

UNDER

The Resource
Management Act 1991

IN THE MATTER OF

Plan Changes 52, 55 and
60 to the Manawatu
District Plan

BY

the Minister of Defence

**STATEMENT OF EVIDENCE OF
MALCOLM JAMES HUNT
ON BEHALF OF THE NEW ZEALAND DEFENCE FORCE
SUBMITTER S08 and Further Submitter FS3
2 December 2016**

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1 Introduction

- 1.1 My name is Malcolm James Hunt. I am the Principal of Malcolm Hunt Associates, a Wellington-based noise and environmental consultancy.
- 1.2 I hold the degrees of Bachelor of Science from Victoria University and Master of Mechanical Engineering from the University of Canterbury. I hold other qualifications with respect to the Environmental Health Officer Qualification Regulations 1975, and hold a Royal Society of Health Diploma in Noise Control.
- 1.3 I have over 28 years direct experience in the measurement and assessment of environmental noise.
- 1.4 I am a Member of the Acoustical Society of New Zealand and New Zealand Institute of Environmental Health. I have held the position of Council Member and Vice President of the New Zealand Acoustical Society. I have been a member of a number of national and international standards committees and expert working groups regarding environmental acoustics, noise and vibration.
- 1.5 I have been a member of a number of past Standards New Zealand committees, including the committees reviewing NZS6801 and NZS6802 [Measurement and Assessment of Environmental Noise]. I was a member of the Standards New Zealand committee that developed the New Zealand Standard for traffic entitled 'NZS6806 *Acoustics – Traffic Noise – Noise from New & Altered Roads*'. I was also a member New Zealand committee that developed the two New Zealand Standard for wind turbine generators entitled 'NZS 6808:1998 *Acoustics – The Assessment and Measurement of Sound From Wind Turbine Generators*' and 'NZS 6808:2010 *Acoustics – Wind Farm Noise*'.
- 1.6 I was awarded the Standards New Zealand 'Meritorious Service Award' in 2011 by Standards New Zealand recognising my involvement in the development of NZ acoustic Standards over the last 15 years.
- 1.7 I have completed the '*Making Good Decisions*' course for RMA Practitioners which provides certification to undertake a role assisting Consent Authorities with RMA decision-making processes.
- 1.8 Over the years I have gathered wide experience with environmental noise matters including carrying out acoustic surveys, advising District Councils on environmental noise standards, and assisting with District Plan developments and Plan Changes.

- 1.9 I have investigated noise from a wide range of commercial, industrial, and recreational activities, including noise associated with energy projects, a number of ports and transport facilities as well as defence projects.
- 1.10 With respect to noise from New Zealand Defence Force activities, over the past 10 years I have carried out various noise investigations for the Chief of New Zealand Defence Force [NZDF]. Specifically my firm has worked on various NZDF noise investigations, a brief sample of which includes:
- *Ardmore Training Areas, Papakura, Auckland;*
 - *West Melton Firing Range, Light arms, grenades and mortar firing, West Melton;*
 - *Light Armoured Vehicle Firing Range, Waiouru;*
 - *Aylesbury Firing Range, Burnham Military Camp;*
 - *22 Metre Barrack Firing Range, Whenuapai, Auckland;*
 - *Aircraft noise associated with the Ohakea and Whenuapai Airbases;*
 - *Acoustic Design Works at Trentham NZDF Base, Upper Hutt Wellington; and*
 - *Temporary Military Training Noise, including live firing and detonations / Howitzer firing, Tekapo.*
- 1.11 With respect to noise from civilian firing ranges, I have investigated noise from a number of ranges designed for the use of pistol firing and/or shotgun firing including projects including [but not limited to] ranges located in the Nelson, Motueka, Canterbury, Queenstown, Wellington, Hutt City, Wainuiomata, Wairarapa, Wanganui, Wakatipu and Horowhenua Districts.
- 1.12 I have also undertaken noise assessment work in relation to movie production activities as well as assessment work related to tourism and function centres such as clay shooting activities.
- 1.13 I have conducted work for Crown entities such as the New Zealand Police where I conducted work for the design and weapons testing of both outdoor and indoor firing ranges such as at Porirua and Auckland Police firing ranges.
- 1.14 Commencing in 2012, I undertook a technical review of temporary military training activities noise and vibration provisions as found within many existing District Plans in New Zealand. These are District Plan noise provisions that apply to temporary or one-off exercises undertaken from time to time in accordance with training needs, and are not those that may apply to any site designated under the RMA for military training purposes.

