

MEMO

Project:	Wainuiomata Cleanfill	Document No.:	Mm 04		
To:	Hutt City Council	Date:	20 November 2020		
Attention:	Pavarti Rotherham	Project No.:	20190425		
From:	Steve Arden	No. Pages:	4	Attachments:	No
Subject:	Noise Survey - Peer Review				

INTRODUCTION

Consent for an expansion to a Cleanfill site located at 130 Coast Road in Wainuiomata was granted in 2019. For full details of the consent, refer to the document RM190050, issued by Hutt City Council (“HCC”).

As part of that consent, conditions exist which relate to the monitoring of noise from the site at three month intervals. Noise monitoring has been carried out by Tonkin and Taylor (“T+T”) who has subsequently provided noise monitoring reports to HCC.

HCC has engaged at Marshall Day Acoustics to carry out a peer review of the T+T report titled “*Wainuiomata Cleanfill – Detailed Noise Monitoring Report 29 September 2020*”, dated 29 October 2020. For the remainder of this document, this will be referred to as the T+T Report.

The purpose of the review is to ensure that the assessment has been correctly carried out in accordance with the standards referenced in the consent conditions.

This document (Mm 04 20190425) should be read in conjunction with the T+T Report.

CONSENT CONDITIONS

The following consent conditions, as set out in RM190050, relate to noise.

The condition most relevant to this review is Condition 12. This sets out the noise limits for the activity, and the assessment methodology to be used.

12. Noise from any cleanfill deposition activities (excluding emergency and construction works) shall not exceed the following levels when measured at or within the notional boundary of any dwelling existing at the time the consent is granted:
 - a. Monday to Friday (excluding public holidays) 7.30 am to 5.00 pm – 50 dB LAeq
 - b. Saturday (excluding public holidays) 7.30 am to 12.00 pm – 50 dB LAeq
 - c. All other times - 40 dB LAeq
 - d. 10.00 pm to 7.00 am (all days) – 75 dB LAfmax

Notes:

For the purpose of monitoring all sound levels shall be measured in accordance with NZS 6801:2008 “Acoustics – Measurement of environmental sound” and be assessed in accordance with NZS 6802:2008 “Acoustics – Environmental Noise”.

The notional boundary is defined as a line 20 metres from the façade of a dwelling or the legal boundary of the site where this is closer to the dwelling.

13. Site construction activities³ shall be assessed (and measured where appropriate) in accordance with NZS 6803: 1999 "Acoustics - Construction Noise".

Note:

A description of construction activities will be included within the SMP.

14. The consent holder shall notify the *Team Leader, Resource Consents, Hutt City Council* and members of the CLG of any construction activities taking place and their expected duration, at least five (5) working days prior commencement of those activities.
15. The Noise Management Plan (NMP) prepared by Tonkin and Taylor Ltd (dated November 2017) shall be updated within two (2) months of approval of this resource consent. Any subsequent changes to the operation of the cleanfill relevant to noise generation will require a review of the NMP and any amendments shall be sent to the Team Leader Resource Consents for approval. The ongoing operation of the cleanfill shall be in accordance with the approved NMP.
16. The Consent holder shall undertake noise monitoring of the cleanfill within 30 days of work commencing within Stage 3 and thereafter at three (3) month intervals unless otherwise agreed by the Team Leader Resource Consents, Hutt City Council. All noise monitoring results shall be made available to Hutt City Council within two weeks of completion of each monitoring visit.

TECHNICAL REVIEW

The T+T Report uses the noise measurements they have carried out in order to determine a Rating Level. As defined in NZS 6802:2008, the Rating Level should be used for comparison with a noise limit. In summary, the T+T Report determines that compliance with the consent conditions can be achieved subject to limiting truck movements and other activities on site.

The focus of the T+T report is on assessing compliance at 199 Coast Road. This assessment location is the closest dwelling to the subject site. This therefore would be the location of the highest risk of non-compliance.

We have reviewed the analysis as set out in the T+T Report and identified some areas where we consider that NZS 6802:2008 has not been interpreted correctly. These are outlined below:

Overview of Rating Level

As per 6.1.2 of NZS 6802:2008, the rating level is derived using a standardised interval of 15-minutes. A different time interval may be used if a consent condition specifies a reference interval different from 15 minutes (6.2.4 of NZS 6802:2008). For this project, the condition does not specify a time interval and therefore 15 minutes should be used as the reference time interval.

Review of T+T Analysis

We have only commented on items where we consider that the Standard has been interpreted incorrectly, or insufficient information has been provided. The headings below are in direct reference to the parameter descriptions used in the T+T Report.

Where noise levels have been reported, we have rounded numbers to the nearest integer.

Parameter: Detailed Method

The T+T analysis has determined a representative noise level for truck movements using the $L_{Aeq(15min)}$ data measure. No information on the noise level from the other plant has been provided under this parameter description but has been included under the parameter heading 'Measured Levels'.

