

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):

Topic 25 – Zone Extents

**PRIMARY EVIDENCE OF ANDREW FERGUSON CURTIS
ON BEHALF OF HAVELOCK VILLAGE LIMITED**

17 February 2021

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NEW ZEALAND LAWYERS

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1. SUMMARY OF EVIDENCE

- 1.1 My full name is Andrew Ferguson Curtis. I am Technical Director Air Quality at Pattle Delamore Partners, with over 30 years' experience and have specialised for over 24 years in air quality.
- 1.2 I am providing evidence in relation to potential air quality related reverse sensitivity effects 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 HVL is proposing to incorporate a Pokeno Industrial Buffer² on the Site, to provide separation between industrial activities and sensitive land uses.
- 1.4 While this buffer is less distance than that proposed by some submitters, it is my opinion that the proposed buffer is appropriate to ensure that lawfully established activities within both the Industrial and Heavy Industrial zoned land do not experience potential reverse sensitivity effects from any residual air discharges they may emit from sensitive activities located within Site that forms part of the rezoning proposed by HVL.
- 1.5 This level of separation is better than that proposed in the PWDP for the other boundaries with the industrially zoned land.

2. INTRODUCTION

- 2.1 My full name is Andrew Ferguson Curtis. I am Technical Director at Pattle Delamore Partners specialising in Air Quality. I am a Chemical Engineer with over 30 years' experience and have specialised for over 24 years in air quality, providing advice to clients in New Zealand, Australia and overseas.
- 2.2 I have Bachelors' Degree in Chemical and Materials Engineering from Auckland University, a Post Graduate Certificate in Sustainable Management from the Open Polytechnic, and a Post Graduate Diploma in Toxicology (with Distinction) from RMIT University. I am a member of the Clean Air Society of Australia and New Zealand and Certified Air Quality Professional and an approved Resource Management Act Hearing Commissioner.
- 2.3 I have extensive experience in dealing with the issue of reverse sensitivity as it relates to air quality, with some of my recent experience as follows:

¹ Submitter 862 and further submitter 1291.

² Refer proposed Rules 16.3.9.2 P2 and 16.4.12 RD2 in the evidence of Mr Tollemache

- (a) Preparing an assessment for Villa Maria on the potential for reverse sensitivity impacts as a result of a proposed private plan change in Auckland.
- (b) Preparing reports and evidence on the potential reverse sensitivity issues associated with establishing a child care facility adjacent to an industrial area.
- (c) Presenting evidence to a council hearing and the Environment Court on the potential reverse sensitivity issues associated with establishing industrial units incorporating worker accommodation within a Light Industry zone.
- (d) Preparing reports and evidence in relation to the air quality implications, and in particular, potential for reverse sensitivity effects from rezoning of rural land on the outskirts of Tuakau to residential.

2.4 I have been involved in the rezoning proposal by HVL since October 2020, when I was engaged to respond to submissions made on the Proposed Waikato District Plan (“PWDP”), that had potential to impact on HVL’s rezoning proposal. Specifically, as discussed later in my evidence, these submissions sought to introduce separation distances between residences and industrial activities to manage the potential for reverse sensitivity effects on those industrial activities.

2.5 I visited the site and the existing Pokeno Industrial zone on 6 October 2020.

Scope of evidence

2.6 My evidence assesses the potential impact of the further submissions of Hynds and Synlait on the proposed rezoning sought by HVL³, as well as the potential for reverse sensitivity effects to occur if the proposed rezoning occurs.

2.7 My evidence relies on and should be read in conjunction with that of:

- (a) Mr Mark Tollemache
- (b) Mr Jon Styles
- (c) Mr Ian Munro

³ Submitter 862 and further submitter 1291.

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

4.1 The HVL proposal is described in the evidence of Mr Tollemache, and I do not intend to reiterate that here, other than noting that, in relation to air quality and reverse sensitivity the proposed rezoning includes a Pokeno Industrial Buffer around industrially zone land in Pokeno within which sensitive land uses are not permitted. This is in my opinion better than the notified version of Chapter 16 of the PWDP, which would permit sensitive activities to build in the existing residential developments adjacent to industrial activities in the Industrial⁴ Zone in Pokeno, which includes the Yashili Dairy factory.

4.2 The other aspect that is important from an air quality point of view is that the Site is located to the west of existing industry and is elevated. I will discuss the importance of these two points later in my statement.

4.3 Finally, HVL has proposed separation distances for noise purposes (refer evidence of Mr Styles) that are greater than the separation distances between existing residences and much of the existing industrial activities. This can be seen on Figure 1 (Operative Plan) and Figure 2 (PWDP). HVL is consequently proposing a level of protection that is comparable with or better than that previously considered acceptable within this part of Pokeno.

4.4 One of the aspects of the local area that is important when considering the potential for air quality effects, especially those associated with odour and dust is meteorological conditions.

4.5 As far as I am aware there is no publicly available meteorological data for Pokeno, with the closest data in Patumahoe approximately 15 kilometres to the northwest. Given the differences in topography and the high percentage of low wind speeds measured at that location, I have some concerns about how applicable the data is to Pokeno.

⁴ Zoning term used in the Operative Waikato District Plan (which equates to the proposed Light Industrial Zone in the PWDP).

4.6 Therefore, I extracted a wind rose from a CALMET dataset⁵ developed by Auckland Council, which I have attached as Figure 3, and a have provided a breakdown of the wind frequencies in Table 1.

4.7 The wind rose indicates that the predominant winds are likely to be experienced from the southwest, including the majority of the lower speed winds (less than 3 m/s) that are generally associated with carrying odour and higher wind speeds (greater than 5 m/s) which are generally associated with dust nuisance. These high percentages are not surprising given the topography and the significant elevation change (approximately 90 metres at its highest) between the Site and the industrial land to the northeast.

Table 1: Wind Speed Frequency Distribution

Direction	Windspeed (m/s)			Total (%)
	0-3	3-5	>5	
North	2.7	2.0	0.4	5.2
North northeast	3.1	2.1	0.8	6.0
Northeast	2.8	2.2	1.7	6.7
East northeast	6.2	2.0	1.3	9.5
East	3.0	1.5	0.9	5.4
East southeast	1.1	0.9	0.5	2.6
Southeast	0.4	0.7	0.4	1.4
South southeast	0.7	0.5	0.3	1.4
South	0.9	0.3	0.1	1.2
South southwest	1.2	1.5	0.6	3.2
Southwest	2.1	4.8	4.3	11.1
West southwest	9.2	4.2	3.7	17.0
West	4.5	3.2	2.6	10.3
West northwest	3.0	1.8	1.6	6.4
Northwest	2.4	1.9	1.0	5.4
North northwest	2.3	1.4	0.2	3.9

Notes: Calms 3.2%

4.8 Finally, I have considered what degree of separation currently exists between residential properties or activities that may be sensitive to air discharges and existing industrial areas.

⁵ This CALMET data set incorporated information from a wide range of monitoring sites in the Auckland region and is used for dispersion modelling.

- 4.9 The area immediate (within 20 metres) to the northwest of Yashili Drive bounding the Industry Zone is residential, as are the areas bounded by Hitchen Road and Gateway Park. In other words, there does not appear to be any allowance for any form of separation between these two zones.
- 4.10 There is also no separation, other than the North Island Main Truck Railway, between the Heavy Industrial Zone and the area of land bounded by McDonald and Averill Roads. This land is zoned Business in the PWDP and as I discuss later a wide range of sensitive activities, including residential, are permitted within it.
- 4.11 Finally, I note that the Yashili Dairy factory is located within the Industrial zone, and is approximately 250 metres from existing and proposed houses, and has not had any reverse sensitivity issues⁶, with the other large industrial activities Synlait and Hynds further from the existing houses (approximately 500 and 590 metres respectively).
- 4.12 I also understand that the consented Pokeno Nutritional Plant Ltd will also be located within the Industrial Zone and be located in the order of 100 metres from the nearest residence.

5. WHAT IS REVERSE SENSITIVITY

- 5.1 One of the key issues that has been raised in some of the submissions is reverse sensitivity, and the need to have appropriate separation between residential and industrial areas to avoid the potential for reverse sensitivity effects.
- 5.2 There is no definition of reverse sensitivity in the PWDP, and as it is one of the keys to dealing with submissions in relation to Pokeno is important to understand what it means.
- 5.3 There is a definition⁷ in the Franklin section of the Operative Waikato District Plan which states:

REVERSE SENSITIVITY is used to refer to the effects of the existence of sensitive activities on other activities in the vicinity, particularly by leading to restraints in the carrying on of those other activities. An example of reverse sensitivity would be where the establishment of an educational facility in proximity to a long established manufacturing plant caused the closure of the manufacturing plant as a result of the adverse effects of odour and noise.

⁶ Email from WRC dated 17 February 2021, confirmed that there was only one air quality related complaint for Yashili, which was investigated and not substantiated, and none for either Synlait or Hynds.

⁷ Operative Waikato District Plan, Franklin Section, Part 50 Definitions

- 5.4 This definition is generally acceptable, although I do note the following in terms of my understanding of reverse sensitivity effects:
- (a) It is normally the introduction or intensification of sensitive activities near existing lawfully established effects-generating activities which may give rise to reverse sensitivity effects, rather than the “existence” of the sensitive activities. For example, the establishment of a new industrial activity near existing residential activity, giving rise to complaints from those existing residents, is **not** an example of reverse sensitivity.
 - (b) The example attached to the definition, while consistent with the above, provides a very black and white picture of the potential results, which I do not consider is always appropriate. Resolving reverse sensitivity effects can include a requirement for the existing activity to introduce or upgrade control equipment on the effects-generating activities or introduce other controls or restrictions, rather than requiring the outright cessation of the activity.
- 5.5 Further, in New Zealand all discharges to air from industrial or trade premises are prohibited by Section 15 (1)(c) of the Resource Management Act 1991 (RMA) unless they are expressly allowed by a national environmental standard or rule in a regional plan or a resource consent. Section 15 subsections (2) and (2A) similarly deal with discharges from other sources.
- 5.6 Consequently, if an industrial or trade premises had a discharge that was not consented or it was not complying with its resource consent in relation to any air discharges, a requirement to cease or mitigate the effects of the discharge on sensitive activities nearby would also not comprise a reverse sensitivity effect because that requirement was not generated by the sensitive activity.
- 5.7 There is also a definition in the Waikato Regional Policy Statement⁸ which states:
- Reverse sensitivity – is the vulnerability of a lawfully established activity to a new activity or land use. It arises when a lawfully established activity causes potential, actual or perceived adverse environmental effects on the new activity, to a point where the new activity may seek to restrict the operation or require mitigation of the effects of the established activity”*
- 5.8 Given that this definition addresses the concerns I have outlined about I consider it is a better definition of reverse sensitivity.

⁸Waikato Regional Council Regional Policy Statement for the Waikato Region 4 December 2018

6. PROPOSED SEPARATION DISTANCE

- 6.1 HVL has proposed a set back within its property to minimise the potential impacts of noise from industrial activities on residences. This setback is shown on a figure attached to the evidence of Messrs Styles and Tollemache and ranges between 166 and 330 metres of existing industrial activities within the Industrial and Heavy Industrial Zones.
- 6.2 I have previously provided evidence⁹ that in my opinion a separation distance of about 150 metres is reasonable between residential activities and industry, to deal with the inevitable residual air discharges (dust and odour) that can occur, even for activities that are operating within the requirements of their resource consents.
- 6.3 The location of existing residences and industry in Pokeno appears to indicate that this distance may not be required in this instance or at least a decision has been made in the past that it is not necessary for the District Plan to expressly include such a separation distance. In my expert opinion it is appropriate to have some buffer between industrial activities and sensitive activities and the potential for reverse sensitivity effects is significantly reduced if there is a buffer. For that reason, the existing situation in Pokeno is not ideal.
- 6.4 I therefore consider there is considerable merit in having some separation and cannot see a reason why this distance needs to be greater than the 150 metres I have recommended elsewhere.
- 6.5 I understand HVL has proposed a buffer with a distance of between 166 and 330 metres from existing industrial activities to minimise the potential for noise impacts. This distance is greater than that I consider necessary for air quality related reasons (i.e. 150 metres) and so HVL's proposed setback will minimise the potential for residential activities to experience any air quality effects associated with industry, and consequently reduces the potential for reverse sensitivity effects to occur.

