Before an Independent Hearings Panel

The Proposed Waikato District Plan (Stage 1)

IN THE MATTER OF the Resource Management Act 1991 (**RMA**)

IN THE MATTER OF hearing submissions and further submissions on the Proposed Waikato District Plan (Stage 1): <u>Topic 25 – Zone Extents</u>

PRIMARY EVIDENCE OF JON ROBERT STYLES ON BEHALF OF HAVELOCK VILLAGE LIMITED

ACOUSTICS

17 February 2021

BUDDLEFINDLAY

NEW ZEALAND LAWYERS Barristers and Solicitors Auckland Solicitor Acting: Vanessa Evitt / Mathew Gribben Email: vanessa.evitt@buddlefindlay.com / mathew.gribben@buddlefindlay.com Tel 64-9-358 2555 PO Box 1433 DX CP24024 Auckland 1140

1. SUMMARY OF EVIDENCE

- 1.1 My full name is Jon Robert Styles. I am an acoustic consultant and director and principal of Styles Group Acoustics and Vibration Consultants. I lead a team of nine consultants specialising in the measurement, prediction and assessment of environmental and underwater noise, building acoustics and vibration.
- 1.2 I am providing acoustic evidence in relation to proposed rezoning sought by Havelock Village Ltd (HVL)¹ of land at 5 Yashili Drive 88 Bluff Road, 242 (in part) and 278 Bluff Road, Pokeno (the Site).
- 1.3 My evidence provides an explanation of the assumptions and methods used to inform the location and extent of the proposed Pokeno Industry Buffer Overlay required as a result of the proposed rezoning sought by HVL. This has informed the master-planning across the Site, and the proposed controls relating to the establishment of noise sensitive activities on the Site.
- 1.4 The proposed rezoning sought by HVL will establish a Residential Zone, near to an established industrial area that is occupied by existing authorised noise-generating activities. My initial advice to HVL was that a buffer would be required to adequately separate future noise sensitive activities on the Site from the Pokeno Business Park. I undertook a comprehensive noise modelling exercise (attached as Attachment A) to identify and assess the exposure of the Site to industrial noise effects, to determine the extent of the required buffer. The noise modelling outputs were then used to inform the design and master planning process for the proposed rezoning.
- 1.5 The proposed Pokeno Industry Buffer Overlay represents the location of the 45dB L_{Aeq} industrial noise contour across the Site during the night time period. Essentially this means that future residential activities located near to the boundary of the Pokeno Industry Buffer Overlay will be exposed to industrial noise emissions no greater than 55 dB L_{Aeq} (day time) and 45 dB L_{Aeq} (night time).
- 1.6 Based on the noise modelling I have undertaken, the land subject to the Pokeno Industry Buffer Overlay represents the appropriate separation distance to manage potential noise conflicts between future noise sensitive activities on the Site, and the noise effects of existing, authorised industrial activities in the Pokeno Business Park.
- 1.7 My evidence has set out the rationale for and the process to derive the location and extent of the proposed Pokeno Industrial Buffer Overlay. The overlay will separate the

¹ Submitter 862 and further submitter 1291.

activities in the Pokeno Business Park from the proposed residential zoning on the HVL Site that will ensure noise levels in the proposed residential zone are reasonable. This will avoid reverse sensitivity effects occurring on the existing industrial activities.

2. INTRODUCTION

- 2.1 My full name is Jon Robert Styles. I am an acoustic consultant and director and principal of Styles Group Acoustics and Vibration Consultants. I lead a team of 8 consultants specialising in the measurement, prediction and assessment of environmental and underwater noise, building acoustics and vibration
- 2.2 I hold a Bachelor of Applied Science majoring in Environmental Health and I have completed the Ministry for the Environments' Making Good Decisions programme
- 2.3 I have approximately 20 years experience in environmental acoustics. In that time, I have been involved in the development of a significant number of plan reviews, plan changes and master planning processes across New Zealand and I have assisted a large number of Council's to process a significant number of resource consents subject to these rules.
- 2.4 Most recently I have advised Napier City Council, Taupō District Council and Whangarei District through District Plan review processes. I assisted the Auckland Council through the development of the Auckland Unitary Plan, and continue to provide advice to Auckland Council on both Council initiated and private plan change requests. I have also assisted many private clients through plan change and review processes, most recently in Queenstown, Cromwell, Auckland and Palmerston North.
- 2.5 I have provided acoustic advice to HVL since 2018. During this time, I have predicted and assessed the exposure of the Site to noise from the Pokeno Business Park to inform the design and master planning process for the proposed rezoning. This work has included the development of a computer noise model to understand the exposure of the Site to industrial noise effects from existing industrial activities in the Pokeno Business Park. The noise modelling has informed the location of the proposed Pokeno Industry Buffer Overlay, and the proposed controls applying to the establishment of noise sensitive activities in HVL's submission to the Proposed Waikato District Plan (PWDP).

2.6 **Scope of evidence**

2.7 My evidence provides an explanation of the assumptions and methods used to inform the location and extent of the proposed Pokeno Industry Buffer Overlay required as a result of the proposed rezoning sought by HVL². This evidence provides further background to the noise modelling I have undertaken, which has informed the masterplanning across the Site, and the proposed controls and Precinct Plan relating to the establishment of noise sensitive activities on the Site.

- 2.8 The most recent version of the consulting advice note I provided to HVL (including noise contours and updated for consistency with evidence, naming conventions and HVL's submission) is titled Assessment of industrial noise levels to inform location of proposed Pokeno Industrial Buffer Overlay across HVL land" dated 15 February 2021. This is appended as Attachment A to this evidence. I provided HVL with earlier versions of the memo in early-mid 2020.
- 2.9 The full details of HVL's rezoning proposal are outlined in HVL's submission and the primary evidence of Mark Tollemache for HVL for this Topic. My evidence relies on and should be read in conjunction with that of Mark Tollemache.

3. CODE OF CONDUCT

3.1 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are 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.

4. SITE CONTEXT AND CHARACTERISTICS

The existing noise environment

- 4.1 The key acoustic issue relating to the HVL submission relates to the proposed Residential zoning of 88 Bluff Road and 5 Yashili Drive and the relationship of those sites to the industrial activities generally to the north.
- 4.2 Figure 1 displays the Operative Waikato District Plan (OWDP) zoning pattern, with the Site located in the Aggregate Extraction and Processing Zone (AEPZ) and the Rural Zone (RZ). Figure 1 identifies the northern boundary of the Site forms the interface with the Pokeno Business Park, zoned Light Industrial Zone (LIZ)⁴ and Industrial 2 Zone (I2Z)⁵.

