

**BEFORE THE HEARINGS PANEL**

**WELLINGTON CITY PROPOSED DISTRICT COUNCIL**

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of the Wellington City Proposed District Plan: Hearing  
Stream Five (General District Wide Matters - NOISE)

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**STATEMENT OF EVIDENCE OF DARRAN HUMPHESON ON BEHALF OF THE  
NEW ZEALAND DEFENCE FORCE**

**SUBMITTER 423**

**18 July 2023**

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## **INTRODUCTION**

- 1 My full name is Darran Humpheson. I am a Technical Director of Acoustics at Tonkin & Taylor Limited (**T+T**).
- 2 I hold a Bachelor of Science degree with Honours in Applied Physics and a Master of Science degree in Environmental Acoustics. I am a Member of the Acoustical Society of New Zealand and a Member of the United Kingdom's Institute of Acoustics. I am a New Zealand representative of the International Organisation for Standardisation (**ISO**) technical committee ISO/TC 43 SC1 "Noise".
- 3 I have been employed in acoustics since 1991 and have previously held positions as a consultant for international firms AECOM (Technical Director 2013-2019), Bureau Veritas (Technical Director 2012-2013), RPS Group plc (Technical Director 2002-2012) and as a UK Ministry of Defence scientist (Head of the Royal Air Force's Noise and Vibration Division 1991-2002).
- 4 Of relevance to this hearing, I have extensive experience providing acoustics services for military activities; specialising in aviation and weapon noise. I have previously provided expert opinion on behalf of NZDF regarding noise associated with Temporary Military Training Activities (**TMTA**) at six district plan hearings.
- 5 I am also the noise expert for Wellington International Airport Limited (**WIAL**) and have extensive experience with aircraft noise modelling and aircraft noise management at Wellington Airport.

## **CODE OF CONDUCT**

- 6 I confirm that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

## SCOPE OF EVIDENCE

- 7 I have been engaged by NZDF to provide expert noise advice in relation to the Wellington City Proposed District Plan (**Proposed Plan**) with respect to TMTA and noise generated by NZDF's operations at the Rongotai Air Movements Terminal located on the western apron of Wellington Airport.
- 8 In this brief of evidence, I will:
- (a) Provide an overview of TMTA and sources of TMTA noise.
  - (b) Describe how noise from NZDF aircraft activities at Wellington Airport is managed.
  - (c) Discuss the relief sought by NZDF's submission relevant to Hearing Stream 5, which relates to the noise chapter (**NOISE**) of the Proposed Plan.
  - (d) Discuss the evidence of Wellington City Council's (**Council**) noise expert, Mr Sean Syman.
  - (e) Address the Section 42A Report – Noise Chapter as it relates to NZDF's submission.
- 9 In preparing this evidence, I confirm that I am familiar with the nature and effects of TMTA and with NZDF's operations at Wellington Airport.
- 10 I also confirm that I have read the following documents:
- (a) NZDF's submission and further submission relevant to Hearing Stream 5.
  - (b) The section 42A report prepared by Mr Mark Ashby.
  - (c) The statement of evidence of Mr Syman.
- 11 Where appropriate, my statement of evidence, references the statement of evidence provided by Ms Rebecca Davies of NZDF.

## SUMMARY OF EVIDENCE

- 12 Temporary Military Training Activities may generate noise within the District. The type of noise will vary depending upon the training activities taking place. Typical noise sources include weapon firing, use of vehicles, fixed (stationary) plant such as generators and helicopter operations.
- 13 Not all TMTA include impulsive noise associated with weapon firing, grenades and “battle simulation” pyrotechnics. For much of the time, the noise associated with TMTA will be low level with occasional periods of higher levels of noise.
- 14 NZDF has developed bespoke noise standards that are routinely used in district plans to manage the noise effects of TMTA. These standards were included in NZDF’s submission. Council’s noise expert, Mr Syman, has considered the relief sought by NZDF.
- 15 Although Mr Syman supports NZDF’s submission points regarding weapon firing, he requires supporting information as to the range of weapon types used by NZDF. In the notified version of the Proposed Plan, Council included the noise characteristics of the L119 Light Gun (105 mm Howitzer). As Ms Davies’ confirms in her evidence this weapon is not used for TMTA. Therefore NZDF’s two-tier approach, to managing the effects of weapon firing should use the noise characteristics of the ‘noisiest’ equipment, being mortars, i.e. where the minimum separation distances specified cannot be met, the activity must comply with the peak sound pressure levels. Separate controls apply to noise generated during the day (7 am to 7 pm) and noise at night (7 pm to 7 am).
- 16 To be consistent with the mandatory requirements of the National Planning Standards I have amended NZDF’s mobile noise source standard and incorporated the observations made by Mr Syman with respect to the duration of TMTA.
- 17 Mr Syman agrees with NZDF’s noise limits for fixed sources of TMTA.

