

28 November 2023
Job No: 1092706.0000

West Coast Regional Council
388 Main South Road
Paroa
Greymouth 7805

Attention: Rachel Clark

Dear Rachel

Mananui mineral sand project Technical acoustic review

1 Introduction

The West Coast Regional Council has requested an acoustic technical review of an application which comprises the construction and operation of a mineral sands mine at 713 Ruatapu Road south of Hokitika, West Coast (the Project).

The following documents have been reviewed:

- MDA report “Mananui mine assessment of noise effects” Rp 001 R03 20230381 dated 16 October 2023 (**MDA report**).
- WMS Group / MDA “Draft noise management plan” Rp 002 20230381 dated 3 October 2023 (**NMP**).

The MDA and NMP have been read in conjunction with the AEE prepared by Tai Poutini Resources dated October 2023.

This review has been undertaken by Lindsay Leitch, Senior Acoustic Consultant, with technical oversight from Darran Humpheson, Technical Director – Acoustics.

2 Relevant assessment criteria

The site and surrounding area are within the Rural zone of the operative Westland District Plan (ODP). As identified in the MDA report, the relevant permitted noise levels (Table 5.7 under Rule 5.6.3) are:

Table 1.1: Operative District Plan noise limits

Day	Time	Noise level
Monday to Friday	7 am to 9 pm	55 dB LA10
Saturdays	7 am to 6 pm	55 dB LA10
All other times including public holidays		45 dB LA10

These levels apply at any point within the notional boundary of a residential activity in the Rural zone.

Te Tai o Poutini Plan (TTPP) has been notified and contains the following permitted levels applicable to receivers surrounding the site, which is zoned General Rural Zone:

Table 1.2: TTPP noise limits

Day	Time	Noise level
Monday to Friday	7 am to 10 pm	55 dB LAeq(15min)
Weekends and public holidays	8 am to 8 pm	55 dB LAeq(15min)
Monday to Friday	10 pm to 7 am	45 dB LAeq(15min)
Weekends and public holidays	8 pm to 8 am	45 dB LAeq(15min)
All days	10 pm to 7 am	75 dB LAFmax

TTPP Rule NOISE-R1 (1) states that noise must be measured and assessed in accordance with NZS 6801:2008 *Acoustics – Measurement of environmental sound* and NZS 6802:2008 *Acoustics – Environmental noise*.

3 Review

3.1 Acoustic assessment

3.1.1 Construction noise

We agree with the MDA report that it is reasonable to assess the pre-mining and post-mining construction activities against the noise limits of NZS 6803:1999 *Acoustics – Construction noise*. We consider that these limits are likely to be comfortably complied with for normal daytime works (7.30 am to 6 pm Monday to Saturday).

3.1.2 Operational noise

Noise limits

Based on the operational Westland District Plan (ODP), TTPP and WHO guidance, the Report adopts noise limits for the Project of 55 dB LAeq(15min) between 7 am and 10 pm for all days, and 45 dB LAeq(15min) and 75 dB LAFmax between 10 pm and 7 am. The ODP uses the LA10 parameter, whereas TTPP and the proposed Project's limits use the LAeq parameter, which we agree is more appropriate.

The figure below shows the difference in time periods between these three sets of noise limits.

		Time of day (h)																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Mon-Fri	ODP	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45	45	
	TTPP	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45
	Project	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45
Saturdays	ODP	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	45	45	45	45	45	45	
	TTPP	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45	
	Project	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45
Sundays /PH	ODP	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	
	TTPP	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45	
	Project	45	45	45	45	45	45	45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	45

Figure 3.1: Comparison of noise limit time periods.

The main difference between TTPP and ODP limits is on Sundays, where TTPP allows the higher daytime limit. The hours for the higher daytime limit are different on weekdays and Saturdays, with a slightly longer daytime period allowed under TTPP. In our opinion it is important for noise sensitive receivers to have respite from higher daytime noise levels at more sensitive times, such as evenings and weekends, which is reflected in the ODP rules and, to a lesser extent, TTPP rules. From our understanding of the progression of mining panels, works are expected to remain relatively close to receivers for weeks at a time as they slowly progress. Therefore, we consider that respite from site noise remains important. We consider that extending the daytime limit more than allowed for in TTPP, as proposed by MDA, will further erode the respite times for residents.

The report sets out the ambient noise levels measured at the site and contends that high ambient noise levels from surf and traffic in this location will mask site noise levels to the extent that the higher daytime noise level is appropriate from 7 am to 10 pm on all days. We consider that the LA90 parameter (level exceeded 90 % of the time) is more appropriate to assess ambient noise than the LAeq (energy average noise level) which is referenced in the report. The LAeq will be influenced by all noise events, including sporadic traffic movements, whereas the LA90 reflects the underlying noise level, i.e. when there is relative quiet between vehicle pass-bys. From the chart of measured noise level data in Figure 4 of the report, the LA90 ranges between 45 and 55 dB. The measured daytime LA90 values from MP1 (Table 2) are 46 and 48 dB, while at night a level of 45 dB LA90 was measured. At this level, we consider that there would not be any masking of site noise at 55 dB LAeq.

We do not agree with the report's assertion that the longer daytime period of 55 dB LAeq at weekends and public holidays is appropriate. We recommend TTPP limits should apply to the Project. This may restrict site operations slightly than when the active mining panel is close to receivers.

Noise model

MDA's modelled sound power levels for general plant (excavator, grader etc) look reasonable. No references are provided for specialised plant (dredge, integrated tool carrier, gravity spiral concentrator) so we have relied on the values in the report. Other modelling assumptions appear reasonable and we have confidence in the screening effect of the proposed 3 m high noise bunds.

