

**BEFORE INDEPENDENT HEARING COMMISSIONERS
APPOINTED BY THE WAIKATO DISTRICT COUNCIL**

IN THE MATTER of the Resource Management Act 1991
(**RMA**)

AND

IN THE MATTER of the Proposed Waikato District Plan

BETWEEN **NZTE OPERATIONS LIMITED**

Submitter [No. 823]

AND **WAIKATO DISTRICT COUNCIL**

Local Authority

**EVIDENCE IN REPLY OF LAUREL SMITH
FOR NZTE OPERATIONS LIMITED**

(ACOUSTIC)

Dated: 8 April 2021

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INTRODUCTION

1. My name is Laurel Jean Smith. I am a consultant in the acoustical consulting practice of Marshall Day Acoustics Limited.
2. I outlined my qualifications, experience and commitment to comply with the Environment Court Expert Witness Code of Conduct in my evidence-in-chief dated 15 February 2021 (**EIC**).
3. This evidence-in-reply (**EIR**) addresses matters raised by submitters or the s.42A officers in relation to NZTE's EIC, or new evidence, presented during the first day of the hearing on 8 March 2021. These matters include:
 - (a) Noise sensitive activities in the Te Kowhai Airpark Zone (**TKAZ** or **Airpark**);
 - (b) Limiting the number of aircraft movements at the Aerodrome;
 - (c) The potential for jets using the Aerodrome;
 - (d) Circuit training and flight schools; and
 - (e) Night-time aircraft movements.

A. NOISE SENSITIVE ACTIVITIES IN THE AIRPARK ZONE

4. There remains disagreement about appropriate land use controls in relation to the airport noise boundaries within the Airpark Zone.
5. Table 27.1.1 of Chapter 27 of the Proposed Plan lists the activity status for activities inside each of the precincts of the TKAZ. Several noise sensitive activities are identified individually as clubrooms, community facility, residential, visitor accommodation, minor dwelling, conference facility, and educational facility. These activities are provided for individually within the precincts with various activity statuses. Any other noise sensitive activities are discretionary.
6. The s.42A planning officer recommends an overall activity description being "*noise sensitive activities inside the ANB*" and that these should be non-

complying¹ which is consistent with the proposed land use controls outside the TKAZ.

Residential Activities

7. As set out in my EIC, I consider that residential activity inside the ANB up to 70 dB L_{dn} would be appropriate in the Airpark.
8. The s.42A acoustic advisor, Mr Humpheson, agrees and suggests that the boundary of Precinct D may need to be adjusted so the 70 dB L_{dn} contour is not within the precinct.
9. I do not think it is necessary to shift the Precinct D boundary to avoid the 70 dB L_{dn} contour. The figure appended to this evidence as **annexure "A"** shows the location of the future 70 dB L_{dn} contour in relation to the draft subdivision plan². Precinct D would be divided into large lots and the 70 dB L_{dn} contour would pass over the northern part of 6 lots to varying degrees. I understand from Mr Readman that it is intended that hangers would be built at the northern ends of these properties and dwellings at the southern ends outside the 70 dB L_{dn} contour.
10. On this basis, I do not consider it is necessary to shift the Precinct D boundary. If necessary, an additional rule ensuring that dwellings were not permitted inside the 70 dB L_{dn} contour could be added. The map showing 2 decibel contours for acoustic insulation design could be amended to show the 70 dB L_{dn} contour³.

Other Noise Sensitive Activities

11. In addition to residential activities, other noise sensitive activities may be appropriate within the ANB of the TKAZ for the following reasons:
 - (a) The activity benefits from its location at the Aerodrome or is associated with Aerodrome activities reducing reverse sensitivity risk (e.g.,

¹ WDC Opening Statement Hearing 17: Te Kowhai Airpark para [26]

² Note the subdivision plan is slightly skewed laterally so is not entirely correct but is adequate to demonstrate the relationship with the 70 dB L_{dn} contour

³ NZTE amendment to Proposed Plan Appendix I Acoustic Insulation 3.1 Figure 2 (refer Marshall Day Acoustic Consultant Advice 18 October 2018 Figure 4).

clubrooms, conference facility, community facility, visitor accommodation, and education facility).

