

27 March 2023

Rotorua Regional Airport Limited  
PO Box 7221  
Te Ngae  
Rotorua 3042

**Attention: Ms Jayne Marsh**

Dear Jayne

## **2022 ACTUAL NOISE CONTOURS AND 2023 ANNUAL AIRCRAFT NOISE CONTOURS**

### **Introduction**

Marshall Day Acoustics (MDA) has been engaged to prepare projected and actual noise contours based on movements that occurred in the 2022 financial year (1 July 2021 - 30 June 2022) as per rule Noise-S3.1.a.iii<sup>1</sup> and Noise-S4.1.a<sup>2</sup> of the Reformatted Rotorua District Plan (District Plan).

The 'Actual Noise Contours' (ANC) uses aircraft movements during the busiest three months of the 2022 financial year as these contours represent the actual noise emissions from aircraft operations in FY22 ('2022 ANC'). The purpose of these contours is to assess compliance with the noise boundaries in the District Plan.

The projected contours are termed the 'Annual Aircraft Noise Contours' (AANC) and use the busiest three months of the 2022 financial year, with the projected growth over the next year added to produce the '2023 AANC'. The purpose of these contours is to identify which properties are eligible for acoustic treatment offers under the Noise Mitigation Programme detailed in the District Plan (Noise-S4).

### **Noise Rules**

The noise rules that apply to the airport are contained in Part 2 General District Wide Matters of the Reformatted District Plan (August 2022).

Performance Standard Noise-S3.1.a sets a 65 dB L<sub>dn</sub> noise limit on airport operations outside the Air Noise Area.

Performance Standard Noise-S3.1.a.iii requires the Airport Operator to provide a report detailing the calculated noise levels at the boundary of the Air Noise Area on an annual basis. The noise contours calculated for this rule are based on the actual aircraft activity over the previous twelve months and the purpose of the contours is to assess compliance with the Airport's noise limits.

Performance Standard Noise-S4.1.a requires the preparation of an AANC plan indicating which properties are predicted to lie within the 60 and 65 dB L<sub>dn</sub> contours at a date twelve months from the date of preparation. The contours are based on the busiest three months of the preceding year with the projected growth over the next year added for the purpose of offering acoustic treatment to eligible dwellings.

### **Noise Model Input and Assumptions**

The 2022 ANC and 2023 AANC have been prepared using the Integrated Noise Model (INM) version 6.1 which is the same software used to produce the airport noise boundaries in the District Plan.

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<sup>1</sup> Previously A7.2.1(d)(iii)

<sup>2</sup> Previously A7.4.1

Aircraft movement data for FY22 was provided by the Airport Company. The busiest three consecutive months were November, December 2021 and January 2022 and the aircraft movements from these three months were used to calculate the 2022 ANC.

To calculate the 2023 AANC, the FY23 projected growth has been applied to the 2022 ANC data. To calculate the projected growth, we used a combination of aircraft movements from the last 7 months and projected movements for the next 5 months. These movement numbers were provided by the Airport Company.

The aircraft movement data only includes details of aircraft arrivals to the airport, so it has been assumed that for every arrival a corresponding departure took place.

Runway usage has been estimated based on typical wind patterns resulting in 60% of movements on Runway 18 (on a southerly heading) and 40% on Runway 36 (on a northerly heading). Helicopter movements have also been included in the model and use different flight tracks to fixed wing aircraft.

### Calculated 2022 ANC

Figure 1 shows the calculated 65 dB  $L_{dn}$  noise contour for the 2022 ANC compared with the District Plan Air Noise Area. This figure shows that the 2022 65 dB  $L_{dn}$  contour lies comfortably within the Air Noise Area and therefore aircraft noise complied with the limit.

### Calculated 2023 AANC

Figure 2 shows the predicted 2023 AANC 60 and 65 dB  $L_{dn}$  contours compared with the previous years (2022 AANC). The 2023 AANC are slightly larger than the 2022 AANC, returning to a similar size as the 2021 AANC (see Figure 3).

The purpose of the AANC is to identify whether any new houses are eligible for an offer for acoustic treatment under the 2023 AANC. Aircraft operations and the corresponding noise are gradually returning to pre-pandemic levels. When compared to AANC from pre-pandemic years, the 2023 AANC contours do not contain any new properties. Therefore, it is likely that no new properties are eligible for acoustic mitigation that have not previously received offers.

A digital copy of the 2023 AANC will be provided to Rotorua District Council to identify which properties are eligible that have not previously received an offer.

Yours faithfully

**MARSHALL DAY ACOUSTICS LTD**



**Stephanie King**

**Acoustician**

Enclosed:     Figure 1           2022 Actual Noise Contours  
                  Figure 2           2023 AANC & 2022 AANC 60 & 65 dB  $L_{dn}$





District Plan Air Noise Area  
- - -  
2022 ANC  
65 dB Ldn  
Cadastral Boundaries

Figure 1 - Rotorua Airport 2022 Actual Noise Contour 65 dB Ldn





District Plan Air Noise Area  
 - - -  
 2023 AANC  
 60 dB Ldn  
 65 dB Ldn  
 2022 AANC  
 60 dB Ldn  
 65 dB Ldn  
 Cadastral Boundaries  
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Prepared by: SRK  
 Date: 23/03/2023  
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Figure 2 - Rotorua Airport 2023 Annual Aircraft Noise Contours 60 & 65 dB Ldn





District Plan Air Noise Area  
 - - -  
 2023 AANC  
 60 dB Ldn  
 65 dB Ldn  
 2021 AANC  
 60 dB Ldn  
 65 dB Ldn  
 Cadastral Boundaries  
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Figure 3 - Rotorua Airport 2023 and 2021 Annual Aircraft Noise Contours