

APPENDIX B

ACOUSTICS

25 March 2020

Waikato District Council
Private Bag 544
Ngaruawahia 3742

Attention: Michelle Carmine

Dear Michelle

TE KOWHAI VILLAGE COMMERCIAL DEVELOPMENT - PEER REVIEW

INTRODUCTION

Waikato District Council has engaged Marshall Day Acoustics to carry out a peer review of the acoustic assessment forming a part of the Te Kowhai Village commercial development. The subject site is located at 561 Horotiu Road, Waikato.

Our involvement to date has consisted of reviewing the original Earcon acoustic assessment (dated May 2019), the revised acoustic assessment (dated August 2019) and a separate letter response (dated October 2019).

This letter details our reply to the Earcon letter dated 24 October 2019.

THE MEASURED AMBIENT SOUND ENVIRONMENT

We note that with the exception of 571 Horotiu Road (we understand the owners / occupiers have now given written approval to the application) Earcon state that the site's activities will comply with the daytime noise limit of 50dB L_{A10} . We consider the site would generate sound similar to or less than the average daytime background level measured by Earcon i.e. about 44dB L_{90} .

We acknowledge that the average daytime ambient level measured by Earcon is about 59dB L_{A10} and is controlled by traffic movements on Horotiu Road. By comparing these measured levels against Earcon's site predictions, we see that road noise would be considerably louder. We are therefore satisfied that the effects of daytime operation would be reasonable.

For the evening period we cannot make the same comparison. This is because the original and revised acoustic reports do not include noise measurements in this period. It is apparent that Earcon are unwilling to measure in this period given they state that:

"...we do not believe evening noise level measurements will result in any meaningful results relative to the measurements conducted during the day..."

However, they do acknowledge that:

"For rural areas, a similar variation [of 15dB between daytime and night-time road noise levels] has been observed, however, we note that during the night-times other sources of noise, e.g. crickets in summer and wind related noise".

We consider Earcon to have overestimated the busyness (and by extension the level of sound generated by traffic) of Horotiu Road in the evening period¹. It is a collector road in a rural area. The NZTA defines this road type as "In rural areas, minor roads linking smaller rural communities to the arterial network". Therefore, we

¹ According to www.mobileroad.org Horotiu Road has an annual average daily traffic flow of 4260vpd of which 4% are trucks. The majority of vehicle flow would be during daytime hours, with flows in the evening and night-time periods significantly reducing. This would result in significantly lower background noise levels

are of the opinion that the evening noise level is likely to drop off considerably from daytime levels and, given that the activity proposes to operate in this period, we consider measurements to be necessary.

We therefore kindly request an evening background sound level measurement at Position 3.

Earcon acknowledges that there can be significant differences between daytime and night-time noise levels (up to 15dB as noted above) and, given that the development proposes to operate mechanical plant in the night-time no more than 10m from the site boundary shared with 557 Horotiu Road with no mitigation in place, we consider it essential to ascertain the night-time background sound environment via measurement at Position 3.

PREDICTED OPERATIONAL NOISE

We have reviewed the revised predictions which now provide a breakdown of noise from individual categories: Vehicles, Plants (we assume this refers to refrigeration and HVAC), Takeaway and of course the cumulative level. The revised predictions still do not predict noise in the night-time period based on the operation of refrigeration plant associated with the superette and possibly the takeaway (the takeaway is highly likely to operate a refrigerator given perishable food will be stored on site). Therefore, the potential for night-time noise effects is still unknown.

Please provide commentary around predicted night-time noise levels at the boundary with 557 Horotiu Road, compliance and level of effects.

The eastern boundary of the development adjoins Lot 4000 DP 527122 which is zoned Living Country in the operative District Plan. Please provide commentary on compliance with Rule 25.19.17.1 in all prescribed timeframes.

BEST PRACTICABLE OPTION

Section 16 of the Resource Management Act states:

“Every occupier of land...and every person carrying out an activity... shall adopt the best practicable option to ensure that the emission of noise... does not exceed a reasonable level”.

With s16 in mind can Earcon please provide commentary on how the proposed development has adopted best practicable option (BPO) into the design and operation of the activity. Specific commentary around potential BPO mitigation options along the boundary with 557 Horotiu Road and Lot 4000 DP 527122 is requested.