- (b) The activity can be undertaken indoors and acoustically insulated reducing adverse noise effects.
12. In my view, there are some noise sensitive activities such as childcare centres and rest homes that would not fit the above criteria and would not be appropriate inside the Airpark's ANB. The proposed TKAZ activity status table permits educational facilities (which includes childcare) in Precinct B. I do not support this. NZTE's planning consultant Mr Serjeant agrees and proposes to change the status to restricted discretionary. All other noise sensitive activities that are not residential or do not fit my criteria in para. [11], are discretionary in the proposed activity status table and would need to be considered on a case-by-case basis through resource consent applications.

B. LIMITING THE NUMBER OF AIRCRAFT MOVEMENTS AT THE AERODROME

13. During questions from the Commissioners to Ms Ensor, there was discussion regarding a cap of 15,000 aircraft movements at the Aerodrome based on 10 years' growth. Ms Ensor's colleague, Mr Taylor, explained his view was that the Aerodrome must at some point in the future reach peak activity and that Ms Ensor had taken a conservative approach to safeguard the amenity of Te Kowhai Village by selecting 10 years' growth and capping movements at 15,000 annually.
14. The notified version of the proposed plan did not include any controls on aircraft activity or noise at the Aerodrome. This meant that unconstrained growth of aircraft activity would have been enabled under the notified version.
15. NZTE proposed, by way of submission, aircraft noise control boundaries and associated rules designed to constrain growth by limiting the average aircraft noise exposure. This is in accordance with NZS 6805⁴ which recommends an effects-based approach in accordance with the Resource Management Act 1991.

16. The aircraft noise control boundaries do not only constrain aircraft noise. They also serve to quantify noise effects and identify areas where amenity will be moderately or significantly affected. Ms Ensor has not provided any evidence to support her conclusions that: (a) a cap of 15,000 annual movements is necessary to protect amenity values; or (b) 15,000 annual movements represents a limit for acceptable amenity. I remain of the view that a rule restricting annual aircraft movements to 15,000 is unnecessary and inappropriate.
17. The noise control boundaries are based on a forecast number of movements of representative aircraft types. Therefore, the boundaries provide an indirect constraint on the types of aircraft and number of movements. The noise boundaries could not accommodate regular movements of aircraft significantly louder than those anticipated in the model.

C. THE POTENTIAL FOR JETS USING THE AERODROME

18. Mr Phil Lang, representing submitters Mr and Mrs Randley, expressed concern about the potential for jet aircraft to use the Aerodrome. Jets were not included in the noise boundary modelling. The noise footprint of small private jets is not large and theoretically the noise boundaries could accommodate some small private jet movements. However, these movements would use up more of the allowable noise budget restricting the number of other aircraft movements. The Aerodrome operator would need to manage the balance of aircraft types and movements to comply with the boundaries. Jet aircraft larger than a small corporate jet could not be accommodated by the noise boundaries.

D. CIRCUIT TRAINING AND FLIGHT SCHOOLS

19. During questions from the Commissioners to Ms Ensor, there was discussion regarding the effects of circuit training and flight schools. Ms Ensor maintained that circuit training and flight schools should be non-complying activities so the effects could be considered in detail through a resource consent process.
20. When Commissioner Cooney asked whether the effects from a flight school performing circuit training would be any different to a private pilot performing

circuit training, Mr Humpheson offered that flight schools are generally associated with an intensification of circuit training with pilots performing multiple circuits and touch and goes in one session.