7. COMMENTS ON SUBMISSIONS AND RELATED EVIDENCE

Hynds

- 7.1 In its submission, and in planning evidence presented to Hearing 18, Hynds raised concerns about the potential effects of rezoning rural land adjacent to its site on its

⁹ Evidence prepared for 2 Sens Limited and Tuakau Estates (submission 299) Hearing 25, 17 February 2021.

ability to operate, and the potential for this to result in reverse sensitivity effects on its operations.

- 7.2 I have some sympathy for this concern, however, I do not agree from an air quality perspective with its proposed rule to impose a 500 metre buffer around the two sides of the Heavy Industry zone of the PWDP.
- 7.3 Firstly, as I outlined above all discharges to air are controlled by Section 15 of the RMA, and this means for activities in the Waikato, that in addition to requirements set out in the Operative Waikato District Plan or PWDP, there is also a need in accordance with the RMA for any activity with discharges to air to comply with the Waikato Regional Council's ("**WRC**") Waikato Regional Plan ("**WRP**"). Chapter 6 of the WRP sets out the rules relating to discharges to air.
- 7.4 Broadly speaking, the WRP is also permissive although it does set out in Rule 6.1.9.2 a non-exclusive list of industrial and trade premise activities which are discretionary. Based on my experience, the list includes all of the types of activities that are most likely to experience reverse sensitivity effects due to the types of discharges they emit.
- 7.5 However, the "manufacture of concrete" is specifically identified in the General Permitted Activity Rule (Rule 6.1.9.1 (26)) and therefore Hynds' operation does not require a resource consent for air discharges, unless it is not able to meet the standard conditions set out in Section 6.1.8 which are as follows:
- a there shall be no discharge of contaminants beyond the boundary of the subject property* that has adverse effects on human health, or the health of flora and fauna.*
 - b the discharge shall not result in odour that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.*
 - c there shall be no discharge of particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.*
 - d the discharge shall not significantly impair visibility beyond the boundary of the subject property.*
 - e the discharge shall not cause accelerated corrosion or accelerated deterioration to structures beyond the boundary of the subject property.*

7.6 Given that these standards are required to be met at the property boundary, there should be no adverse effect on human health and no offensive or objectionable odour or dust effects occurring off-site if the activity is operating within the standard conditions, and consequently no potential to experience reverse sensitivity effects from activities that may be located beyond the site boundary.

7.7 In addition, condition k in Hynds land use consent (FLUCL08196) states:

The consent holder shall carry out all operations on the site in such a manner to ensure that dust emissions are kept to a practicable minimum and that no dust, as a result of the activities authorised by this resource consent, causes any objectionable or offensive effects beyond the boundary of the site the satisfaction of the Group Manager: Environmental Services.

7.8 If the activity is not meeting either of these sets of standards, then any off-site effects that might occur cannot be considered to be reverse sensitivity effects. In those circumstances it is the responsibility of the activity (i.e. Hynds) to ensure compliance or obtain an air discharge resource consent.

7.9 Secondly there does not appear to be any justification for a 500 metre buffer. While this distance is the same as the setback distance proposed for hard rock quarries in the Rural Zone (Rule 22.3.7.2), I do not consider that distance to be appropriate for Hynds or in fact any other activities that might occur in the Heavy Industrial Zone, based on the type of discharges that could occur from Hynds activities.

7.10 It is generally accepted that dust effects from well controlled sites typically only occurs within 50 metres, and in stronger winds (greater than 5 m/s) out to about 100 metres. It is only poorly performing sites where effects can occur out to 200 metres or more, and in my opinion, this would most likely indicate that a site was not operating in accordance with either the WRP requirements or its land use consent. 200 metres is also consistent with the setback distance in Rule 22.3.7.2 for sand quarries, which is more analogous with the level of dust nuisance effects that might occur from activities in the Heavy Industrial Zone that are not operating in accordance with the permitted activity standards for dust.

7.11 Consequently, given the local wind conditions if Hynds was to generate dust that resulted in some form of off-site effects it would most likely affect the Business zone to the north west or Yashili and Synlait to the east south east. Given the nature of the activities undertaken by these two organisations, I would also consider them to be sensitive to the presence of dust.

7.12 In addition to distances indicated above it is also important to understand where the separation distance is measured from. The general approach in the PWDP is to measure the set back or separation as the distance between the sensitive land use and the activity that could give rise to the effect. This approach is consistent with that adopted by Auckland Council¹⁰, and also the VicEpa¹¹. “urban” method. This latter approach, as shown in Figure 2.1 of that document (reproduced as Figure 2) requires the activity generating the effect to internalise some of the effects within its property. I consider that this approach is appropriate.

7.13 Tonkin & Taylor¹² who have previously prepared a report on separation distances around industrial activities in Tuakau for WDC, stated in its report that:

if the separation distance were measured from the property boundary of the industrial site this would fully externalise the separation distance and could be seen as unnecessarily limiting the use of land outside the industrial site when the likelihood and nature/scale of any future expansion is unknown.

and

In the context of informing decisions about the appropriateness of re-zoning land, the recommended separation distances should be measured from the activity boundary (of the industrial site) to the proposed boundary of the more sensitive zone as this will become the boundary of the nearest sensitive land use.

7.14 I consider that this approach is reasonable and appropriate.

7.15 In its proposal Hynds appear to have proposed that the entire buffer is measured from the boundary of the Heavy Industry Zone over the land of others which is not something that I consider represents good practice.

7.16 I will come back to the issue of what I consider an appropriate separation distance later in my evidence, but would reiterate at this point that I consider that there is no potential that Hynds would experience reverse sensitivity effects from the proposed rezoning, given that the closest part of its site to the HVL land is over 300 metres away with the nearest residence over 450 metres away. These distances are well beyond the those that effects might be expected to occur within, even for activities that had no form of dust control.

¹⁰ Emission Impossible, Separation Distances for Industry, prepared for Auckland Council July 2012

¹¹ Victoria EPA, Recommended Separation Distances for Industrial Air Emissions – Guideline, March 2013

¹² Tonkin & Taylor Ltd, Tuakau Structure Plan – Assessment of Air Quality Effects and Separation Distances, August 2015

7.17 Finally, I note that Hynds has not proposed any form of buffer on land zoned Business that immediately adjoins the Heavy Industry Zone to the north. This seems inconsistent with the approach proposed elsewhere given the wide variety of activities that could occur in that zone which could be sensitivity to air discharges if they were to occur. Based on the Table that forms part of Section 17.1.2 of the PWDP the sensitive activities that are permitted in the Business Zone includes:

- Residential Activity;
- Child care facility;
- Education facility; and
- Hauroa.

Synlait

7.18 Synlait has also made a submission, and presented evidence in Hearing 18, in regard to the need for a buffer zone around the proposed Heavy Industry zone.

7.19 I understand that the reason for the 300 metres requested is to provide alignment with the rules for intensive farming. I have already discussed my concern with this approach as that the entire separation distance has been proposed outside the zone, and that there is no recognition that, some of the separation distance should lie within the emitters land. In any event there are significant differences between an activity such as a dairy factory which is able to put in place a high level of control around odour emissions and intensive farming activities where odour control is more difficult.

7.20 I also note that similar to Hynds, Synlait has not proposed a similar buffer for the northern end of the Heavy Industrial Zone, where it is adjacent to the Business Zone which appears to expose occupiers of the Heavy Industrial Zone to the same issues that they are concerned about on the other boundaries of the Heavy Industrial Zone.

7.21 Unlike Hynds, Synlait operates under a resource consent for discharges to air issues by WRC. This consent sets discharge standards for the site which are equivalent to the General permitted activity standards in the WRP, and in particular requires in Condition 14 that:

The discharge shall not result in odour that is offensive or objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

Note: Whether a discharge is offensive or objectionable is to be determined in accordance with the FIDOL (Frequency, Intensity, Duration, Offensiveness, and Location) factors.

And in Condition 15 that

There shall be no discharge of particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

Note: For the purposes of this consent, whether a discharge of particulate matter is objectionable is determined having regard to the frequency, intensity, duration, nature and location of the particulate matter discharge and any previous substantiated particulate matter complaints relating to the same site.

- 7.22 I consider that these conditions are appropriate and again note that they are required to be met at the site boundary not the Heavy Industrial zone boundary. I also consider that in meeting these standards and the various other requirements that are set out the consent, there is little potential for Synlait to generate discharges that would be likely to trigger the types of reverse sensitivity effects that it has indicated the proposed buffer is intended prevent.
- 7.23 Finally, the advice notes that are attached to both Condition 14 and 15, are ones that allow WRC to take into account the location of the complaints in relation to the source when considering whether the condition is met or not.
- 7.24 Consequently, I do not think a buffer of the distance proposed by Synlait is required or appropriate, with the Pokeno Industrial Buffer proposed by HVL more than appropriate to deal with any potential residual air discharges from Synlait.

8. COMMENTS ON COUNCIL SECTION 42A FRAMEWORK REPORT

- 8.1 I have reviewed the relevant sections of the S42A Framework report, and consider that with respects to the Request, the separation distance proposed is suitable to avoid the potential for conflict between what could be considered incompatible activities.

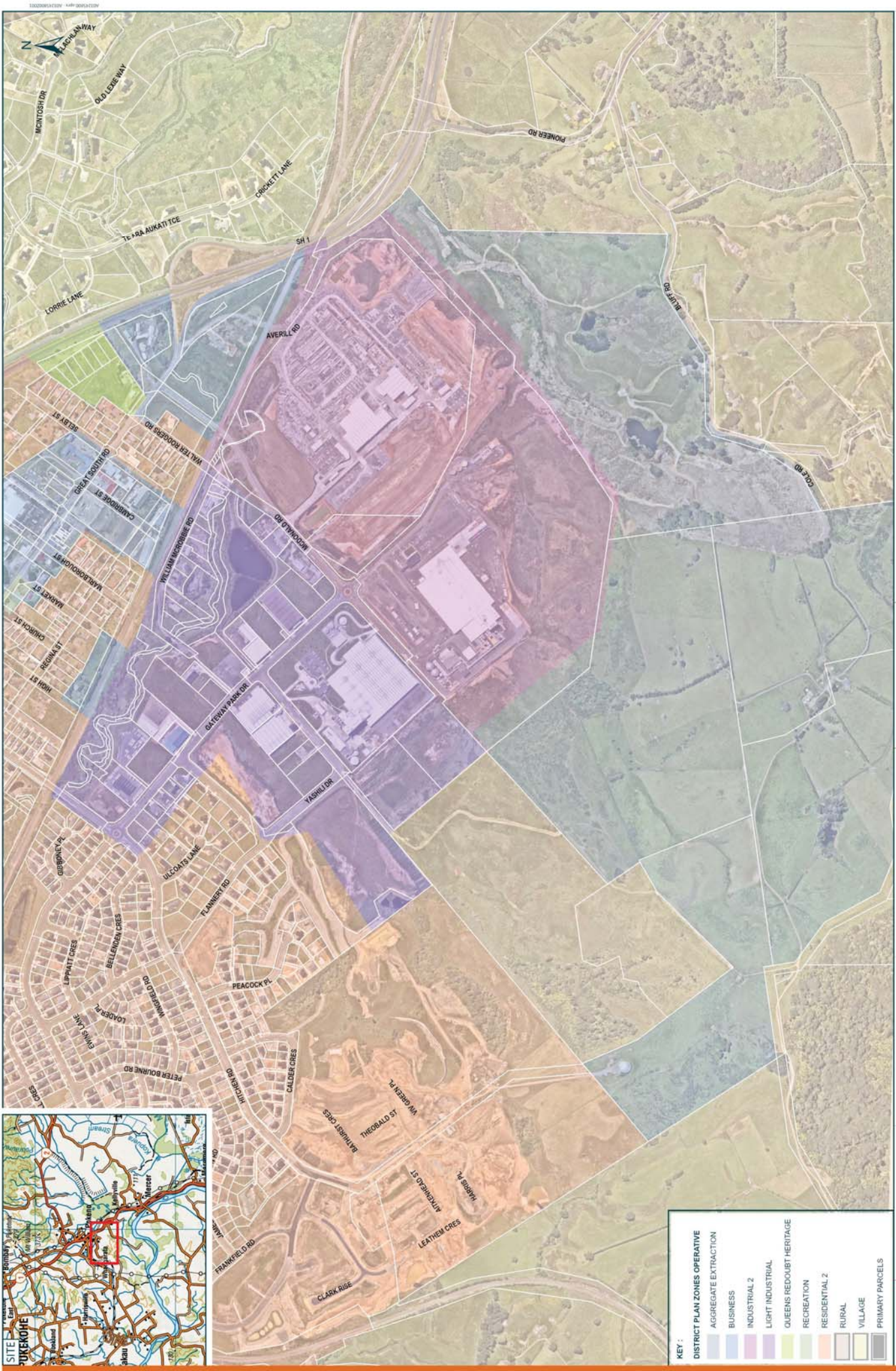
9. CONCLUSION

- 9.1 I have assessed the potential impact of the rezoning request by HVL, to result in reverse sensitivity effects for industrial activities located with the Pokeno Industrial areas.
- 9.2 In my opinion the Industrial buffer that HVL is proposing on its land is appropriate to deal with potential reverse sensitivity effects that may occur from any residual discharges to air that may occur from lawfully operating industrial activities that are located within the industrial zones, and meets one of the key objectives set out in the S42A Framework report.

