

**BEFORE THE INDEPENDENT COMMISSIONERS**

**UNDER** of the Resource Management Act 1991 ("**RMA**")

**AND**

**IN THE MATTER** of the Proposed Waimakariri District Plan  
 ("**Proposed Plan**")

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**HEARING STREAM 5:  
MEMORANDUM OF COUNSEL ON BEHALF OF KIWIRAIL HOLDINGS LIMITED**

**30 AUGUST 2023**

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McAugh**

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**MAY IT PLEASE THE PANEL:**

1. This memorandum responds to the following matters raised by the Commissioners to KiwiRail at Hearing Stream 5 of the Proposed Plan on 23 August 2023:
  - (a) further detail on the vibration “alert layer” proposed by KiwiRail as alternative relief to vibration controls;
  - (b) details of train movements and freight volumes in the Waimakariri District; and
  - (c) examples of recently operative district plans in New Zealand that contain no rail noise and vibration controls.

**Vibration alert layer**

2. As advised at the hearing, KiwiRail has continued to refine its position post-evidence exchange regarding vibration effects in New Zealand. While Ms Heppelthwaite and Dr Chiles would support the inclusion of vibration controls, KiwiRail is willing to accept a vibration alert layer acknowledging that the costs of managing rail vibration effects can vary significantly for developers. This approach has also recently been agreed with Kāinga Ora through other planning processes.
3. KiwiRail would therefore accept the inclusion of a rail vibration alert layer in the Noise Chapter to resolve its concerns in this regard. This alert layer would apply to all properties within 60 metres on either side of the rail corridor designation boundary.
4. Dr Chiles has provided evidence to the Panel that rail vibration can cause adverse health effects on people living nearby.<sup>1</sup> A vibration alert layer is an information layer to signal to property owners that higher levels of vibration may be experienced in the area due to its proximity to the rail corridor. There are no rules or other provisions associated with the vibration alert layer. Alert layers still provide some management of the effects, as landowners may be prompted when building new dwellings to consider incorporating vibration attenuation measures of their own accord or to locate new buildings outside

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<sup>1</sup> Statement of Evidence of Stephen Chiles on behalf of Waka Kotahi NZ Transport Agency and KiwiRail Holdings Limited (4 August 2023) at [4.1].

the alert layer. New purchasers will also be alerted when purchasing a property that they may experience such effects.

5. **Attached at Appendix 1** is the wording sought by KiwiRail to be included in Proposed Plan, and corresponding amendments to NOISE-R16, on similar wording recently approved by the Environment Court.<sup>2</sup>

#### **Train movements and freight volumes in the Waimakariri District**

6. **Attached at Appendix 2** is an example of a recent weekly schedule for trains on the Main North Line ("**MNL**") through the Waimakariri District. This schedule shows 37 movements per week during the month of February 2023 (this month has been selected to show the daily running of the seasonal Coastal Pacific Passenger Train). Of the freight operations, the weekly haul included 180 wagons spanning 3.15 kilometres in length.
7. By comparison, pre-Kaikoura quake, the line carried 61 trains in a similar week, carrying (of the freight trains) 387 wagons spanning 6.8 kilometres in length.
8. For context, any railway line that accommodates between 30 to 80 train movements per week is considered a "busy" line. Other examples of busy lines include the East Coast Main Trunk which currently has 56 train movements per week in Tauranga City (and includes noise controls in the District Plan). The part of the North Auckland Line that passes south of Whangārei is currently considered a less busy line, but is expected to grow to 30 to 60 trains per week over time, and noise controls were included in the plan having regard to those future effects.<sup>3</sup>
9. It is also important to note the Waimakariri District averages set out in paragraph 6 are for current train movements. They do not represent the anticipated growth in rail operations in the District that the Proposed Plan must recognise and provide for in the future, which are anticipated to double to pre-Kaikoura earthquake levels.<sup>4</sup>

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<sup>2</sup> *KiwiRail Holdings Limited v Whangārei District Council* [2023] NZEnvC 004.

