

MEMO

<b>Project:</b>	Wainuiomata Cleanfill	<b>Document No.:</b>	Mm 05		
<b>To:</b>	Hutt City Council	<b>Date:</b>	16 February 2021		
<b>Attention:</b>	Pavarti Rotherham	<b>Project No.:</b>	20190425		
<b>From:</b>	Steve Arden	<b>No. Pages:</b>	3	<b>Attachments:</b>	No
<b>Subject:</b>	Noise Survey 2 - 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 Marshall Day Acoustics to carry out a peer review of the T+T report, file name “2021.01.26 ah.noise-monitoring report”, dated 26 January 2021. 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 05 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 activities<sup>3</sup> 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 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 their noise measurements are compliant with the noise limits of the consent condition 12.

We have reviewed the T+T Report and offer the following comments:

### Noise Survey Methodology

The T+T report states that measurements were carried out in accordance with NZS 6801:2008 "Acoustics – Measurement of environmental sound". However, the reported wind speed is up to 25 km/h. This equates to wind speeds up to 6.9 m/s. Section 7.2.4 states "... Beyond 30 m, measurements should only be taken when wind speeds are in the range of 0 to 5 m/s. In downwind conditions, if the mean vector wind speed is greater than 3m/s, measurements are not appropriate unless such meteorological conditions are common."

The wind speeds during at least some of the survey are outside the meteorological window allowable in this standard.

### 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

In general and based on the information provided in the T+T report, we are of the opinion that the analysis in determining the rating level is in accordance with NZS 6802:2008.

#### *Duration Adjustment*

Of the six measurements carried out, two of the measurements exceed the applicable noise limit. However, these were adjusted and determined to be compliant. In summary:

- 199 Coast Road - Measurement 1 was measured as  $L_{eq}$  54 dBA. The noise level was then calculated out over the fifteen minute reference time period to be  $L_{eq}$  50 dBA.

- 200 Coast Road – Measurement 1 was adjusted down by 4 dB to account for the cleanfill being operational for less than 40% of the consented time period. If the cleanfill was operational for more than 40% of the consented prescribed timeframe, then a lower reduction would be applicable.

A more appropriate approach to the assessment would be to determine a representative noise level for cleanfill activities and consider what the appropriate duration correction is for the entire activity.

### *Special Audible Characteristics (SACs)*

The T+T report does not make any adjustment to account for SACs stating due to the infrequency of reversing beepers and tailgate bangs. As we were not present during the survey, we cannot comment on this item any further and rely on T+T's expertise in making this judgement. However, we note that SAC should be assessed on individual 15-minute periods and the relevant penalty factored into the overall rating level. Reversing beepers and tailgate bangs would likely contribute to an SAC penalty in periods where they occur with significant frequency and audibility.

### **Noise survey concerns**

Our main concern in respect of the noise survey is whether the activities measured are representative of day to day activities.

The report clearly states that the bulldozer was operational over the survey period. However, this was only measured at the noise survey location furthest from the activity area, and only assessed for one measurement period. As the bulldozer has previously been established as the loudest activity on site, then it can reasonably be assumed that noise levels would be higher at 199 Coast Road than those reported in the survey.

In addition, there is a large variation in repeated measurements at the same location. At 199 Coast Road the difference between measurements is 5 dB and at 200 Coast Road the difference between measurements is 10 dB. This provides uncertainty in whether the noise emissions measured are representative of activities occurring throughout the day.

Table A1 of NZS 6802:2008 suggests that where a sound is fluctuating and intermittent (as it appears to be here), then at least three 15 minute events should be measured.

### **SUMMARY**

We have reviewed the T+T Report, and specifically, their survey methodology and the implementation of NZS 6802:2008.

We are of the opinion that insufficient measurements have been carried out to establish overall compliance with the applicable noise limit (on a day to day basis). In particular, the noisiest cleanfill activities have been under-represented and the amount of variability observed in the noise measurements suggests that a much larger sample size is necessary to fully comply with the requirements of NZS 6802:2008.

The continuation of the regular noise monitoring should be targeted at ensuring the noise level is representative of day to day activities and should incorporate all cleanfill activities. This can be done via additional noise measurements which capture every type of activity or by adopting the detailed assessment methodology as set out in NZS 6802:2008.

In addition, to fully understand the extent of SACs, more information on the frequency of tailgate bangs and reversing beepers should be provided. This could include a count of occurrences during the noise survey period.