A handwritten signature in blue ink, appearing to read 'Andrew Curtis', with a long horizontal stroke extending to the right.

Andrew Curtis

17 February 2021



KEY :

- AGGREGATE EXTRACTION
- BUSINESS
- INDUSTRIAL 2
- LIGHT INDUSTRIAL
- QUEENS REDOUBT HERITAGE
- RECREATION
- RESIDENTIAL 2
- RURAL
- VILLAGE
- PRIMARY PARCELS

SCALE: 1:7,500 (A3)

0 50 100 200 METRES

FOR DISCUSSION
10/02/2021

NO. REVISION: _____ DATE: _____

ISSUED FOR REVIEW: FEB 21 2021

NO. REVISION: _____ DATE: _____

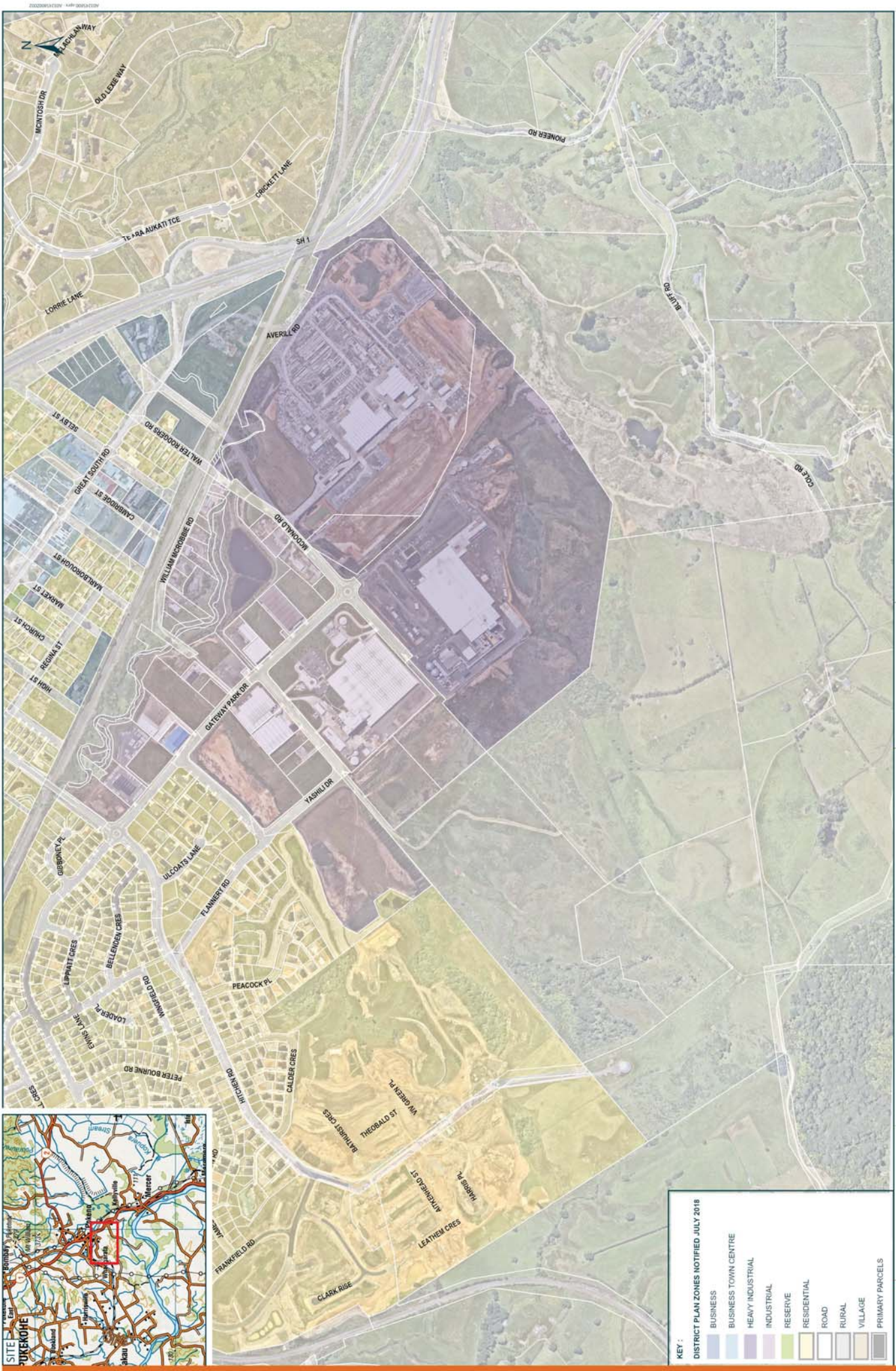
CLIENT: **HAVELOCK VILLAGE LTD**

PROJECT: **POKENO REZONING EVIDENCE**

FIGURE: **FIG 1: OPERATIVE DISTRICT PLAN ZONES AROUND POKENO INDUSTRIAL AREA**

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KEY :
 DISTRICT PLAN ZONES NOTIFIED JULY 2018

- BUSINESS
- BUSINESS TOWN CENTRE
- HEAVY INDUSTRIAL
- INDUSTRIAL
- RESERVE
- RESIDENTIAL
- ROAD
- RURAL
- VILLAGE
- PRIMARY PARCELS

SCALE: 1:7,500 (A3)
 THIS DOCUMENT HAS NOT BE REPRODUCED OR ALTERED WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT

0 50 100 200 METRES

FOR DISCUSSION
 10/02/2021

ISSUED FOR REVIEW FEB 21 2021
 NO. REVISION DATE BY

CLIENT
 HAVELock VILLAGE LTD

FIGURE
 FIG 2: DISTRICT PLAN ZONES (NOTIFIED) AROUND POKENO INDUSTRIAL AREA

PROJECT
 POKENO REZONING EVIDENCE

NOTES:
 1. ALL MAPS AND PLANS ARE FOR INFORMATION ONLY AND DO NOT CONSTITUTE A CONTRACT.
 2. THE CONSULTANT HAS NOT BEEN ADVISED OF ANY CHANGES TO THE INFORMATION PROVIDED.
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Figure 3 Auckland Council 2007 CALMET dataset centred on the site

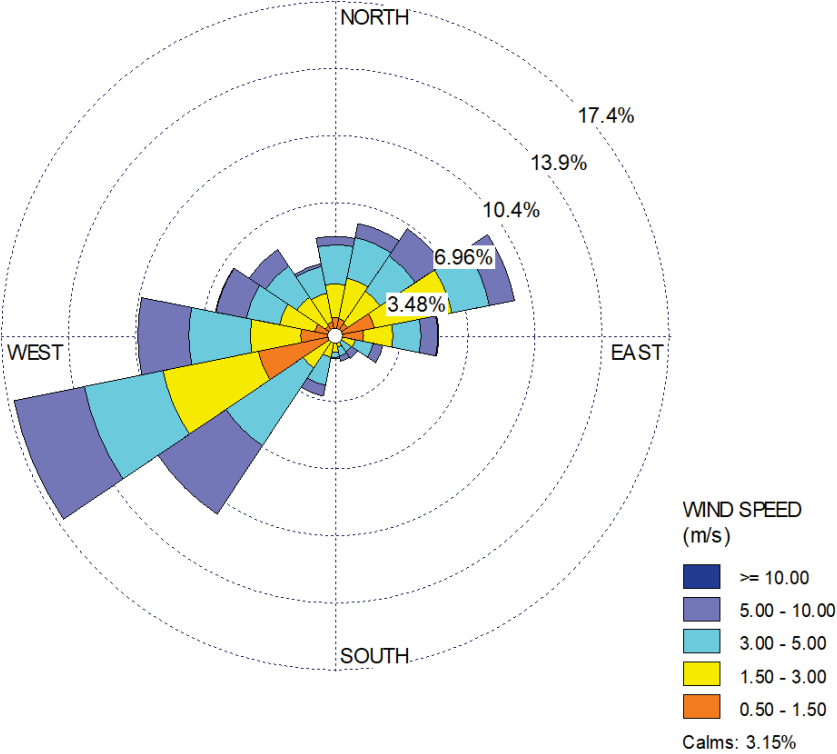
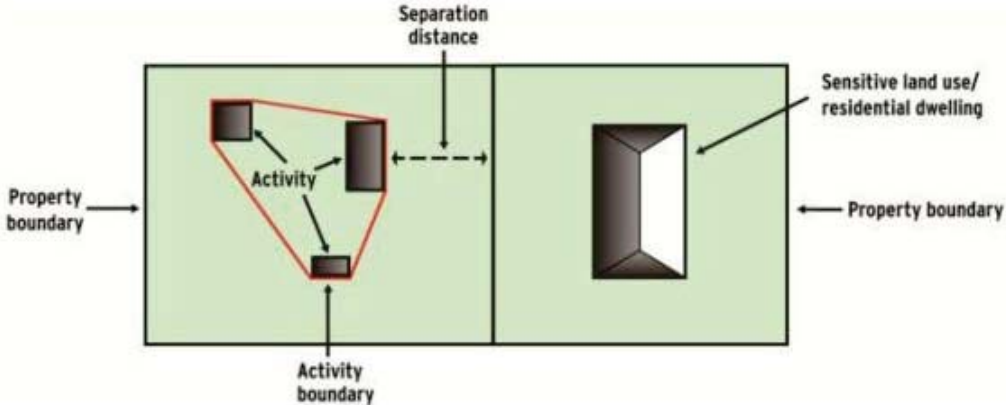


Figure 4 Measurement of separation distance (excerpt from Vic EPA Guidelines)



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):

Topic 25 – Zone Extents

**REBUTTAL EVIDENCE OF ANDREW CURTIS
ON BEHALF OF HAVELOCK VILLAGE LIMITED**

(Air Quality)

3 May 2021

BUDDLE FINDLAY

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1. SUMMARY OF REBUTTAL EVIDENCE

- 1.1 I have reviewed evidence submitted on behalf of Hynds and do not consider from an air quality perspective that there is potential for visible dust or steam emissions to result in reverse sensitivity effects.
- 1.2 I am comfortable that the proposed HVL light industrial buffer adjacent to the Yashili site is appropriate for activities that are being undertaken within the existing Industrial zone.

2. INTRODUCTION

- 2.1 This rebuttal statement relates to evidence filed by:
- (a) Joint Statement of Evidence of Dharmesh Chhima and Sarah Nairn on behalf of Rebuttal Evidence of Hynds Pipe Systems Ltd and Hynds Foundation
 - (b) Jason Jones on behalf of Yashili New Zealand Dairy Co Ltd
- 2.2 I confirm that I have the qualifications and expertise previously set out in paragraphs 2.2 and 2.3 of my primary evidence.
- 2.3 I repeat the confirmation given in my primary evidence that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014 and that my evidence has been prepared in accordance with that Code.