- 18 Finally, Mr Syman notes that the helicopter noise standard, NZS 6807:1994, is not intended to apply to infrequently used helicopter landing areas and I agree with his observation.
- 19 NZDF operates aircraft from the Rongotai Air Terminal at Wellington Airport. The Operative Plan requires NZDF to manage noise from military aircraft operations by establishing an air noise compliance contour. The Proposed Plan as notified removes this requirement and bundles military aircraft noise with all other aircraft operations. Although Wellington International Airport Limited must manage the noise from all operations, NZDF must also manage its own activities as required by the Airfield Operators Licence it has agreed with WIAL and a commitment within the Airport Noise Management Plan. I therefore support the omission of an aircraft noise compliance rule for NZDF aircraft within the Proposed Plan.
- 20 The section 42A report of Mr Ashby accepts the findings of Mr Syman.
- 21 I have appended revised noise standards to my evidence to address Council's observations.

#### **TEMPORARY MILITARY TRAINING ACTIVITIES**

- 22 As covered in Ms Davies' statement, section 5 of the Defence Act 1990 provides for the raising and maintenance of armed forces for various purposes, including for the defence of New Zealand, to protect the interests of New Zealand, to assist the civil power in times of emergency, and in the provision of any public service.
- 23 As Ms Davies explains, training is essential for the "maintenance" of armed forces and NZDF needs to undertake TMTA across the country in a wide variety of locations ranging from built-up urban areas to remote rural sites. While weapons and use of explosives will more often be undertaken in rural zones with landowner permission, these activities may also be carried out in built-up urban areas which may be zoned residential. The ability to undertake TMTA across all zones is important and Ms Davies in her Statement of Evidence provides further explanation as to why this is important.

- 24 TMTA by definition are temporary in nature and can vary in duration from a couple of hours or days to a few weeks depending upon the type and scale of the activity. NZDF's submission seeks to allow a duration of up to 31 consecutive days for TMTA (excluding set up and pack down activities), as opposed to the 14 consecutive days as notified in the Proposed Plan. I note that the 31-day period is supported by My Syman in his evidence.
- 25 These training activities are essential in maintaining the capability of the armed forces so that NZDF is ready to respond to a wide range of national and international situations in diverse environments, including providing aid and assistance following emergencies such as earthquakes and major storm events. As Ms Davies explains, off-base TMTA are essential so that personnel are able to operate (including using equipment) in a variety of unfamiliar surroundings and to provide 'realism' to skills learnt on-base.

#### **TMTA NOISE SOURCES**

- 26 Not all TMTA include impulsive noise associated with weapon firing, grenades and "battle simulation" pyrotechnics. For much of the time, the noise associated from TMTA may be low level with occasional periods of higher levels of noise. Ms Davies provides examples of TMTA and many of these activities are also conducted by other service of civilian organisations such as the Police Force, Fire and Emergency NZ and search and rescue organisations.
- 27 The noise generated by TMTA may be categorised by the following:
- (a) Impulsive noise - live and blank firing and explosions;
  - (b) Mobile sources, such as vehicles and earth moving equipment;
  - (c) Fixed sources, such as power generators and water pumps; and
  - (d) Helicopter landings.
- 28 These four categories of noise may occur in isolation or in combination and each category of noise has its own characteristics in terms of noise level

(magnitude), duration (transient or continuous) and frequency (low or high frequency/pitch). The character of each noise source means that different noise assessment methods are relevant when controlling and assessing noise effects.

