UNDER the the Resource Mangement Act 1991 ("RMA")

IN THE MATTER of Hearing Submissions and Further Submissions on the Proposed Waikato District Plan (Stage 1) Topic 25 – Zone Extents

STATEMENT OF EVIDENCE OF NEVIL IAN HEGLEY ON BEHALF OF YASHILI NEW ZEALAND DAIRY CO. LIMITED

NOISE

1. INTRODUCTION

1.1 My full name is Nevil Ian Hegley. I am the principal of Hegley Acoustic Consultants.

Experience

1. I have the following qualifications relevant to the evidence I shall give.

(a) I have specialised in acoustics for the last 40 years;

(b) I have an MSc from Southampton University where I undertook research in acoustics in 1975/76;

(c) I am a chartered member of the New Zealand professional engineers body, Engineering New Zealand, the Institution of Civil Engineers London and the Acoustical Society of America;

(d) I have been on the majority of the Standards sub-committees dealing with sound issues since 1977 and I was the Chairman of both

of the sub-committees that approved the 1984 and 1999 versions of the Construction Noise Standard NZS6803;

(e) In 2010, I was awarded the Meritorious Award by Standards New Zealand for outstanding commitment to the development of New Zealand Acoustic Standards;

(g) I am familiar with the site and the surrounding environment.

Involvement in the Proposal

1.2 I undertook the original noise assessment for resource consent to develop the Yashili New Zealand Dairy Co. Limited (Yashili) plant. I also undertook the plant design to satisfy the noise requirements of the resource consent and subsequent compliance monitoring to confirm the plant complied with the design criteria.

Code of Conduct

1.3 I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence and agree to comply with it while giving evidence. Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

2. THE PROPOSAL

2.1 Havelock Village Ltd is seeking to rezone the existing rural land at 5 Yashili Drive and industrial land at 88 Bluff Road in Pokeno to a residential zone. In the event the land is rezoned residential it important the access to 5 Yashili Drive is rezoned as a Light Industrial Zone and does not form part of the proposed rezoning. If not rezoned this would

potentially cause unnecessary and unwarranted compliance issues for the adjacent industrial zones.

2.2 In the following, I consider the potential noise effects this will have for Yashili plus the noise effects from the adjacent Synlait site shown on Figure 1.