3. EVIDENCE OF DHARMESH CHHIMA AND SARAH NAIRN FOR HYNDS PIPE SYSTEMS LIMITED AND HYNDS FOUNDATION

- 3.1 In paragraph 5.9 Chhima and Nairn raise concerns about the potential for reverse sensitivity effects from dust, despite the fact that the Hynds operation “complies with the relevant resource consents and standards within the OWDP”.
- 3.2 They also indicate that Hynds cannot internalise all adverse effects within its site. I agree that it is not possible for Hynds to totally internalise all its effects and consequently it is appropriate for it be located in the Industrial Zone Heavy which allows for the lower level of amenity that might characterise this environment.
- 3.3 However as I discussed in paragraph 7.5 of my primary evidence, there is also a requirement for Hynds to also meet the requirements set out for permitted activities in section 6.1.8 of the Waikato Regional Plan.

3.4 In addition to the matters, I specifically discussed with in my primary evidence, there is clause d which states

The discharge shall not significantly impair visibility beyond the boundary of the subject property.

3.5 Specifically this allows for dust within sites, to the extent that it does not result in off-site effects. An example of what this is trying to prevent is an activity that generates a visible plume that results in reduced visibility for drivers on an adjacent road.

3.6 As far as I am aware there are no visible plumes generated by Hynds that might give rise to this type of effect, and consequently any visible plumes that Hynds may generate are meeting the permitted activity rule.

3.7 Therefore, while it is possible that residents of HVL, and other locations within Pokeno might see dust or steam within Hynds site and potential make complaints, these complaints do not of themselves constitute a reverse sensitivity effect, as they are not putting any form of constraint on Hynds' activity.

3.8 Even if for some reason, it was considered by the Waikato Regional Council (WRC) that Hynds was not meeting the permitted activity requirements and required Hynds to implement some form of mitigation this would not constitute reverse sensitivity as Hynds discharge would have been unlawful at that point in time.

3.9 However, given that WRC consider the FIDOL factors (WRP Section 6.4) when assessing compliance with the requirements of Rule 6.1.8, the fact that the site is located in a Industrial Zone Heavy, would be an important factor that would be taken into consideration by WRC.

3.10 Consequently I consider that it would be extremely unlikely that WRC would consider the visibility of dust or steam plumes to be anything other than part of normal operations and therefore compliant with the rules.

4. EVIDENCE OF JASON JONES FOR YASHILI

4.1 In paragraphs 28 to 37, Mr Jones discusses the buffer distances I set out in paragraphs 6.1 to 6.5 of my primary evidence, and indicates it is unclear (paragraph 33) whether I have factored in the proposed future activities of Yashili on land it owns to the west of its current plant when I considered my buffer distances.

- 4.2 For the benefit of the Panel I can confirm that I was aware of the potential for future activities to be undertaken on this piece of Industry zone land and was comfortable that the separation distances between it were commensurate with those the Council proposed between residential land and the Industry zone to north west adjacent to Yashili Drive and Flannery Road. It is also similar to that which will exist between Pokeno Nutritional Park Limited and residential properties.
- 4.3 In addition, HVL has proposed to include a small piece of Industrial land immediately adjacent to the Yashili land, which has been designed to act as physical buffer between the residential areas of HVL and the existing Industry zone.
- 4.4 In my opinion, given my understanding of the types of activities which might occur on the Yashili site, the proposed HVL industrial zone will be beneficial in further reducing the potential for any form of reverse sensitivity effects to occur on Yashili.

5. CONCLUSION

- 5.1 I have reviewed evidence submitted on behalf of Hynds and do not consider from an air quality perspective that there is potential for visible dust or steam emissions to result in reverse sensitivity effects.
- 5.2 I am comfortable that the proposed HVL light industrial buffer adjacent to the Yashili site is appropriate for activities that are being undertaken within the existing Industrial zone.

Andrew Curtis

3 May 2021

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):

Topic 25 – Zone Extents

**REBUTTAL EVIDENCE OF BRYAN KING
ON BEHALF OF HAVELOCK VILLAGE LIMITED**

LIGHTING

3 May 2021

BUDDLE FINDLAY

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 REBUTTAL EVIDENCE

- 1.1 My name is Bryan King. I am a qualified lighting engineer and Managing Director of Strategic Lighting Partners Ltd.
- 1.2 I understand the potential for complaints resulting from obtrusive lighting effects emitted from the Gateway Business Park has been raised in evidence in opposition to the Havelock Village Ltd (“HVL”) proposal to rezone land at 5 Yashili Drive and 88 Bluff Road to a predominantly Residential Zone.
- 1.3 I was commissioned to undertake an on-site evaluation at 88 Bluff Road of obtrusive light emitting from the Gateway Business Park. This was to quantify the actual effect associated with lighting from the Park onto HVL site's to provide an informed and quantitative analysis of the potential for such issues to arise. The line-of-sight analysis and scientific site light measurements I have undertaken on HVL's site show that the line-of-sight residential dwelling light exposure zone relative to the Gateway Business Park is actually only a very small part of the HVL site.
- 1.4 **Annexure 1** includes SLP's technical report “Obtrusive Light Measurement Report” dated 23 April 2021. This report records my site evaluation of the light measurement undertaken on the site to evaluate the potential for lighting effects on future residential receivers on the HVL site. The conclusion of this report is:

The HVL site light measurements have been taken at exposure locations within the HVL residential zone area beyond the 45 dB noise contour line...

All measured site light values (vertical plane illuminance) are well within the required limits of the Operative District Plan for residential receivers, and thus compliance with District Plan sections 29B.5.3 and 29C.6.3 is clear and unequivocal.

- 1.5 My analysis and measurements demonstrate that the Gateway Business Park operators are in compliance with Waikato District Council allowable limits as they relate to HVL's proposed residential lots.
- 1.6 Based on current operational light sources from the Gateway Business Park, the resultant HVL exposure zone is very small and the light levels for residential receivers in that zone are less than one tenth of the allowable limit.

2. INTRODUCTION

- 2.1 This rebuttal statement relates to evidence in opposition filed by:
- (a) Laurie Cook dated 17 March 2021 prepared for Hynds Pipe Systems

- 2.2 My name is Bryan King. I am Managing Director of Strategic Lighting Partners Ltd, independent consultants in design, technology, economics, environmental and standards for road lighting and public lighting. I have 38 years' experience as a director and CEO of lighting companies and consultancies.
- 2.3 My qualifications are Master of Business Administration (MBA) - University of Auckland, Diploma in Industrial Engineering (DipBIA) - University of Auckland and New Zealand Certificate of Engineering (NZCE) – AUT Auckland.
- 2.4 I am a professional member of the Illuminating Engineering Society of Australia and NZ (MIESANZ), the Illuminating Engineering Society of North America (MIESNA) and Carbon and Energy Professionals NZ (CEP-NZ).
- 2.5 I participate in the activities of the following lighting organisations:
- (a) Lighting Council New Zealand (LCNZ) – Technical, standards and regulation advisor
 - (b) Global Lighting Association (GLA) - Board member
 - (c) United Nations-Office for Outer Space Affairs (UN-OOSA) Vienna - GLA Representative for Light Pollution
 - (d) International Standards Organisation (ISO) Geneva – Lighting – NZ Representative
 - (e) International Electrotechnical Commission (IEC) Geneva – NZ Head of Delegation, Chair Environmental Advisory Group
 - (f) International Lighting Commission (CIE) Vienna - NZ National Committee member
 - (g) NZ Transport Agency (NZTA) - Road Lighting LED Working Group member
 - (h) Standards Australia Technical Committees – Road and Public Lighting, Lamps and Luminaires, Electromagnetic Compatibility
- 2.6 I have presented twenty-eight conference and seminar papers and authored or co-authored eleven Australia/NZ Publications on the topics of lighting technology, energy, carbon, obtrusive light, environment, asset management and procurement. An example is the “Street Lighting and Smart Controls (SLSC) Roadmap”, for the Department of Industry, Science, Energy, and Resources. Australian Federal Government, Canberra.

- 2.7 I have co-managed the professional content of four large international road and public lighting conferences over the last seven years which has brought me into close contact with international thought leaders and current with latest trends.
- 2.8 As a lighting management consultant I have completed many projects advising on a range of lighting aspects for the NZ Government, Australian State and Federal Government and many Local Councils in Australia and New Zealand.

3. CODE OF CONDUCT

- 3.1 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. I have complied with the Code of Conduct in preparing this statement of evidence and confirm that I will do so in presenting my evidence to the Commissioners. Unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

4. SCOPE OF EVIDENCE AND METHODOLOGY FOR ASSESSMENT

- 4.1 This rebuttal statement relates to evidence in opposition filed by Laurie Cook dated 17 March 2021 prepared for Hynds Pipe Systems.
- 4.2 I have visited HVL's site as well as the Pokeno Gateway Business Park. I also undertook night time surveys of obtrusive light at various locations on HVL's site on 8 April 2021. Significant in-depth analysis has been undertaken, and is reported separately.
- 4.3 **Annexure 1** includes the technical report "Obtrusive Light Measurement Report" dated 3 May 2021 I prepared prior to this rebuttal evidence. This report records my site evaluation of the light measurement undertaken on the site to evaluate the potential for lighting effects.
- 4.4 The methodology I undertook to identify the relevant exposed parts of HVL's sites to potential light effects from the Gateway Business Park and subsequent site survey measurements are outlined in sections 3, 4 and 5 of that report respectively.

5. RESPONSE TO EVIDENCE OF MR LAURIE COOK FOR HYNDS PIPE SYSTEMS LTD

- 5.1 The following sections outline the key areas that I agree or disagree with the statements made by Mr Cook, and provide an explanation for each below.

5.2 Mr Cook discusses in Paragraph 4.9 the potential effects on sensitive observers of light from above Hynd's site.

"... at night the light emanating from Hynds operations will be conspicuous, and potentially obtrusive to sensitive observers, when viewed from land above the Hynd's sites..."

5.3 I disagree with this conclusion as it relates to the location of the future residential sites on HVL's site. The line-of-sight analysis and scientific site light measurements I have undertaken on HVL's site show that the line-of-sight residential dwelling light exposure zone relative to the Gateway Business Park is actually only a very small part of the HVL site (see the light analysis site plan and topographical Cross Section D drawing in Annexure 1). Furthermore, at the worst-case position in this exposure zone, the measured light levels are less than one tenth of the District Plan allowable limit.

5.4 Mr Cook's opinion regarding light being "potentially obtrusive to sensitive observers" is undeniable as a general proposition, but now that these surveys have been undertaken so is the fact that the potential levels on the HVL site are very substantially lower than the required compliance limits for residential receivers.

5.5 For this reason I am of the opinion there would be negligible lighting effects from the Gateway Business Park operational lighting on the proposed residential development in the HVL land.

5.6 Mr Cook discusses in paragraphs 5.1 and 5.3 the light exposure zones on HVL's proposed residential rezoning.

"The result of this rezoning proposal would be a substantial number of new dwellings that directly overlook Hynd's operations."

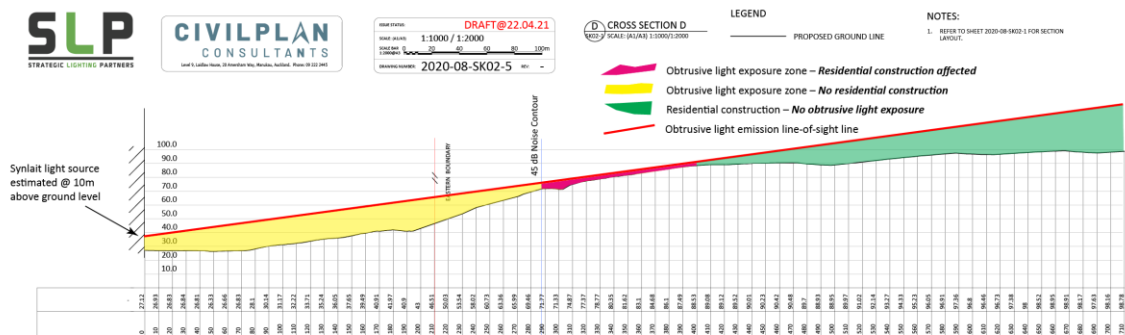
"in my opinion it would not be appropriate or good practice to locate new residential dwellings in such close proximity to, and overlooking a heavy industrial operation with lighting effects of this nature".