² Submitter 862 and further submitter 1291.

⁴ Zoned Industrial Zone in the PWDP

⁵ Zoned Heavy Industry Zone in the PWDP

- 4.3 Under the PWDP, the Site is included in the Rural Zone. The Rural Zoning would allow the establishment of noise sensitive activities on the part of the Site currently zoned AEPZ (where they are currently precluded), and within the part of the Site zoned Rural (where a separation buffer currently applies from the AEPZ).
- 4.4 The relief sought in the submissions of Hynds Pipes Ltd (**Hynds**) and Synlait under Topic 18 (Rural) are discussed later in this evidence.
- 4.5 On plain reading of the PWDP, industrial activities may choose to establish within the proposed Heavy Industrial or Industrial Zones due to the relatively high enabling noise limits between sites in the same zone that they appear to offer. However, any noise generators who elect to locate, design and operate their operations in this area will need to undertake very careful due diligence to ensure they can conduct their activities in compliance with the more restrictive noise limits applying at any nearby Residential, Village, Rural- Residential and Rural zones. The PWDP also permits noise sensitive activities to establish in the Business zones directly to the north of the Hynds site. These constraints will be particularly important for activities which operate during the night time period, and particularly where the industrial zones are directly adjacent to the noise sensitive zones.
- 4.6 While the Industrial 2 sites currently enjoy a high noise limit of 70 dB L_{Aeq} at their boundary with other sites in the same zone, (under the ODP) they must also comply with the much lower zone interface noise limits applying at the Residential 2 and Village Zones on the northern side of William McRobbie Road. At these zones, the industrial activities are required to meet a noise limit of 50dB L_{Aeq(15min)} between the hours of 7:00am and 10:00pm, and 40dB L_{Aeq(15min)} and 70dB L_{Amax} between 10:00pm and 7:00pm.
- 4.7 In my view, the noise output of the activities in the Pokeno Business Park is heavily constrained by the close proximity of the zones where noise-sensitive activities can establish, as noted above.

The interface between the Site and the Industrial Zones

4.8 The Pokeno Business Park accommodates several industrial activities that have been developed in accordance with the OWDP and resource consents⁶. These include the industrial activities adjoining the north-eastern boundary of the Site, including Yashili (in the LIZ) and Hynds Pipes and Synlait in the I2Z.

⁶ The noise modelling I undertook was based on a comprehensive review of the resource consents for the key noise generating activities (Synlait, Yashili, Hynds Pipes and Pokeno Nutritional Plant Ltd) and their maximum permitted noise levels authorised by way of conditions of resource consents.

4.9 The proposed rezoning sought by HVL will establish a residential zone, near to an established industrial area that is occupied by a variety of existing authorised industrial activities. The Rural zoning proposed by the PWDP will also introduce noise-sensitive receivers to the Site, albeit at a lower density.



Figure 1: OWDP zoning pattern and location of industrial activities

- 4.10 In general terms, residential activity is noise sensitive. In circumstances where a new zone providing for noise sensitive activities is proposed near to to an existing, authorised industrial zone, the potential noise levels and effects on both the noise maker and noise receivers should be accurately understood. This is necessary to ensure that:
 - (a) The noise levels at the industrial interface are compatible with the land use activities anticipated and provided for within the receiving zone;
 - (b) The introduction of a new zoning pattern (and requirement for the industrial zone to meet interface noise limits) will not unreasonably constrain their lawfully established operations;

- (c) Noise sensitive receivers enjoy an adequate level of amenity, such that the potential for reverse sensitivity effects on industrial activities will be avoided.
- 4.11 There are a variety of planning mechanisms to manage the interface between industrial zones, and zones that enable noise sensitive activities. These include providing sufficient separation distances between zones, buffer zones/ overlays (including restrictions on land uses) and noise limits. Where the noise sensitive activity comes to an environment that is already influenced by industrial noise levels (i.e. the industrial activities are authorised and operational), the following acoustic factors should be considered:
 - The level and spatial extent of industrial noise effects across the receiving environment, where the industrial noise levels will become reasonable for noise sensitive activities;
 - ii. Taking into account the noise levels, whether there is adequate separation between the zones/ land uses, such that the potential for reverse sensitivity effects will be avoided.
 - Whether additional controls (such as the use of setbacks, buffers or other mechanisms) are required to control the establishment of noise sensitive activities, to manage any potential noise conflicts between incompatible land uses;
 - iv. Taking into account the use of setbacks, buffers or other appropriate controls, whether the establishment of noise sensitive activities are likely to give rise reverse sensitivity effects on the existing industrial activities, such that their lawful operations are likely to be subject to constraint or complaint.

5. NOISE MODELLING- INDUSTRIAL NOISE EXPOSURE

5.1 I was engaged by HVL to undertake an assessment of the above to inform the development of HVL's submission on the zoning pattern. My initial advice to HVL was that a buffer would be required to adequately separate future noise sensitive activities on the Site from the Pokeno Business Park. I undertook a comprehensive noise modelling exercise (attached as Attachment A) to identify and assess the exposure of the Site to industrial noise effects, to determine the extent of the required buffer. The noise modelling outputs were then used to inform the design and master planning process for the proposed rezoning.

