

15 April 2020

Drury South Limited  
c/- Barkers and Associates  
PO Box 1986  
Auckland 1140

**Attention: Rachel Morgan**

Dear Rachel

## **PATAMAHOE SOUTH ACOUSTICS – RESPONSE TO PLAN CHANGE RFI QUERIES**

### **Introduction**

An application for a Private Plan Change to rezone some land at Patamahoe South has been requested to Auckland Council. Following review of the application, the council has prepared a Section 92 request for more information including queries regarding acoustics.

This letter responds to those queries.

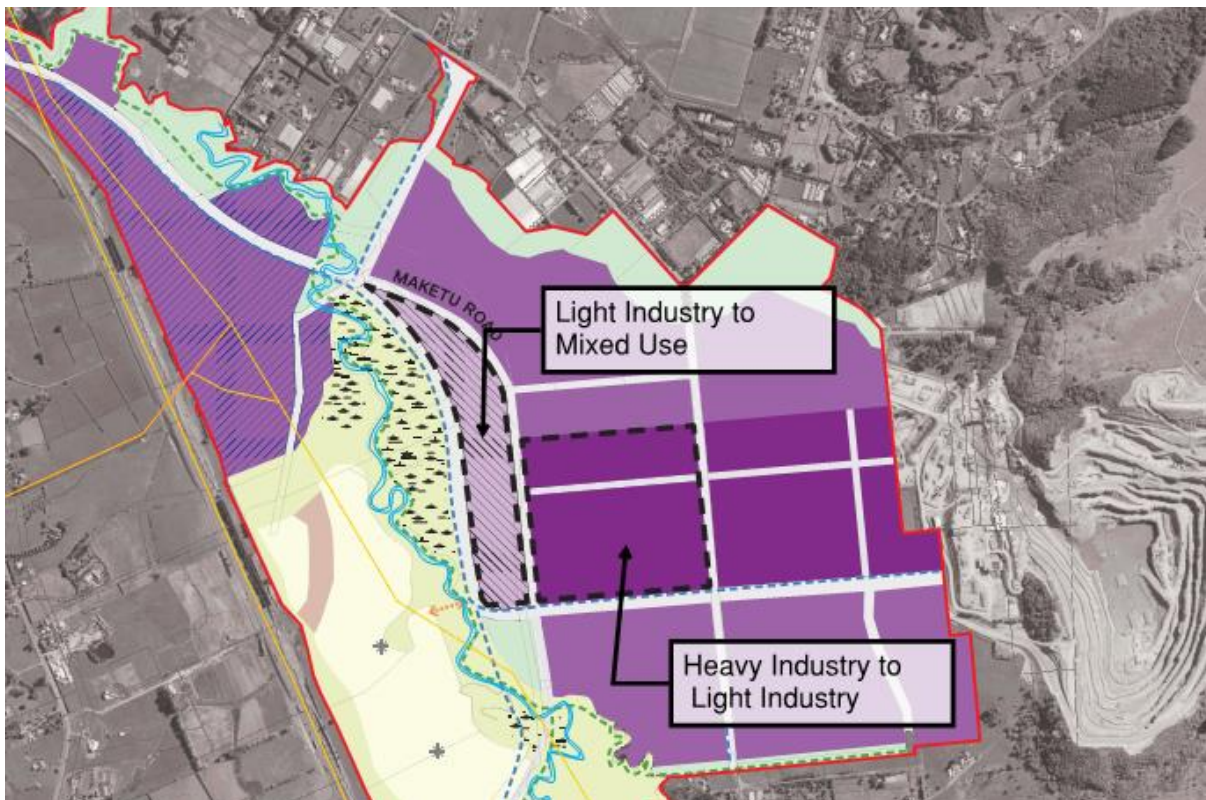
### **Application**

In summary, the PPPC would make the following zone changes:

- Rezoning of Sub-Precinct C from Business – Light Industry to Business – Mixed Use
- Rezoning of some Business – Heavy Industry zones to Business – Light Industry

The Precinct Plan with proposed amendments is shown in Figure 1 below.