Setback distance

The report states that a setback distance is required of 85 m during the day and 115 m at night. We have interpreted this to mean "daytime" is all equipment operating and required to meet 55 dB LAeq, and "night-time" is equipment other than topsoil removal plant required to meet 45 dB LAeq.

MDA's Table 1 (Summary of noise generating components of the activity) states that topsoil removal will only occur between 7 am and 7 pm, described as daytime operation. The AEE (s4.23) states that

topsoil removal will occur 7 am to 10 pm. We have since had confirmation that the MDA report should read 7 am to 10 pm.

Our understanding of the mining process is that the equipment which will run continuously is not able to be moved between the daytime and night-time working periods, therefore the largest setback distance will need to apply to all works. The proposed mine path (Figure 2 in the report and Figure 7 in the AEE) show the mining area with the setback distance of 85 m excluded from the proposed mining area. In our opinion this should be increased to a 115 m setback; we recommend that this is confirmed.

The proposed conditions allow for noise monitoring of site noise and adjustment of the setback distance, which the report expects to result in a reduction of the setback distance. We agree that an adjustment of the setback distance based on measured noise levels is acceptable provided this does not result in infringement of the agreed noise limits. We recommend that this is included in the proposed conditions.

If topsoil removal occurs 7 am to 10 pm and TTPP noise limits apply to the project, an additional setback distance will be required: for daytime site works (i.e. including topsoil removal) to meet the night-time noise limit. As this is likely to be a sizeable setback distance, it may mean that at times topsoil removal cannot occur from 7 am to 8 am and 8 pm to 10 pm on weekends and public holidays.

3.1.3 Truck noise

The noise assessment does not cover noise from trucks. The AEE states that the site will generate approximately 70 heavy vehicle movements and up to 165 light vehicle movements per day, with peak hour traffic generation predicted to be 48 vehicle movements per hour (including light vehicles).

Although noise from vehicle movements on public roads does not need to be assessed under the district plan, noise from vehicles associated with the operation of the site does form part of the overall scale of noise effects and should be taken into account¹.

In particular night-time truck movements have the potential to cause disturbance to local residents. No indication is given of likely night-time truck movements. The WHO provides recommended external noise levels for amenity (noise annoyance) of 55 dB LAeq during the day and 45 dB LAeq at night (sleep disturbance). These noise levels are consistent with the ODP and TTPP noise limits which site noise from the proposal is expected to comply with.

We recommend that the noise from truck movements is also assessed, in particular the noise effects for residents from night-time movements.

3.1.4 Avifauna

We understand that there are Australasian bittern and other noise sensitive species in the adjoining wetland and forest east of the site. The report states that mining noise effects in these areas “will be minimal”. The noise contour plots do not show works close to these areas so the worst-case noise levels for avifauna are not known and cannot be commented on.

We are not aware of any specific noise guidance for avifauna, however there is the potential for a “startle response” to isolated noise events. Since the noise sources on site are expected to be

¹ In *Stacey v Auckland Council* [2011] NZEnvC 109, the Court took the view that the effects on the surrounding environment of traffic on a road (in that case noise effects) are effects which the Court can take account of in deciding issues about activities on land which give rise to that traffic.

constant, there is less potential for this startle response and avifauna is more likely to become habituated to the noise source.

Ambient noise levels are likely to be lower in this location as it is further from the sea and SH6, therefore site noise (when present) may be more dominant than at the dwellings along SH6.

We recommend that additional noise modelling is undertaken to establish likely noise levels across the wetland habitat and any required mitigation measures.

3.2 Noise management plan

We have the following specific comments on the noise management plan:

- Only the applicable NZS 6803:1999 construction noise limits should be listed, i.e. the long duration limits
- Working hours should be set out clearly in a separate section, currently the background section states that mining and processing will occur 24 hours per day and mobile equipment engaged in topsoil removal and remediation will only occur during the day. Daytime hours should be defined, along with any restrictions, such as curtailment of topsoil removal when the active mining panel is close to receivers (see discussion above).
- In s5.1 there is a requirement for annual inspection of site roads for pot holes. This will help to reduce unnecessary levels of noise and vibration from trucks driving over pot holes. A more frequent inspection would help to reduce noise effects off site and is good management. Site personnel could be encouraged to report pot holes as they appear.
- S6.0 sets out when noise monitoring will be conducted. This section should refer to operational noise rather than construction noise and should include the requirement to monitor when works are close to receivers. This should replace the bullet point “during critical phases of construction” etc which is not relevant to this project.

4 Recommended conditions

We have the following comments on the conditions of consent proposed in the MDA report.

Table 4.1: Comments on MDA proposed noise conditions

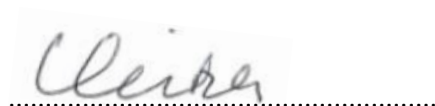
Condition	Comment
1 – Noise limits	Recommend TTPP noise limits. “Daytime” and “night-time” need defined hours.
2 – Compliance noise monitoring	Compliance monitoring should also be undertaken when mining works are close to dwellings. See NMP. Suggest when mining is within X m of dwelling regular noise monitoring should take place.
3 – Noise bund	Ok.
4 – Setback distances	Only largest setback distance is relevant. Ok for distance to be adjusted based on measurement.
5 – Construction noise NZS 6803	Noise limits from NZS 6803 should apply to construction noise.
6 – BPO	Ok.
7 – Reversing alarms	Ok.
8 – NMP	Ok.

5 Applicability

This report has been prepared for the exclusive use of our client West Coast Regional Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Tonkin & Taylor Ltd

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Authorised for Tonkin & Taylor Ltd by:



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28-Nov-23

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