- 5.2 A summary of the noise modelling exercise that informed the noise contours and advice provided in Attachment A is set out below. That report should be referred to for a full understanding of the noise modelling inputs and noise level contours.
- 5.3 The objective of my noise modelling exercise was to accurately understand the spatial propagation of industrial noise from the Pokeno Business Park across the Site. Yashili, Hynds, PNPL and Synlait were identified as the key industrial noise makers that generate noise emissions across the Site.
- 5.4 The noise modelling was undertaken using Brüel & Kjær Predictor computer noise modelling software, and took into account:
 - (1) The noise sources present in the industrial area.
 - (2) The maximum permitted noise levels applying within and between the various zones in the surrounding area, including the requirement for the industrial activities to meet the residential noise limits applying at the existing residential zones (i.e. the Residential 2 Zone⁸ to the north of Yashili Drive and on the eastern side of William McRobbie Road, and the Village Zone) as specified in the Operative District Plan and the relevant resource consents.
 - (3) The topography of the Pokeno Business Park (including the Site), and screening effects afforded by the industrial buildings.
 - (4) The noise emissions of the industrial activities, (as detailed in Attachment A).
- 5.5 The noise modelling process involved building a model of each of the four key industrial activities in individual models. This enabled each model to be calibrated to ensure that the noise emissions for each activity are commensurate with the maximum levels authorised by the relevant resource consents and Operative District Plan noise limits.
- 5.6 The individual noise models were then combined into a single noise model to represent the cumulative noise levels. The outputs of this noise modelling exercise are noise level contours that demonstrate the cumulative propagation of industrial noise emissions across the Site and surrounds.
- 5.7 The 45dB L_{Aeq} noise contour (for noise emissions during the night time period) was identified and used by the HVL project team to:

⁸ Residential Zone of the PWDP

- a) Identify the location of the proposed Pokeno Industry Buffer Overlay across the Site;
- b) Determine the underlying zoning pattern that is proposed to apply to the land affected by the Pokeno Industry Buffer Overlay (proposed Industrial Zone in 5 Yashili Drive and Environmental Protection Area overlay on the Precinct Plan in 88 Bluff Road); and
- c) Inform the development of proposed HVL rules 16.3.9.2 P2 and 16.4.12 RD2⁹ to preclude the establishment of noise sensitive activities within the Pokeno Industry Buffer Overlay.

6. MANAGEMENT OF NOISE EFFECTS

The proposed Pokeno Industry Buffer Overlay

- 6.1 The proposed Pokeno Industry Buffer Overlay represents the location of the 45dB L_{Aeq} industrial noise contour across the Site during the night time period. As the day time industrial noise limits are 10 dB higher, the contour also represents the 55dB L_{Aeq} day time industrial noise contour. Essentially this means that future residential activities located near to the boundary of the Pokeno Industry Buffer Overlay will be exposed to industrial noise emissions no greater than 55 dB L_{Aeq} (day time) and 45 dB L_{Aeq} (night time). Noise levels further into the proposed Residential Zone within the Site will reduce with distance.
- 6.2 Noise limits of 55 dB L_{Aeq} (day time) and 45 dB L_{Aeq} (night time) are commonly adopted in District Plans for residential zones (providing for traditional single-house residential activity) at the interface with business or industrial zones¹⁰, and rural zones. These noise levels represent the highest noise limits for traditional residential development requiring an adequate level of outdoor amenity. These noise limits are very common across New Zealand in situations where business or industry zones have an interface with residential or rural zones.
- 6.3 In summary, based on the noise modelling I have undertaken, the land subject to the Pokeno Industry Buffer Overlay (in which noise sensitive activities are precluded) represents the appropriate separation distance to manage potential noise conflicts between future noise sensitive activities on the Site, and the noise effects of existing, authorised industrial activities in the Pokeno Business Park.

⁹ Refer evidence of Mr Tollemache

¹⁰ For example, E25.6.19. Business zones interface of the Auckland Unitary Plan. This standard authorises noise levels of 55 dB L_{Aeq} (daytime) and 45 dB L_{Aeq} (night time) for residential zones exposed to noise from industrial or business zones.

Reverse sensitivity effects

- 6.4 Fundamentally, the zoning pattern and accompanying controls proposed in the HVL submission seek to ensure that future noise sensitive receivers on the Site will be exposed to a level of noise that is no greater than reasonable for residential activity. By ensuring that the noise levels are reasonable, the potential for reverse sensitivity effects on the existing industrial zones will be avoided.
- 6.5 The location of the Pokeno Industry Buffer Overlay has been determined by modelling the noise sources in a way that is commensurate with the level of noise that the various activities are permitted to generate under the existing consents and OWDP provisions. This approach seeks to avoid the introduction of a new, noise constraining effect on the existing industrial activities.

The proposed zoning pattern

- 6.6 The HVL submission seeks to zone the land affected by the Pokeno Industry Buffer Overlay as follows:
 - A small (1.67Ha) Industry Zone is proposed within the part of 5
 Yashili Drive bordering the existing industrial zone;
 - (2) The balance of the affected land on 88 Bluff Road applies the Environmental Protection Area overlay.
- 6.7 The HVL submission proposes rules 16.3.9.2 P2 and 16.4.12 RD2 to require that:
 - Any new building or alteration to an existing building for a sensitive land use must be located outside the Pokeno Industry Buffer Overlay;
 - (2) Every proposed building platform for a dwelling associated with a proposed lot in a subdivision application must be located outside the Pokeno Industry Buffer Overlay.

Development or subdivision that does not comply with the above rules will require resource consent as a discretionary activity.

6.8 The proposed Industrial Zone at 5 Yashili Drive is intended to provide a buffer between the existing Industrial Zone (and the Yashili operation) and the proposed Residential Zone. New industrial activities that establish in the proposed Industrial Zone on 5 Yashili Drive will be required to establish and operate in a way that ensures they comply with the residential noise limits applying at the proposed Residential Zone (within the Site) and the existing Residential Zone to the north-west of 5 Yashili Drive¹¹. The need for any new industrial operator establishing on the Site to design and comply with the industrial-residential interface noise limit will be a clear requirement for any activity proposing to establish on the Site.

7. COMMENTS ON COUNCIL SECTION 42A FRAMEWORK REPORT

7.1 Achieving adequate separation between incompatible land uses is a driving principle for the selection of zones and zone boundaries¹². The Section 42A Report recognises¹³ that:

"There is a need for adequate separation between incompatible land uses (e.g., houses should not be next to heavy industry.

Deciding whether adjacent zones would bring together incompatible land uses will usually be based on a comparison of the objectives, policies and permitted activities of the respective zones. It is usually at the zone edge or boundary that conflicts and reverse sensitivity effects arise.

The existing built environment in the locality will also be relevant. A feature may render the land more or less suitable for the proposed zone. Residential zoning near existing industry is generally undesirable because of impacts on the amenity, health and safety of future residents and because of the potential for reverse sensitivity effects on industry...