**Figure 1: Precinct plan illustrating proposed zoning changes**



## A1 – Activities sensitive to noise in Sub-Precinct C

The Council has requested an explanation as to whether provisions to make plan users aware of the requirement to apply E25.6.10 in addition to proposed Standard I410.6.4 have been considered, to ensure an adequate level of acoustic insulation / mechanical ventilation is provided across Sub-Precinct C.

Rule E25.6.8 of AUP sets limits for noise emission from sites whilst Rule E25.6.9 sets noise limits received within units or tenancies inside buildings. Rule E25.6.9.10 provide noise standards for internal noise within “noise sensitive” spaces. This rule sets a minimum façade noise reduction based on permitted noise from activities incident to the building. This noise reduction standard transpires to be:

- Bedrooms and sleeping areas: Noise reduction of 20 dBA and 20 dB at 63 Hz and 125 Hz
- Other noise sensitive spaces: Noise reduction of 25 dBA

It is considered that this rule would be applicable to all developments located within Sub-Precinct C.

## A2 – Traffic noise exposure

The Council has requested confirmation whether an acoustic buffer zone is intended or required over Sub-Precinct C. If a buffer zone is proposed, the Council requests confirmation of the location and dimensions of the buffer.

### Noise received at noise sensitive spaces

By way of background, the Drury South Plan Change included a specific noise rule to manage the effects of noise along Maketu Road on activities in Sub-Precinct C.

The noise rule requires that residential activity near Maketu Road shall comply with a noise limit of 40 dB  $L_{Aeq(24hr)}$  in any habitable area based on Maketu Road traffic noise level of 75 dB  $L_{Aeq(24hr)}$  at 10m.

For residential development, one way of complying with this rule would be to provide an acoustic buffer of at least 20 m to separate Maketu Road traffic from the nearest buildings containing noise sensitive activities. It is envisaged that some of the buffer zone would include a bund, however, given the size of the permitted buildings it is considered that the bund would not provide any acoustic screening to the elevated levels of buildings.

The expected incident noise level at the façade of the nearest buildings at the boundary of a 20 m buffer would be 72 dB  $L_{Aeq(24\ hour)}$  and the required noise reduction for the façade to be 32 decibels.

It is considered that the provision of a 10 m buffer is not the only method to achieve an acceptable level of noise. The required noise reduction from road traffic noise to comply with no more than 72 dB  $L_{Aeq}$  could be achieved through the design of the building to is commercial spaces to act as buffers or elements of the building façade to screen noise sensitive spaces. The important aspect would be to ensure that the facade of any noise sensitive space in Sub-Precinct C was not exposed to a noise level greater than that permitted by the Rule I410.6.4.

To control the noise emission to noise sensitive spaces and to allow the buildings to be design without the necessity of an acoustic buffer, it is recommended that a further noise rule be included as part of the PPC:

*In addition to clause (1), the noise level measured at the façade of any part of a building that provides outlook from principal living rooms or bedrooms to Maketu Road as required by rule H13.6.9, must not exceed 70 dB  $L_{Aeq(24\ hour)}$ ”*

### Facade Constructions

Indicative façade constructions have been provided for habitable rooms at the following distances from the curb of the Spine Road. Note that this list is not exhaustive.

Façade Element	Suitable Construction Details (or approved acoustically equivalent)
<i>33 dB noise reduction</i>	
Glazing:	10.38 mm standard glass/12 mm air gap/6 mm standard glass.
Wall:	Concrete or brick cladding with an internal wall lining of one layer of 13 mm standard plasterboard with sound absorptive material <sup>2</sup> in the cavity.
Roof:	35 dB R <sub>w</sub> warm roof with 2x 13 mm standard plasterboard ceiling supported on a resilient suspension system with sound absorptive material in the cavity.
<ol style="list-style-type: none"> <li>Resiliently suspended ceiling system such as GIB Rondo or USG Donn ScrewFix ceiling batten systems.</li> <li>Sound absorptive material such as R1.8 Pink Batts, Autex Greenstuff or approved equivalent.</li> </ol>	

Mechanical ventilation compliant with the Unitary Plan would be required for residential uses in the Mixed-Use Zone.