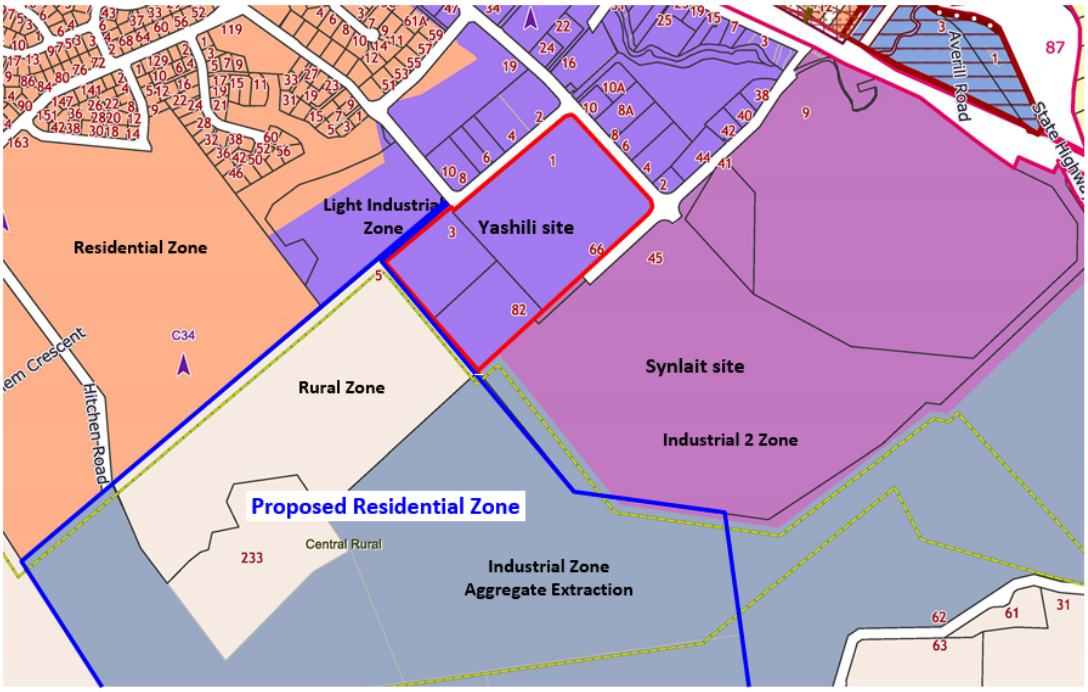

Figure 1. Area proposed to be rezoned Residential

3. DESIGN REQUIREMENTS

3.1 As shown on Figure 1 the site is currently zoned Rural in the Operative Waikato District Plan, Franklin Section (ODP).

3.2 Rule 29C.6.1 of the ODP sets the following relevant noise requirements for a permitted activity in the Light Industrial Zone:

> *1 No activity within the Zone shall cause the following noise levels to be exceeded, for the stated times, at or within the boundary of any other site, where the other site is:*
>
> *a) Light Industrial Zone:*

65 dBA L_{eq}

b) Residential, Residential 2, Rural-Residential, Village or the notional boundary of any existing dwelling house in the Rural Zone (Note: the notional boundary is defined as 20 metres from any side of a dwelling house):

Area	*The noise level measured within the boundary of a site within the area described in column 1 of this table shall not exceed the following limits:*		
	7.00am–10.00pm	*10.00pm – 7.00am*	
	(dBA L_{eq})	*(dBA L_{eq})*	*(dBA L_{max})*
High Background Noise Area (refer Planning Maps 107)	*55*	*45*	*75*
All other areas	*50*	*40*	*70*

c) Business Zone:

7.00am – 10.00pm	*10.00pm – 7.00am*	
(dBA L_{eq})	*(dBA L_{eq})*	*(dBA L_{max})*
60	*50*	*75*

d) Industrial 2 Zone
70dBA L_{eq}

2 Clause 1 above does not apply to construction noise.

3. The noise levels shall be measured and assessed in accordance with the requirements of NZS 6801:2008 Measurement of Environmental Sound and NZS 6802:2008 Environmental Noise respectively, or any standards that supersede these standards.

4. The noise shall be measured by a sound level meter complying with the International Standard IEC (1979): Sound Level Meters, Type 1 or any standard that supersedes that standard.

3.3 The PDP does not alter the zoning for the relevant areas of interest.

3.4 Rule 20.2.3.1 *General* provides permitted noise levels in the Industrial Zone of the PDP sets the following limits (which are applicable to both the Yashili and Synlait sites).

P1	*Noise generated by emergency generators and emergency sirens.*
P2	*(a) Noise measured within any other <u>site:</u>* *(i) In an Industrial Zone must not exceed:* *A. 75dB (L_{Aeq}) 7am to 10pm; and*

	B. 55dB (L_{Aeq}) and 85dB (L_{Amax}) 10pm to 7am the following day.
P3	*(a) Noise measured within any site in any zone other, than the Industrial Zone and the Heavy Industrial Zone, must meet the permitted noise levels for that zone.*
P4	*(a) Noise levels must be measured in accordance with the requirements of NZS 6801:2008 Acoustics - Measurement of Environmental Sound.* *(b) Noise levels must be assessed in accordance with the requirements of NZS 6802:2008 Acoustics - Environmental Noise.*
D2	*Noise that does not comply with Rule 20.2.3.1 P2, P3 or P4.*

3.5 Rule 22.2.1.1 Noise – general provides permitted noise levels in the Rural Zone at:

P1	*Farming noise, and noise generated by emergency generators and emergency sirens.*
P2	*(a) Noise measured at the notional boundary on any other site in the Rural Zone must not exceed:* *(i) 50dB (L_{Aeq}), 7am to 7pm every day;* *(ii) 45dB (L_{Aeq}), 7pm to 10pm every day;* *(iii) 40dB (L_{Aeq}) and 65dB (L_{Amax}), 10pm to 7am the following day.*
P3	*(a) Noise measured within any site in any zone, other than the Rural Zone, must meet the permitted noise levels for that zone.*
P4	*(a) Noise levels must be measured in accordance with the requirements of NZS 6801:2008 Acoustics - Measurement of Environmental Sound.* *(b) Noise levels must be assessed in accordance with the requirements of NZS 6802:2008 Acoustics - Environmental Noise.*
D2	*Noise that does not comply with Rule 22.2.1.1 P1, P2, P3 or P4.*