- 29 The following sections consider the four noise categories and the relief sought by NZDF in the Proposed Plan.

### **Weapons firing and/or the use of explosives**

- 30 Live and blank firing activities as part of off-base TMTA are relatively infrequent and are recognised as being a unique source of noise, specific to certain forms of TMTA. Weapon firing and the detonation of explosives are typically performed within designated training areas; however, firing of blank ammunition on land controlled by a private or public owner does occur and will more commonly be from small arms (rifles).
- 31 Unlike other sources of impulsive noise which commonly occur in the district (bird scarers, alarms etc), the impulsive characteristics of weapon firing and/or use of explosives by NZDF warrants a different assessment approach compared to the average or maximum noise level assessment approach routinely applied in district plans.<sup>1</sup>
- 32 In comparison to general environmental noise sources, TMTA impulsive noise associated with the use of weapons and explosives has a much greater magnitude and strong low frequency component. It also has a very fast rise time and very short decay (very short duration), typically lasting less than 100 milliseconds.
- 33 TMTA may involve a variety of different weapon types ranging from hand held rifles to 40 mm grenades and 81 mm mortars.<sup>2</sup> The largest weapon type - L119 Light Gun (105 mm M1 Howitzer) – is not used for TMTA. The L119 Light Gun is only used on dedicated ranges. Therefore the 81 mm

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<sup>1</sup> Average level being measured and assessed by the LEQ / LAeq noise metric. Maximum by the LMax / LAmax noise metric.

<sup>2</sup> <https://www.nzdf.mil.nz/nzdf/our-equipment/firepower/>

mortar will typically result in the highest sound level and to ensure a conservative approach this forms the basis for the NZDF's TMTA noise standards.

### **New Zealand Standards**

- 34 New Zealand Standard NZS 6801:2008 'Acoustics – Measurement of environmental sound' is a mandatory noise standard of the National Planning Standards. NZS 6801:2008 requires that an impulse noise source (such as weapon firing and use of explosives) is measured using the peak level and either the C-weighting or the Z-weighting (L<sub>peak</sub> / L<sub>pk</sub>) is applied. C-weighting is more commonly used as it more accurately mimics the frequency response of the human ear to low frequency impulsive noise.
- 35 New Zealand Standard NZS 6802:2008 Acoustics – Environmental Noise is used as the starting platform for setting district plan environmental noise limits within New Zealand. However as set out in Clause 1.2 of that Standard and the National Planning Standards<sup>3</sup>, it is not designed to assess impulse type sounds such as gunfire and explosions.

### **Proposed NZDF noise limits**

- 36 As I have explained above, it is not appropriate to measure and assess the noise generated by TMTA weapons firing and use of explosives using NZS 6802:2008. This is why NZDF has developed a standard approach to assessing and managing this type of noise and a standard set of noise rules which are commonly applied across the country as set out and explained below.

*Notice is provided to the Council at least 5 working days prior to the commencement of the activity<sup>4</sup>.*

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<sup>3</sup> National Planning Standards. 15 Noise and Vibration Metrics Standard

<sup>4</sup> As set out in Mr Syman's evidence at paragraph 66, I agree that the notice period should be clarified by Council and included in TEMP-S6. I anticipate this will be confirmed through the hearing on Temporary Activities.

*The activity complies with the following minimum separation distances to the notional boundary of any building housing a noise sensitive activity:*

*0700 to 1900 hours: 500m*

*1900 to 0700 hours: 1,250m*

*Where the minimum separation distances specified above are not met, then the activity shall comply with the following peak sound pressure level when measured at the notional boundary of any building housing a noise sensitive activity:*

*0700 to 1900 hours: 95 dBC*

*1900 to 0700 hours: 85 dBC*

- 37 These peak sound levels approximate to 70-75 dB LAmax during the day time and 60-65 dB LAmax at night. At night an LAmax of around 65 dB<sup>5</sup> is typically used in district plans to protect people sleeping indoors from individual events. This external level is consistent with rural and residential zones of the notified version of the Proposed Plan.<sup>6</sup> Therefore NZDF's proposed night time noise standard of 85 dBC Lpeak manages the effects of night time noise and potential effects on sleep quality.
- 38 These peak levels are substantially lower than those allowed in the Proposed Plan for use of explosives when quarry blasting (NOISE-S2).