<sup>3</sup> *KiwiRail Holdings Limited v Whangārei District Council* [2023] NZEnvC 004.

<sup>4</sup> Statement of Evidence of Michael Brown on behalf of KiwiRail Holdings Limited (4 August 2023) at [2.3]. For example, the new InterIslander ships currently under contract to be delivered to New Zealand in 2025/2026 have four times the rail capacity of the present fleet – noting that the present fleet has generated double the present rail volumes throughout the Waimakariri District.

**Recent district plans with no noise controls**

10. In the last two years, KiwiRail is aware of only one district plan that contains no noise controls, the New Plymouth Proposed District Plan. The notified New Plymouth Proposed District Plan included noise controls, but these were removed in the Decisions Version. This plan is currently subject to Environment Court appeals, including in relation to these controls.

**DATED: 30 August 2023**



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**A A Arthur-Young / J W Burton**  
Counsel for KiwiRail Holdings Limited

## APPENDIX 1

Base text is the recommended amendments to provisions at **Attachment A** of Ms Heppelthwaite's evidence with no change to red underline and ~~strikethrough~~ presented at hearing.

Blue underline and ~~strikethrough~~ represent further amendments proposed following the hearing.

### Noise Sensitive Activities definition

- a. residential activities ~~other than those in conjunction with rural activities that comply with the rules in the relevant district plan as at 23 August 2008;~~
- b. education activities including pre-school places or premises excluding training, trade training or other industry related training facilities;
- c. visitor accommodation except that which is designed, constructed and operated to a standard that mitigates the effects of noise on occupants;
- d. hospitals, healthcare facilities and any elderly persons housing or complex; e. marae and places of worship.
- e. marae and places of worship.

### District Plan Maps

Insert mapping overlay which identifies a 60m buffer on each side of the railway designation boundary called "Rail Vibration Alert Layer".

### Noise – Te orooro – Noise

#### Activity Rules

#### How to interpret and apply the rules

1. Noise standards apply to the zone or zones where noise is received. Noise from the use of public roads or railways is exempt from the provisions of the Noise Chapter.
2. Unless otherwise specified:
  - a. sound levels shall be measured in accordance with NZS 6801:2008 Acoustics - Measurement of Environmental Sound and assessed in accordance with NZS 6802:2008 Acoustics - Environmental Noise where the source of noise is within the scope of these standards; and
  - b. for the purposes of compliance with these noise standards, public roads shall not be considered as a site receiving noise.
3. A Rail Vibration Alert Overlay has been applied which identifies the vibration-sensitive area within 60 metres each side of the railway designation boundary as properties within this area may experience rail vibration effects. No specific district plan provisions apply in relation to vibration controls as a result of this Rail Vibration Alert Area. The Rail Vibration Alert Overlay is to advise property owners of the potential vibration effects but leaves the site owner to determine an appropriate response.

### NOISE-R16

<b>NOISE -R16</b>	<b>Noise sensitive activities within <u>100m</u> <del>80m</del> of a <u>designated</u> State Highway, arterial road, strategic road or rail designation</b>	
All Zones	Activity status: PER Where: <del>1. any new building, intended for a noise sensitive activity 56, within 80m measured from the boundary of a site adjoining the road or rail designation 57, shall be designed and constructed to achieve a minimum external and internal noise reduction of 30 dB Dtr,2m,nT,w + Ctr to any habitable room; or</del>	Activity status when compliance not achieved: RDIS Matters of discretion are restricted to:

