <u>Modifications to Existing Habitable Rooms</u> Both Dr Chiles and Mr Pearson are concerned regarding the permissiveness of the '20% floor area' threshold for implementing the appropriate acoustic insulation (and ventilation) standards when changes are made to existing buildings. My views on the matter are set out above in relation to similar concerns raised by KiwiRail. I note Mr Pearson, on behalf of NZTA, states he believes it is not a practical or equitable measure of an alteration as larger rooms and/or buildings will be allowed greater increases than that of a smaller habitable room (i.e. small bedroom). He considers expansion of say up to 20% of a larger room is likely to result more exposure to noise effects however his reasoning for this opinion are not provided. I do not agree the increase in floor area of a larger room will necessarily lead to greater indoor noise exposure. In many cases alterations that increase floor area will be noise-neutral, particularly when the expanded part of the room does not face the highway. I support retaining the 20% floor area of habitable rooms as a threshold for implementing the appropriate acoustic insulation (and ventilation) standards when changes are made to existing buildings, a room area increase which I note is also supported by Dr Trevathan. <u>Ventilation</u> NZTA have requested artificial ventilation systems be required to service all types of habitable rooms which qualify under NOISE-S3.1 for acoustic insulation. As notified, NOISE-S4.1 only applies to "any study or bedroom". This is because ventilation is only proposed for habitable rooms within which quiet conditions are needed for study or, during night times, to provide an adequate sleeping environment. It is considered within most other types of habitable rooms, some noise entering the room from outdoor sources through open windows would not be likely to undermine functions carried out within these rooms, particularly having regard to the moderate Timaru climate and the likely limited periods during which windows are opened for comfort purposes. As set out in my original advice to the s.42A reporting officer, I do not consider it necessary to provide artificial ventilation int all types of habitable rooms provided the NZ Building Code (NZBC) clause G4 (ventilation) is complied with. Dr Chiles states at para 5.11 that the NZBC ventilation requirements would not be satisfactory within habitable rooms that are not provided with artificial ventilation because the ventilation requirements of that code "are not set at a level needed to achieve thermal comfort and are not adequate for this purpose". However, I do not agree that the NZBC is inadequate in this regard. I note that the functional requirement of NZBC clause G4 is to set out ventilation standards which are stated as designed to achieve "adequate ventilation consistent with their maximum occupancy and intended use". In this regard I consider habitable rooms not provided with artificial ventilation under NOISE-S4.1 can function perfectly satisfactorily for occupants provided NZBC clause G4 (ventilation) is complied with.

		<u>Alternative Compliance Pathway - Building Setback to State Highway</u> NZTA have requested increasing the building setback for noise sensitive activities (NOISE-R9 PER-2(b)) from 20m to 50m from the state highway. This is one of two possible compliance pathways to avoid the need for acoustic treatment of habitable rooms, the other pathway (PER-2(a)) being a received noise level threshold value. The setback is applied where the building receiving highway noise is screened by a solid building, fence, wall or landform that completely blocks the line-of-sight from all parts of all windows and doors to all parts of any road surface subject to the standard. Dr Chiles considers the current wording of the rule requires only 'nominal' line-of-sight screening and seeks to increase setback to 50m as means of reducing highway noise affecting the 'exempted' dwelling. I do not agree that increasing the setback from 20m to 50m will provide a better outcome. I consider a receiver site screened to the minimum degree set out within PER-2(b) would result in substantial screening of the receiver site from highway noise and that the increased setback distance is not necessary to ensure this alternative compliance pathway will result in highway noise being suitably reduced to acceptable levels (such as 57 dB LAeq(24 hr)) at the 'exempted' building. Acoustic screening theory indicates the effectiveness of an acoustic barrier actually decreases with distance. This means, depending on the circumstances, increasing the distance from the screened dwelling to the road as requested may decrease noise screening which may have the unfortunate effect of offsetting any decrease in received noise due to greater distance separation from the road. Overall, I do not recommend building setback for noise sensitive activities (NOISE-R9 PER-2(b)) be increased from 20m to 50m from the road.