

8 May 2009



Environmental Management Services
PO Box 1307
Hamilton 3240

Attention: Ian Johnson

Dear Sir

Re: Raynes Road Plan Change - Noise Assessment

As requested, we have reviewed the Waipa District Plan to determine appropriate Noise Rules and identify any possible noise mitigation measures in relation to the proposed Raynes Road plan change.

The subject site is located north of Hamilton Airport and is currently zoned Rural. The proposal is to re-zone the land to a combination of land uses (Industrial, Accommodation and Rural-Residential).

As shown on the Structure Plan, there is potential for a new State Highway corridor to run east/west through the subject site, along the northern side of the Industrial zoned block. To the north of this new highway corridor would be a rural –residential block with a block of 'Accommodation' zoned land to the north-east. The proposed 'Accommodation' zone would cater for activities such as visitor accommodation, restaurant, health, education and places of assembly.

Our findings and recommendations are set out below.

1.0 Noise Performance Standards for Industrial Zoned Lots

It is proposed that the existing Industrial noise rules of the Waipa District Plan would apply to noise from activities on the land proposed to be re-zoned 'Industrial'. The District Plan noise rules for the Industrial Zone are written in terms of allowable noise limits at neighbouring sites.

1.1 Noise Limits Between Industrial sites

In terms of noise generated on a site zoned Industrial, and received at another site zoned Industrial, the Waipa District Plan specifies the following noise limits as set out in Rule 7.4.13 (1d) and 1(f). The noise limits apply within the boundary of any other site zoned Industrial:

Rule 7.4.13 Noise

- | | | | |
|------|---|-------------------------|-------------------|
| (1d) | <i>Monday to Saturday</i> | <i>7.00am – 10.00pm</i> | <i>60dBA(L10)</i> |
| | <i>At all other times including public holidays</i> | | <i>45dBA(L10)</i> |
- (1f) *No single event noise level Lmax shall exceed 70 dBA or exceed the background noise level by more than 30 dBA at night time (10pm to 7am) during the periods covered by 'all other times'.*

We consider the above are quite stringent noise limits between sites in the Industrial zone, especially the night time noise limit of 45 dBA L10.

However, bearing in mind the proposed industrial activities which we understand are likely to be more of a 'business-park' nature, we consider the above noise limits/noise rule will adequately control noise between Industrial sites within the development.

Compliance with the above will also help control any 'cumulative effect' of noise (ie. noise from multiple industrial sites) particularly during night time, and assist compliance with the relevant noise limits at more noise-sensitive 'Rural', 'Rural-Residential' or 'Accommodation' sites near to the Industrial Zone.

1.2 Industrial Noise Limits (received at 'Rural' , 'Rural-Residential' and 'Accommodation' Zones)

It is proposed that the 'industrial to rural' noise limits of the District Plan will apply in relation to noise generated on a site zoned Industrial, and received at another site with the following zoning:

- Rural (ie. existing farmland to the west, and also to the south across Raynes Road)
- Rural-Residential (such as the proposed rezoned land to the north of the Industrial area, across the planned Highway Corridor)
- Accommodation

The District Plan specifies that the Rural Zone Rules apply to sites zoned 'Rural-Residential', ie. that the Rural-Residential zone is to be considered as a Rural Zone (not a Residential zone).

The proposed 'Accommodation' zone is a new zone and will cater for activities such as visitor accommodation, restaurant, health, education and places of assembly. It is proposed that the Rural noise rules will apply to this zone, which we understand have been specified in the resource consent for the neighbouring CTC development.

Rule 7.4.13 (1e) and (1f) of the Waipa District Plan specifies noise limits in relation to noise generated on a site zoned Industrial, which is received at another site zoned Rural. These are as follows:

Rule 7.4.13 Noise

"...all activities shall be conducted and buildings located, designed and used to ensure that noise levels do not exceed the following limits:

(1e) *Within the boundary or notional boundary of any site zoned Rural*

<i>Monday to Saturday</i>	<i>7.00am – 7.00pm</i>	<i>50dBA(L10)</i>
<i>At all other times including public holidays</i>		<i>35dBA(L10)</i>

(1f) *No single event noise level Lmax shall exceed 70 dBA or exceed the background noise level by more than 30 dBA at night time (10pm to 7am) during the periods covered by 'all other times'.*

The above are also considered to be stringent noise limits, particularly the 35 dBA L10 noise limit which applies after 7.00pm. In general, at rural or residential properties, noise limits of 50-55 dBA L10 during daytime and 40-45 dBA L10 during night time are often adopted in District Plans and are considered to be reasonable limits. The Waipa District Plan specifies a stringent night time limit of 35 dBA L10 and this also applies all day on Sundays/Public Holidays. We note this is a stricter night time limit compared with the situation where the proposed industrial land remained with a Rural Zoning.