	<p><del>2. be designed and constructed to meet the following maximum indoor design sound levels:</del></p> <p><del>a. road traffic noise within any habitable room — 40 dB LAeq(24hr);</del></p> <p><del>b. rail noise inside bedrooms between 10:00pm and 7:00am — 35 dB LAeq(1h); and</del></p> <p><del>c. rail noise inside any habitable room excluding bedrooms — 40 dB LAeq(1h);</del></p> <p><del>3. the design for road traffic noise shall take into account future permitted use of the road, either by the addition of 2 dB to predicted sound levels or based on forecast traffic in 20 years' time;</del></p> <p><del>4. rail noise shall be deemed to be 70 dB LAeq(1h) at 12m from the edge of the track, and shall be deemed to reduce at a rate of 3 dB per doubling of distance up to 40m and 6 dB per doubling of distance beyond 40m;</del></p> <p><del>5. the indoor design sound level shall be achieved at the same time as the ventilation requirements of the New Zealand Building Code. If windows are required to be closed to achieve the indoor design sound levels then an alternative means of ventilation shall be required within bedrooms;</del></p> <p><del>6. the external to internal noise reduction shall be assessed in accordance with ISO 16283-3:2016 Acoustics — Field measurement of sound insulation in buildings and of building elements — Part 3: Façade sound insulation and ISO 717-1:2020 Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation.</del></p> <p><u>Activity status: PER Where:</u></p> <p><u>Indoor road and railway noise</u></p> <p>1. Any new building or alteration to an existing building shall be designed, constructed and maintained to achieve indoor design noise levels resulting from the railway not exceeding the maximum values in the following table:</p> <p><b><u>Table-XX</u></b></p> <table border="1" data-bbox="343 1590 1141 1989"> <thead> <tr> <th><u>Building type</u></th> <th><u>Occupancy / activity</u></th> <th><u>Maximum road noise level LAeq(24h)</u></th> <th><u>Maximum railway noise level LAeq(1h)</u></th> </tr> </thead> <tbody> <tr> <td rowspan="2"><u>Residential</u></td> <td><u>Sleeping spaces</u></td> <td><u>40dB</u></td> <td><u>35 dB</u></td> </tr> <tr> <td><u>All other habitable rooms</u></td> <td><u>40dB</u></td> <td><u>40 dB</u></td> </tr> <tr> <td><u>Education</u></td> <td><u>Lecture rooms / theatres, music studios, assembly halls</u></td> <td><u>35 dB</u></td> <td><u>35 dB</u></td> </tr> </tbody> </table>	<u>Building type</u>	<u>Occupancy / activity</u>	<u>Maximum road noise level LAeq(24h)</u>	<u>Maximum railway noise level LAeq(1h)</u>	<u>Residential</u>	<u>Sleeping spaces</u>	<u>40dB</u>	<u>35 dB</u>	<u>All other habitable rooms</u>	<u>40dB</u>	<u>40 dB</u>	<u>Education</u>	<u>Lecture rooms / theatres, music studios, assembly halls</u>	<u>35 dB</u>	<u>35 dB</u>	<p>NOISE-MD1 - Noise</p> <p>NOISE-MD2 - Management of noise effects</p> <p>NOISE-MD3 - Acoustic insulation</p> <p><u>and</u></p> <p><u>the outcome of any consultation with Waka Kotahi (for State Highways) or KiwiRail (for rail).</u></p>
<u>Building type</u>	<u>Occupancy / activity</u>	<u>Maximum road noise level LAeq(24h)</u>	<u>Maximum railway noise level LAeq(1h)</u>														
<u>Residential</u>	<u>Sleeping spaces</u>	<u>40dB</u>	<u>35 dB</u>														
	<u>All other habitable rooms</u>	<u>40dB</u>	<u>40 dB</u>														
<u>Education</u>	<u>Lecture rooms / theatres, music studios, assembly halls</u>	<u>35 dB</u>	<u>35 dB</u>														

	<u>Teaching areas, conference rooms, drama studios, sleeping areas</u>	<u>40 dB</u>	<u>40 dB</u>
	<u>Library</u>	<u>45 dB</u>	<u>45 dB</u>
<u>Health</u>	<u>Overnight medical care, wards</u>	<u>40 dB</u>	<u>40 dB</u>
	<u>Clinics, consulting rooms, theatres, nurses' stations</u>	<u>45 dB</u>	<u>45 dB</u>
<u>Cultural</u>	<u>Places of worship, marae</u>	<u>35 dB</u>	<u>35 dB</u>

