

To	NZTE Operations Limited (submitter number #823)
From	Emma Ensor (Senior Planner)
Subject	Pre-hearing points of clarification
File	H14 – Te Kowhai Airpark Zone (hearing in 2020)
Date	14 November 2019

Good morning,

Summary

As the section 42A report author for the Te Kowhai Airpark Zone hearing topic, I have now undertaken an assessment of the relevant original and further submissions in relation to the topic of the Te Kowhai Airpark. This includes the original and further submissions by NZTE Operations Limited.

A number of submitters raise the issues of noise and airport obstacle limitation surface.

Purpose of the Pre-Hearing Information

Without prejudice and for the purposes of my section 42A hearing report, I wish to seek clarification of matters which you have raised in your submission points. This information will be used to further inform consideration of submission points and recommendations by other experts (e.g. noise) and by myself.

Specific Points for Clarification

I require some GIS information to assist with analysing original submission and further submission points.

Can you please provide me by email with the following:

- I) Shape files with embedded XYZ coordinates in NZTM 2000 Coordinate reference system for
 - (a) the Obstacle Limitation Surface as proposed under the Proposed District Plan (as notified),
 - (b) the Obstacle Limitation Surface as is shown in the Operative District Plan,
 - (c) Figure 1 – Te Kowhai Airpark Predicted Future Noise Contours for Aircraft Operations as shown in the Marshall Day Acoustics report (dated 8 October 2018) appended to your original submission.

- (d) Figure 3 - Proposed Te Kowhai Airpark Noise Control Boundaries as shown in the Marshall Day Acoustics report (dated 8 October 2018) appended to your original submission.
- (e) Figure 4 - Te Kowhai Airpark Future Noise Contours for Acoustic Insulation as shown in the Marshall Day Acoustics report (dated 8 October 2018) appended to your original submission.

Timeframes for Information

I would appreciate this information being provided to me as soon as possible to further inform consideration of submission points and recommendations.

If you have any questions regarding this memo, please contact me either by phone on 07 824 8633 ext. 5889 or by email on emma.ensor@waidc.govt.nz

Regards

A handwritten signature in black ink, appearing to read 'Emma Ensor', with a stylized flourish to the left.

Emma Ensor
Senior Planner

To	NZTE Operations Limited (submitter number #823)
From	Emma Ensor (Senior Planner)
Subject	Pre-hearing points of clarification
File	H17 – Te Kowhai Airpark Zone (hearing in 2020)
Date	8 January 2020

Good afternoon,

Summary

As the section 42A report author for the Te Kowhai Airpark Zone hearing topic, I have now undertaken an assessment of the relevant original and further submissions in relation to the topic of the Te Kowhai Airpark. This includes the original and further submissions by NZTE Operations Limited.

A number of submitters raise issues in relation to the airport obstacle limitation surface.

Purpose of the Pre-Hearing Information

Without prejudice and for the purposes of preparing my section 42A hearing report, I wish to seek clarification in relation to the Proposed Airport Obstacle Limitation Surface. This information will be used to further inform consideration of submission points and recommendations by other experts and by myself.

Clarification requested

The Proposed District Plan in Appendix 9 Te Kowhai Airfield Precincts Zoning Section 3 provides written details on Obstacle Limitation Surfaces.

The Proposed District Plan map for the Te Kowhai area is supposed to show a partial visual representation of the obstacle limitation surface through the relevant Proposed District Plan map layer.

Upon review of the Proposed District Plan obstacle limitation surface map layer against the text in section 3 of Appendix 9, it appears that the Proposed District Plan obstacle limitation surface map layer may be mapped incorrectly with respect to the location of the approach surface starting point locations.

The approach surface starting point locations are supposed to be located “at the end of the runway strip”. However, the Proposed District Plan map at present may in fact be showing the approach surface starting points at the ends of the runway, rather than at the ends of the runway strip.

Can you please review the Proposed District Plan airport obstacle limitation surface as currently mapped and review the appropriate text within Appendix 9 of the Proposed District Plan?

I would be grateful for your comments, including on these points:

- 1) Whether or not the text in Appendix 9 in the Proposed District Plan relating to the Obstacle Limitation Surface is worded as originally intended during district plan development.
- 2) Whether or not the Obstacle Limitation Surface as currently mapped on the Proposed District Plan map is mapped correctly to reflect the Appendix 9 wording.
- 3) Whether or not the approach and take-off surface starting points have been correctly mapped on the Proposed District Plan map.

If the Proposed District Plan airport obstacle limitation surface as currently mapped is incorrect, then can you please provide me by email with the following:

- 1) Shape files with embedded XYZ coordinates in NZTM 2000 Coordinate reference system for the correct locations of the Obstacle Limitation Surface as proposed under the Proposed District Plan (as notified).