3.6 In the event the existing rural land is zoned residential the PDP limits are:

P1	*Farming noise, and noise generated by emergency generators and emergency sirens.*
P2	*(a) Noise measured within any other site in the Residential Zone must not exceed:* *(i) 50dB (L_{Aeq}), 7am to 7pm every day;* *(ii) 45dB (L_{Aeq}), 7pm to 10pm every day;* *(iii) 40dB (L_{Aeq}) and 65dB (L_{Amax}), 10pm to 7am the following day.*

P3	*(a) Noise levels must be measured in accordance with the requirements of NZS 6801:2008 Acoustics - Measurement of Environmental Sound and* *(b) Noise levels must be assessed in accordance with the requirements of NZS 6802:2008 Acoustics - Environmental Noise.*
D1	*Noise that does not comply with Rule 16.2.1.1 P2 or P3.*

3.7 For the Yashili site, consent condition 14 requires (with similar levels for the Synlait site):

> *The site shall be designed, and the activity operated to ensure that the following noise levels are not exceeded at or within the boundary of any other site:*
>
> *(a) In the Light Industrial Zone:*
>
> *(i) 65dBA (L_{eq}).*
>
> *(b) In the Residential, Residential 2, Rural-Residential, Village or the notional boundary of any existing dwelling house in the Rural Zone (Note: the notional boundary is defined as 20 metres from any side of a dwelling house):*
>
> *(i) High background noise area: - NA*
>
> *(ii) All other areas:*
>
> *I. 50dBA (L_{eq}) (7.00 am - 10.00pm).*
> *II. 40dBA (L_{eq}) (10.00 pm - 7.00am).*
> *III. 70dBA (L_{max}) (10.00 pm - 7.00am).*

3.8 The night time limit will control any design for the Yashili and Synlait sites with 40dB L_{Aeq} being required. For the L_{Amax} there is a 5dB variation in the different limits although this is not a design constraint.

3.9 It is acknowledged the PDP may change at this point and this should be considered with the weight given to the current limits. However, for the Residential Zone (Hearing 10) and the Rural Zone (Hearing 18) submissions have been received by the panel and reviewing this information in both cases, based on my reading of the information, it seems unlikely the 40dB L_{Aeq} night time metric will be changed.

3.10 In Mr Styles' evidence on behalf of Havelock Village Ltd (HVL) he has stated the 45dB L_{Aeq} noise contour (for noise emissions during the night time period) was identified and used by the HVL project team as the basis for their assessment. There is no assessment given in his evidence to vary from the current expectations of the ODP and PDP or the effects of the existing resource consent conditions, which all adopt a minimum of 40dB L_{Aeq} at night time. In the case of the consent conditions the noise level applies at the dwellings in the rural area subject to this rezoning and these dwellings were in existence at the time of the consent being granted (23 August 2013). Further, Mr Styles is proposing to increase the daytime level to 55dB L_{Aeq}.

3.11 Mr Styles does acknowledge that his proposed noise levels represent the highest noise limits for traditional residential development requiring an adequate level of outdoor amenity.

3.12 I do not support the proposed increase to the current ODP and PDP limits. However, should these limits be adopted, the noise assessment would need to consider the effects to the existing residential zone, which currently controls the acoustic design for the industrial zone and would continue to control the acoustic design for much of the existing residential zone. That is, the existing residential zone located to the north would experience a 5dB L_{Aeq} increase to the current levels. The effects of the proposed increase in the noise levels have not been assessed for these houses.

4. ZONE LIMITATIONS

4.1 Should any residential development be permitted on the subject sites there will need to be a buffer developed to control any reverse sensitivity issues. To determine the noise effects, I have modelled the noise from both the Yashili and Synlait sites based on the level of noise that may be generated and still be within the consent conditions. This is different to

the modelling undertaken by Mr Styles who appears to have modelled the current activities rather than the permitted activities.

4.2 My noise modelling has included future activities on the currently vacant land and remains within the consent conditions (and satisfys the requirements of the ODP and PDP). I have not included any bunding / screening mentioned in Mr Styles' report as it contains no details and is not included in the proposed residential provisions, therefore no weight can be placed on a proposal with no detail.

