

Before the Independent Hearing Panel

In the Matter of the Resource Management Act 1991 (**RMA**)

And

In the Matter of an application to the Gore District Council and Environment Southland for resource consents to establish and operate a gold mining activity near 972 Waikaka Road, Chatton North, Southland

Reference APP-20242608 (Environment Southland)
LU 24035 (Gore District Council)

Evidence of Rhys Leonard Hegley on behalf Waikaka Gold Mines Limited

Noise

Dated 18 November 2025

Introduction

1. My name is Rhys Leonard Hegley. I am a partner at Hegley Acoustic Consultants. I hold a Bachelor of Engineering from the University of Auckland (1993) and have attended specialist courses in acoustics in Australia and America.
2. For the last 25 years, I have specialised in the measurement and assessment of noise. This work has included the preparation of reports and compliance monitoring for resource consent applications and notices of requirement and attendance at council hearings, District Court and Environment Court hearings, and Boards of Inquiry.
3. I have advised on a wide range of projects from the development of business activities such as childcare centres, service stations, and workshops to large scale industrial activities such as petrochemical plants, power stations, dairy factories, and roading projects.
4. My technical skills and experience directly relevant to the current proposal include working on hard rock quarries varying in size from small owner operated quarries, through to Brookby Quarry, which currently produces over 2.8 million tonnes of aggregate per annum. I have also worked on lime and pumice quarries and a number of sand quarries.
5. I have been instructed by Waikaka Gold Mines Limited (the “**Applicant** or **WGML**”) to provide independent technical assessment/evidence on the noise effects from the proposed mine in relation to their application for resource consent from the Gore District Council (“**GDC**”).
6. Although this is not a hearing before the Environment Court, I record that I have read and agree to and abide by the Environment Court’s Code of Conduct for Expert Witnesses as specified in the Environment Court’s Practice Note 2023. This evidence is within my area of expertise, except where I state that I rely upon the evidence of other expert witnesses as presented to this hearing. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

Evidence Preparation

7. In preparing this evidence I have focussed on the following documents:
 - a. Waikaka Gold Mines Limited – Resource Consent Application and Assessment of Effects on the Environment (the WGML application), prepared by Town Planning Group (2024) which includes the Assessment of Noise Effects (“ANE”) I prepared for the application.
 - b. The relevant submissions received by GDC in relation to the WGML application, and
 - c. The GDC section 42A report.

Scope of Evidence

8. This evidence will address the following:
 - a. The relevant noise rules of the Gore District Plan (“GDP”) and the Proposed Gore District Plan (“PGDP”);
 - b. A summary of the noise assessment presented in the ANE;
 - c. A response to the Officer’s report, including suggested conditions¹;
 - d. A response to the submissions relating to noise; and
 - e. Conclusions.
9. This evidence summarises the findings of the ANE I prepared for the proposal, but does not repeat the technical details.

Overview and Executive Summary

10. Noise from the proposal will vary over its life as the main noise sources, the earthmoving equipment and processing plant, move about the site. I have predicted the noise to each of the surrounding neighbours from numerous

¹ All comments on conditions in my evidence refer to those suggested in the Officer’s report.

operating scenarios to demonstrate that the uppermost noise levels from the proposal will comply with the Rural Zone noise limits of both the GDP and the PGDP.

11. Comparisons to the measured ambient sound levels in the area show that the uppermost noise levels from the proposal will be quite apparent to the most exposed houses. However, on the basis that these levels will remain compliant with the provisions of the GDP/PGDP, it has been concluded that those levels will be reasonable, consistent with the existing environment, and the effects, small. For periods when the plant is operating in less critical locations with respect to a particular receiver, the noise levels, and the corresponding effects, will reduce.

Main Body of Evidence / Assessment of Effects

GDP Noise Rule

12. Rule 4.5.1 of the GDP provides the following limits to noise from the proposed activities:

(1) Noise limits for the rural and residential zones

<i>On any day:</i>	<i>7.00 a.m. to 10.00 p.m.</i>	<i>55dBA L_{eq}</i>
	<i>10 p.m. to 7.00 a.m.</i>	<i>40dBA L_{eq}</i>
	<i>10 p.m. to 7.00 a.m.</i>	<i>75dBA L_{max}</i>

Measured:

Rural zones	<i>at any point in the notional boundary of any noise sensitive activity</i>
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13. The GDP defines the notional boundary as:

Notional boundary means a line 20 metres from the façade of a building containing a noise sensitive activity, or the legal boundary where this is closer to the building.