For each shapefile we need the following file extensions too (to go with the .shp):

.dbf
.prj
.sbx
.shx

Timeframes for Information

I would appreciate this information being provided to me as soon as possible to further inform consideration of submission points and recommendations and so that further GIS analysis work can be undertaken as soon as possible.

If you have any questions regarding this memo, please contact me either by phone on 07 824 8633 ext. 5889 or by email on emma.ensor@waidc.govt.nz

Regards



Emma Ensor
Senior Planner

MEMORANDUM

To | NZTE Operations Limited (submitter number #823)
From | Emma Ensor (Senior Planner)
Subject | Pre-hearing points of clarification regarding aircraft noise
File | H17 – Te Kowhai Airpark Zone (hearing in 2021)
Date | 20 October 2020

Good afternoon,

Purpose of the Pre-Hearing Information

Without prejudice and for the purposes of preparing my section 42A hearing report, I wish to seek clarification in relation to the aircraft noise information that you provided as part of your submission on the Proposed Waikato District Plan (PDP).

Clarification requested

Noise information provided as part of your submission on the PDP, was provided to Tonkin and Taylor noise specialists for review and comments on behalf of Waikato District Council. Tonkin and Taylor noise specialists have raised matters about the noise modelling that was undertaken, and figures attached to Appendix B – Marshall Day report. Please refer to the attached memo from Tonkin and Taylor.

You will see that the air noise boundary and the outer control boundary are different between the Marshall Day modelling and the Tonkin and Taylor modelling. Tonkin and Taylor indicate information needed to directly compare the two sets of contours. If you have that information, I would be interested to receive it and pass it on to Tonkin and Taylor for their further consideration.

On the information currently available, I am likely to recommend to the Hearings Panel that the Tonkin and Taylor noise contours be adopted in the PDP, in preference to the Marshall Day modelling. My reason is that the Tonkin and Taylor approach will avoid unnecessary constraints on land use. If you wish to comment on this now, I will include your comments in my report.

Timeframes for Information

I would appreciate any comments being provided to me as soon as possible (by no later than 4 November 2020) to further inform consideration of submission points and S42A report recommendations.

If you have any questions regarding this memo, please contact me either by phone on 027 206 4374 or by email on emma.ensor@waikato.govt.nz

Regards



Emma Ensor
Senior Planner

Memo

To:	Emma Ensor	Job No:	1013185
From:	Darran Humpheson	Date:	15 October 2020
Subject:	Te Kowhai Airpark airnoise contours		

Tonkin & Taylor Ltd (T+T) has undertaken an assessment of aircraft noise on behalf of Waikato District Council as part of their district plan review. T+T has modelled aircraft noise contours of the Te Kowhai Airpark as part of the review process.

T+T has reviewed the consultant advice note (CAN) prepared by Marshall Day Acoustics (MDA) dated 8 October 2018 that presented new airnoise boundaries based on a future forecast of aircraft operations. The MDA CAN provides the necessary input data to enable aircraft noise contours to be generated:

- Generic aircraft types and number of movements based on a busy average day;
- Flight tracks and runway modal usage;
- Daytime operations only (0700-2200);
- Noise model assumptions including runway dimensions (also taken from the NZ AIP); and
- Taxiing operations

We understand that MDA has used INM 7.0d to calculate the noise contours.

T+T has produced noise contours using the information in the MDA CAN using AEDT 3c but has not included taxiing operations. Taxiing operations would only generate a small noise effect close to the taxiways and was not included due to the uncertainties in the location of taxiways and the assignment of aircraft to individual taxiways.

The resulting noise contours generated by T+T are attached at Enclosure 1. Although the general shape of the MDA and T+T contours are similar, the MDA contours extend further from the runway centreline and do not extend as far from each runway threshold. These differences will not be affected by the omission of taxiing noise but are rather based on the aircraft noise and performance assumptions made for the modelled aircraft. The aircraft types used by T+T are provided at Enclosure 2.

T+T has modelled identical numbers of aircraft for each generic category and identical flight paths. The influence of touch and go movements for the Ldn 65 and 55 contours is limited to the approach and departure segments of the circuit and not the downwind segment of the circuit.

To directly compare the two sets of contours MDA should confirm the exact aircraft types used and the noise and performance (flight profile) data, i.e. whether the standard INM flight profiles have been used or whether modified flight profiles have been generated (if this is the case they should provide the individual steps of each profile for validation purposes). T+T has used the standard flight profiles within AEDT.