5.7 This opinion is not correct as it fails to recognise the subdivision topography and proposed dwelling locations – demonstrated by the cross sections included in Annexure 1. There is unlikely to be a "substantial number" of new dwellings proposed directly overlooking Hynd's operations because of the location of the 45 dB noise contour line illustrated in the Havelock Precinct Plan. The lighting line-of-sight analysis undertaken shows that the residential dwelling line-of-sight light visibility zone is a very small part of the HVL site (see the light analysis site plan and topographical Cross Section D drawing in Annexure 1). Even where there is a small area of line-of-sight light visibility on the proposed subdivision (see the light analysis site plan and topographical Cross

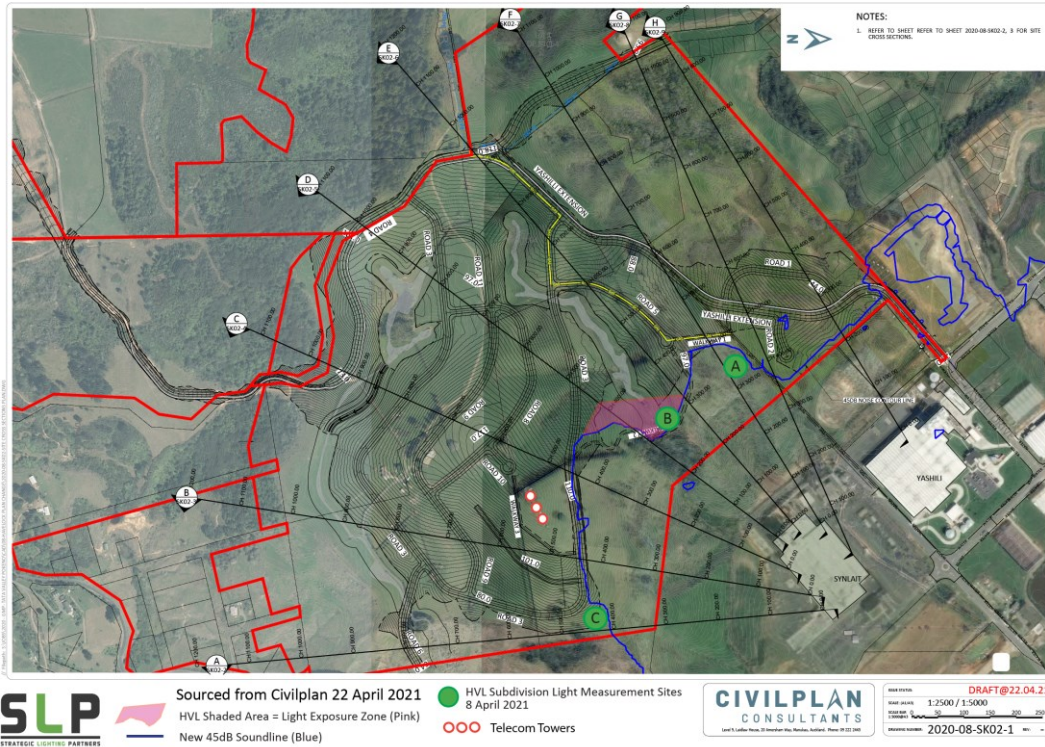
Section D drawing in Annexure 1), for this very small area the measured light levels are less than one tenth of District Plan allowable limit for residential receivers.

5.8 The undulating topography of the HVL site provides light shielding as well as separation from the industrial sites. The following graphics depict the HVL lighting analysis undertaken, which uses line-of-sight analysis, followed by quantitative site light measurements.

5.9 Below is the topographical Cross Section D drawing showing line-of-sight and exposure zones. This is the worst case of the eight cross sections analysed, and closely corresponds to measurement location B.



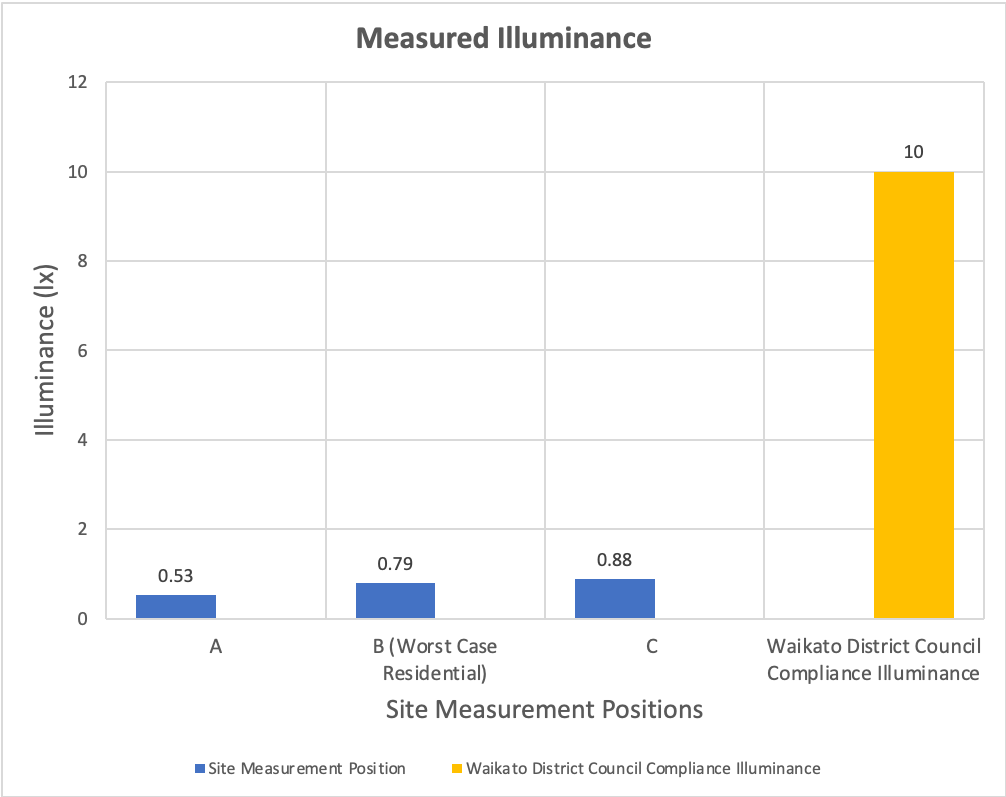
5.10 Below is the HVL light analysis plan view of site, 45dB noise contour line, light exposure zone and measurement sites. This is the compilation of the eight cross sections analysed. This shows the topographical cross sections A-H (radially extending from the Gateway Business Park industrial sites), and the three light measurement points A, B, C.



5.11 Below is a tabular summary of the HVL site scientific light measurements. This compares the measured vertical plane illuminance readings with the WDC compliance limit of 10 lx.

Site Measurement Position	GPS Position degrees	Height Above Sea Level (m)	Measurement Plane	Measured Illuminance (lx)	Compliance Illuminance (lx)
A	37.25558S, 175.0169E	91	Vertical	0.53	
B (Worst Case Residential)	37.2560S, 175.0179E	80	Vertical	0.79	
C	37.2572S, 175.0223E	85	Vertical	0.88	
Waikato District Council Compliance Illuminance					10

5.12 Below is a graphical summary of the HVL subdivision scientific light measurements. This compares the measured vertical plane illuminance readings with the WDC compliance limit of 10 lx.



6. CONCLUSION

Based on current operational light sources from the Gateway Business Park, the resultant HVL exposure zone is very small and the light levels for residential receivers in that zone are less than one tenth of the allowable limit.

Bryan King
3 May 2021

Havelock Village Ltd - Obtrusive Light Measurement Report

3 May 2021



1 Introduction

This report provides the analysis and findings of site light measurements undertaken on Thursday 8th April 2021 between 7.00pm and 9.00pm at the site at 88 Bluff Road, Pokeno (HVL site).

Scientific light measurements were taken to provide a better understanding of obtrusive light spill from the Pokeno Gateway Business Park and its effect on the HVL Site.

2 Executive Summary

With cross sections of the likely post-development terrain provided by Civilplan, SLP has calculated that the visual impact of the Industrial lighting emitted by Hynds, Synlait and Yashili is restricted to a relatively small area beyond the 45dB noise contour illustrated on the Havelock Precinct Plan as shown in Figure 1. SLP understands that any future residential sites will be located beyond this contour line on 88 Bluff Road. Scientific measurements were taken at 3 different site locations (A, B, C in Figure 1) which clearly indicate that spill light (illuminance) levels are less than 1 lux and therefore are well below the required Waikato District Council Operative District Plan compliance limit of 10 lux. Consequently, SLP does not consider there will be obtrusive lighting effects from the Pokeno Gateway Business Park on the proposed location of future residential sites at HVL's Site.

3 Light Measurement Criteria

3.1 Site Light Measurement points

The site light measurements capture spill light levels from the industrial sites, at the most relevant line-of-sight light exposure zones on the HVL site. The HVL site plan light exposure zone diagram (see Section 4) identifies the area (shown in pink) where the greatest potential for obtrusive light effects from the Gateway Business Park are located on the HVL site. This plan view is the consolidation of the eight line-of-sight light exposure assessments made by SLP that have been compiled from the eight cross-

sectional topographical drawings provided by Civilplan Consultants Ltd. These use the Civilplan versions provided on 22 April 2021, which include the 45dB noise contour line.

3.2 Site light measurement process, equipment and expertise

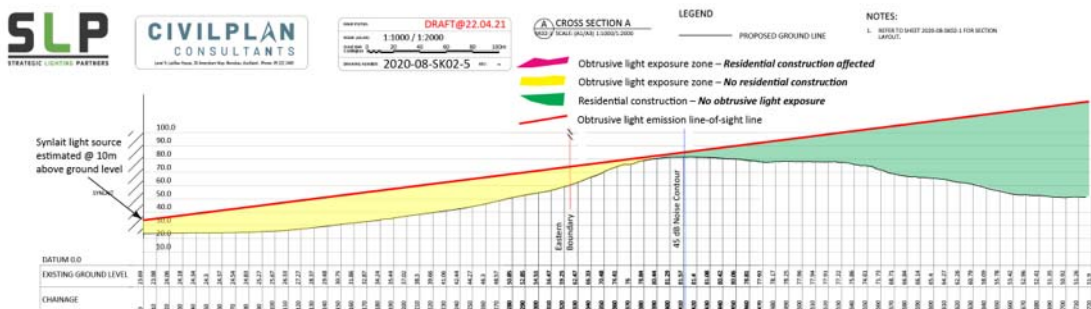
The measurements have been carried out in accordance with relevant New Zealand standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting*. SLP engaged 3D Lighting Design Ltd as a light measurement subcontractor in order to access specific expertise with calibrated measurement instruments, which is essential when absolute measurements are required to formulate evidence-grade conclusions. Detailed measurement process information using a scientific grade Yokogawa 510.02 illuminance meter and a TopCon BM-9A20D luminance meter is available if supportive technical detail is required.

3.3 Cross Sectional Topographical Drawings

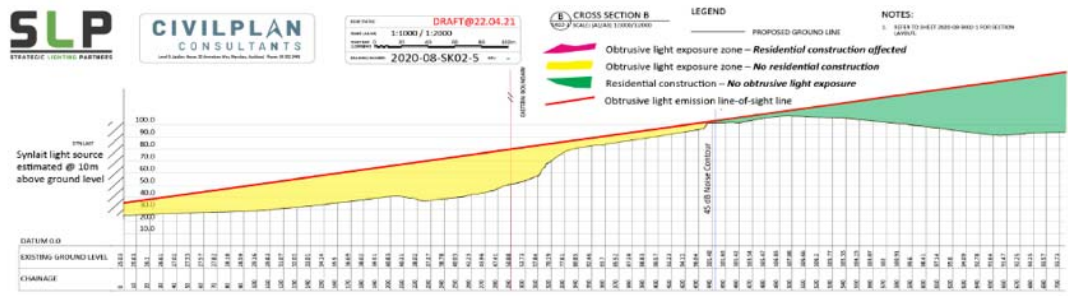
On 22 April Civilplan Consultants Ltd provided eight cross-sectional drawings (cross-sections A-H) which have been overlaid with SLP line-of-sight light direction line assessments. These drawings are used to determine the obtrusive light exposure zones on each cross section, the location and dimensions of which are consolidated to compile the HVL site plan light exposure zone diagram (see Section 4).