### **Setback distances**

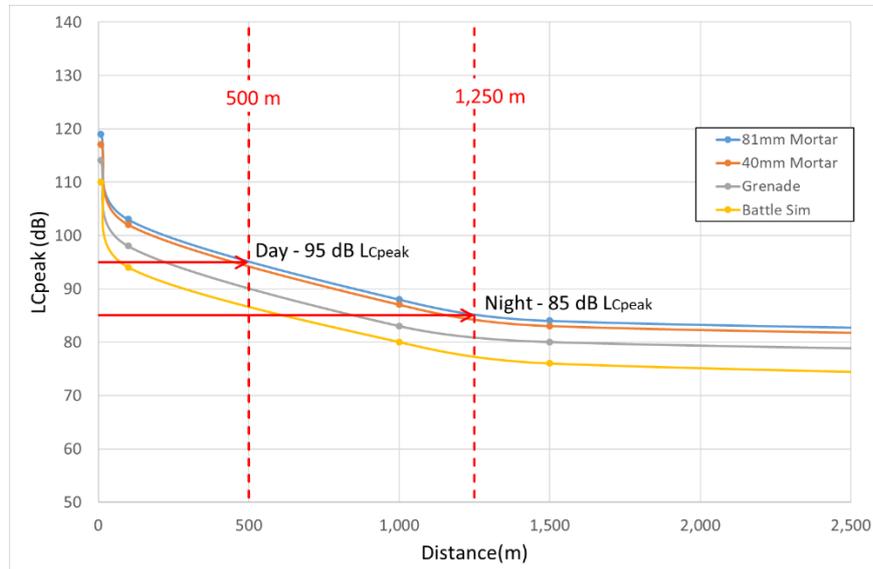
- 39 NZDF proposes the use of setback distance to assist both in the planning of TMTA and for use within district plans.
- 40 **Figure 1** shows how TMTA noise levels reduce with distance. For typical TMTA weapon firing, the peak levels I have outlined above correspond to setback distances of 500 m and 1,250 m respectively for 81 mm mortars. The setback distances are based on worst case positive downwind sound propagation conditions. In practice, the resulting sound levels will be lower than these due to more favourable propagation conditions and the effects of

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<sup>5</sup> As measured external to a building.

<sup>6</sup> APP4 tables 16 and 17.

shielding from terrain and buildings. The setback distances therefore ensure the NZDF's peak noise limits will be met with a factor of safety built into them.



*Figure 1 TMTA weapon noise against distance from activity*

- 41 The setback distances that were included in Table 26-APP6 of the notified version of the Proposed Plan were based on the L119 Light Gun (105 mm M1 Howitzer). However as I have explained above, this weapon platform is not used for TMTA. Therefore the setback distances of 500 m for daytime firing and 1,250 m for night time firing are appropriate.
- 42 NZDF's submission included peak sound levels and setback distances to manage the effects of weapon noise. This two tier approach is appropriate, especially as the setback distance has merit because it allows NZDF personnel with no acoustics knowledge to plan where firing may occur without adversely affecting residential amenity. It also provides certainty to councils as the distance at which an activity occurs can be measured without the need to undertake compliance noise monitoring. A further advantage to the setbacks is that weather conditions do not need to meet the prescribed standards for undertaking noise measurements. Ms Davies provides more details on the advantages of this approach in her Statement of Evidence, in particular the use of two tiered system.