SUMMARY

The following is requested:

- Undertake background sound level measurements at Position 3 in the evening and night-time periods
- Provide commentary around predicted night-time noise levels at the boundary with 557 Horotiu Road and Lot 4000 DP 527122, compliance and level of effects
- Provide commentary on how the proposed development has adopted BPO into the design and operation of the activity

Yours faithfully

MARSHALL DAY ACOUSTICS LTD

Mat Cottle

Associate

22 July 2019

Waikato District Council
Private Bag 544
Ngaruawahia 3742

Attention: Victoria Majoor

Dear Victoria

TE KOWHAI VILLAGE COMMERCIAL DEVELOPMENT - PEER REVIEW

INTRODUCTION

Waikato District Council has engaged Marshall Day Acoustics to carry out a peer review of the acoustic assessment forming a part of the Te Kowhai Village commercial development. The subject site is located at 561 Horotiu Road, Waikato.

The following details:

- our review of both the acoustic report prepared by Earcon Acoustics Limited (Earcon) dated May 2019 ('the report'), and;
- our conclusion regarding noise effects on nearby receivers.

In addition to referencing the report prepared by Earcon, our review has been carried out with reference to the following:

- The Resource Management Act 1991 (RMA)
- New Zealand Standard NZS 6801:2008 "Acoustics – Measurement of environmental sound"
- New Zealand Standard NZS 6802:2008 "Acoustics - Environmental Noise"
- Operative Waikato District Plan
- Proposed Waikato District Plan

RELEVANT ZONING AND NOISE PERFORMANCE STANDARDS

The report correctly identifies the relevant planning zone for the subject site and surrounding receiver sites.

The report correctly identifies Rule 25.19.17.1 from the Operative Waikato District Plan (ODP) as the relevant noise performance standard.

Presently the Waikato District Proposed District Plan (PDP) is in the further submissions stage. It has no legal weight at this point. The report does not discuss the PDP zoning or rules in their 'Section 2 Design Criteria – Waikato District Plan'. However, the report does later reference it in Para 5 of Section 5.1.1 Carpark Noise and Section 6 Conclusion.

EXISTING NOISE ENVIRONMENT BASELINE

We note that measurements of the existing noise environment were not undertaken by Earcon. The assessment instead relies upon compliance with the ODP zone limits.

The report does not comment on the potential effects of noise. However, the Terra consultants '*Land use consent application*' dated 17 May 2019 (to which the report is appended) states that the report '*determine{s} acoustic effects*' and that the report concludes that '*the overall effects will be less than minor*'.

This is an incorrect assertion by Terra consultants. Terra consultants also state that the noise level will *'fall within the permitted baseline of noise effects and can therefore be considered to be less than minor'*.

The approach of assessing the limits only and not establishing the existing ambient acoustic environment may overlook potential adverse effects.

As such, **we request that existing background noise levels be measured and reported by Earcon** for completeness and so that we may reach a conclusion regarding effects.

OPERATIONAL NOISE

In predicting noise levels for the proposal as detailed in the report, Earcon has assumed:

- Operation/activity between 7am and 10 pm (falling within the ODP daytime and evening periods 7am to 7pm and 7pm to 10 pm respectively)
- The building envelope sound insulation performance
- 186 Vehicles during the peak hour and no more than 2 trucks in any given hour
- A per item sound power 'limit' for central roof top plant (78 dB L_{Aw}) and ground level plant (71 dB L_{Aw}), but not the number of plant items
- A level of 65 dB L_{A10} from 'people and the outdoor seated area of the takeaway'
- Rubbish collection will only occur in the daytime period (between 7am and 7pm)
- 1.8m high 'acoustic fencing' along the southern site boundary

Building Envelope Sound Insulation

The report assesses the sound insulation of the building envelope. Whilst there is detail on the assumed constructions and their sound insulation performance, no information is provided on assumed internal noise levels.

Furthermore, a predicted level from noise within the building(s) is not provided so we are unable to check the calculated performance.

Regardless, our experience is that the types of commercial activities proposed are unlikely to generate internal noise levels that warrant any particular attention to mitigation (beyond that provided by a typical building envelope construction).

Site Vehicle Movements

The report assumes 186 vehicles during the peak hour and no more than 2 trucks in any given hour.

The report does not state the number of vehicles that are expected over each period (daytime/evening). However, the levels from peak hour are usually the determining factor.

No predicted level from vehicle movements (peak hour or average over the day) is provided.

Our own predictions, based on the information provided, indicate this noise source would be generally compliant with the daytime and evening limits.

Mechanical Services Noise

The report provides a requirement that the mechanical services be designed/selected to make no more than a certain sound power level, dependent upon location.

No predicted noise levels from mechanical services is provided in the report. As with all the other noise sources only a cumulative noise level has been provided.

Our own predictions, based on the information provided, indicate mechanical services (without screening) would likely be compliant with the daytime limits. However, the evening limit of 45 dB L_{A10} may be exceeded

based on the sound power levels detailed in the report. Screening or quieter units would therefore be necessary.