21. The noise control boundaries proposed by NZTE include aircraft performing circuit training and touch and goes. As such, the noise effects of circuit training undertaken by private pilots or a small flight school have been quantified and provided for within the noise control boundaries.
22. The shape of the OCB will indirectly constrain the number of circuits that can be performed therefore it would not be feasible for a large scale flight school to operate at the Aerodrome. To confirm this, I calculated an alternative future operating scenario using the NZTE model of 19,645 annual movements but with twice as many circuits flown. The shape of the resulting 55 dB L_{dn} contour is different to the proposed OCB due to the increased use of the circuit, and this would mean non-compliance.
23. Considering the above, I have reassessed my initial recommendation about compliance monitoring. Rather than delaying noise modelling until movement numbers reach a certain threshold, I agree with Ms Ensor and Mr Humpheson that noise modelling should be carried out every two years. Modelling aircraft movements will ensure that noise from circuit training is controlled by the noise boundaries. I agree with the following compliance monitoring rule proposed by Ms Ensor:

27.2.7A(b) Aircraft movements shall be recorded monthly and noise contours for the purpose of assessing compliance with Rule 27.2.7A P1 shall be calculated no later than 12 months of the date when the rule becomes legally operative and thereafter once every two years. When the calculated noise level is within 1 decibel of the 65 dB L_{dn} or 55 dB L_{dn} limits, noise contours for the purpose of assessing compliance with Rule 27.2.7A shall be calculated annually and verified with infield monitoring once every two years.

24. In summary, I remain of the opinion that non-complying activity status for circuit training and flight schools is unnecessary and inappropriate within the TKAZ. I recommend that to ensure noise from circuit training complies with

the noise control boundaries, that noise modelling is undertaken every two years to demonstrate compliance.

E. NIGHT-TIME AIRCRAFT MOVEMENTS

25. During questions from the Commissioners to Ms Ensor and Mr Humpheson, Ms Ensor said her recommendation was for aircraft movements between 10pm and 7am to be non-complying.
26. However, Ms Ensor suggested another option would be to enable three movements per week between 10pm and 7am. Mr Humpheson explained that rather than the NZTE proposed 34 night-time departures over a three-month period (which is an average of 3 per week). He recommended restricting it to 3 **movements** (arrivals and departures) per week because he considered it was possible that all 34 movements could potentially occur in a single week. There were no questions or discussion about why Mr Humpheson recommends the restriction applies to **movements** (i.e. arrivals and departures) rather than just departures as proposed by NZTE.
27. I agree that, in theory, all 34 night-time departures could occur in one week. However, this would be preceded and followed by 12 weeks of no night-time departures. Likewise, under the NZS 6805 approach of averaging aircraft movements over three months, in theory all 3 months' worth of aircraft noise could occur in one week or even one day. But in practice this does not occur and I do not consider it to be realistic possibility. If for some reason it did, there would be no aircraft noise permitted for 89 days preceding and 89 days following this theoretically extraordinary day.
28. I do not agree with Mr Humpheson that it is necessary to protect against the possibility of all 34 departures occurring in one week.
29. NZS 6805 does not recommend controlling aircraft operations on a daily or weekly basis. It recognises that aircraft activity fluctuates and a degree of flexibility is appropriate. General aviation activity tends to fluctuate more than passenger services, as it is more weather dependent. This means that flexibility and allowing for seasonal fluctuation is even more important at general aviation airports. I consider that limiting night-time movements to 3 per week is unnecessarily restrictive.