Note that the noise contour line position has been provided by Styles Group acoustics consultants and overlaid on the Civilplan Consultants Ltd (plan view) site image. The SLP obtrusive light assessment only considers obtrusive light issues that lie beyond the noise contour line (i.e. away from the industrial sites) as we understand that HVL do not intend that residential dwellings will be constructed inside of the noise contour line boundary.

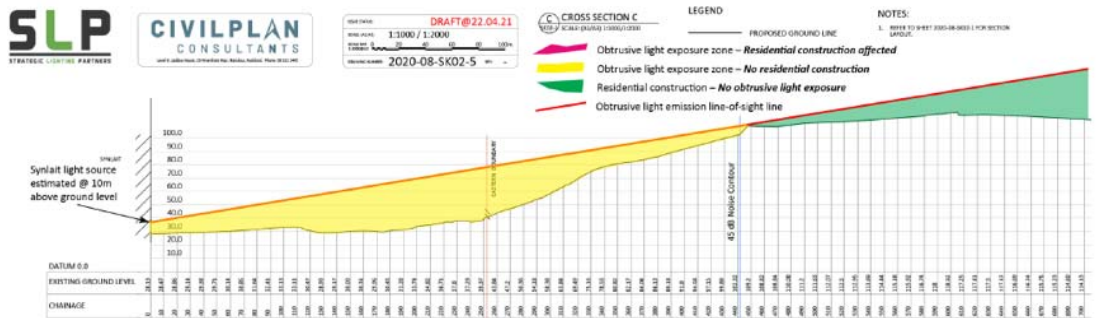
Topographical cross-section diagram A



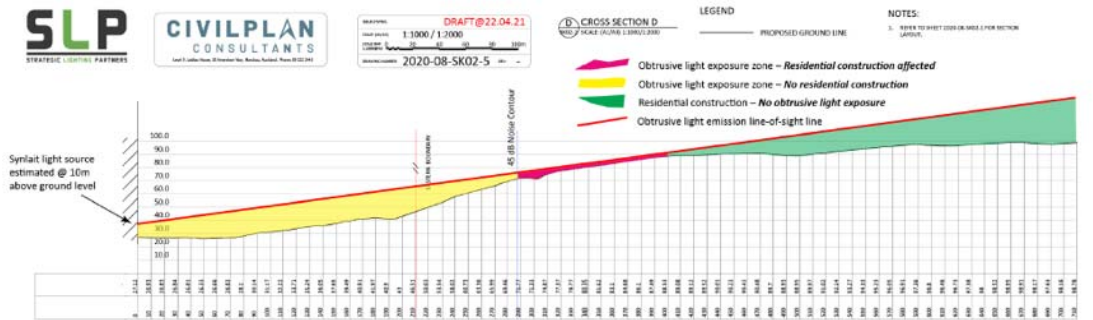
Topographical cross-section diagram B



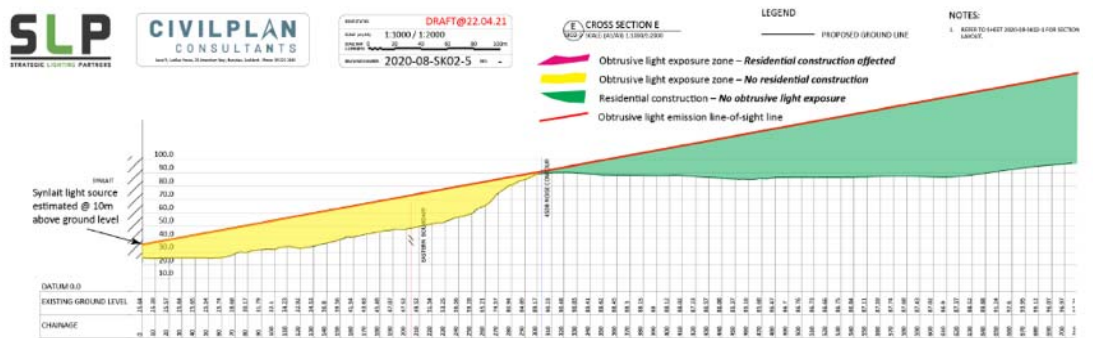
Topographical cross-section diagram C



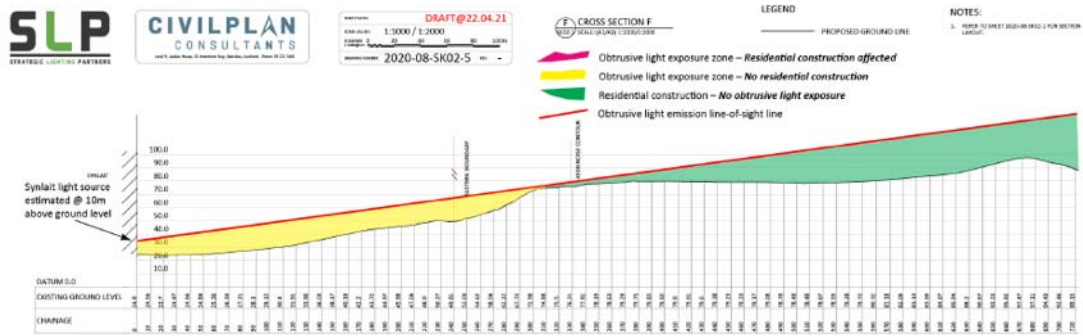
Topographical cross-section diagram D



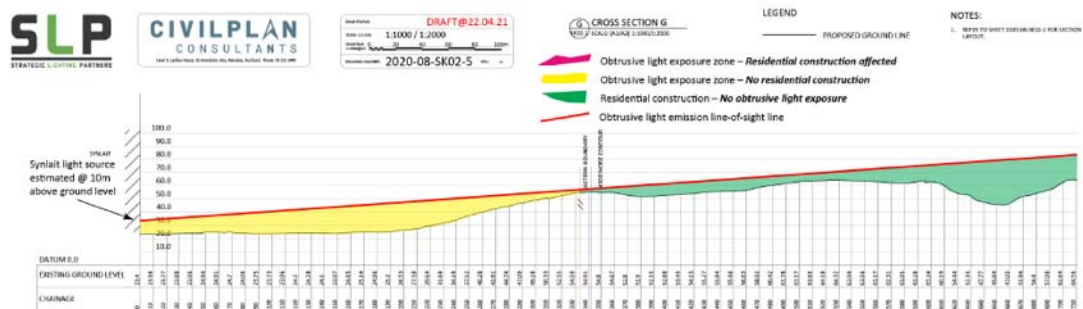
Topographical cross-section diagram E



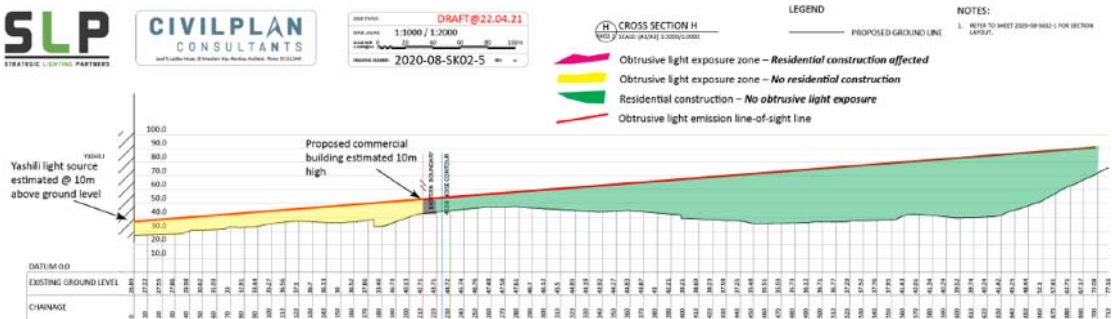
Topographical cross-section diagram F



Topographical cross-section diagram G



Topographical cross-section diagram H



4 Site Diagram Plan View – Light Measurement points

HVL site plan light exposure zone diagram

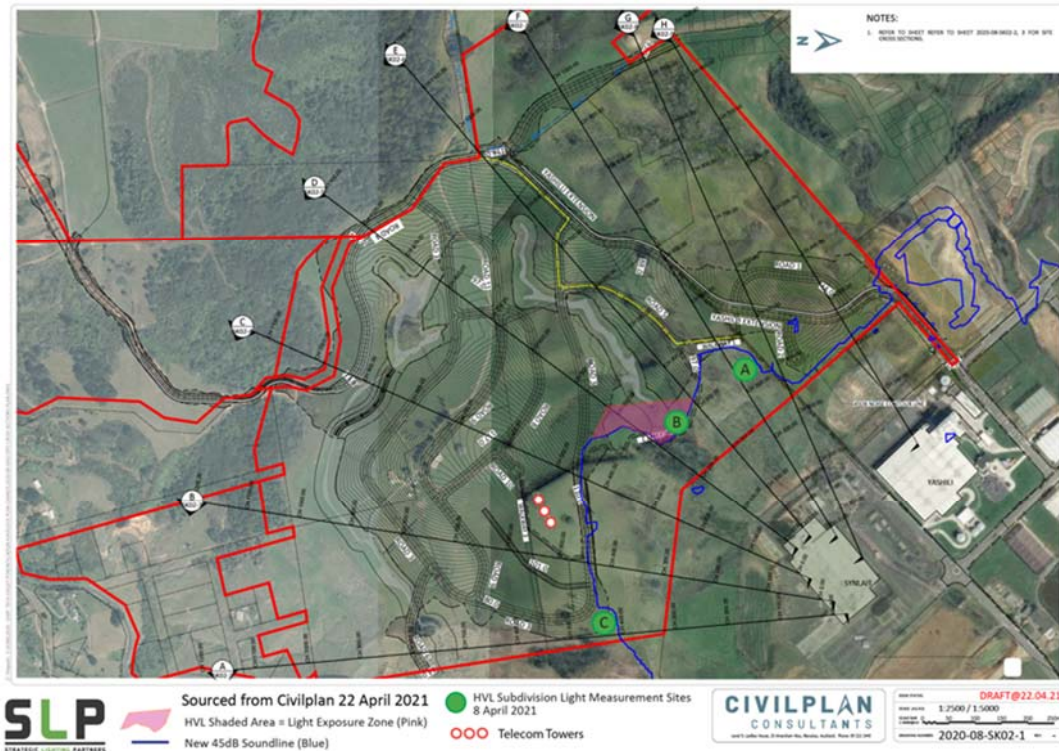


Figure 1 Plan view of HVL site, 45dB noise contour line, light exposure zone and measurement sites

Measurement points: A, B, C indicate HVL site light measurement positions

The pink-coloured area indicates the area of the HVL Site beyond the noise contour line that is exposed to line-of-sight light emissions from the industrial sites. This area has been determined from the consolidated cross section information discussed in Section 3.

The HVL site light measurement position “B” falls within the pink zone and thus the scientific measurements taken at this point can be reasonably expected to represent the worst-case point for potential obtrusive light impact on the HVL site.

The compliance of the light emission level in this area with the Operative Waikato District Plan is covered in Section 8 below.

5 Site Light Measurement Process

The obtrusive light requirements in the Waikato Operative District Plan are less comprehensive than those used by surrounding councils and by other NZ councils and include only quantitative limits for spill light measured by illuminance, in lux (abbreviated to lx).

A difference between WDC and other council compliance requirements is that WDC omits to specify the limits for vertical and horizontal illuminance (as identified in the AS/NZS Standard). In undertaking this assessment, HVL site light measurements consist

of illuminance measurements (lx) on the HVL site, with vertical and horizontal plane spill light from the industrial sites. These are used for compliance evaluation purposes.

6 HVL Site Light Measurement Results

The following are the results of outdoor night site light measurements, taken on Thursday 8 April 2021.