Notwithstanding this, we consider that the above Noise Rule of the District Plan will provide an acceptable control of noise generated by activities within the proposed Industrial zoned area, which is received at any other property zoned Rural, Rural-Residential, or Accommodation. We consider that compliance with these limits will ensure that any noise effects are less than minor at neighbouring rural, rural-residential or accommodation zoned sites.

2.0 Noise Performance Standards for 'Rural-Residential' and 'Accommodation' Zones

The District Plan rules for the Rural Zone are written in terms of noise received at neighbouring rural dwellings. In the Rural Zone, as specified in the District Plan, noise is measured and assessed at the "notional boundary" of any rural dwelling. This is defined as a line 20 metres from the façade of a dwellinghouse. A dwellinghouse includes dwellings in the Rural-Residential Zone as well as any residential building in the accommodation zone. Where the dwelling/residential building is closer than 20 metres to the site boundary, then the noise limits apply at the site boundary.

As discussed above, in terms of noise generated on a site zoned Rural-Residential, the District Plan specifies that the Rural Zone Rules apply. It is proposed that the Rural noise rules shall also apply to sites zoned Accommodation which is consistent with the resource consent for the neighbouring CTC development

As such, noise generated by activities on a Rural-Residential or Accommodation site, which is received at another site zoned Rural-Residential, Rural or Accommodation, should comply with Rule 2.4.23 of the Waipa District Plan. The following noise limits apply at or within the 'notional boundary' of any dwellinghouse:

Rule 2.4.23 Noise

- (1) *All activities shall be conducted and buildings located, designed and used to ensure that noise levels within the boundaries of any site which is zoned Residential or within the notional boundary of any rural dwelling shall not exceed the following limits:*

<i>Daytime</i>	<i>7.00am – 8.00pm</i>	<i>50dBA(L10)</i>
<i>Night time</i>	<i>8.00pm -7.00am</i>	<i>40dBA(L10)</i>

No single event noise level Lmax shall exceed 65 dBA between 10pm and 7am).

We consider the above are reasonable noise limits between sites in the Rural-Residential or Accommodation zone. This will also protect residential activities on the adjoining CTC site and rural dwellings in the surrounding rural zones.

3.0 Airport Noise - 'Noise Sensitive' Activities within the Airport Zone

There are two noise boundaries around the Hamilton Airport:

- The Airnoise Boundary, which is a noise contour line near to the airport. Along this line noise from the airport is 65 dBA (using the Ldn descriptor).
- The Outer Noise Control Boundary, which is further away from the airport, and is the location of the 55 dBA Ldn noise contour.

The majority of the site is located between the Airnoise Boundary and the Outer Noise Control Boundary, as shown on planning map 22.

Rule 2.4.24 of the District Plan places limits on 'noise sensitive' activities near to the Hamilton Airport. Rule 2.4.24 (1) prohibits the following activities inside the Airnoise Boundary (where noise levels are greater than 65 dBA Ldn) as shown on Planning Map 22:

- (a) All residential activities.
- (b) Travellers' accommodation
- (c) Educational activity (except aviation education and training).

The above limitations would only affect a very small area of industrial land near to Raynes Road. We consider the above will not be an issue, since the land inside the Airnoise Boundary is proposed to be re-zoned Industrial and the above activities will not occur in this area.

In relation to noise sensitive activities on sites outside the Airnoise boundary, but inside the Outer Noise Control Boundary (ie. exposed to noise levels between 55 dBA and 65 dBA) Rule 2.4.24 (2) permits the above activities provided that the buildings incorporate appropriate acoustical treatment, so that an indoor sound level of 45 dBA Ldn is not exceeded. The Rule requires that an acoustic design certificate is provided at building consent stage, demonstrating that the internal noise limit will be complied with. This would apply to:

- (a) All residential activities. This includes dwellings in the rural-residential zone, accommodation units in the industrial zone (which are provided for security purposes only) as well as permanent living accommodation in the new Accommodation zone (eg. A hotel manager's unit or staff accommodation).
- (b) Travellers' accommodation. This would apply to transient accommodation units (motels, hotels etc.) which are proposed for the new Accommodation Zone. The 45 dBA noise limit applies to habitable areas ie guestrooms. This is not a 'permitted activity' in the Industrial Zone and will not occur in this zone.
- (c) Educational activities. The 45 dBA noise limit applies to libraries, study areas, teaching and indoor assembly areas within buildings used for educational activities which may be established within the Accommodation Zone.

We consider that the above Noise Rule of the District Plan will provide an acceptable control to protect 'noise-sensitive' activities exposed to airport noise. That is, that residential activities, traveller's accommodation and educational activities are permitted on sites between the airnoise boundary and the outer Noise Control Boundary as long as the building envelope is treated, so that the indoor noise level does not exceed 45 dBA Ldn.