14. The GDP uses the 1999 versions of the noise standards NZS 6801² and NZS 6802³. In the ANE I proposed that each be updated to the latest 2008 edition, in accordance with best practice (which has been adopted by suggested condition 52). Doing so makes little practical difference, although, for completeness, I note that the proposed 2008 edition of NZS 6802 allows for averaging, which its predecessor did not. While I have not applied averaging to my analysis, it could be applied through the adoption of the current edition of the standard.

Proposed District Plan Noise Rule

15. Rule NOISE-S1.2 of the PGDP provides the same noise limits for the proposal to comply with as the GDP, which I do not repeat. I can find no requirement to use NZS 6801 and NZS 6802 (any edition) but note that the interpretations section of the PGDP uses the 2008 edition of the standards exclusively. Given that their use is best practice, my view remains that they are the appropriate standards for use with the PGDP.

Noise Prediction

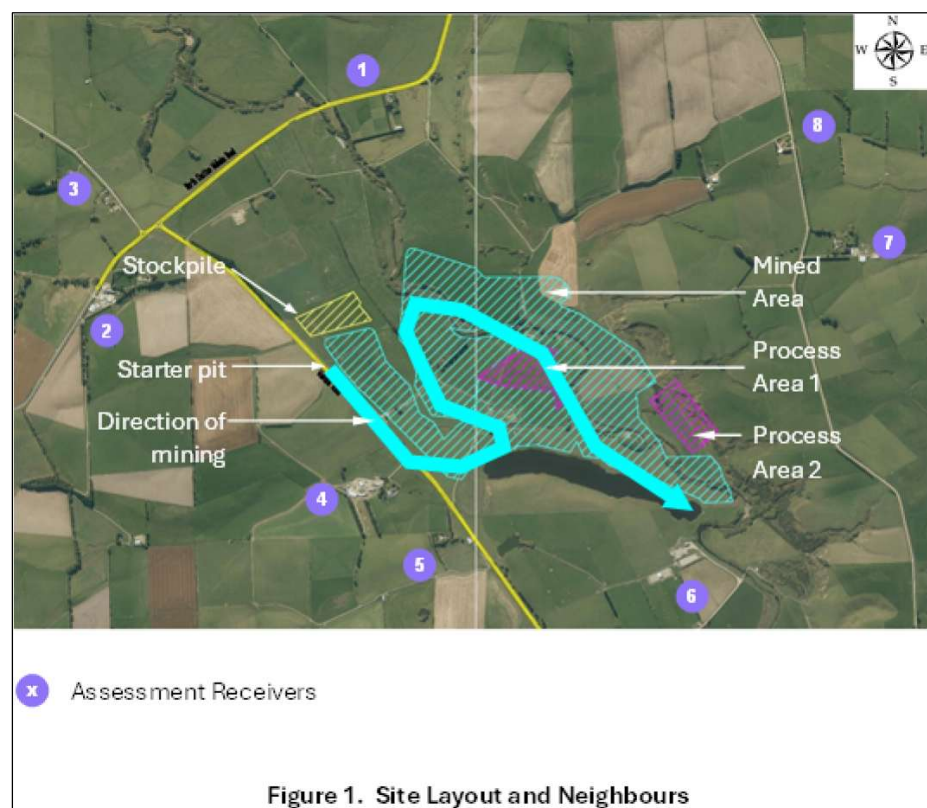
16. Noise from the proposed activities has been predicted to the surrounding environment using the Predictor noise modelling software. Predictor allows a full-scale three-dimensional model of the proposal and the surrounding area to be developed using aerial photographs and digital terrain data. The equipment to be used, such as excavators, dump trucks, and the processing plant, was then added to the model, placing it as it would be at various stages through the life of the mine, which are shown in **Figure 1**. The locations were selected to maximise the noise from the proposal, that is, they were placed at the closest point of the proposal to each particular neighbour and at the minimum depth the equipment is expected to operate at (so as to minimise the screening from the pit edge

² NZS 6801:2008 Acoustics - Measurement of environmental sound

³ NZS 6802:2008 Acoustics - Environmental noise

and, therefore, maximise noise levels). This ensures a conservative approach to the assessment of noise that might potentially be generated.

17. This approach was repeated for all surrounding neighbours (Figure 1) resulting in a large data set. The levels reported, however, are only the uppermost to each neighbour and, for much of the life of the mine, the actual noise levels will be lower than reported.
18. It is understood that all neighbours considered in the assessment, other than 3 and 8, have provided written consent to the project.