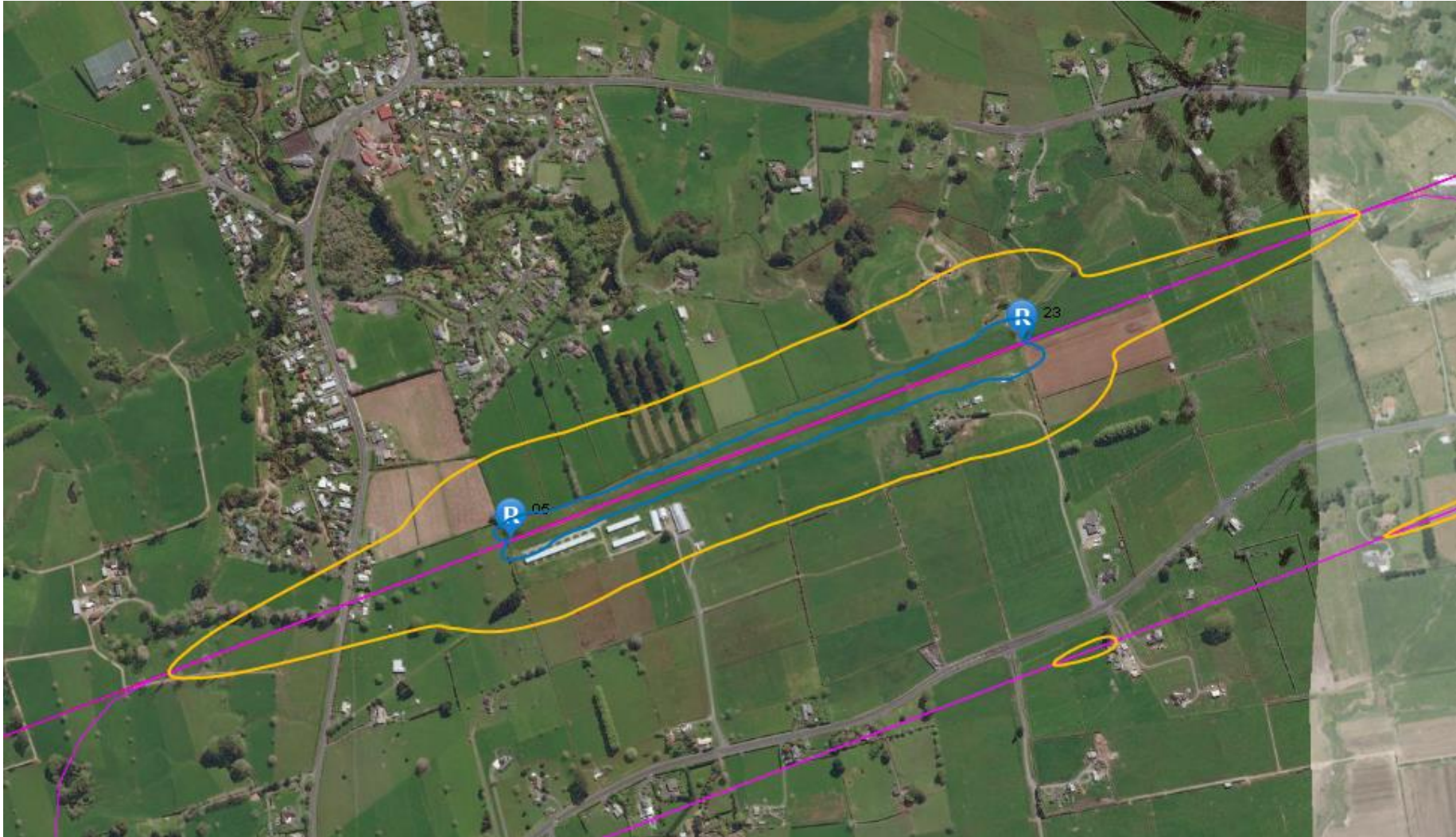
Enclosure 1: T+T Te Kowhai Airpark Ldn 55 and 65 dB contours

Enclosure 2: AEDT aircraft types

15-Oct-20

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Enclosure 1 – Airnoise boundary 65 dB Ldn and outer control boundary 55 dB Ldn