Edge and reverse sensitivity effects can be mitigated to some extent by rules in the plan. For example, additional controls can be placed on noise and light spill near zone boundaries and additional setbacks and physical barriers such as bunds and buffers can be required. The PWDP includes rules of this kind in the Industrial Zone. Rules require sites adjoining other zones to maintain landscaping strips (Rule 21.2.2), noise attenuation (Rule 23.1.3.2), setbacks for goods storage (Rule 21.2.8), and building setbacks from a bund (Rule 20.3.4.1.) These approaches have a role to play but are generally second-best options because all incur implementation costs. First preference will usually be to avoid creating adjoining incompatible zones."

¹¹ Both the Operative and Proposed District Plans require that noise generated from a site in an industrial zones and received in another must not exceed the permitted noise levels for that zone

¹² Appendix 3: Further discussion on guidance for selection of zones and zone boundaries.

¹³ Page 72 of H25 Zone Extents Framework Report.

- 7.2 I agree with the above principles. In terms of determining the appropriate zone adjacent to zones containing noise generating activities, it is possible to add more industrial or other relatively insensitive zones adjacent to the existing industrial zones to avoid constraints on existing industrial operations. However, at some point there must be an interface with a more sensitive zone. The key is then how this interface is managed through the use of separation buffers or zones what effects the interface might have on existing lawfully established activities.
- 7.3 The rezoning proposed in the HVL submission relies on the Pokeno Industry Buffer Overlay (and accompanying controls) to ensure noise sensitive activities are not able to establish within the land exposed to noise levels from industrial activity above 45dB L_{Aeq} (night time) and 55 dB L_{Aeq} (day time).

8. COMMENTS ON SUBMISSIONS

8.1 The Hearing 18: Rural hearing panel has allowed HVL to respond to the submissions of Synlait/ Hynds as part the Hearing 25: Rezoning topic. Both submitters raise concerns relating to reverse sensitivity conflicts on their activities arising from the rezoning of the Site.

Hynds Pipe Systems Limited/ Hynds Foundation

- 8.2 I have reviewed the submissions of Hynds, including the planning evidence of Dharmesh Chhima on behalf of Hynds. Hynds oppose any zoning which authorises the establishment of residential activity on the adjacent land to the south and south west of their site. This includes the HVL site at 88 Bluff Road, and the site they have recently acquired for expansion purposes at 62 Bluff Road. Hynds oppose the re-zoning proposed in the PWDP and the HVL submission due to "significant reverse sensitive effects on the Heavy Industry established and proposed in this location"¹⁴
- 8.3 Mr Chhima's evidence notes that through the proposed Rural Zoning of the HVL Site, the Proposed Plan removes the Aggregate Extraction and Processing (AEPZ) Zone and the 500m buffer¹⁵ applying to noise sensitive activities within proximity to the AEPZ or rock extraction site. On page 1 of Mr Chhima's evidence, he notes:

"The net effect of the above provisions is that new dwellings have to be located some 600m-900m or more from the Hynds factory site (being the combination of the 500m buffer plus the distance of the AEP Zone). The operative planning framework provides a high level of assurance to Hynds that there will be limited

¹⁴ Further submission for the Hynds Foundation.

¹⁵ Rule 23A.2.1.10 Dwelling House, Sleepout, Farmers' Market, Equestrian Centres in Vicinity of Mineral Extraction Activities

opportunity for sensitive activities to locate south and west of the Industrial 2 Zone.

The net effect of the Proposed Plan provisions is that dwellings and other sensitive land uses could locate directly to the west of and adjacent to the Heavy Industrial Zone, and as close as approximately 300m to the south / southeast of the Hynds factory site. This is a very clear and substantial decrease in the level of protection afforded to the Heavy Industrial Zone and the Hynds factory site from reverse sensitivity effects."

- 8.4 I have reviewed the OWDP and Hynd's resource consent conditions to determine whether the rezoning proposed in the Hearing 18: Rural or Hearing 25 processes would be likely to bring noise sensitive activities closer to Hynds. I have also looked at whether the zoning pattern would introduce noise compliance¹⁶ points closer to their site, or give rise to a potential for reverse sensitivity conflicts.
- 8.5 I note that the 500m buffer required under Rule 23A.2.1.10 does not apply in instances where the "written approval of the operator of the extraction site has been and provided to the Council¹⁷". Essentially this means a dwelling on a RZ site adjacent to the AEPZ is a permitted activity where the operator (i.e. the owner of the AEPZ site) provides their approval.
- 8.6 HVL own both 5 Yashili Drive (in the RZ) and 88 Bluff Road (in the AEPZ). Therefore the ability to provide written approval to the establishment of a noise sensitive activity on 5 Yashili Drive is both tacit and authorised under the OWDP. For this reason, the OWDP provisions do not provide a reasonable level of assurance to Hynds' that any dwelling would be established beyond 500m from the AEPZ.
- 8.7 The resource consent for Hynds requires that noise levels from the Hynds site must not exceed 50dB L_{Aeq(15min)} (daytime) and 40dB L_{Aeq(15min)} / 70dB L_{Amax} (night time) when measured at any sites within the R2Z or Village Zone (VZ) or any existing dwelling house in the RZ existing as of 18.12.2008. If the receiver is in a High Background Noise Area, the A-weighted noise levels are 5dB higher (i.e. 55/ 45 dB L_{Aeq}).
- 8.8 The zoning pattern provided in Figure 2 identifies the R2Z, VZ and RZ in relation to the Hynds site. Based on measurements I have undertaken using the Operative District Plan Intramaps service (i.e. measuring the separation distances between the Hynds' boundary and the adjacent R2Z, VZ and RZ), I note:

¹⁶ Both the ODP and PDP include an 'interface' noise limit that requires the noise generated from an activity in one zone to meet the noise limits of the receiving zone (a zone interface noise limit).

¹⁷ Rule 23A.2.1.10 of the Operative District Plan.

- (1) At its closest point, the southern boundary of the Hynds site is approximately 80m from the RZ¹⁸;
- (2) The eastern boundary of the Hynd's site is approximately 40m from the R2Z (on the northern side of William McRobbie Road¹⁹).
- (3) The eastern boundary is approximately 90m from the VZ (Crickett Lane).



Figure 2: OWDP map showing the proximity of Residential 2, Village and Rural Zones to **Hynds**

- 8.9 The proposed rezoning of the Site would authorise residential no closer than approximately 400m from the Hynds site.
- 8.10 Figure 2 demonstrates that the noise emissions from the Hynds site are already constrained by the close proximity of the R2Z land to the northwest and the VZ to the northeast. The zoning of the more proximate zones authorising noise sensitive activities will continue to control the noise emissions of the Hynd's site.