4.0 Construction Noise

The District Plan refers to compliance with NZS6803P:1984. This has been superseded by NZS6803:1999 Acoustics – Construction Noise.

We recommend that the latest version of this Standard should apply (NZS6803:1999 Acoustics – Construction Noise). However, the earlier version contains similar noise limits and would also be an acceptable control for noise from construction.

5.0 Summary of Noise Performance Standards

The following table 1 and 2 is a summary of the above noise performance standards for the Industrial and Rural-Residential/Accommodation Zones:

Zoning of Site	Recommended Noise Rule	Noise Performance Standards
Industrial	<i>District Plan Rule</i>	<i>Noise Limits/conditions</i>
Control for Noise between Industrial sites	<i>Rule 7.4.13 Noise (1d) and (1f)</i>	<p><i>(1d) Monday to Saturday 7.00am – 10.00pm 60dBA(L10) At all other times including public holidays 45dBA(L10)</i></p> <p><i>(1f) No single event noise level Lmax shall exceed 70 dBA or exceed the background noise level by more than 30 dBA at night time (10pm to 7am) during the periods covered by 'all other times'.</i></p>
Control for noise from an Industrial site which is received at Rural, Rural-Residential or Accommodation zoned properties	<i>Rule 7.4.13 Noise (1e) and (1f)</i>	<p><i>(1e) Within the boundary or notional boundary of any site zoned Rural: Monday to Saturday 7.00am – 7.00pm 50dBA(L10) At all other times including public holidays 35dBA(L10)</i></p> <p><i>(1f) No single event noise level Lmax shall exceed 70 dBA or exceed the background noise level by more than 30 dBA at night time (10pm to 7am) during the periods covered by 'all other times'.</i></p>
Control for noise from construction. General measurement and assessment of noise	<i>Rule 7.4.13 (4)</i>	<p><i>Construction Noise NZS6803P: 1984 (alternatively, NZS6803: 1999)</i></p> <p><i>The noise levels shall be measured and assessed in accordance with NZS6801: 1991 and NZS6802: 1991</i></p>
Control for noise from Hamilton Airport	<i>Rule 2.4.24 (2)</i>	<i>Where an accommodation unit is located in the industrial zone between the 55 dBA and 65 dBA Ldn noise contours, an internal noise limit of 45 dBA Ldn shall not be exceeded in habitable areas of the accommodation unit (which are provided for security purposes only). Acoustic design certificate required at building consent stage.</i>

Table 1: Recommended Noise Rules for the Industrial Zone

Zoning of Site	Recommended Noise Rule	Noise Performance Standards						
Rural-Residential, Accommodation	<i>District Plan Rule</i>	<i>Noise Limits/conditions</i>						
Control for noise from an Accommodation or Rural-Residential zoned property which is received at another Accommodation, Rural-Residential or Rural zoned property General measurement and assessment of noise	<i>Rule 2.4.23 (1)</i>	<p><i>All activities shall be conducted and buildings located, designed and used to ensure that noise levels within the boundaries of any site which is zoned Residential or within the notional boundary of any rural dwelling shall not exceed the following limits:</i></p> <table border="0"> <tr> <td><i>Daytime</i></td> <td><i>7.00am – 8.00pm</i></td> <td><i>50dBA(L10)</i></td> </tr> <tr> <td><i>Night time</i></td> <td><i>8.00pm -7.00am</i></td> <td><i>40dBA(L10)</i></td> </tr> </table> <p><i>No single event noise level Lmax shall exceed 65 dBA between 10pm and 7am</i></p> <p><i>The noise levels shall be measured and assessed in accordance with NZS6801: 1991 and NZS6802: 1991</i></p>	<i>Daytime</i>	<i>7.00am – 8.00pm</i>	<i>50dBA(L10)</i>	<i>Night time</i>	<i>8.00pm -7.00am</i>	<i>40dBA(L10)</i>
<i>Daytime</i>	<i>7.00am – 8.00pm</i>	<i>50dBA(L10)</i>						
<i>Night time</i>	<i>8.00pm -7.00am</i>	<i>40dBA(L10)</i>						
Control for noise from construction.	<i>Rule 2.4.23 (3)</i>	<i>Construction Noise NZS6803P: 1984 (alternatively, NZS6803: 1999)</i>						
Control for noise from Hamilton Airport	<i>Rule 2.4.24 (2)</i>	<p><i>Where an accommodation unit is located in the rural-residential or accommodation zone between the 55 dBA and 65 dBA Ldn noise contours, an internal noise limit of 45 dBA Ldn shall not be exceeded in:</i></p> <ul style="list-style-type: none"> <i>- habitable areas of the accommodation unit.</i> <i>-new libraries, study areas, teaching and indoor assembly areas.</i> <p><i>Acoustic design certificate required at building consent stage.</i></p>						

Table 2: Recommended Noise Rules for the Rural-Residential/Accommodation Zone

6.0 Noise Sources/ Noise Control Treatment

We have visited the site and reviewed the structure plan to determine if any noise mitigation measures or other controls may be appropriate, to help assist compliance with the recommended noise performance standards.