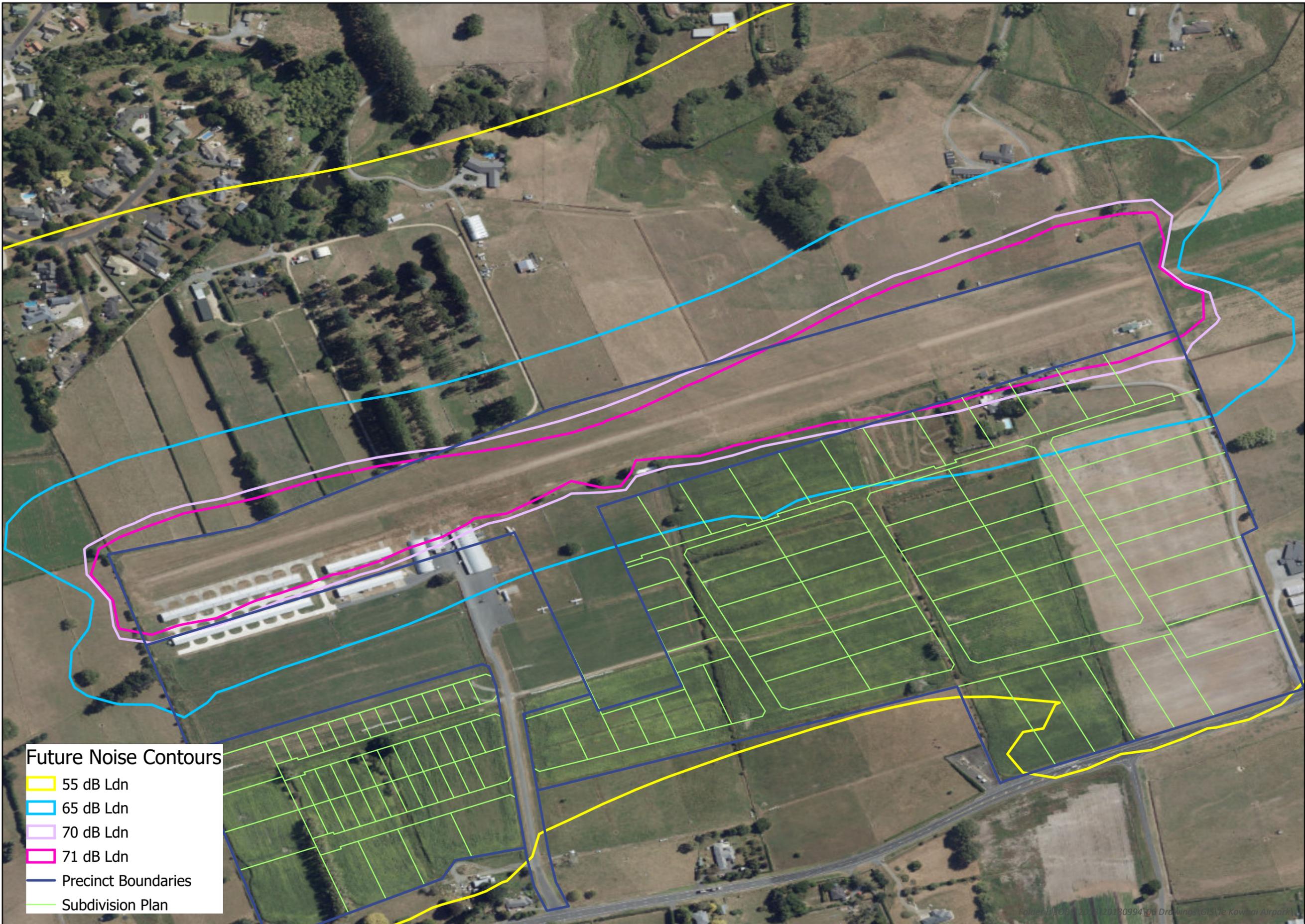
30. I understand from Mr Readman that the provision would primarily be for the summer and shoulder months when the weather is fine. If we consider a realistic situation where potentially all 34 departures occur over 6 fine weeks during summer, this would be 5 to 6 departures per week at night. In my view this more realistic scenario is reasonable and would be balanced by 7 weeks during summer with no night-time departures.

31. With respect to Mr Humpheson applying the restriction to movements rather than departures, I explain in my EIC that general aviation arrivals are appreciably quieter than departures and that the predicted single event levels from arrivals do not warrant a night-time restriction as the risk of sleep disturbance is low⁵.

Dated this 8th day of April 2021

Laurel Smith

⁵ Laurel Smith Evidence in Chief para. [52] and [54]



Future Noise Contours

- ▬ 55 dB Ldn
- ▬ 65 dB Ldn
- ▬ 70 dB Ldn
- ▬ 71 dB Ldn
- ▬ Precinct Boundaries
- ▬ Subdivision Plan