### **Mobile noise sources**

- 43 TMTA mobile sources can include moving vehicles, earthmoving equipment and personnel which are typically intermittent and infrequent. They will typically be present during daytime hours only and have similar noise and operating characteristics to vehicles and plant (earthmoving equipment) used on construction sites (as assessed using NZS 6803:1999).
- 44 NZDF's submission was to adopt the noise limits of the construction noise standard and this requirement was incorporated within the notified version of the Proposed Plan. The National Planning Standards<sup>7</sup> state that rules in a plan must be made in accordance with the relevant New Zealand Standards. As TMTA mobile sources are not construction, they fall outside the scope of NZS 6803:1999 therefore a revision of Table 26, APP6 was provided to Council by replicating the noise limits of Table 2 and Table 3 of NZS 6803:1999. These limits reflected a typical duration of more than 14 calendar days but less than 20 weeks.

### **Fixed noise sources**

- 45 A fixed source could be a generator or water pump which has a fixed (stationary) location. These types of sources, which may run continuously during the TMTA are more easily controlled through careful selection and siting of the equipment on site, and through noise control methods such as screening.
- 46 The noise limits proposed by NZDF using NZS 6802:2008 for fixed sources relies on well-established standards that are appropriate for these types of sources. NZDF's submission included the following table of noise limits.

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<sup>7</sup> National Planning Standards 2019 clause 15.

**Table 1 : TMTA fixed noise sources**

<b>Time period (Monday to Sunday)</b>	<b>L<sub>Aeq</sub> (15 min)</b>	<b>L<sub>AFmax</sub></b>
7 am to 7 pm	55 dB	n.a.
7 pm to 10 pm	50 dB	
10 pm to 7 am the next day	45 dB	75 dB

*Measured at the notional boundary of any building housing a noise sensitive activity*

### **TMTA helicopters**

- 47 Within New Zealand helicopter noise is assessed using NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas. The foreword of the Standard notes that NZS 6807 includes methods for measurement and assessment of noise from proposed and existing helicopter landing areas as well as recommendations for appropriate land use planning measures. The scope of the Standard is intended to apply to helicopter landing areas used for ten or more flights in any month or where flight movements are likely to result in a maximum sound level (L<sub>max</sub>) exceeding 70 dBA at night or 90 dBA during day-time in any residential zone or within the notional boundary of any rural dwelling.
- 48 From discussions with NZDF, I understand that TMTA only very occasionally involve the use of helicopters and temporary landing areas may be required on private and public land (with land owner permissions). Whilst these areas are not permanent sites, the number of flights that may be generated can be very low, e.g. a single landing and take-off. In other situations, such as Exercise Southern Katipo, there can be multiple movements during the day and at night.
- 49 District plans do not control noise from overflying aircraft when aircraft are not in the vicinity of a landing area. In these situations, Section 56 of the Civil Aviation Act 2023 can be used by the Civil Aviation Authority (CAA) to control noise from overflying aircraft. Councils do however have the power as consent authorities to control the movement of aircraft by managing the effects of aircraft noise in the vicinity of landing areas. For temporary landing

areas (fewer than ten flights in any month) specific controls are not required as the effects are considered acceptable.

### **NZDF AIRCRAFT OPERATIONS**

- 50 NZDF operates the Rongotai Air Movements Terminal on the western apron of Wellington Airport and NZDF aircraft may use the terminal for various operational requirements. These requirements include transporting heads of state and/or senior dignitaries acting in their official capacity as well as responding to civil defence and natural disasters.
- 51 In the Operative District Plan<sup>8</sup>, there are limits on the noise generated by military transport aircraft operations and combat aircraft movements are limited to 80 per year. Apart from the Hercules (C-130H) aircraft, other fixed wing aircraft listed<sup>9</sup> in the Operative Plan are no longer operated by NZDF. Current NZDF aircraft are considerably quieter than those listed in the Operative Plan.
- 52 One of the requirements of the Operative Plan is for a separate military aircraft noise contour to be produced annually. The Proposed Plan removes this requirement and a single compliance contour is proposed for the management of aircraft noise. Council has sought confirmation from NZDF on this matter and I subsequently attended a meeting with Council on 23 May 2023, when this matter was discussed with WIAL.<sup>10</sup> The outcome of these discussions is provided below.
- 53 The single compliance contour is the 65 dB Ldn Air Noise Boundary (ANB) and is a forecast of the operational aircraft noise environment in 2050. The ANB is based on the forecast number of scheduled movements in 2050 and the likely number of un-scheduled aircraft movements, which include military operations.