6.1 Activities on Industrial Zoned properties

Activities on industrial zoned properties will be mitigated by the good separation distance provided by Meridian Drive (to the east) and Raynes Road (to the south).

To the north, the proposed highway corridor will also help mitigate noise from the industrial zone, which is received at rural-residential properties to the north.

On the western side of the industrial area there is an adjoining rural property. To help control noise from activities on industrial sites, we recommend a 5 metre wide buffer strip. This area may be used for a future noise barrier to be constructed in this area. For example, an earth bund with a fence on top, including landscaping. The final details of any noise barrier (if required) will be assessed during subdivision consent stage or as required by the final developer of the land in this area.

In this regard operators will need to implement noise mitigation/management measures to ensure that the noise limits are complied with at adjoining industrial properties as well as neighbouring rural, rural-residential or accommodation zoned properties. Depending on the activities on site, this may mean treatment to outdoor equipment, limits on activities during night time hours, and provision of heavy tilt-slab buildings.

In relation to industrial sites adjoining the rural zone to the west, it may be necessary for less noisy 'light-industrial' activities only to be established on these sites, with minimal activity on site during the times when the 35 dBA L10 noise limit applies. These sites may require evidence that they will comply with the relevant noise limits, as per the note Rule 7.4.13 (4).

In relation to noise from the proposed Highway, there is unlikely to be any adverse noise effects arising from noise generated by road traffic which is received at the industrial zoned land. Industrial activities are generally not considered to be a 'noise sensitive' activity.

6.2 Activities on Rural-Residential properties

We consider that noise from activities on rural-residential properties is unlikely to be an issue.

We consider that the only potential issue relates to noise from vehicles on the proposed Highway corridor. Provision has been made for a 10-30 metre wide landscaped buffer zone between the rural-residential zone and the highway. This area may include a solid noise barrier if required to comply with 'Transit Guidelines' or other road traffic noise Standard which may be in effect at that time.

We understand that the topography of the rural-residential zoned site is sloping up towards the Highway and this will also assist with mitigating road traffic noise. Further, dwellings within this area will be acoustically treated to comply with the 45 dBA Ldn internal noise control (for aircraft) and this will also assist with the control of road traffic noise as well as other environmental noise sources such as activities within the proposed Industrial area.

6.3 Activities on Accommodation properties

Noise from activities on accommodation zoned properties is unlikely to be an issue.

We consider that the only potential issue is noise from vehicles on the proposed Highway corridor. There is a good separation distance between the Accommodation zone and the highway, since accommodation units are likely to be at the southern end of this zone. This area of the highway may include a bridge over the Waikato river possibly with a solid noise barrier on the southern side if required to comply with Transit Guidelines.

Accommodation units or educational activities within this area will be acoustically treated to comply with the 45 dBA Ldn internal noise control (for aircraft noise) and this will also assist with the control of road traffic noise and other environmental noise sources such as activities within the proposed Industrial area.

7.0 Conclusions

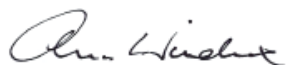
We have visited the site and reviewed the District Plan noise limits and potential activities on the site. To summarise our findings, we recommend the following:

- In relation to the proposed Industrial Zone, the noise rules for the Industrial zone should apply as set out in Rule 7.4.13 (1d) (1e), (1f) and (4) of the Waipa District Plan. A 5 metre wide buffer strip should be located on the western side of the industrial zone, where this adjoins rural land. For any residential activity within the industrial zone (associated with security purposes) noise from aircraft should comply with Rule 2.4.24 of the District Plan.
- The noise rules for the Rural zone should apply as set out in Rule 7.4.13 (1d) (1e), (1f) and (4) of the District Plan. The 10-30 metre wide buffer strip on the southern side of the rural-residential zone will help control noise from the planned highway corridor. For any residential activity within the rural-residential zone, noise from aircraft should comply with Rule 2.4.24 of the District Plan. This should also apply to residential activities, traveller's accommodation and educational activities where these are permitted on sites within the new Accommodation zone.

In our opinion, the above Rules will help control noise so that noise from the development does not exceed a 'reasonable level' (in terms of section 16 of the RMA). Any 'reverse sensitivity' noise effects associated with the airport operation are also unlikely, since buildings such as dwellings and tourist accommodation units are required to be acoustically treated to protect these activities from aircraft noise.

We trust this information is satisfactory. Please do not hesitate to contact us if you have any questions.

Yours faithfully,
Design Acoustics Ltd

A handwritten signature in black ink, appearing to read 'Tony Windner'.

Tony Windner
Director