HVL Site Light Measurements

Table 1 Illuminance Measurements (lux) – Spill Light from general sites

Measurement Position	Measurement Plane	Illuminance (lx)	GPS Position degrees	Height m ASL
A - HVL site near Yashili				
	Vertical	0.53	37.25558S, 175.0169E	91
	Horizontal	0.06	37.25558S, 175.0169E	91
B - HVL site near Synlait				
	Vertical	0.79	37.2560S, 175.0179E	80
	Horizontal	0.05	37.2560S, 175.0179E	80
C - HVL site near Hynds				
Facing Synlait site	Vertical	0.88	37.2572S, 175.0223E	85
	Horizontal	0.07	37.2572S, 175.0223E	85
Facing Hynds site	Vertical	0.64	37.2572S, 175.0223E	85
	Horizontal	0.07	37.2572S, 175.0223E	85

The worst-case obtrusive light location and light value are marked by red circle

7 Requirements of the Waikato Operative District Plan

The following is an excerpt from the Waikato Operative District Plan regarding spill light and glare. We understand these requirements are replicated in the relevant resource consents for Hynds and Synlait. Source: Mark Tollemache.

Heavy Industry Zone (Same applies for Industry Zone 29C.6.3)

29B.5.3 LIGHT SPILL AND GLARE

All exterior lighting must be designed, located and at all times directed, screened, adjusted and maintained to ensure that the direct luminance from the lighting shall not exceed:

1. 10 lux (lumens per square metre) at or within the boundary of all affected residential sites between the hours of 10:00pm and 7:00am;
2. 20 lux at or within the boundary of all affected residential sites at all other times when lighting is required.

For exterior lighting near to any residential zone, and in any other case where the applicant, or the Council is unsure as to the ability of the lighting to comply with these [performance standards](#), the applicant shall provide the Council with a report from a Professional Illumination Engineer confirming that the lighting installation has

been designed, installed and aimed in a manner that will ensure compliance with this RULE. In the case of a new installation design, information must be provided at the time of applying for a [building](#) consent.

Explanation

While sunlight is perceived in a positive way, other artificial sources of light because of quantitative, directional or spectral features can cause annoyance, discomfort, distraction, loss of sleep, loss of amenity or a reduction in the ability to see.

The rules reflect the need to control these adverse effects of light spill and glare within residential environments.

The limiting quantitative requirement applicable to the HVL site is an illuminance limit of 10 lux at or within the boundary of all affected residential sites (i.e. in this case, the location of proposed HVL residential dwellings beyond the 45 dB noise contour line). The Operative District Plan does not state whether this illuminance limit applies to the vertical plane or horizontal plane, nor does it state any requirement for compliance with the applicable NZ technical standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting*. Note that District Plan sections 29B.5.3 and 29C.6.3 are titled as “LIGHT SPILL AND GLARE”, however the WDC quantitative requirements only include criteria for light spill (illuminance) but not glare (luminance).

8 Compliance with the Waikato Operative District Plan

HVL site light measurement are shown in Section 6. These show the illuminance measurements (lx) for spill light. The horizontal illuminance values are significantly lower than the vertical values, so only the vertical values are considered for compliance evaluation purposes.

HVL site light measurement results

Light emissions are from several sites surrounding the HVL land (ie Yashili, Synlait, Hynds and other general site sources).

The vertical illuminance values are:

- Position A – HVL site near Yashili: 0.53 lx
- Position B - HVL site near Synlait: 0.79 lx
- Position C - HVL site near Hynds (Facing Synlait): 0.88 lx (see note below)
- Position C - HVL site near Hynds (Facing Hynds): 0.64 lx

The worst-case point for obtrusive light line of sight exposure on the HVL site is at position “B” as this measurement position is in the obtrusive light line-of-sight exposure zone. This point has a vertical illuminance of 0.79 lx, thus the light exposure area behind this point will have lower vertical illuminance values.

Note that position “C” (near Hynds, facing Synlait) has vertical illuminance of 0.88 lx, but is not a worst-case situation in this context. This is because this measurement position is located on the crest of a topographical ridgeline and the area beyond point “C” is fully shielded from the light line-of-sight (See Section 3 - Topographical cross-section diagram A).

Site Measurement Position	GPS Position degrees	Height Above Sea Level (m)	Measurement Plane	Measured Illuminance (lx)	Compliance Illuminance (lx)
A	37.255585, 175.0169E	91	Vertical	0.53	
B (Worst Case Residential)	37.25605, 175.0179E	80	Vertical	0.79	
C	37.25725, 175.0223E	85	Vertical	0.88	
Waikato District Council Compliance Illuminance					10

Figure 2 Table of comparative site light measurements

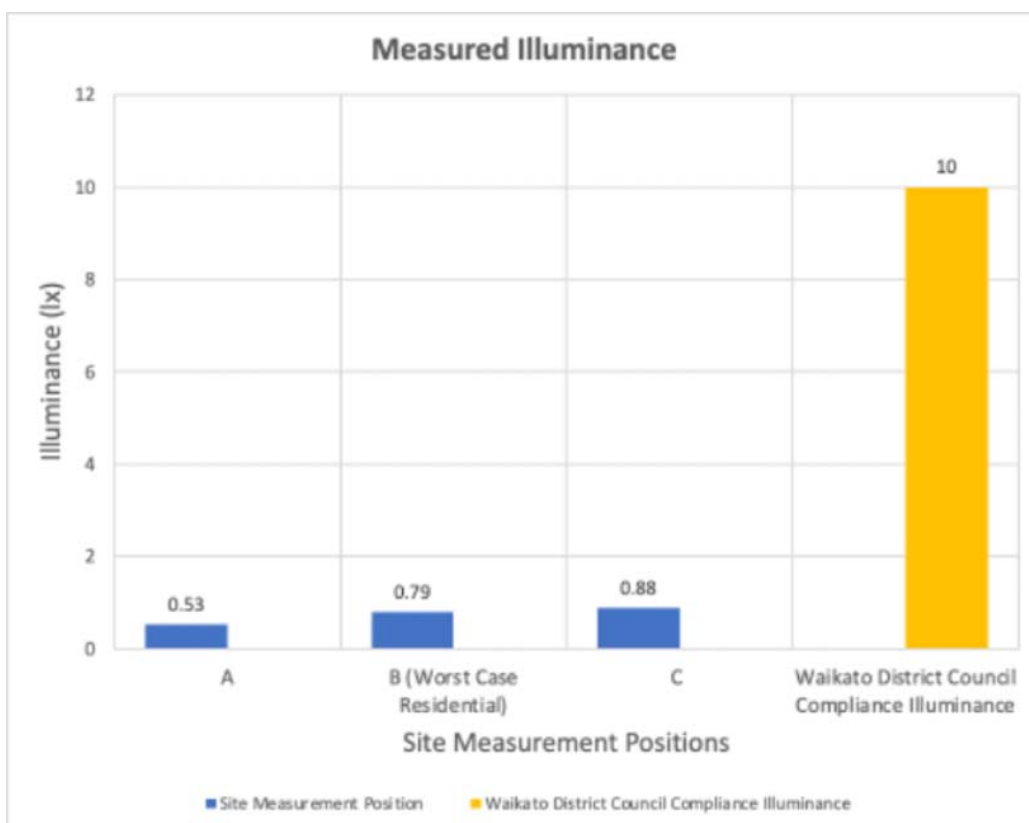


Figure 3 Bar chart of comparative site light measurements

All of these values are well under the Operative District Plan limit of 10 lx at or within the boundary of all affected residential sites, and thus for the industrial activities would readily comply with the requirements of Sections 29B.5.3 and 29C.6.3 of the District Plan.

9 Conclusions

The HVL site light measurements have been taken at exposure locations within the proposed HVL residential zone area on 88 Bluff Road beyond the 45 dB noise contour line. The site light measurement position “B” falls within the site plan light exposure zone and is the worst-case point for obtrusive light exposure on the HVL subdivision.

All measured site light values (vertical plane illuminance) are well within the required limits of the Operative District Plan for residential receivers, and thus compliance with District Plan Sections 29B.5.3 and 29C.6.3 is clear and unequivocal.

Bryan King and Godfrey Bridger

Directors - Strategic Lighting Partners Ltd



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New Zealand

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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):

Topic 25 – Zone Extents

**JOINT WITNESS STATEMENT OF EXPERTS IN RELATION TO PLANNING MATTERS
RELATING TO YASHILI NEW ZEALAND DAIRY CO LTD AND HAVELOCK VILLAGE
LTD**

12 May 2021

1. INTRODUCTION

- 1.1 As signalled in Mr Tollemache's rebuttal evidence, the acoustic and planning expert witnesses for Yashili New Zealand Dairy Co Ltd and Havelock Village Ltd have video conferenced and discussed a rule for an acoustic barrier between the Havelock and Yashili sites, the default activity status for the Pokeno Industry Buffer¹, the building acoustic design rule² and the consequential amendments to Rules 20.2.2.1A.P2.(b) and Rule 21.2.2.1A P2.(b) that apply to the location for the measurement of noise between the Industry Zones and the Havelock Precinct.
- 1.2 The default activity status for the Pokeno Industry Buffer and the building acoustic design rule are agreed between the planners.
- 1.3 The rebuttal evidence of Mr Tollemache included rule 16.4.18 RD1 (a) (iv) regarding the acoustic barrier between the Havelock and Yashili sites. Mr Tollemache signalled that Messrs Hegley and Styles were discussing an alternative to this rule, based on specifying the minimum height of the acoustic barrier.
- 1.4 Messrs Jones and Tollemache agree on the replacement of the earlier rule with amended rule 16.4.18 RD1 (a) (iv) in **Annexure 1**. The planners consider that the rule is more efficient and effective than the earlier draft of rule 16.4.18 RD1 (a) (iv) as it outlines:
- a) The minimum height and length of the acoustic wall.
 - b) That the acoustic wall is to be supported by appropriate acoustic assessment certifying that it meets the rule.
 - c) That the acoustic barrier can be a bund, wall, structure or building (including its roof) or any combination of these.
 - d) That the acoustic barrier shall be proposed and constructed with the first stage of subdivision in the Havelock Precinct.
 - e) That the performance of the acoustic barrier will be based upon achieving a level of noise reduction that takes account of future development of the Yashili land to the rear of its current facility.
- 1.5 The default activity status remains non-complying where the rule is not met.

¹ Rules 16.3.9.2 NC1 and 16.4.12 NC1 of Mr Tollemache's rebuttal evidence

² Rule 16.3.9.3 of Mr Tollemache's rebuttal evidence

- 1.6 Consequential amendments to Rules 20.2.2.1A.P2.(b) and Rule 21.2.2.1A P2.(b) are also agreed as per **Annexure 1**.
- 1.7 The planners also record their agreement with the discretions in rule 16.4.18 RD1 (b) (v), (viii), (ix) and (x) in Annexure 1 (as per the version in Mr Tollemache's rebuttal evidence). These amendments address transport-related matters raised in the evidence in chief of Messrs Jones and McKenzie.
- 1.8 The agreed provisions from Mr Tollemache's rebuttal evidence are included in **Annexure 2**.
- 1.9 The agreed planning maps are included in **Annexure 3**.



Jason Jones
For Yashili New Zealand Dairy Co Ltd



Mark Tollemache
For Havelock Village Ltd

Annexure 1

HVL YASHILI NOISE REVISIONS

HVL amendments dated 17 February in [blue track changes](#).

HVL amendments dated 3 May responding to Evidence and Section 42A Report in [green track changes](#).