4.3 The current acoustic design constraints for the two sites are the residential zone to the west and north west of the Yashili site, the rural properties to the south in Bluff and Cole Roads plus the 65dBA L_{eq} limit at the adjacent Industrial Zone boundaries as shown on Figure 1.

4.4 Based on these design constraints the noise contours have been calculated. The cumulative noise effects have been calculated as shown on the ODP Zoning Map on Figure 2 and an aerial photograph on Figure 3. The contours are only for the Yashili and Synlait sites. Although there will be some cumulative noise effects from the Hynds Pipes and PNPL plants these effects have not been assessed at this point, as their influence will be secondary for the area I have considered.

4.5 The Yashili site controls the noise effects to the south west (5 Hitchen Road) and the Synlait site controls the noise to the south (88 Bluff Road).

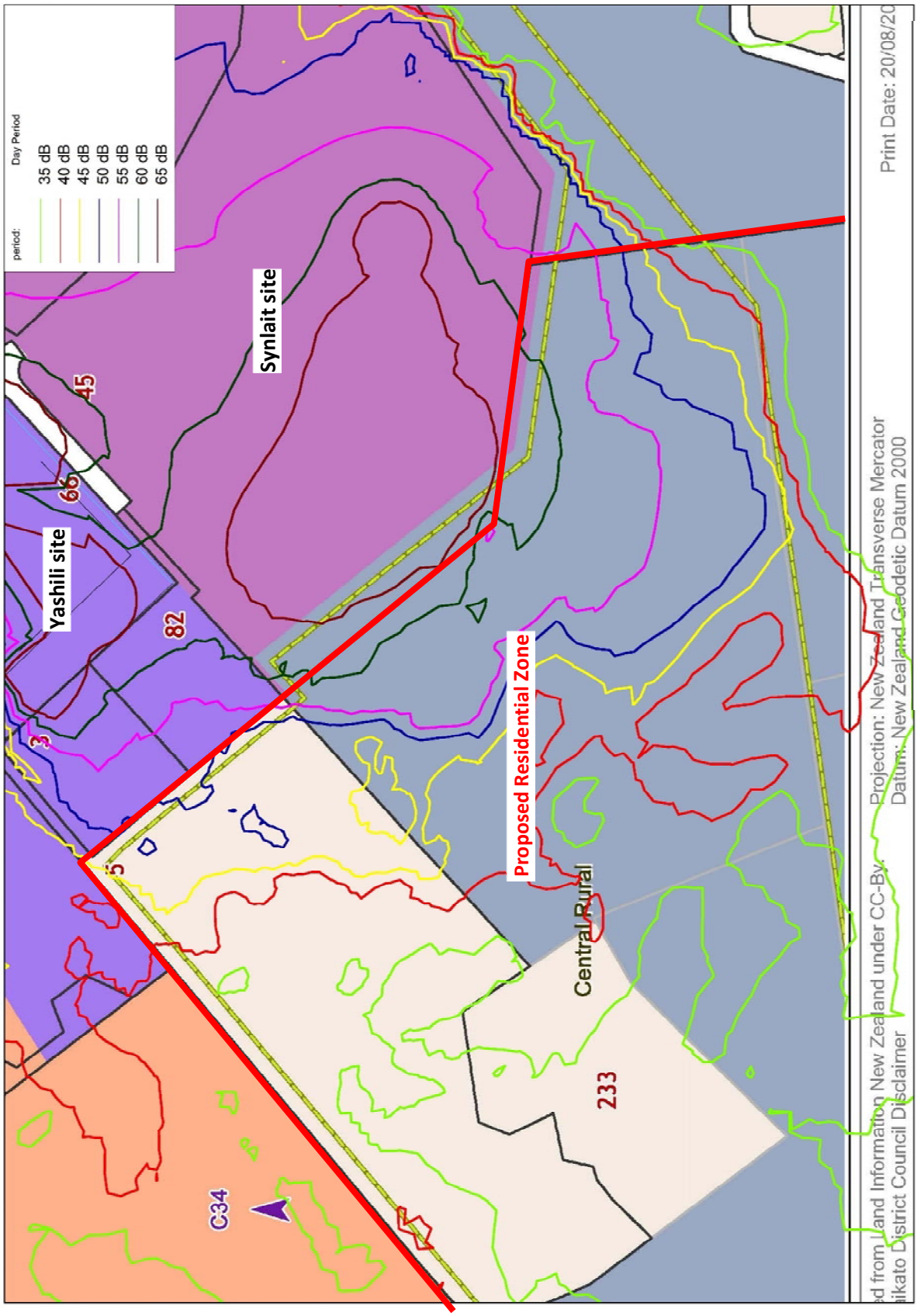

Figure 2. Predicted noise levels, dBA L_{eq}

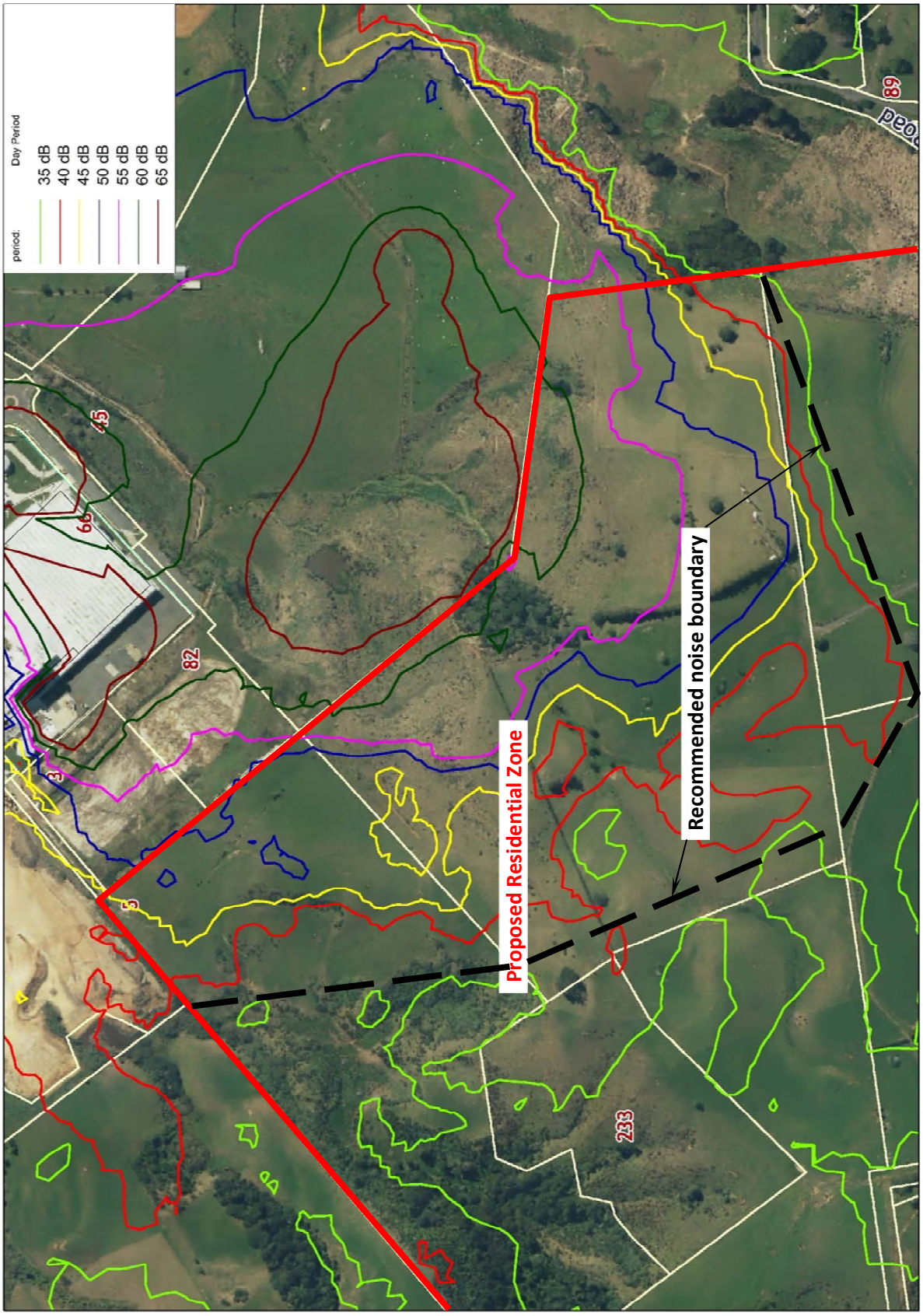

Figure 3. Predicted noise levels, dBA L_{eq}

4.6 The expectations for a residential zone have been assessed based on the noise conditions from the ODP, PDP and consent conditions.