Under the Detailed Method parameter, the T+T Report states that the bulldozer/loader may be used for a continuous 15-minute period. Based on the T+T measurements, the representative noise levels, received at 199 Coast Road, used in the detailed method, depending on the activity occurring, is therefore as follows:

- Trucks 53 dB $L_{Aeq(15mins)}$
- Front end loader 54 dB $L_{Aeq(15mins)}$
- Bulldozer 65 dB $L_{Aeq(15mins)}$

Where all the above are occurring simultaneously, the representative noise level would still be 65 dB $L_{Aeq(15mins)}$ as this would be the dominate source of activity noise.

It is clear from the noise data that the bulldozer is significantly noisier than all other equipment on the site. Therefore, for the detailed assessment, the representative noise level should be 65 dB $L_{Aeq(15mins)}$, received at 199 Coast Road.

Parameter: Characteristics

The T+T Report states that “no equipment was judged to have a distinct tonal sound therefore the +5 dB Special Audible Characteristic (SAC) penalty is not applied”.

The T+T Report also notes that “tailgate slamming are distinct and unpleasant, however, due to the very short duration of these impulsive events the contribution to the 15-minute or daily L_{Aeq} values is not significant, and placing a 5 dB SAC penalty would not be a suitable way to treat the impulse noise.”

The application of a penalty for SAC is not dependent on whether or not it contributes to the L_{Aeq} value. A penalty is included where a community may have adverse response to a sound. Section CB4.1 of NZS6802:2008 states that “Special audible characteristics may be: Impulsive, for example, bangs or thumps”. This is consistent with tailgate slams. In our opinion, a SAC penalty should be applied where tailgate slams are frequent, as it is an impulsive noise.

In respect of the tailgate slams, the report states “Noises such as these should be controlled with a management approach to minimise occurrences. This is a requirement is already detailed in the site’s noise management plan.”

From our discussions with the Council, we understand that tailgate slams are a common occurrence at this site. Therefore, the noise management plan prepared for use on this site is not being implemented as intended. This means the activity is not meeting Condition 15 of the consent which requires the operation to be in accordance with the NMP.

Parameter: Duration

The report calculates that the average noise level over the operational hours of the Cleanfill (a total of 9.5 hours) is 54 dB $L_{Aeq(9.5hrs)}$. This is 11 dB below the representative noise level.

When determining a Rating Level in accordance with NZS 6802:2008, a duration correction of 11 dB cannot be applied. The maximum adjustment value specified in Table 2 of NZS 6802:2008 is 5 dB. This Table is reproduced below.

Table 2 – Duration adjustments

Percentage duration of specific sound in the prescribed time frame	Adjustment value
Less than 80%	1 dB
Less than 60%	2 dB
Less than 50%	3 dB
Less than 40%	4 dB
Less than 30%	5 dB

Section 6.4.6 of NZS 6802:2008 allows for a correction over a longer duration where the sound reduces significantly for large periods of time, but the sound does not switch off completely. In these cases, “..the

energy average of the sound under investigation may be calculated over the prescribed time frame. The rating level shall be the greater of this average value or the representative level over the reference time interval – 5 dB.¹

In simple terms, this means that the representative noise level cannot exceed a noise limit by more than 5 dB.

In this case, the rating level would be the representative noise level (65 dB $L_{Aeq(15mins)}$) minus 5 dB, which gives a rating level of 60 dB $L_{Aeq(15mins)}$.

The T+T Report details how restrictions of truck movements on the site and of plant use (loader and dozer) can enable compliance with the noise limits. We acknowledge that reducing equipment use would reduce noise levels averaged over a whole day. However, this would not enable compliance with the consent conditions, as discussed above.

SUMMARY

We have reviewed the T+T Report, and specifically, how they have implemented the detailed assessment methodology of NZS 6802:2008. We are of the opinion of that the rating level has not been determined correctly. Our main concerns are as follows:

- The representative noise level not been correctly determined.
- A duration adjustment of more than 5 dB has been applied. This is not in accordance with NZS 6802:2008 (either in Sections 6.4.3 or 6.4.6).
- No allowance has been made for SAC from tailgate slams. These are likely to provoke an adverse response from the community. T+T assumes that control of this noise is best dealt with a noise management plan.

Based on the information provided, our analysis concludes that at 199 Coast Road, the noise limits of Consent Condition 12 are exceeded. This exceedance is either 10 dB, or 15 dB if a penalty for SAC is applied.

We previously reviewed a draft version of the noise management plan which includes the item “*Do not slam tailgates*”. From our discussions with the Council, the slamming of tailgates is a frequent occurrence at this site. If this is the case, then Consent Condition 15 is not being complied with.

¹ NZS 6802:2008, 6.4.6