Yashili boundary amended rule in [orange track changes](#)

Amendments to Chapter 16 Residential Zone

16.4.18 Subdivision: Havelock Precinct Plan Area

<p>RD1</p>	<p>(a) All subdivision within the Havelock Precinct Plan area (Appendix XX), must comply with all of the following conditions:</p> <ul style="list-style-type: none">(i) The first subdivision to create residential lots must include the indicative road connections as a road to vest, from Hitchen Road and Yashili Drive.(ii) The proposal must include the indicative roads as roads to vest, provided that this can be constructed and vested in stages.(iii) The proposal must include the provision of the Hilltop Park.(iv) Either prior to or concurrent with subdivision in Lot 2 DP199997, an acoustic barrier (being a bund, building (including its roof) or structure, or any combination thereof) must be constructed within the Havelock Precinct Plan's General Industry Zone to mitigate potential noise from the adjoining Light Industry Zone (Lots 3 and 4 DP 492007) to achieve noise levels no greater than 45 dB L_{Aeq} between 10pm and 7am in the Havelock Precinct Residential Zone. The specification of the acoustic barrier must be at a height of no less than that illustrated on figure 16.4.18A below and a length along the entire common boundary between Lot 2 DP199997 and Lots 3 and 4 DP 492007 (excluding the Collector Road on the Precinct Plan and 5m front yard setback – Rule 20.3.4.1). The application shall be accompanied by an acoustic design report to ensure that the acoustic barrier will meet the requirements listed in this rule and that it will perform as an effective acoustic barrier. The design and effectiveness of the acoustic barrier shall be based on the requirement to reduce the extent of the unmitigated 45 dB L_{Aeq} noise contour illustrated on figure 16.4.18B below. The Pokeno Industry Buffer illustrated on Lot 2 DP199997 is based on compliance with and implementation of this rule.
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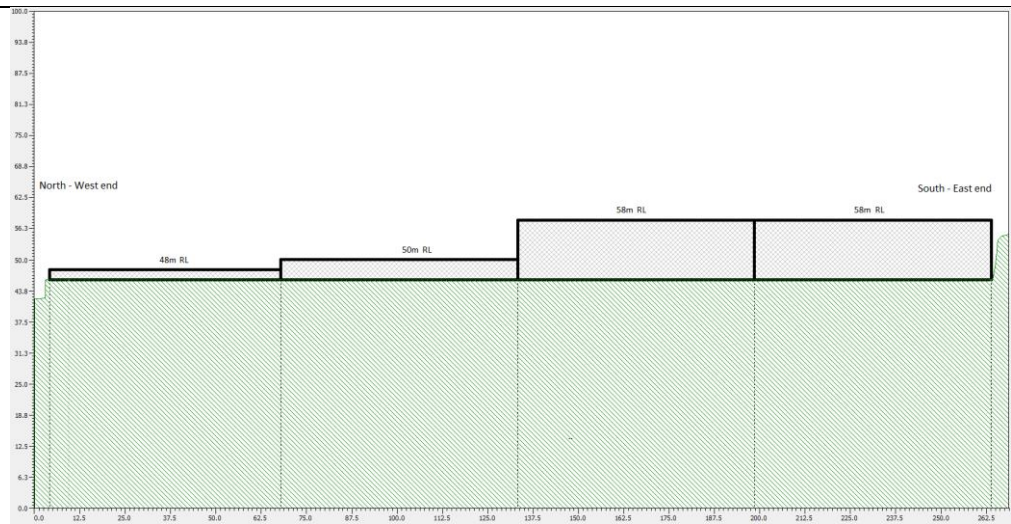


Figure 16.4.18A

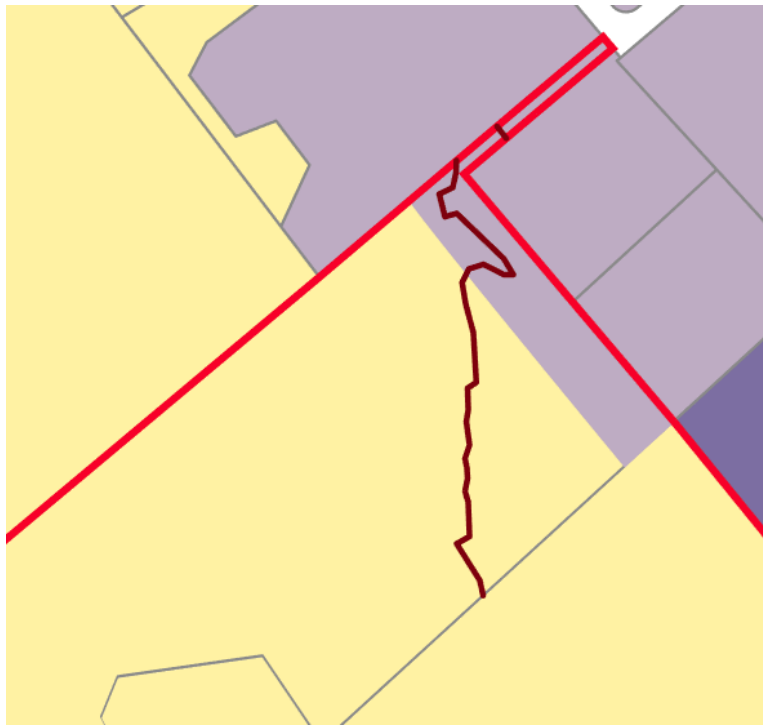


Figure 16.4.18B

(b) Council's discretion is restricted to the following matters:

- (i) Consistency with the Havelock Precinct Plan;
- (ii) Consistency with the matters contained within Appendix 3.1 (Residential Subdivision Design Guidelines);
- (iii) Design and construction of the indicative roads and pedestrian networks;
- (iv) Design, location and timing of construction of the acoustic barrier within the Havelock Precinct Plan's General Industry Zone.
- (v) The design of, and potential effects on the safe and efficient operation of the intersection of the Havelock Precinct Plan's Collector Road and Yashili Drive.

	<p><u>including the design to accommodate safe vehicle access and egress for activities in the adjacent General Industrial Zone.</u></p> <p>(vi) <u>Design of the Hilltop Park and adjoining roads;</u></p> <p>(vii) <u>Potential effects on the safe and efficient operation of Bluff and Pioneer Roads (including where these intersect with State Highway 1) from roading connections to Cole Road.</u></p> <p>(viii) <u>The design of, and potential effects on, the safe and efficient operation of the intersections of:</u></p> <p style="padding-left: 40px;">a. <u>Yashili Drive and Gateway Park Drive;</u></p> <p style="padding-left: 40px;">b. <u>Gateway Park Drive and Hitchen Road; and</u></p> <p style="padding-left: 40px;">c. <u>Gateway Park Drive and McDonald Road.</u></p> <p>(ix) <u>Potential effects on the safe and efficient operation of the McDonald Road railway crossing.</u></p> <p>(x) <u>Accessible, safe and secure pedestrian and cycling connections within the Precinct and to the existing transport network and public facilities.</u></p> <p>(xi) <u>Provision within the Precinct design for future public transport.</u></p> <p>(xii) <u>Ownership and ongoing management of the Environmental Protection Area</u></p>
<u>D1</u>	<u>Subdivision that does not comply with Rule 16.4.18(a)(i) – (iii) RD1.</u>
<u>NC1</u>	<u>Subdivision that does not comply with Rule 16.4.18(a)(iv) RD1.</u>

Consequential amendment to Rules 20.2.2.1A.P2.(b) and Rule 21.2.2.1A P2.(b) from the Council Section 42A Report Reply Version from Hearing 7:

(b) Noise measured within any site in any zone, other than the General Industrial and Heavy Industrial Zone, that does not exceed the permitted noise limits for that zone. For sites adjoining the Havelock Precinct (Appendix XX), the noise rating level from any activity must not exceed:

- i. 55dB L_{Aeq} from 7am to 10pm every day, 45 dB L_{Aeq} from 10pm to 7am the following day and 75 dB L_{AFmax} from 10pm to 7am the following day measured from any site outside of the Pokeno Industry Buffer illustrated on the planning maps (compliance with the noise standard must not be measured from the Residential Zone boundary for this Precinct).
- ii. Until the acoustic barrier has been constructed and made acoustically effective in accordance with Rule 16.4.18 RD1 (a)(iv), the noise rating level from activities on Lots 3 and 4 DP 492007 must not exceed 55dB L_{Aeq} from 7am to 10pm every day, 45 dB L_{Aeq} from 10pm to 7am the following day and 75 dB L_{AFmax} from 10pm to 7am the following day measured from the unmitigated 45 dB L_{Aeq} noise contour illustrated on figure 16.4.18B. When Rule 16.4.18 RD1 (a)(iv) has been satisfied, clause (b)(i) above applies.

Annexure 2

RELEVANT PROVISIONS FROM REBUTTAL EVIDENCE

HVL amendments dated 17 February in [blue track changes](#).

HVL amendments dated 3 May responding to Evidence and Section 42A Report in [green track changes](#).

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) <u>300m from the boundary of the Alstra Poultry intensive farming activities located on River Road and Great South Road, Ngaruawahia.</u>
<u>P2</u>	(a) <u>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.</u>
D1	Any building for a sensitive land use that does not comply with Rule 16.3.9.2. P1 or <u>P2</u> .
<u>NC1</u>	<u>Any building for a Sensitive land use that does not comply with Rule 16.3.9.2. P2.</u>

16.3.9.3 Building Design – Sensitive land use – Havelock Precinct Plan Area

<p><u>P1</u></p>	<p>(b) <u>Any new building or alteration to an existing building for a sensitive land use located outside the Pokeno Industrial Buffer but within the 40 dB LAeq noise contour illustrated on the planning maps must:</u></p> <p><u>(i) be designed and constructed so that internal noise levels do not exceed 25 dB LAeq in all habitable rooms;</u></p> <p><u>(ii) where compliance with clause (a)(i) above requires all external doors of the building and all windows of these rooms to be closed, the design and construction as a minimum must:</u></p> <ul style="list-style-type: none"> • <u>Be mechanically ventilated and/or cooled to achieve an internal temperature no greater than 25°C based on external design conditions of dry bulb 25.1 °C and wet bulb 20.1 °C. Mechanical cooling must be available for all habitable rooms provided that at least one mechanical cooling system shall service every level of a dwelling that contains a habitable room; or</u> • <u>Provide a high volume of outdoor air supply to all habitable rooms with an outdoor air supply rate of no less than:</u> <ul style="list-style-type: none"> - <u>6 air changes per hour for rooms less than 30% of the façade area glazed;</u> - <u>15 air changes per hour for rooms with greater than 30% of the façade area glazed;</u> - <u>3 air changes per hour for rooms with facades only facing south (between 120 degrees and 240 degrees) or where the glazing in the façade is not subject to any direct sunlight.</u> • <u>Shall be provided with relief for equivalent volumes of spill air.</u> • <u>Where mechanical ventilation and / or cooling systems are installed, they must be individually controllable across the range of airflows and temperatures by the building occupants in the case of each system.</u> <p><u>(iii) be certified by a suitably qualified and experienced person as meeting that standard prior to its construction; and</u></p> <p><u>(b) Compliance with (a) shall be confirmed as part of any building consent application.</u></p>
<p><u>D1</u></p>	<p><u>Any building or alteration to an existing building for a sensitive land use that does not comply with Rule 16.3.9.3. P1</u></p>

16.4.12 Subdivision - Building platform

RD1	<p>(a) Every proposed lot, other than one designed specifically for access, <u>or is a</u> utility 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:</p> <p>(i) a circle with a diameter of at least 18m exclusive of yards; or</p> <p>(ii) a rectangle of at least 200m² with a minimum dimension of 12m exclusive of yards.</p> <p>(b) Council's discretion shall be restricted to the following matters:</p> <p>(i) Subdivision layout;</p> <p>(ii) Shape of allotments;</p> <p>(iii) Ability of allotments to accommodate a practical building platform;</p> <p>(iv) Likely location of future buildings and their potential effects on the environment;</p> <p>(v) Avoidance or mitigation of natural hazards;</p> <p>(vi) Geotechnical suitability for building; and</p> <p>(vii) Ponding areas and primary overland flow paths.</p>
<u>RD 2</u>	<p>(a) <u>Every proposed lot, other than one designed specifically for access, or is a utility allotment must be capable of containing a building platform complying with Rule 16.4.12 RD1 located outside the Pokeno Industry Buffer illustrated on the planning maps.</u></p> <p>(b) <u>The Council discretion shall be restricted to the following matters:</u></p> <p><u>(i) The discretions of Rule 16.4.12 RD1</u></p>
D1	Subdivision that does not comply with Rule 16.4.12 RD1.
<u>NC1</u>	<u>Subdivision that does not comply with Rule 16.4.12 RD2.</u>

Insert new Policy in Chapter 4 as follows:

Policy 4.1.11 Policy - Pokeno

(iv) Subdivision and development shall minimise the potential for reverse sensitivity effects to arise on the Havelock Precinct's eastern boundary with Heavy and Industrial zoned land through a combination of physical separation, landscape treatment and building design.

Annexure 3 Planning Map (v2 10 May 2021)

