Before the Independent Hearings Panel
At Wellington City Council

Under	Schedule 1 of the Resource Management Act 1991
In the matter of	Hearing submissions and further submissions on the Proposed Wellington City District Plan – Hearing Stream 5

Statement of supplementary evidence of Sean Syman on behalf of Wellington City Council

Date: 25 July 2023

INTRODUCTION:

1 My full name is Sean Louis Syman. I am an Associate Acoustic Consultant in the Wellington office of SLR Consulting Limited, an environmental consultancy with offices across New Zealand and internationally. I have been engaged by Wellington City Council (the Council) as an independent contractor for this role.

2 I have read the respective evidence of:

KiwiRail ID 408 & FS72

a) C Heppelthwaite for KiwiRail

b) S Chiles for KiwiRail

c) M Brown for KiwiRail

Waka Kotahi ID 370 & FS103

d) C Heppelthwaite for Waka Kotahi

e) S Chiles for KiwiRail Waka Kotahi

Kāinga Ora ID 391 & FS81

f) J Styles for Kāinga Ora

g) B Ligget for Kāinga Ora

h) M Lindenberg for Kāinga Ora

NZ Defence Force (NZDF) ID 423 & FS104

i) D Humpheson for NZ Defence Force

j) R Davies for NZ Defence Force

Stride & Investore ID 470 & FS107, 405

k) J Carter for Stride & Investore

The Fuel Companies ID 372

l) J Dixon for The Fuel Companies

Wellington International Airport Limited (WIAL) ID 306 & FS36

m) D Humpheson for WIAL

n) K O'Sullivan for WIAL

3 I have prepared this statement of evidence in response to expert evidence submitted by the people listed above to support the submissions and further submissions on the Proposed Wellington City District Plan (the Plan / PDP)

4 Specifically, this statement of evidence relates to the matters of: Hearing Stream 5 - Section 42A Report - Noise

QUALIFICATIONS, EXPERIENCE AND CODE OF CONDUCT

5 My statement of evidence sets out my qualifications and experience in acoustics and vibration.

6 I confirm that I am continuing to abide by the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023, as applicable to this Independent Panel hearing.

SCOPE OF EVIDENCE

7 My statement of evidence addresses the expert evidence listed above as it relates to noise and vibration.

RESPONSES TO EXPERT EVIDENCE

NZ Defence Force ID 423 & FS104

(D Humpheson & R Davies for NZ Defence Force)

8 I agree with Ms Davies that the planning rules that provide for Temporary Military Training Activity (TMTA) are not the subject of this hearing and will be addressed in Hearing Stream 7 for the Temporary Activities Chapter. My evidence relates to the technical noise standards for TMTA.

9 In Ms Davies and Mr Humpheson's evidence, it is stated that I support the amendment to allow a duration of up to 31 days for TMTA. This is a planning matter for Hearing Stream 7; however I support this amendment provided that the noise limits for mobile noise sources are adjusted when TMTA durations exceed 14 days which I discuss further below in my evidence.

10 I agree with Mr Humpheson that the required notice period for TMTA activities in TEMP-S6 should be confirmed in Hearing Stream 7. I consider that TEMP-S6 is the appropriate location for this requirement and that any other reference to notice periods should be removed from APP6 or refer to TEMP-S6 to avoid potential confusion or conflict. For this reason it is my opinion that the required notice period should not be included as presented in Mr Humpheson's submitted *Table 26 – APP6* as point *a)* under *Weapons Firing and/or the Use of Explosives*.

11 With respect to the setback distances for TMTA weapon firing, it appears that individual measurements at four distances have been used to plot a regression type curve and determine a distance at which 95 dBC (daytime) and 85 dBC (night-time) will be met for the 81mm Mortar, the "worst-case" for TMTA weapon noise. I would expect such recommendations to be based on a larger data set of measurements to provide greater confidence.

12 Mr Humpheson states that a factor of safety is built into these peak noise limits due to downwind propagation conditions and no shielding from buildings and terrain during the measurements. However, on the information provided I am not able to confirm whether

the distances do include a sufficient factor of safety. Further evidence around the number of measurements this information is based on, and the uncertainty of the measurements, would help confirm this. Without this information it appears that the setback distances may not be sufficient. As presented, I cannot support the use of the submitted setback distances.

13 I support the approach taken by Mr Humpheson for setting TMTA Mobile noise limits. However whilst the proposed requirements include a direction around how noise should be measured there is not a corresponding direction for the assessment of the noise.

14 No evidence has been provided to support the proposal that no adjustment should be made for duration or special audible character for TMTA Mobile noise levels.

15 Subject to evidence to support an alternate approach, I recommend that TMTA noise from mobile and fixed plant sources should be assessed in accordance with New Zealand Standard 6802:2008 Acoustics - Environmental Noise which would include provision for duration and special audible characteristic adjustments as applicable.