2 Code of Conduct

- 2.1 I am authorised by the New Zealand Defence Force to present this evidence on its behalf. I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014.
- 2.2 I agree to comply with that Code. Other than where I state that I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

3 Scope of Evidence

- 3.1 My evidence provides information on the investigations and assessments I have carried out on behalf of New Zealand Defence Force in relation to advising on managing and mitigating noise associated with Temporary Military Training Activities [TMTA].
- 3.2 My evidence deals with noise from a wide range of TMTA sources including associated with live firing, blank firing, as well as single event sounds associated with motors, grenades and “battle simulation” pyrotechnics.
- 3.3 Within my evidence I describe the background to New Zealand Defence Force recommendations for managing noise from TMTA taking place from time to time within the Palmerston North City District Plan.
- 3.4 I specifically discuss the advice Council has received from its noise advisor Mr Nigel Lloyd. I set out reasons why I consider New Zealand Defence Forces approach as workable and practical, and will provide an appropriate level of protection against adverse noise and amenity concerns associated with TMTA taking place in the district.
- 3.5 I conclude that any noise effects associated with TMTA are appropriately controlled via compliance with the noise limits regime requested by New Zealand Defence Force as these are practical and achievable.
- 3.6 Overall I consider the Council’s advisor has recommended an unworkable approach, which seems inconsistent with maximum noise allowed under the recommended noise rules for permitted activities.

4 Summary of NZDF Submission

- 4.1 Within its submission New Zealand Defence Force has sought to standardise noise standards included in Plans around New Zealand so that they are consistent, up-to-date, are appropriate for the type of noise generated, and relatively simple to understand and assess compliance with. The replacement noise standards proposed by NZDF focus on compliance at dwellings, residentially zoned sites, and buildings used for residential, educational or healthcare purposes.
- 4.2 **Attachment 1** to the NZDF submission proposes a set of performance standards that divides TMTA noise sources into four categories being weapons firing and explosions; other mobile sources such as vehicles and earthmoving equipment; fixed noise sources such as power generators and water pumping, and helicopter landing areas. Each of these noise sources has its own noise characteristics, and therefore a separate standard is sought to apply for controlling each type of noise source is proposed by NZDF.

5 Noise from Weapons Firing & Explosives

- 5.1 The New Zealand Defence Force submission requests a tiered approach to controlling noise from weapons firing and the use of explosives. The approach is based on a tiered system where a separation distance from noise sensitive receivers is specified in the first instance, and an alternative second tier of noise limits being applied when the separation distances cannot be achieved at the first tier.
- 5.2 The 4 basic components of the noise standards requested by New Zealand Defence Force are discussed further below:
1. Noise controls around weapons firing to control single and multiple explosions. Provided for as “minimum setback distances” within the NZDF Submission.
 2. Noise controls mobile sources [for example vehicles, etc.] – could be received at elevated levels during daytime. NZDF sought provisions based around NZS6803:1999 Acoustics – Construction Noise.
 3. Fixed noise sources [for example pumps and motors used at temporary camps]. With appropriate forward planning and organisation, these TMTA noise sources can usually comply with District Plan limits for residential sites.
 4. Helicopter landing areas. NZDF sought the application of NZS6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas.

- 5.3 In summary, the NZDF's proposed standards divide Temporary Military Training Activities noise sources into four categories: weapons firing and explosions; other mobile sources such as vehicles and earthmoving equipment; fixed noise sources such as power generators and water pumping, and helicopter landing areas. Each of these noise sources has different noise characteristics, and therefore a different set of standards for controlling noise. NZDF considers that this division allows a more comprehensive and appropriate method for controlling noise from Temporary Military Training Activities.
- 5.4 I recognise that the noise units proposed within NZDF's proposal differ with the usual District Plan noise metrics, however I consider there are technical advantages in quantifying the noise effects of detonations or weapons firing sounds using LCPeak as it is both sensitive to low-frequency rumble effects, and sensitive enough so as to capture high sound pressure peaks associated with detonations and weapons firing.
- 5.5 In my experience adopting the LCpeak unit into the District Plan in the manner proposed will help ensure both the impulsive nature of the sound and the low frequency content of the sound are adequately assessed and controlled. In addition, the proposed prior notification process and neighbourhood liaison undertaken by NZDF prior to holding TMTA activities would in combination result in an acceptable level of noise effects in my view. One key mitigation measure that I have been instrumental in developing is the conducting of noisy activities only in locations that are sufficiently remote determined by specified distance setbacks or noise is reduced by other means (for example significant terrain features). Whichever method, the proposed approach only allows for noisy activities where the effects on the environment can be adequately assimilated.

6 Evidence of Nigel Lloyd

- 6.1 NZS 6802:2008 recommends that the notional boundary be used. However, to avoid uncertainty with respect to future planning provisions, Mr Lloyd recommends that the rural noise limits apply at the neighbouring land site boundary rather than at the notional boundary of dwellings.
- 6.2 It is my contention that Mr Lloyd's position does not acknowledge the temporary nature of noise effects of TMTA. There is no need to be constrained to measuring and limiting noise at site boundaries if the noise-making event is planned, carried out and completed within a time frame of a few weeks or months. The noise effect is limited in a number of ways, including duration. The activities are planned reactively, acknowledging the state of the environment including the location of sensitive buildings and any other sensitive locations existing at the time the TMTA are proposed to take place. It is not necessary to encumber NZDF's proposed noise control regime

with what is essentially a planning principle that is designed to protect a future situation when we are dealing with the 'here and now'.