¹⁸ I am not aware of the location of the closest dwelling in the RZ that was existing as of 18.12.2008. This will form Hynd's noise compliance point to the south-east. Notwithstanding, the R2Z on the northern side of William McRobbie Road is closer than the RZ and therefore controls the noise emissions from the Hynds site.. ¹⁹ Part of this R2Z is in a Background Noise Area but is not in a *High* background noise area.

8.11 Section 9 of this evidence discusses the noise modelling I have undertaken to determine the noise levels from the Hynds site across the surrounding environment, while maintaining compliance with the noise limits of their resource consent. Based on the noise modelling results, and the proposed separation distances to the proposed zones containing noise sensitive land use, I consider Hynds noise emissions will continue to be controlled by the existing compliance points of the established zones, such that the zoning of the HVL Site to the south and southwest will not give rise to any appreciable additional compliance burden.

Synlait

- 8.12 I have reviewed Synlait's submission and Ms Rykers planning evidence for Hearing 18. In her evidence, Ms Ryker discusses the scale and nature of activities on the Synlait site, and the range of potential adverse effects (including noise) that may be generated beyond Synlait's boundaries.
- 8.13 In her evidence, Ms Rykers considers that a 25m setback from the Synlait site (and heavy industrial activities generally) would not provide an appropriate level of amenity to noise a sensitive activity, and is insufficient to avoid a potential reverse sensitivity effect²⁰.
- 8.14 Synlait seek that Rule 22.3.7.2 be amended to include a setback from the Heavy Industrial Zone boundary, and to amend Rule 22.3.7.4 *Building setback- noise sensitive activities* to include the Heavy Industrial Zone. In terms of the appropriate setback distance to appropriately manage reverse sensitive conflicts on the industrial activities, Ms Rykers considers that noise sensitive activities should be setback 300m from the Heavy Industrial Zone. This suggestion does not appear to be based on any calculation or technical assessment of noise levels or effects.
- 8.15 The noise modelling I undertook for HVL was informed by a review of the noise assessment²¹ (the **MDA Assessment**) that accompanied the resource consent application that authorised the establishment and operation of Synlait.
- 8.16 The MDA Assessment is based on a high level noise budget for Synlait's current and future noise emissions. The noise budget includes an allowance for the operation of two potential future stages. In terms of modelling the noise from Synlait's potential future expansion, the MDA Assessment states "*Although this is a preliminary specification which would require refinement as the design develops to the point of*

²⁰ Paragraph 32 of Nicola Rykers planning evidence for Hearing 18: Rural

²¹ Pokeno Dairy Factory Assessment of Noise Effects prepared by Marshall Day Acoustics dated 13 March 2018.

tender, MDA considers the budget to be sufficiently robust for the purposes of predicting the operational noise envelope and to assess potential effects²².

8.17 The MDA Assessment identifies the OWDP zoning pattern, and the requirement for Synlait to meet the interface noise limits applying at the nearby Residential and Rural Zone boundaries. Based on their noise level predictions across the receiving environment, the MDA Assessment states:

> "noise from the operation of the activity can be designed to comply can be designed to comply with the relevant noise limits when assessed at the residential boundary or notional boundary for rural receivers, based on the proposed noise budget and conceptual acoustic mitigation measures.

• • •

The comfortable compliance for the site (as assessed at the residential boundary or notional boundary for rural receivers) includes an allowance in the noise budget for two potential future stages²³

- 8.18 Taking into account the noise level predictions, zoning pattern (including the proximity of the nearby residential zone), the MDA Assessment concludes "*no adverse effects would occur at adjacent sites*"²⁴.
- 8.19 My noise level modelling essentially replicates the noise sources, buildings and topography used in the MDA Assessment. The noise level contours that I have predicted across the Site are very similar in location and level to those produced in the MDA Assessment for the current activity and possible future stages.
- 8.20 The proposed Pokeno Industrial Overlay Buffer therefore takes into account the current activities and possible future expansion on the Synlait site.

9. CONCLUSION

9.1 My evidence provides an explanation of the assumptions and methods used to inform the location and extent of the proposed Pokeno Industry Buffer Overlay required as a result of the proposed rezoning sought by HVL. This has informed the master-planning across the Site, and the proposed controls relating to the establishment of noise sensitive activities on the Site.

 ²² Page 10, Pokeno Dairy Factory Assessment of Noise Effects prepared by Marshall Day Acoustics dated 13 March 2018.
 ²³ Page 11, Page 10, Pokeno Dairy Factory Assessment of Noise Effects prepared by Marshall Day Acoustics dated 13 March 2018.

^{2018.} ²⁴ Page 11, Page 10, Pokeno Dairy Factory Assessment of Noise Effects prepared by Marshall Day Acoustics dated 13 March 2018.

- 9.2 The proposed rezoning sought by HVL will establish a Residential Zone, near to an established industrial area that is occupied by existing authorised noise-generating activities. The Rural zoning proposed by the PWDP will also introduce noise-sensitive receivers to the Site, albeit at a lower density.
- 9.3 My initial advice to HVL was that a buffer would be required to adequately separate future noise sensitive activities on the Site from the Pokeno Business Park. I undertook a comprehensive noise modelling exercise (attached as Attachment A) to identify and assess the exposure of the Site to industrial noise effects, to determine the extent of the required buffer. The noise modelling outputs were then used to inform the design and master planning process for the proposed rezoning.
- 9.4 The noise modelling process involved building a model of each of the four key industrial activities in individual models where each model was calibrated to ensure that the noise emissions for each activity were just compliant with the maximum permitted noise levels authorised by the relevant resource consents and District Plan noise limits. The individual noise models were then combined into a single noise model to represent the cumulative propagation of industrial noise emissions across the Site and surrounds.
- 9.5 The proposed Pokeno Industry Buffer Overlay represents the location of the 45dB L_{Aeq} industrial noise contour across the Site during the night time period. As the day time industrial noise limits are 10 dB higher, the contour also represents the 55dB L_{Aeq} day time industrial noise contour. Essentially this means that future residential activities located near to the boundary of the Pokeno Industry Buffer Overlay will be exposed to industrial noise emissions no greater than 55 dB L_{Aeq} (day time) and 45 dB L_{Aeq} (night time). Noise limits of 55 dB L_{Aeq} (day time) and 45 dB L_{Aeq} (night time) are commonly adopted in District Plans for residential zones (providing for traditional single-house residential activity) at the interface with business or industrial zones²⁶, and rural zones.
- 9.6 Based on the noise modelling I have undertaken, the land subject to the Pokeno Industry Buffer Overlay (in which noise sensitive activities are precluded by proposed rules 16.3.9.2 P2 and 16.4.12 RD2) represents the appropriate separation distance to manage potential noise conflicts between future noise sensitive activities on the Site, and the noise effects of existing, authorised industrial activities in the Pokeno Business Park.
- 9.7 The proposed Industrial Zone at 5 Yashili Drive is intended to provide a buffer between the existing Industrial Zone (and the Yashili operation) and the proposed Residential