19. As discussed above, the reported rating levels from the proposal have not been averaged in accordance with NZS 6802. The result is that the predicted levels will slightly overreport the effects of the proposal.
20. NZS 6802 provides a 5dB penalty to be added to any noise source that has a Special Audible Characteristic (“SAC”). Of the activities proposed for the mine, the only source that could potentially have an SAC would be tonal warning alarms, such as reversing beepers. On the basis that the proposal can be managed such that audible warning alarms are either not required

or can be replaced with broadband alarms (and as required by suggested condition 51), the assessment has been undertaken on the basis of no SAC.

Mitigation

21. The mitigation required for compliance with the GDP/PGDP levels is provided through the separation of the activity from its neighbours and screening the plant would receive by working at the bottom of the cut face. The specific mitigation recommended is the removal/replacement of the tonal reversing alarms on equipment.
22. It is noted that compared to the 7am to 10pm day time hours of both the Operative and the Proposed District Plans, the proposal limits mining activities to 7am to 7pm, Monday to Saturday (as per suggested condition 8). There will be no mining on Sundays and Public Holidays, which include the planned shutdowns over the Christmas and New Year break and the four-day Easter break. For clarity, it is noted that routine maintenance would be undertaken on Sundays and during the planned shutdowns, but that this work would comply with the operational noise limits with a factor of safety.
23. For the proposal, the above is considered to represent best practice. On this basis, it is concluded that the proposal satisfies s16 of the Resource Management Act.

Rating Levels

24. The rating levels calculated for the surrounding neighbours (**Table 1**) are reported below.

Table 1 Operational Rating Levels

Receiver (Figure 1)	Rating Level, dBA L _{eq}
1*	54
2*	48
3	43
4*	55
5*	55
6*	53
7*	38
8	37

* Affected party approval provided.

Assessment of Effects

25. Noise from the proposed activities will comply with the operational limits of Rule 4.5.1(1) of the GDP and NOISE-S1 of the PGDP.
26. As discussed above, the predicted noise levels represent the most exposed case where mining equipment is operating close to the particular receiver and at maximum elevation (minimum screening). As such, levels will typically be below the reported levels.
27. Summarising the Policies of the GDP, they require the protection of amenity, the management of land use effects, and ensuring compatibility. The PGDP refines these through the additional requirement to consider the health and wellbeing of the community.
28. In addressing these Policies, I have considered both the overall levels of noise and its comparison to the existing ambient sound. To demonstrate how the operational noise from the proposal will compare to the current environment, the ambient sound was measured at Receivers 2 and 4 as these were considered representative of the Receivers most exposed to noise from the proposal. The methodology and detailed results are presented in the ANE. However, to summarise:

- a. During the day time, the ambient sound was typically within the 40dBA L_{eq} range while the background sound (L_{90}) was in the 30dBA range. Both measurements describe a reasonably quiet environment that is regularly punctuated with discrete sounds.
 - b. The predicted rating levels from the proposal (Table 1) would be at, or above the current ambient L_{eq} during the day time period when the proposal operates and when the excavation plant is in its most exposed location. The predicted rating levels will be noticeably above the current background level. In practice, this means that the proposal would generally be quite apparent when compared to the ambient sound, indicating that there would be an effect from the proposal. However, when viewed in the context of compliance with the GDP/PGDP limits, the magnitude of that effect can be considered small.
29. With respect to health and wellbeing, the 55dB L_{Aeq} day time limit of the GDP/PGDP is described by NZS 6802 as being the upper limit for the reasonable protection of health and residential amenity. When taken in the context of the existing noise environment, my view is that the intention of the two Plans is to be permissive of activities to the extent permitted for an appropriate level of residential amenity.

Proposed Conditions of Resource Consents

30. Suggested condition 51¹ prohibits the use of tonal warning alarms, while suggested condition 52 provides what I consider to be the appropriate noise limits for the proposal (those of the GDP/PGDP). I believe that these two conditions are appropriate for the project.

Matters raised by the Officer's report

31. I have read the Officer's report, which generally agrees with the conclusions of the ANE. I have no specific comments on the Officer's report.

Matters raised by submitters

32. No submitters raised noise as an issue.

Conclusion

33. Analysis shows that when the noise sources of the proposal are operating in the most exposed location with respect to each of the surrounding neighbours, the noise to those neighbours will comply with the Rural Zone noise limits of the GDP and the PGDP.
34. For the majority of the time, when plant is operating further away from a receiver and/or well below the ground surface, noise levels will be lower than reported.
35. Based on measurements of the existing ambient sound, noise from the proposal will be apparent, but within reasonable limits and, therefore, compatible. Overall, the conclusion is that the effects of noise from the proposal will be reasonable.



Rhys Lenary Hegley

Dated 18 November 2025