- 6.3 Mr Lloyd does not support that TMTA should be provided for as Permitted Activities throughout the District. He states (at paragraph 81) that *"..noisier TMTA activities would be more appropriate in the Rural Zone, for example"*. This is precisely what is proposed. Unless there are sufficient buffer distances available, NZDF's proposed method would mean the noisier TMTA activities cannot take place in compliance with the guidelines attached as Attachment 1 to the NZDF submission.
- 6.4 I am not sure why the night time noise level at sensitive sites is being emphasised in Mr Lloyd's evidence. I have investigated the likely reaction to weapons firing or explosives meeting a daytime peak sound limit level of 120 dBC and night time peak sound limit level not exceeding 90 dBC. I can confirm from my review that the proposed 120 dBC level would be equivalent to the daytime LAFMax recommended within NZS6803 Acoustics – Construction Noise of LAFMax 95 dBA. I can confirm that the night time LCPeak value of 90 dBC would control noise effects consistent with the night time permitted activity LAFMax noise limit of Table 3C of 55 dBA which applies to home occupations and non-residential activities.
- 6.5 I therefore consider the temporary effects of the requested noise limits applying to TMTA noise from the firing of blanks to be reasonable, especially taking into account that the activities would only take place once prior notification is provided to Council and others such as the community. Further to this TMTA noise from blank firing would also require a Noise Management Plan.
- 6.6 I do not believe Mr Lloyd has placed sufficient weight on the temporary nature of noise from TMTA. It is a well known phenomena that noise effects on people are reduced where the activity is temporary in nature. This is the basis of the recommendations of New Zealand Standard NZS 6802:2008 Acoustics – Environmental Noise (a Standard referred to within the District Plan) at Section 8.6 *"Guidelines For The Protection Of Health And Amenity"* where a range of temporary activities are recommended to be exempt from the normally applying District Plan noise rules.
- 6.7 I note that Page 32 of NZ Standard NZS6802:2008 states that *"Temporary military training activity which complies with specific provisions"* as examples of *"appropriate exemptions from general noise limits"* (Ref. C8.6.11, Page 32 NZS6802:2008). I consider it unprofessional for Mr Lloyd not to have advised Council that he has omitted to consider material facts that might alter or detract from the advice he has provided to Council.
- 6.8 I also consider the L_{AEQ} 55 dB daytime L_{AEQ} 45 dB night time limits requested by New Zealand Defence Force in its submission for fixed noise sources as more reasonable. These are the upper

limits recommended within NZS6802:2008 that are considered adequate to protect health and amenity, and I consider that these would not result in adverse effects within residential or other noise sensitive sites in my view.

- 6.9 I therefore do not agree with the position of Mr Lloyd who recommends TMTA should not be provided for as Permitted Activities throughout the District.
- 6.10 The approach taken by Mr Lloyd appears to be at odds with the commentary at Page 29 of NZS6802:2008 which states "The setting of noise performance standards should involve all stakeholders and provide sufficient information to explain the acoustical implications and consequences of the proposed performance standards." I consider this best practice approach not to have been followed in setting of the noise limits for TMTA in the Manawatu District Plan as whole, and specifically in the case of Plan Change 55.
- 6.11 Overall, I conclude that noise effects associated with TMTA are more appropriately controlled via compliance with the noise limits regime requested by New Zealand Defence Force as permitted activities, ideally applied in a district wide rule.

7 Summary

- 7.1 The approach requested by New Zealand Defence Force seeks to allow the temporary military training activity to take place from time to time but with controls in place that will both limit noise annoyance on indoor or outdoor amenity and will ensure adequate sleep protection during night time.
- 7.2 As the noise limits and separation distances set out New Zealand Defence Forces submission have been designed to ensure sound levels at sensitive receivers will be reasonable, generally less than L_{Aeq} 55 dBA for daytime and less than L_{Aeq} 45 dBA for night time, with impulsive peak sounds being less than 120 dBC for daytime and 90 dBC at night time, received noise is not expected to result in any significant annoyance for a person of average noise sensitivity.
- 7.3 The fact that noise from TMTA is a temporary effect is also a mitigating factor I consider will help avoid, remedy or mitigate annoyance to that noise.
- 7.4 I have reviewed the advice Council has received from Mr Lloyd, a noise expert. For the reasons explained above, I do not agree with his recommendations.
- 7.5 On the whole, I remain of the view that the aims of the Resource Management Act 1991 would be better served if the tabulated noise controls set out in the submission of the New Zealand

Defence Force were adopted as a whole and as a district-wide permitted activity standard without the need to apply for resource consent to undertake firing or explosions on land not designated for that purpose.



Malcolm James Hunt