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<sup>8</sup> Rule 11.1.1.1.3

<sup>9</sup> Andover, B727, Orion and Airtrainer

<sup>10</sup> The meeting was held between Council and WIAL and I was authorised by NZDF to discuss the influence of NZDF aircraft at the meeting.

- 54 I undertook the aircraft noise modelling for WIAL and produced a new ANB to be included in the Proposed Plan. The noise modelling assumed that non-scheduled movements would remain consistent for the next 25 years or so. This is a reasonable assumption and applies equally to military and all other non-scheduled operations.
- 55 The notified version of the Proposed Plan requires noise from all aircraft operations, including NZDF aircraft operations, to be managed by WIAL to not exceed the ANB (NOISE-S9). NOISE S-9 excludes the following operations from being included in the compliance assessment:
- (a) Aircraft operating in an emergency
  - (b) Emergency flights required to recuse people from life threatening situations
  - (c) Flights required to needs of any state of emergency declared under the Civil Defence Emergency Management Act 2002 or any international civil defence emergency.
- 56 Military movement numbers used in the modelling are a fraction of scheduled and other non-scheduled movements in 2050 (<1% of the daily number of all movements). I consider that it is improbable based on the current and future fleet of NZDF aircraft that the resulting noise emissions will materially alter the size and shape of the aircraft noise contours and noise boundaries.
- 57 This statement would not apply if NZDF undertook a military response to a significant event, such as a civil incident or natural disaster. However in these circumstances, responding to such events would be excluded from the calculation of the noise contours.
- 58 The extents of the 2050 ANB are not materially influenced by military movements. Furthermore, WIAL has an Airfield Operators Licence

agreement with NZDF.<sup>11</sup> A key requirement of this agreement is that NZDF will comply with the Wellington Airport Noise Management Plan (ANMP).<sup>12</sup> The overarching objective of the ANMP is that:

*‘Wellington Airport continues to provide for the ongoing operation and growth of the Airport, while minimising the effects of aircraft and airport noise on the surrounding community’.*

59 The ANMP in section 5.8 also states:

*‘The New Zealand Defence Force is permitted to undertake activities at Wellington Airport. While the New Zealand Defence Force is responsible for ensuring its own activities either comply with the relevant District Plan requirements and/or have the appropriate authorisations in place, it is WIAL’s expectation that the New Zealand Defence will comply with all the relevant requirements set out in this ANMP.’*

60 I therefore support the omission of a military aircraft noise compliance rule in the Proposed Plan.

### **COUNCIL’S RECOMMENDATION**

61 Mr Syman’s noise evidence considers TMTA noise and I address his observations for each of the four categories of TMTA noise.

62 He supports NZDF’s submission points regarding weapon firing but requires supporting information as to the range of weapon types. As I have already mentioned, the L119 Light Gun (105 mm M1 Howitzer) is not used for TMTA. Any new weapon platform that NZDF may use in the future is likely to have similar noise characteristics as the weapon types currently in use. NZDF also has a duty to avoid unreasonable noise under section 16 of the Resource Management Act. I therefore consider it unlikely that future

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<sup>11</sup> Although the licence has not yet been renewed (expired August 2022) the existing agreement continues to apply until such time a new agreement is entered into by WIAL and NZDF

<sup>12</sup> [https://www.wellingtonairport.co.nz/documents/4022/ANMP\\_May\\_2023.pdf](https://www.wellingtonairport.co.nz/documents/4022/ANMP_May_2023.pdf)

weapon types may impact NZDF's separation distances and peak sound levels.<sup>13</sup>

- 63 I have responded to Mr Syman's request to provide two distinct noise limits for mobile noise sources by proposing amendments to Table 26-APP6.
- 64 Mr Syman agrees with the noise limits for fixed sources of TMTA (stationary sources). He also notes that the TMTA noise standard is more restrictive than the Proposed Plan and he supports NZDF's proposal.
- 65 Mr Syman notes that NZS 6807:1994 is not intended to apply to infrequently used helicopter landing areas. I agree with his observation, which is supported by the scope of the National Planning Standards, and as I have stated specific controls are not required as the effects are considered acceptable.