Enclosure 2 – AEDT T+T aircraft operations

User ID	Airframe	Engine	Engine Mod	Operation Type	Stage Length	Profile	Profile Type	Track
hobby flight training	Cessna 140 (FAS)	O200	NONE	Arrival	1	STANDARD	ANP	05A
hobby flight training	Cessna 140 (FAS)	O200	NONE	Arrival	1	STANDARD	ANP	23A
hobby flight training	Cessna 140 (FAS)	O200	NONE	Departure	1	STANDARD	ANP	05D
hobby flight training	Cessna 140 (FAS)	O200	NONE	Departure	1	STANDARD	ANP	23D
hobby flight training	Cessna 140 (FAS)	O200	NONE	Touch and Go	1	STANDARD	ANP	05C-RH
hobby flight training	Cessna 140 (FAS)	O200	NONE	Touch and Go	1	STANDARD	ANP	23C-LH
High Use Commercial	Cessna 206	TIO540	TIO-540-AJ1A	Arrival	1	STANDARD	ANP	05A
High Use Commercial	Cessna 206	TIO540	TIO-540-AJ1A	Arrival	1	STANDARD	ANP	23A
High Use Commercial	Cessna 206	TIO540	TIO-540-AJ1A	Departure	1	STANDARD	ANP	05D
High Use Commercial	Cessna 206	TIO540	TIO-540-AJ1A	Departure	1	STANDARD	ANP	23D
Moderate use commercial / flight school / private residents	Cessna 441 Conquest II	TPE10A	NONE	Arrival	1	STANDARD	ANP	05A
Moderate use commercial / flight school / private residents	Cessna 441 Conquest II	TPE10A	NONE	Arrival	1	STANDARD	ANP	23A
Moderate use commercial / flight school / private residents	Cessna 441 Conquest II	TPE10A	NONE	Departure	1	STANDARD	ANP	05D
Moderate use commercial / flight school / private residents	Cessna 441 Conquest II	TPE10A	NONE	Departure	1	STANDARD	ANP	23D
Moderate use commercial / flight school / private residents	Cessna 441 Conquest II	TPE10A	NONE	Touch and Go	1	STANDARD	ANP	05C-RH
Moderate use commercial / flight school / private residents	Cessna 441 Conquest II	TPE10A	NONE	Touch and Go	1	STANDARD	ANP	23C-LH

Memo

To:	Emma Ensor	Job No:	1013185
From:	Darran Humpheson	Date:	30 October 2020
Subject:	Te Kowhai Airfield airnoise contours		

Tonkin & Taylor Ltd (T+T) has undertaken an assessment of aircraft noise on behalf of Waikato District Council as part of their district plan review. T+T has modelled aircraft noise contours of the Te Kowhai Airfield as part of the review process and compared these contours against those provided by Marshall Day Acoustics (MDA) in their consultant advice note (CAN) dated 8 October 2018.

MDA provided their noise model's input in a spreadsheet on 23 October 2020. T+T received this information from WDC on 27 October 2020 and have used this information to generate new contours using AEDT 3c aircraft noise modelling software.

We can confirm that on the basis of the MDA input data near identical contours have been produced to those in the MDA CAN using standard flight profiles. The additional noise contribution from taxiing aircraft has a minimal effect on the size and shape of the contours.

The differences relate to the choice of aircraft in T+T's original noise model and those provided by MDA:

Item	MDA model	T+T model	Use	% of daily movements
1	General Aviation Fixed Pitch Prop – Generic aircraft type (GASEPF)	Cessna 140	Hobby flight training	~5%
2	General Aviation Variable Pitch Prop – Generic aircraft type (GASEVF)	Cessna 441 – twin prop	Moderate use commercial / flight school / private residents	~65%
3	Cessna 206	Cessna 206	High Use Commercial	~30%

The choice of variable pitch propellor aircraft (Item 2) is the reason why the T+T contours are smaller than those in the MDA CAN (in addition to accounting for about ~65% of daily movements).

The T+T choice of aircraft is recognised to be quieter than a generic piston engine aircraft (GASEVF) and is representative of more modern aircraft which generate less noise when taking off and landing. As the Te Kowhai Airfield air noise boundary (ANB) needs to represent a likely future noise situation it is reasonable to assume that aircraft will be updated in the future and it is likely that quieter aircraft will replace older and hence noisier aircraft. However if this is not the case then the ANB should be based on the aircraft assumptions provided by MDA.

From T+T's experience of general aviation operations, non-commercial use aircraft are not generally replaced as frequently as aircraft used for commercial purposes. As residential use of aircraft accounts for approximately 42% of the variable pitch type of aircraft, they will still influence the

overall noise level and replacing the commercial use element with a quieter variable pitch aircraft will not result in a significant reduction in the size and shape of the ANB.

Without further breakdown of actual and future aircraft types at Te Kowhai Airfield we are reliant on the aircraft assumptions provided by MDA but do note that the contours are likely to over-estimate the degree of aircraft noise around the airfield.

30-Oct-20

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Enclosure 1 – Airnoise boundary 65 dB Ldn and outer control boundary 55 dB Ldn (T+T original – blue contours and MDA assumptions yellow/orange)