There is no discussion in the report with respect to mechanical services in the night period, such as refrigeration plant for the superette. We would expect that such an activity would require services that operate in the night-time period and would need to be appropriately addressed. This is typically achieved by sensible selection and practicable mitigation (attenuators and screening) when necessary.

Patron Noise

The report assumes a level of 65 dB L_{A10} from 'people and the outdoor seated are of the takeaway'. The assumed number of people is not specified.

No predicted noise levels from patrons is provided. As with all the other noise sources only a cumulative noise level has been provided.

Based on our experience a level of 65 dB at the perimeter of the outdoor seating area (and compliance with 45 dB at the closest boundary) would occur provided there were around 10-20 people congregated, conversing at a normal speaking voice level.

Rubbish Collection

The report requires rubbish collection to occur in the day time period.

No specific predicted noise level from rubbish collection is provided.

Based on our experience compliance with the daytime limit of 50 dB L_{A10} at the closest receiver on the adjacent lot to the south would likely occur provided there was a barrier (as specified in the report).

Cumulative Noise

The report provides predicted cumulative noise levels at the neighbouring properties. The predicted levels stated comply with the daytime and evening period noise limits without any averaging applied.

We have carried out our own predictions based on the information provided to corroborate Earcon's predicted levels. Despite a lack of lucid detail on each contributing noise source, we consider that Earcon's predicted cumulative noise levels are plausible.

CONCLUSION

The Earcon report concludes that *'the noise levels generated by the proposed commercial activity will comply with the district plan noise limits provided recommendation on (sic) this report are applied'*.

The report does not comment on the potential effects.

Based on the information provided to date, we concur that the proposed activity would likely comply with the ODP limits, however, we cannot reach a conclusion regarding potential effects on neighbouring sites. We therefore request the further information set out above.

We would be happy to review draft consent conditions as required.

Yours faithfully

MARSHALL DAY ACOUSTICS LTD

James Bell-Booth

Acoustician

Jessica Thomas

From: Chris Dillon <chris.dillon@terrargroup.co.nz>
Sent: Tuesday, 21 April 2020 9:26 am
To: Michelle Carmine
Subject: RE: Te Kowhai Retail Noise: Response to Marshall Day

Hi Michelle

Thanks for that. I think the change from slatted to solid fencing around the service areas of each tenancy will be ok, as they are setback from the rear boundary, and because of the presence of the proposed 1.8m timber fence that will be erected along the northern and eastern boundaries as set out in the Landscape Plans, effectively screening the service areas from view from most vantage points outside the site.

Kind regards

Chris

CHRIS DILLON
SENIOR PLANNER
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From: Michelle Carmine
Sent: Tuesday, 21 April 2020 9:10 am
To: Chris Dillon
Subject: FW: Te Kowhai Retail Noise: Response to Marshall Day
Importance: High

Hi Chris,

Please see attached recommendations in relation to Acoustics. As you have provided the written approval from the owner of 571 I don't consider the acoustic fence would be necessary and would conflict with the overall landscape treatments proposed. Could you please look into the recommendation around BPO for each outdoor service area and whether this is something you want to implement when balancing with visual outcomes sought from the rear of the site.

Kind Regards
Michelle Carmine

From: Mat Cottle <Mat.Cottle@marshallday.co.nz>
Sent: Monday, 20 April 2020 5:03 PM
To: Michelle Carmine <michelle@elementplanning.co.nz>
Subject: RE: Te Kowhai Retail Noise: Response to Marshall Day
Importance: High

Hi Michelle

Attached is our response. Summary is that we have sufficient information to conclude that no adverse effects will result. However, we do make several recommendations to ensure this is the case.

Let me know if any questions.
Mat

Mat Cottle



405/24 Garden Place, Hamilton
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From: Michelle Carmine <michelle@elementplanning.co.nz>
Sent: Wednesday, 15 April 2020 2:58 PM
To: Mat Cottle <Mat.Cottle@marshallday.co.nz>
Subject: FW: Te Kowhai Retail Noise: Response to Marshall Day [Filed 16 Apr 2020 14:30]

Hi Mat

The response attached in regards to the request for background measurements for the Te Kohwhai Retail complex. Let me know whether this enables you to complete your final recommendations or whether they need to just wait until after the lockdown and do the background measurements then?

Regards
Michelle

From: Chris Dillon <chris.dillon@terrargroup.co.nz>
Sent: Wednesday, 15 April 2020 1:29 PM
To: Michelle Carmine <michelle@elementplanning.co.nz>
Subject: Te Kowhai Retail Noise: Response to Marshall Day

Hi Michelle

Please find attached the response of the acoustic consultant to the Marshall Day review.

Kind regards

CHRIS DILLON
SENIOR PLANNER
BEP (Hons), MScPFI



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022 509 9562



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