16 The submitted APP6 Table 1 for *Mobile Noise limits for activities sensitive to noise* uses reference noise limits from NZS 6803:1999 based on the duration of the activities, which I agree is appropriate. However I note that the noise level limits for TMTA of between 14 and 31 days in the evidence of Mr Humpheson is 5 dB too low, appearing to be based on the "long term duration" limits for activities with durations of up to 20 weeks. A similar error appears to have occurred for Table 2 for *Mobile Noise limits for noise affecting any other activity*. I have corrected this in updated versions of Table 1 and Table 2 below.

Table 1 Mobile Noise limits for activities sensitive to noise

Time of Week	Time Period	TMTA of less than 14 days duration		TMTA of between 14 and 31 days duration	
		$L_{Aeq(15min)}$	L_{Amax}	$L_{Aeq(15min)}$	L_{Amax}
Weekdays	6:30am – 7:30am	65	75	60	75
	7:30am – 6:00pm	80	95	75	90
	6:00pm – 8:00pm	75	90	70	85
	8:00pm – 6:30am	45	75	45	75
Saturdays	6:30am – 7:30am	45	75	45	75
	7:30am – 6:00pm	80	95	75	90

	6:00pm – 8:00pm	45	75	45	75
	8:00pm – 6:30am	45	75	45	75
Sundays and Public Holidays	6:30am – 7:30am	45	75	45	75
	7:30am – 6:00pm	55	85	55	85
	6:00pm – 8:00pm	45	75	45	75
	8:00pm – 6:30am	45	75	45	75

Table 2 Mobile Noise limits for noise affecting any other activity

Time Period	**TMTA of less than 14 days duration $L_{Aeq(15min)}$**	**TMTA of between 14 and 31 days duration $L_{Aeq(15min)}$**
7:30am – 6:00pm	80	75
6:00pm – 7:30pm	85	80

17 In paragraph 65, in relation to NZS 6807:1994, Mr Humpheson states that specific noise controls are not required for infrequently used helicopter landing areas (fewer than 10 flight movements per month) as the effects are considered acceptable. However, no supporting evidence has been provided to support this statement. I consider that noise effects can occur even at infrequently used landing areas and therefore a control is appropriate. In the absence of a specific requirement, as proposed by Mr Humpheson, I consider NZS 6807:1994 would be appropriate.

18 I support the technical content of the Mr Humpheson's evidence, provided my recommendations for adjustments as outlined in this rebuttal evidence are incorporated. However, I note that the formatting of Mr Humpheson's submitted APP6 will need revision to fit within the PDP. It is currently presented as Table 26 but is not itself a table and features Tables 1 and 2 within for mobile noise limits, therefore introducing the potential for confusion.

KiwiRail ID 408 & FS72

(C Heppelthwaite, S Chiles and M Brown for KiwiRail)

19 In Section 1 of Appendix A, Dr Chiles states that in many cases inadequate treatment would result for those developments most exposed (nearest to the railway) through use of NOISE-S4 and NOISE-S5, however no evidence has been provided to support this statement.

20 In paragraph 8.10 and further detailed in Appendix A Dr Chiles states the rail noise source levels provided in the provisions are based on an assumption of two freight trains movements during a one-hour period, and it has been approximated that the noise levels from lines with regular passenger movements would be equivalent to this. I note no measurements have been provided to support these assumptions and in my experience passenger rail noise levels are commonly lower than those from freight. No further evidence has been provided for whether these noise levels related to freight or passenger rail movements and levels specific to the Wellington District.

21 Dr Chiles notes that terrain is a factor in rail noise levels, however no spatial noise modelling is proposed for rail noise (such as for Waka Kotahi for road noise). I suggest that modelled noise contours would provide greater clarity to the area of extent of actual and likely noise levels from the rail network than the setback distances currently used. I consider that this extent could be provided as an overlay within the plan. Any such spatial noise modelling should be provided with all suitable supporting information and an independent peer review carried out prior to being approved and included in the Plan.

22 I consider that specifying minimum sound insulation requirements for the building envelope (as per NOISE-S4 and NOISE-S5) or specifying an internal noise limit for noise sensitive spaces as proposed by Dr Chiles can both be effective methods. However, I have not changed my mind regarding use of NOISE-S4 and NOISE-S5 and do not agree that a separate rule and/or standard is required for transport (road and rail) noise sources in the plan.

23 I agree with Dr Chiles that there is significant variation inherent in railway vibration which, in part, was why my Evidence in Chief called for further evidence to be provided by KiwiRail. Paragraph 7.9 of Dr Chiles' evidence provides a selection of rail vibration measurements across New Zealand. However, important factors have been omitted from the presentation of this data, such as: why those locations were selected (what was reason for measurements being undertaken at these locations, in some cases reference is given to complaints); the type of rail line (freight or passenger rail), volume of train movements, train speeds, the

track and wheel condition, or whether any measures were subsequently undertaken by KiwiRail to mitigate vibration effects at source.

24 In paragraph 8.13 Dr Chiles states that KiwiRail have a maintenance procedure related to track condition but does not confirm whether any subsequent maintenance as a result of this includes consideration of noise and vibration generation, nor does it not note how wheel conditions are monitored.

25 In summary, I do not consider that sufficient evidence has been provided on the actual and likely vibration effects on vibration sensitive activities caused by the rail lines within the Wellington District. Therefore I do not support the inclusion of the rail vibration control as proposed by KiwiRail.