²⁶ For example, E25.6.19. Business zones interface of the Auckland Unitary Plan. This standard authorises noise levels of 55 dB L_{Aeq} (daytime) and 45 dB L_{Aeq} (night time) for residential zones exposed to noise from industrial or business zones.

Zone within the Site. New industrial activities that establish in the proposed Industrial Zone on 5 Yashili Drive will be required to establish and operate in a way that ensures they comply with the residential noise limits applying at the proposed Residential Zone (within the Site) and the existing Residential Zone to the north-west of 5 Yashili Drive²⁷. This may include the requirement for buildings, noise barriers, bunding (or a combination of any or all of these) be established to manage noise from 5 Yashili Drive propagating into the Site. The need for any new industrial operator establishing on the Site to design and comply with the industrial-residential interface noise limit will be a clear requirement for any activity proposing to establish on the Site.

9.8 My evidence has set out the rationale for and the process to derive the location and extent of the proposed Pokeno Industrial Buffer Overlay. The overlay will separate the activities in the Pokeno Business Park from the proposed residential zoning on the HVL Site that will ensure noise levels in the proposed residential zone are reasonable. This will avoid reverse sensitivity effects occurring on the existing industrial activities.

Jon Styles

17 February 2020

²⁷ Both the Operative and Proposed District Plans require that noise generated from a site in an industrial zones and received in another must not exceed the permitted noise levels for that zone

Attachment A

Consulting Advice Note

Date	15 February 2021
From	Jon Styles
То	Joel McKinlay, Havelock Village Limited
Project	Proposed residential zoning of 88 Bluff Road and 5 Yashili Drive Road, Pokeno
Re	Assessment of industrial noise levels to inform location of proposed Pokeno Industrial Buffer Overlay across HVL land

P. 09 308 9015
E. info@stylesgroup.co.nz
W. www.stylesgroup.co.nz
Saatchi & Saatchi Building,
L2, 125 The Strand, Parnell
PO Box 37857, Parnell,
Auckland 1151

Havelock Village Ltd (HVL) have engaged Styles Group to assess the maximum permitted industrial noise levels from activities in the Pokeno Business Park (**PBP**), to inform the design and master planning process for the proposed residential rezoning of 88 Bluff Road and 5 Yashili Drive, Pokeno (**the Site**).

Styles Group has undertaken noise modelling to determine the level of potential industrial noise exposure across the Site, and to identify whether a formal setback or "buffer" area is required to ensure that noise sensitive activities within any part of the Site will not be exposed to industrial noise levels that are unreasonable for residential receivers (during the day and night).

By ensuring that future residential occupants of the Site enjoy a reasonable level of noise, the potential for reverse sensitivity effects on the industrial activities will be managed.

This memorandum outlines:

- i. The level of noise authorised within the PBP, commensurate with the noise limits authorised in the resource consent conditions for the key industrial noise generating activities (Synlait, Yashili, Hynds Pipes and Pokeno Nutritional Plant Ltd (**PNPL**));
- ii. The zoning pattern applying within and beyond the PBP under the Operative District Plan and the relevant noise limits that apply between the industrial activities and the adjacent rural and residential zones;
- iii. The results of noise modelling identifying the cumulative operational noise exposure across the Site (for the day and night time periods) from the key PBP industrial noise generating activities;
- iv. Identification of the 45dB L_{Aeq} noise contour affecting the Site to inform the location of a proposed Pokeno Industrial Buffer Overlay (in which noise sensitive activities are restricted).
- v. Comment on the proposed Waikato District Plan provisions to control subdivision and development within the proposed Pokeno Industrial Buffer Overlay.

1.0 The Site and adjacent land uses

The Site occupies an elevated position overlooking the Pokeno industrial area, including the PBP. Figure 1 displays the approximate location of the Site, the topography of the land, and the industrial activities in the PBP.

1.1 Operative Waikato District Plan (Franklin Section) Zoning

The Site is located in the Rural Zone (RZ) and Aggregate Extraction Zone (AEZ) of the Operative Waikato District Plan (Franklin Section) (**the District Plan**). The PBP is located in the Industrial 2 Zone (I2Z) and Light Industrial Zone (LIZ).

Figure 2 displays the District Plan zones applying to the Site (outlined in red), the surrounding land in the PBP, and the Residential 2 Zone (**R2Z**) to the north and north-west of the PBP

Figure 1 - The Site and Gateway Business Park (Source Google map data @2019)

Figure 2 - Operative District Plan Zoning (88 Bluff Rd and 5 Hitchen Rd boundaries outlined red)

1.2 Maximum permitted noise levels

The level of noise that can be generated by the industrial activities in the PBP is determined by the noise compliance points already established between the various sites, the zoning pattern, and the level of noise that is authorised at each receiving zone through the District Plan or resource consent conditions. The zoning map provided in Figure 2 identifies the zoning pattern across the PBP, and the proximity of the Residential 2 Zone and Rural Zone to the PBP.

The level of noise authorised by the District Plan noise limits and resource consent conditions applying to the key noise generating activities are set out below.