### A3 – Traffic noise exposure

*Please identify whether Proposed Standard I410.6.4 should be amended to control traffic noise from the future Mill Road network, and if not, the reasons why.*

The Maketu Road traffic noise rule sets a noise limit for traffic movements of 75 dB L<sub>Aeq</sub> at 10 m. This limit was set to cover all traffic movements along the Road. It is, therefore, considered adequate to cover vehicle movements from the future Mill Road intersection.

In addition, Standard I410.6.4 will provide a much higher standard of noise protection to any noise sensitive spaces along the road compared to all other Mixed Use areas within the Auckland Unitary Plan.

### A4 – Quarry noise exposure

*Please provide an assessment that demonstrates the level of noise from quarrying that could be received in the precinct if the quarry was to generate the maximum level of noise permitted to make under its resource consents or AUP provisions.*

The Drury Quarry is required to comply with the noise performance standards of the Unitary Plan. These include:

- Heavy Industry Zone (~50 m) 70 dB L<sub>Aeq</sub> at all times
- Light Industry Zone (~50 m) 65 dB L<sub>Aeq</sub> at all times
- Existing Residential (~450 m) 55 dB L<sub>Aeq</sub> (day) / 45 dB L<sub>Aeq</sub> (night)

The nearest habitable potential habitable dwellings within Precinct C are located some 1,300 m from the Quarry. It is considered that the quarry will readily comply with the more stringent 55 dB L<sub>Aeq</sub> noise limit for Mixed Use Zones and there would be no acoustic effect from permitted Quarry activities at this distance.

### A5 – Interface noise limits

The Council has asked whether the reduced noise limits at the interface between the Light Industry Zone and Heavy Industry Zone will result in any new constraint on existing industrial activities.

#### Amendment of Business – Heavy Industry Zone to Business – Light Industry Zone

Rule E25.6.5 sets noise limits for noise received in Business – Heavy and Light Industry zones. Activities on a site are permitted to generate up to 70 dB L<sub>Aeq</sub> at all times within the boundary of any site zoned Heavy Industry and up to 65 dB L<sub>Aeq</sub> at all times within the boundary of a site zoned Light Industry.

A possible effect of amending a site from Business – Heavy Industry to Light Industry is that the activity on adjacent sites will be required to comply with a noise performance standard that is 5 decibels more stringent than that permitted now.

This would be a concern if the area was significantly developed, however, this area is still under construction with the roading network yet to be completed. The likelihood that the change to Light Industry would give rise to an adverse effect is considered to be irrelevant as there are no current activities on the adjacent Heavy Industry Zone and the siting of any proposed activities could be managed by the developer as it is all under common ownership.

#### Amendment of Business – Light Industry Zone to Business – Mixed Use Zone (Precinct C)

Rule E25.6.8 provides limits for noise received in a Business – Mixed Use Zone. These are 65 dB  $L_{Aeq}$  between 7 am and 11 pm which is equivalent to the permitted noise limit in the Light Industry Zone. There would be no impact to adjacent Light Industry Zone sites to the amended zoning during the daytime.

At other times, however, the noise limit in the Business – Mixed Use Zone reduces to 55 dB  $L_{Aeq}$  with low frequency controls of 65 dB  $L_{eq}$  at 63 Hz and 60 dB  $L_{eq}$  at 125 Hz. This is 10 decibels more stringent than that permitted for the Sub-Precinct now and may reduce the effective noise level for the sites immediately opposite at night time.

The potential effect for sites and activities adjacent to Sub-Precinct C is considered inconsequential however as none of those sites have been developed. Furthermore, the Industry Zones adjacent to Sub-Precinct C are separated from the Sub-Precinct by Maketu Road and potentially an acoustic buffer zone. The nearest sites, therefore, may be some 50 m from the façades of the nearest permitted developments within the proposed Mixed Use Zone. Light industrial activities are also less likely to operate at night-time when the interface controls become more stringent.

In addition, these façades must be designed to mitigate noise from the Spine Road greater than the permitted 65 dB  $L_{Aeq}$  from the Light Industry Zones.

We trust this information is satisfactory. If you have any further questions, please do not hesitate to contact us.

Yours faithfully

**MARSHALL DAY ACOUSTICS LTD**

**Curt Robinson**

**Acoustician**