4.7 Based on the above, the appropriate control to adopt for the proposed residential zone is a level of 40dB L_{Aeq} at night time and 50dB L_{Aeq} during the daytime, which reflects the limits of both the Operative and Proposed District Plans plus the consent conditions. At night time it is recommended the maximum level should be the same as the existing industry is permitted to generate at 70dB L_{AFmax}. It is noted the PDP adopts a level of 65dB L_{AFmax}, which is low for an industry although either level could be reasonably adopted.

4.8 The main difference in the noise contours set out above and the contours produced by Mr Styles is that the above analysis takes into account the reasonable expectations of the existing industries with respect to the noise they may generate from future development in terms of their consent conditions. The applicant appears to have adopted a simplistic approach to future development of the sites rather than what may occur in practice.

4.9 Mr Styles has also adopted a level of 45dB L_{Aeq} at night time compared to the 40dB L_{Aeq} current requirement of the ODP, PDP and the consent conditions. In the event a level of 45dB L_{Aeq} is adopted by the panel it needs to be kept in mind that the industry would reasonably expect to adopt this limit although Mr Styles has not considered this in his assessment.

4.10 Inspection of Mr Styles' Appendix 1 – Cumulative industrial noise exposure attached to his evidence shows a 45dB L_{Aeq} noise contour in the middle of the Yashili site. There appears to be an error in this modelling with 45dB L_{Aeq} predicted in the centre of the site.

5. CONCLUSIONS

5.1 It is recommended the existing night time / daytime design level of 40dB / 50dB L_{Aeq} for any existing industrial zone to the proposed residential zone, as currently set out in the PDP, be adopted as set out in the current Rule 20.2.3.1 (Paragraph 4.4 above).

5.2 To control any reverse sensitivity effects from the proposed residential zone, it is recommended the 40dB L_{Aeq} noise contour, as shown on Figures 2 and 3 above, be adopted to develop a noise limit for the proposed residential zone.

5.3 Inside the recommended 40dB L_{Aeq} noise control boundary either there should not be any dwellings constructed or if dwellings are to be permitted within the 40dB L_{Aeq} contour they should be designed to ensure the internal level does not exceed 25dB L_{Aeq} in all habitable rooms with ventilating windows open. This internal level is based on a façade reduction of 15dB L_{Aeq} with windows open for ventilation so reflects typical design criteria and the expectation of the ODP and PDP.

5.4 The World Health Organization document on the Guidelines for Community Noise states for a good night's sleep, the equivalent sound level should not exceed 30dB(A) for continuous noise and based on this NZS6802 adopts a level outside of 45dB L_{Aeq} as the upper noise limit. In this case both the ODP and PDP have adopted a level 5dB L_{Aeq} more stringent outside to provide a better noise environment for residential zones than simply adopting the upper limit. This is a common approach throughout the country and reflects a level of 25dB L_{Aeq} within the building with windows open so has been followed through in my recommendations.

5.5 For dwellings within the 40dB L_{Aeq} contour the exposed windows will need to be closed and an alternative ventilation system installed. Generally closing the windows will achieve a minimum of 25dB L_{Aeq}

reduction (and up to 30dB reduction) and this equates to an external design level of 50 - 55dB L_{Aeq} at the dwelling façade to satisfy an internal level of 25dB L_{Aeq}. Thus, achieving a level of 25dB within a dwelling in this case will not require any acoustic upgrading of the façade to satisfy the recommended criteria.

5.6 The existing ground contours adopted for the noise contouring vary over the site and this is reflected in the shape of the noise contours. There is little doubt there will be some landscaping undertaken for the project and this will result in a "smoothing" of the noise contours. This has been considered in locating the recommended noise control boundary to minimise any reverse sensitivity effect from the proposed development.

Nevil Ian Hegley
10 March 2021