1.2.1 Maximum permitted noise levels between the Industrial Zones

The Operative Waikato District Plan prescribes the following noise limits between sites in the same industrial zone, and between the I2Z and LIZ:

Zone interface	Noise limit
Noise levels generated within the I2Z and received within the I2Z	65dB L _{Aeq} (all times)
Noise levels generated within the I2Z and received within the LIZ	70dB L _{Aeq} (all times)
Noise levels generated within the LIZ and received within the LIZ	65dB L _{Aeq} (all times)
Noise levels generated within the LIZ and received within the I2Z	70dB L _{Aeq} (all times)

1.2.2 Noise levels received in the Rural and Residential Zones

Importantly, the noise output of any activity on the industrial sites is inherently constrained by the requirement to comply with the District Plan noise limits applying at the residential zone. Figure 3 demonstrates the location of the closest residential zoned land, being the R2Z to the north-west of the LIZ, and the R2Z to the north of the LIZ and I2Z on the northern side of William McRobbie Road.

The District Plan limits for noise generated in the I2Z or LIZ and received in the R2Z are 50dB $L_{Aeq(15min)}$ between the hours of 7:00am and 10:00pm, and 40dB $L_{Aeq(15min)}$ and 70dB L_{Amax} between 10:00pm and 7:00am.

The resource consent conditions for Yashili, Synlait, Hynds Pipes and PNPL all stipulate that the noise limits only apply to any RZ dwellings existing at the time the respective resource consents were granted.

Following review of the resource consent conditions, the key noise generating activities are required to comply with the following noise limits when measured and assessed at the RZ or R2Z:

- Yashili is required to comply with noise levels of 50dB L_{Aeq(15min)} between the hours of 7:00am and 10:00pm, and 40dB L_{Aeq(15min)} / 70dB L_{Amax} between 10:00pm and 7:00am. These noise limits apply at any site within the R2Z and at the notional boundary¹ of any existing dwelling house as of 23 October 2015 in the RZ.
- Synlait are required to comply with noise levels of 50dB $L_{Aeq(15min)}$ between the hours of 7:00am and 10:00pm, and 40dB $L_{Aeq(15min)}$ / 70dB L_{Amax} between 10:00pm and 7:00am. These noise limits apply at any site within the R2Z and at the notional boundary of any existing dwelling house as of 18 December 2008 in the RZ.
- Hynds Pipes Limited are required to comply with noise levels of 50dB L_{Aeq(15min)} between the hours of 7:00am and 10:00pm, and 40dB L_{Aeq(15min)} / 70dB L_{Amax} between 10:00pm and 7:00am. These noise levels apply at any site in the R2Z and at any existing dwelling house as of 18 December 2008 in the RZ;

¹ The notional boundary means a line 20m from any side of a dwelling or the legal boundary which is closer to the dwelling.

PNPL is required to comply with noise levels of 50dB L_{Aeq(15min)} between the hours of 7:00am and 10:00pm, and 40dB L_{Aeq(15min)} / 70dB L_{Amax} between 10:00pm and 7:00am. These noise levels apply at any site in the R2Z and at any dwelling house existing as of 29 April 2019 in the RZ;

The location and zoning of the various industrial activities, and their proximity to the Site and the R2Z and RZ are depicted in Figure 3.

Figure 3: The key PBP industrial activities and Rural and Residential zoning context

In summary, the industrial activities must comply with the day and night time noise limits which apply at the various compliance points within the industrial zone sites as well as at the RZ and R2Z interfaces. This results in a constraint on the potential level of noise effects that could generated across the Site during the day and night time periods.

In essence, the existing noise controls means that the industrial activities are not likely to be able to generate noise levels as high as $65dB - 70 dB L_{Aeq}$ across all boundaries at all times. We have developed a computer noise model to demonstrate the maximum noise emissions of the industrial activities and the extent of noise level propagation over the subject Site when the industrial activities are operating in compliance with the relevant noise limits between the various zones. The noise modelling exercise and results are discussed below.

2.0 Noise modelling

Styles Group have used Brüel & Kjær Predictor computer noise modelling software to prepare noise level predictions of the adjacent industrial activities, including Synlait, Yashili, Hynds Pipes and PNPL. The modelling calculations are based on the International Standard ISO 9613-1/2. The Brüel & Kjær Predictor software is globally recognised and has been successfully implemented on a large number of projects throughout New Zealand.

As discussed above, the noise model takes account of the various compliance points applying to the operation of the activities, within and between zones, topography and screening effects of buildings.

All noise modelling results are for the night time operations. The noise level contours during the day are expected to be in the same approximate location but at a level 10dB higher.

The noise level predictions assume meteorological conditions that slightly enhance propagation in all directions in accordance with NZS 6802:2008.

2.1 Noise sources

2.1.1 Synlait

The noise sources for the Synlait site have been taken directly from the data included in the acoustic report prepared by Marshall Day Acoustics that accompanied their application for resource consent. The sources and sound power levels are:

Source	Lw (dBA)
Truck idling	91
Truck wash	95
Forklift	97
Cooling tower	96
Dryer exhaust	94
Dryer	96
Boiler house	96
Boiler stack	97
Milk reception	101
CIP service	95
WWTP	93
WTP	93

The building footprints and layout are based on the consented design. When modelled on its own, the noise level contours we have produced are very similar in location and level to those produced in the Marshall Day Acoustics report. It is important to note that the Marshall Day predictions allow

for two stages of possible future expansion that has not been consented yet. The noise level predictions we have prepared include these two possible future expansions.

2.1.2 Yashili

The individual sources and sound power levels for the Yashili plant were not readily available (as they were for Synlait). We have therefore used the same sources and sound power levels as the Synlait site above, but with the layout and design of the Yashili plant. A general reduction in intensity of the sources was required to ensure that the noise levels from the Yashili plant remained compliant with the noise limits in the resource consent conditions.

The two parcels of land (that share a boundary with 5 Hitchen Rd) southwest of the main site have been treated as individual noise generators in their own right. The noise sources have been assumed to be on the north east half of the site. This provides what we understand to be a realistic and reasonable worst case scenario in terms of noise emissions off the site. The noise source for these sites has been assumed to be a general industrial noise source. The noise emission from each site has been calibrated to be no greater than 40dB L_{Aeq} at the residential boundaries. Those noise sources and buildings have then been integrated into the wider noise model to demonstrate the cumulative spatial distribution of noise across the surrounding land.

2.1.3 Hynds Pipes

No data was available for the noise sources of sound power levels for activities on the Hynds Pipes site. We have adopted an area source for the site at a height of 3m off the ground level. The area source extends across the active area of the Hynds site (based on aerial photography and observations made from sites that overlook Hynds Pipes) but extends no closer than approximately 10m from the boundaries of the site. The sound power level totals 108dBA. The noise emissions from this site are constrained by the close proximity of R2Z land to the northwest and the Village Zone to the northeast.