## **CONCLUSION**

- 66 Temporary military training activities are essential and in many respects are identical to training activities carried out by other emergency services and commercial organisations. NZDF is seeking to apply a standard set of rules to TMTA noise that can be consistently used in district plans throughout the country. These controls are proposed for the Wellington City Proposed District Plan.
- 67 I have prepared, as an exhibit to my evidence, revised noise standards and as I have noted in my evidence, I consider that the relief sought will result in acceptable noise effects that appropriately protect amenity values.

Dated: 18 July 2023

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Darran Humpheson

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<sup>13</sup> Mr Syman's evidence Paragraph 68.

## TABLE 26 – APP6: Noise standards for temporary military training activities

Temporary Military Training Activities are permitted activities provided they comply with the following noise standards:

### WEAPONS FIRING AND/OR THE USE OF EXPLOSIVES

- a Notice is provided to the Council at least 5 working days prior to the commencement of the activity.
- b The activity complies with the following minimum separation distances to the notional boundary of any building housing a noise sensitive activity:
  - 7.00 am to 7.00 pm: 500 m
  - 7.00 pm to 7.00 am: 1,250 m
- c Where the minimum separation distances specified above cannot be met, then the activity shall comply with the following peak sound pressure level when measured at the notional boundary of any building that contains a noise sensitive activity:
  - 7.00 am to 7.00 pm: 95 dBC
  - 7.00 pm to 7.00 am: 85 dBC

### TEMPORARY MILITARY TRAINING ACTIVITIES INVOLVING MOBILE NOISE SOURCES

The noise generated by mobile TMTA activities must not exceed the levels in Table 1 when measured at 1 m from the façade of any occupied building that contains a noise sensitive activity.

**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 <sub>Aeq(15 min)</sub>	L <sub>Amax</sub>	L <sub>Aeq(15 min)</sub>	L <sub>Amax</sub>
Weekdays	6:30 am – 7:30 am	65	75	55	75
	7:30 am – 6:00 pm	80	95	70	85
	6:00 pm – 8:00 pm	75	90	65	80
	8:00 pm – 6:30 am	45	75	45	75
Saturdays	6:30 am – 7:30 am	45	75	45	75
	7:30 am – 6:00 pm	80	95	70	85
	6:00 pm – 8:00 pm	45	75	45	75
	8:00 pm – 6:30 am	45	75	45	75
Sundays and public holidays	6:30 am – 7:30 am	45	75	45	75
	7:30 am – 6:00 pm	55	85	55	85
	6:00 pm – 8:00 pm	45	75	45	75
	8:00 pm – 6:30 am	45	75	45	75

The noise generated by mobile TMTA activities must not exceed the levels in Table 2 when measured at 1 m from the façade of any occupied building that contains any other activity.

**Table 2 Mobile noise levels for noise affecting any other activity**

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

No adjustments shall be made for duration or special audible character.

Noise levels shall be measured in accordance with NZS 6801:2008.

This rule applies to use of temporary mobile TMTA activities such as personnel carriers, light and heavy vehicles, self-propelled equipment and construction plant.

## FIXED (STATIONARY) NOISE SOURCES

Shall comply with the noise limits set out in the table below when measured at the notional boundary of any building housing a noise sensitive activity\*.

Time period (Monday to Sunday)	$L_{Aeq(15\text{ min})}$	$L_{AFmax}$
7 am to 7 pm	55 dB	n.a.
7 pm to 10 pm	50 dB	
10 pm to 7 am the next day	45 dB	75 dB

Note: Fixed (stationary) noise sources (other than firing of weapons and explosives) include power generation, heating, ventilation or air conditioning systems, or water or wastewater pumping/treatment systems.

## HELICOPTER LANDING AREAS

Shall comply with NZS6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas\*.

\* Noise levels shall be measured in accordance with NZS6801:2008 Acoustics – Measurement of Sound.