26 Mr Brown and Ms Heppelthwaite recommend in their evidence that in the absence of additional reporting, KiwiRail would accept a vibration "alert layer" as an absolute minimum requirement, indicating potential vibration effects to properties within 100m of the rail designation boundary but not imposing any related district plan rules on the site owner. Whilst I support the inclusion of an alert overlay to raise awareness of potential vibration from rail, I note that as this would not require any action on the behalf of future developers or the rail operator, and it would provide limited impact related to reverse sensitivity effects.

27 Further, it is unclear why this alert layer has been sought for within 100m of the rail designation boundary when the submission seeks for vibration criteria to apply for within 60m from the rail corridor. Should this alert layer be included, I consider that the layer should only extend 60m from the rail designation boundary.

28 I have provided a suggested description for the Rail Vibration Advisory Overlay below, which Mr Ashby recommends should be added to the Definitions chapter of the district plan:

The Rail Vibration Advisory Overlay serves to alert property owners within 60m each side of the railway designation boundary of potential vibration effects. No specific district plan provisions apply in relation to vibration controls as a result of this Rail Vibration Advisory Overlay.

Waka Kotahi ID 370 & FS103

(C Heppelthwaite and S Chiles for Waka Kotahi)

29 In Paragraph 8.15 Dr Chiles notes measurements resulting in exceedance of the proposed road vibration criteria at 5m from the road, for a road in good condition, but continues to suggest that the proposed vibration criteria should apply 20 m from the road without further evidence. This does not change my opinion that sufficient evidence has not been provided for the actual and likely vibration effects from state highway traffic within the Wellington District on vibration sensitive activities, and I do not support the road vibration criteria as proposed.

Kāinga Ora ID 391 & FS81

(J Styles, B Ligget and M Lindenberg for Kāinga Ora)

30 I note that the evidence of Mr Styles aligns with my own and raises the same issues and concerns regarding road and rail vibration, as well as rail noise. I agree with Mr Styles's evidence on these matters.

31 I agree with Mr Styles, Mr Liggett and Mr Lindenberg that the use of spatial noise modelling to determine the areas of land affected by road and rail noise would be more appropriate than the "blanket" setback distances currently used.

32 I agree with Mr Styles that the term "acoustic engineer" is inappropriate to describe many acoustic consultants working within New Zealand. I note that in other plans, the term "Suitably qualified and experienced person" is used. Otherwise I consider "Suitably qualified and experienced acoustic expert" appropriate in this context as suggested by Mr Styles.

33 In Paragraph 3.6 of his evidence Mr Liggett states that Kāinga Ora has not seen any information that demonstrates reverse sensitivity effects arising at the interface between the transport environment and noise sensitive activities. I note that this opinion differs from Kāinga Ora's technical noise expert Mr Styles, who in Paragraph 1.12 agrees that controls requiring acoustic treatment for noise sensitive activities near to rail lines is appropriate, and in Paragraph 1.5 supports the acoustic treatment controls in NOISE-S4 and NOISE-S5

for managing exposure to road and rail noise. I concur with the evidence of Mr Styles on this matter.

Stride & Investore ID 470 & FS107, 405

(J Carter for Stride & Investore)

34 I note that the evidence of Ms Carter generally aligns with my own and raises similar issues and concerns regarding rail noise and vibration.

The Fuel Companies ID 372

(J Dixon for The Fuel Companies)

35 I note that in Section 5 Mr Dixon mostly appears to restate points from The Fuel Companies original submission.

36 In Paragraph 5.4 Mr Dixon states that APP4 – Permitted Noise Standards requires that noise be measured at the 'boundary of any site with the receiving zones'. While this is technically correct, I would clarify that the noise limits within APP4 are applicable as measured within the boundary of any site within the receiving zones, meaning at any point within the boundary of the site, and not only at the boundary as described by Mr Dixon. I note that Mr Dixon supports the S42A recommendation and no further relief is sought.

Wellington International Airport Limited (WIAL) ID 306 & FS36

(D Humpheson and K O'Sullivan for WIAL)

37 In Paragraphs 5.7 – 5.9, Mr Humpheson identifies a drafting error within NOISE-R2.1.a for noise from construction activities. As worded, construction activity is permitted between the hours of 7.30am to 6pm, Monday to Saturday, **or** if the activity complies with the NOISE-S2 noise limits. This implies that if construction takes place during the hours of 7.30am to 6pm, Monday to Saturday, there are no noise limits. I do not expect that this was the intent of this rule, and I recommend that compliance with the noise limits in NOISE-S2 should be achieved for an activity to be permitted, as was the case in the Operative Plan.

38 An amendment to the wording of NOISE-R2 has been sought by Ms O'Sullivan for NOISE-R2.1.a, substituting 'or' for 'and'. I agree with Mr Humpheson and Ms O'Sullivan and recommend this wording be updated for the reasons outlined above.

Date: 25 July 2023

Name: Sean Syman

Position: Noise and Vibration Expert

On behalf of Wellington City Council