2.1.4 PNPL

The noise model uses the same sources described for Synlait, but adapted for the layout and design of the PNPL. The noise model is calibrated to ensure the plant operates in compliance with the residential noise limits applying at the residential zone (located to the northern boundary of the PNPL). The noise emissions from this site are highly constrained by the close proximity of residentially zoned land to the northwest and southwest.

2.2 Modelling results

The noise modelling process first involved building a model of each of the four industrial sites in individual models. That enabled each model to be adjusted to ensure that the noise emissions were just compliant with the relevant resource consent / District Plan noise limits applying to each activity.

The four individual noise models were then combined into one model. The noise level contours were then recalculated to determine the propagation of noise levels over the Site and surrounding land for a situation where all four sites are generating noise at the level permitted by their respective resource consent conditions or District Plan limits.

The noise model takes into account future screening on the eastern boundary of the Site (adjacent to the boundary with Yashili). This may take the form of future buildings (10m high), noise barriers or bunds, or a combination thereof.

The noise modelling results are shown graphically in Appendix 1.

The noise modelling results show that the cumulative levels of all four activities result in a noise level of approximately 45dB L_{Aeq} at the R2Z to the northwest, and 40-44dB L_{Aeq} at the Village Zone to the northeast.

The noise levels across the Site range from 50dB L_{Aeq} at the boundary with the Synlait site, down to L_{Aeq} 40dB as far as approximately 240m into the Site. The 45dB L_{Aeq} noise level contour as far as approximately 150m into the Site.

Recommended location of proposed Pokeno Industrial Buffer Overlay across the Site

In general terms, residential activity is sensitive to the effects of noise from industrial activities. The exposure to industrial noise should be managed by its location, buffer zones and noise limits to ensure that the noise effects on the occupants of future dwellings are reasonable. In doing so, the potential for reverse sensitivity effects on the industrial activity will be managed.

For night time noise exposure, we recommend that a level of 45dB L_{Aeq} be adopted as the upper level for residential exposure. This level is adopted in numerous District Plan provisions for where industrial or business zones have an interface with traditional single-house residential activity.

Based on the daytime noise limits at the R2Z being 10dB higher than the night time noise limits, we expect that the day time noise levels will be no greater than 10dB higher than the predicted noise level contours in Appendix 1.

At the location of the 45dB L_{Aeq} noise contour in Appendix 1, the day time level is expected to be approximately 55dB L_{Aeq} . This level accords with the daytime noise limit that is often adopted in many District Plans where there is an industrial or business interface with traditional single-house residential development.

Based on the noise modelling undertaken, we recommend that residential development be set back to generally southwest of the 45dB L_{Aeq} noise level contour in Appendix 1. This contour would then form the extent of the proposed Pokeno Industrial Buffer Overlay area.

Proposed Waikato District Plan controls

We have reviewed the proposed Waikato District Plan (**PWDP**) controls and have liaised with Mr Tollemache to develop the amendments necessary to control subdivision and development within the proposed Pokeno Industrial Buffer Overlay.

The proposed plan provisions as amended by Mr Tollemache are included in Appendix 2 with his additions underlined. The amendments require building platforms to be located outside the proposed buffer, and any new buildings or alterations to existing buildings containing sensitive land uses to be established outside the proposed buffer.

We are satisfied that the proposed planning controls will ensure any future noise sensitive land uses within the Site will be adequately set back, such that the noise levels on future occupants of the proposed Residential zone will be reasonable.

Please contact me if you require any further information.

Yours sincerely,

Jon Styles, MASNZ Director and Principal

Noise Level Contours

422000 Industrial noise - ISO 9613.1/2, [version of Area - Copy of 30-10-20 - 10m building - GD2000 Mt Eden] , Predictor V2020.1 423000

423500

Appendix 2

HVL amendments in <u>blue track changes.</u> Other amendments (red track changes) are recommendations from s42A reports for Topics 10 and 12.

Amendments to Chapter 16 Residential Zone

16.3.9.2 Building setback – Sensitive land use

P1	(a) Any new building or alteration to an existing building for a sensitive land use must
	be set back a minimum of:
	(i) 5m from the designated boundary of the railway corridor;
	(ii) 15m from the boundary of a national route or regional arterial;
	(iii) 25m from the designated boundary of the Waikato Expressway;
	(iv) 300m from the edge of oxidation ponds that are part of a municipal
	wastewater treatment facility on another site; and
	(v) 30m from a municipal wastewater treatment facility where the treatment
	process is fully enclosed ; and .
	(vi) 300m from the boundary of the Alstra Poulty intensive farming activities
	located on River Road and Great South Road, Ngaruawahia.
<u>P2</u>	(a) Any new building or alteration to an existing building for a sensitive land use must
	be located outside the Pokeno Industry Buffer illustrated on the planning maps.
D1	Any building for a sensitive land use that does not comply with Rule 16.3.9.2. P1 or
	<u>P2</u> .

16.4.12 Subdivision - Building platform

	(a) Every proposed lot, other than one designed specifically for access, or is a utility
RD1	allotment must be capable of containing a building platform upon which a dwelling
	and living court could be sited as a permitted activity, with the building platform
	being contained within either of the following dimensions:
	(i) a circle with a diameter of at least 18m exclusive of yards; or
	(ii) a rectangle of at least 200m ² with a minimum dimension of 12m exclusive of
	yards.
	(b) Council's discretion shall be restricted to the following matters:
	(i) Subdivision layout;
	(ii) Shape of allotments;
	(iii) Ability of allotments to accommodate a practical building platform;

	(iv) Likely location of future buildings and their potential effects on the environment;
	(v) Avoidance or mitigation of natural hazards;
	(vi) Geotechnical suitability for building; and
	(vii) Ponding areas and primary overland flow paths.
<u>RD</u>	(a) Every proposed lot must be capable of containing a building platform complying
<u>2</u>	with Rule 16.4.12 RD1 located outside the Pokeno Industry Buffer illustrated on the
	planning maps.
	(b) The Council discretion shall be restricted to the following matters:
	(i) The discretions of Rule 16.4.12 RD1
D1	Subdivision that does not comply with Rule 16.4.12 RD1 and RD2.