#### Mechanical ventilation

2. If windows must be closed to achieve the design noise levels in clause, the building is designed, constructed and maintained with a mechanical ventilation system that

(a) For habitable rooms for a residential activity, achieves the following requirements:

i. provides mechanical ventilation to satisfy clause G4 of the New Zealand Building Code; and

ii. is adjustable by the occupant to control the ventilation rate in increments up to a high air flow setting that provides at least 6 air changes per hour; and

iii. provides relief for equivalent volumes of spill air;

iv. provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C; and v. does not generate more than 35 dB LAeq(30s) when measured 1 metre away from any grille or diffuser. (b) For other spaces, is as determined by a suitably qualified and experienced person.

#### Indoor railway vibration

3. Any new buildings or alterations to existing buildings containing an activity sensitive to noise, closer than 60 metres from the boundary of a railway network;

(a) is designed, constructed and maintained to achieve rail vibration levels not exceeding 0.3 mm/s vw,95 or

(b) is a single-storey framed residential building with: i. a constant level floor slab on a full-surface vibration isolation bearing with natural frequency not exceeding 10 Hz, installed in accordance with the supplier's instructions and recommendations; and ii. vibration isolation separating the sides of the floor slab from the ground; and iii. no rigid connections between the building and the ground.

	<p><u>Design Report</u></p> <p><u>3.4. A report is submitted to the council demonstrating compliance with clauses (1) and (2) to (3) above (as relevant) prior to the construction or alteration of any building containing an activity sensitive to noise. In the design:</u></p> <p><u>(a) railway noise is assumed to be 70 LAeq(1h) at a distance of 12 metres from the track, and must be deemed to reduce at a rate of 3 dB per doubling of distance up to 40 metres and 6 dB per doubling of distance beyond 40 metres.</u></p> <p><u>b. road noise is based on measured or predicted noise levels plus 3 dB.</u></p>	
	<p><u>Advisory Note</u></p> <p><u>• <math>D_{tr,2m,nT,w+Ctr}</math> means the weighted standardised level difference of the external building envelope (including windows, walls, roof/ceilings and floors where relevant) and is a measure of the reduction in sound level from outside to inside a building. <math>D_{tr,2m,nT,w+Ctr}</math> is also known as the external sound insulation level.</u></p>	



## APPENDIX 2


**SOUTH ISLAND MASTER TRAIN PLAN**  
**FROM 0001 HOURS Sunday, 12 February 2023**

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## Linehaul Planning

**CT** Container Transfer    **TS** Tranz Scenic  
**BU** Bulk Freight        **PS** Passenger special

TRAIN No.	ORIGIN	DEP TIME	DAYS OPERATIVE							ARR TIME	DEST	FREIGHT			PASS		REMARKS	
			SU	MO	TU	WE	TH	FR	SA			CT	BU	MS	TS	PS		
700	CHCHS	7:00	Y	Y	Y	Y	Y	Y	Y	Y	12:40	PICTN				Y		Coastal Pacific Passenger Train
701	PICTN	13:40	Y	Y	Y	Y	Y	Y	Y	Y	19:20	CHCHS				Y		Coastal Pacific Passenger Train
712	CHCH	22:30		Y	Y	Y	Y	Y	Y	Y	6:29	PICTN	Y					30 Wagons, 2 Locomotives - train lenth 530m
717	PICTN	22:30			Y	Y	Y	Y	Y	Y	5:27	CHCH	Y					30 Wagons, 2 Locomotives - train lenth 530m
717M	PICTN	22:30		Y							5:27	CHCH	Y					18 Wagons, 1 Locomotive - train length 315m
725M	PICTN	5:30		Y							13:57	CHCH	Y					18 Wagons, 1 Locomotive - train length 315m
735	PICTN	17:10			Y	Y	Y	Y	Y	Y	1:22	CHCH	Y					42 Wagons, 2 Locomotives - train lenth 731m
736	CHCH	7:50			Y	Y	Y	Y	Y	Y	15:23	PICTN	Y					42 Wagons, 2 Locomotives - train lenth 731m