

29 November 2023

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Dear Kasey,

PPC Request- 167-169 Pilkington Road – Clause 23 noise requests

Auckland Council have issued a Clause 23 request (the **Request**) seeking further information relating to noise effects for the proposed plan change at 167-173 Pilkington Road (the **Site**). This advice provides a response to the Request. This advice should be reviewed in conjunction with our *Assessment of Noise Effects* (the **Assessment**).

1.1 Existing noise environment

“The assessment describes the existing ‘legal’ environment with no reporting of the existing noise environment at the site. This information is required to assess compatibility with any future residential activity.

Please provide comments on the existing noise environment in regard to existing ambient and background levels and the contribution from business activities, rail and road traffic sources.”

We have not undertaken ambient noise measurements of the existing noise environment (business activities, rail and road traffic) for the following reasons:

- The Eastern Line is closed for over a year. Any noise measurements would not include rail movements.
- Any noise measurements of the existing noise environment would be likely to be controlled by container handling activities, truck movements and mechanical plant noise from the Site itself.
- The nearby business activities are located to the west of the Eastern Rail Line, in the Hannigan Drive Light Industry Zone (LIZ). This area is occupied by a variety of commercial and light industrial activities¹, however our survey of the area is that very few of the activities are of an industrial character or scale likely to generate noise levels up to the maximum permitted LIZ noise levels (65 dB L_{Aeq} at all times). The permitted noise levels from this area are also controlled by the requirement to comply with the Business Mixed Use Zones (BMUZ) to the immediate north and

¹ The Hannigan Drive LIZ area includes a variety of activities, including two large storage facilities, a diesel mechanic, a bakery, a ready lawn landscaping supply store, a sporting goods store, landscaping depot, two dance schools, furniture store, a photography studio, lunch bar, property investment and financial services, a delicatessen and a chicken processing plant.

west of the Site. Based on our understanding of the activities in this area, we considered that noise measurements would be likely to demonstrate that the noise levels from the activities in this area are significantly lower than the maximum levels permitted by the AUP. Rather than base the recommendations in our Assessment on measurements of the existing noise environment, our Assessment is based on the assumption that all of the LIZ sites are able to generate the maximum permitted level of noise authorised by the existing zoning pattern, whether they do so currently or not. This approach is conservative and recognises that the LIZ activities could change.

- We have not undertaken road-traffic noise measurements from Apirana Avenue and Pilkington Road on the basis that the proposal is to establish a business zoning (BMUZ) in which Activities Sensitive to Noise (**ASN**) are required to be acoustically treated. Traffic noise is discussed further in Section 1.4 below.

We do not consider that noise measurements are “*required to assess compatibility with any future residential activity*” for the reasons set out above. The BMUZ of the AUP achieves land use compatibility in high noise environments by requiring ASN to be acoustically treated. The proposal will require ASN to be acoustically treated to provide protection from LIZ/ BMUZ, the Eastern Line and noise from Pilkington Road and Apirana Ave (see Section 1.4).

1.2 Railway noise

“As no rail noise measurements were completed, it is important to confirm the KiwiRail noise guideline is appropriate for this Site.

Please confirm the KiwiRail guideline for railway noise of 70 dB $L_{Aeq(1hour)}$ at 12m from the track is representative for design purposes.”

We have obtained the source level of 70 dB $L_{Aeq(1hour)}$ from KiwiRail’s reverse sensitivity guidelines. This source level is adopted and promoted by KiwiRail in their submissions to District Plan reviews, plan changes, Notice of Requirements and resource consent applications across New Zealand.

We are currently involved with a number of current District Plan reviews across New Zealand where this level is adopted. It is our understanding that this noise level represents current practice and is applied to the most intensive rail corridors in New Zealand (such as the East Coast Main Trunk Line).

We understand that the rail noise level of 70 dB $L_{Aeq(1hour)}$ was originally developed from an acoustic report² that established a design noise level to approximate the effects of a single event and generalised average noise level from the rail corridor. The level is designed to recognise and provide for the variability in rail pass-by noise events in rail corridors across New Zealand. It is consistent with the average of a range of noise measurements we have undertaken of freight train pass-bys. Passenger trains are generally significantly quieter.

² Marshall Day Acoustics, Ontrack rail noise criteria reverse sensitivity guidelines, 22/10/09

We are satisfied that the level is representative for design purposes for this Project and is likely to be conservative for the type and frequency of movements on the Eastern Line, which is primarily used as a suburban commuter rail service and used for occasional freight movements.

1.3 Minimum setback distance

“Setback distance is a critical mitigating factor and an indicative setback distance should be quantified. Such distances are also necessary for the safe operation of the Eastern Railway Line.

Please advise the recommended minimum setback distance that Activities Sensitive To Noise should be located from the rail corridor to ensure compliance with the recommended rail vibration criterion of 0.3mm/s vw95.”

We do not support a setback distance for this proposal for the following reasons:

- 1) The vibration from rail movements cannot be measured while the Eastern Line is closed. This prevents us from being able to make any prediction of an appropriate setback distance at this time, particularly as in this case the ground conditions are variable and the Eastern Line is much higher than the Site;
- 2) The mass (and inherent dampening / transfer factor) of the proposed buildings is not known, and will not be until well into the design of the buildings themselves;
- 3) It may be that the new building(s) could be designed to reduce rail vibration to levels no greater than 0.3mm/s vw95 even where the building(s) are very close to the Eastern Line.

Any consideration of a setback distance to allow for the safe operation of the Eastern Line is beyond our area of expertise.

1.4 Road traffic noise

“Road traffic noise, like rail noise, is not controlled by any AUP standards, but traffic noise effects have not been discussed.

Please advise if road traffic noise (existing & future) from the two arterial roads next to the eastern site boundary will give rise to adverse effects in buildings containing Activities Sensitive To Noise”

Noise from traffic on local and low-speed roads is not typically controlled by acoustic treatment provisions in New Zealand. Controls requiring acoustic treatment of dwellings near to roads are typically only applied where the speed environment is 80km/hr or greater and where the traffic flows are high (e.g. state highways and some arterial roads). The district-wide provisions of the AUP do not impose any controls requiring acoustic treatment of dwellings near to any roads.

However, in response to the Request we have undertaken preliminary noise level predictions for traffic on Apirana Avenue and Pilkington Road. The predictions are based on the traffic flows set out in the ITA (lodged with the PPC), the posted speed environment and the existing asphalt surface.

The current road traffic noise levels are predicted to be approximately 62dB $L_{Aeq24hr}$ at the part of the Site that is closest to Apirana Avenue. In other parts of the Site, the closest buildings would

be much further away and are predicted to receive approximately 56dB $L_{Aeq24hr}$. We expect that the nighttime noise levels will be significantly lower than the $L_{Aeq24hr}$ levels due to the high proportion of commuter traffic and relatively low volume of trucks that would be present once the development of the Site takes place (removing the heavy traffic that is generated by current activities on Site). The noise levels would be highest at the lower levels of future buildings and will reduce with floor height and may reduce enough in some cases to avoid the need for any acoustic treatment at all.

A detailed noise model would be required to determine the road traffic noise level on each façade and to determine which units would require acoustic treatment. This work can only be done when the building designs are known.

Our predicted noise levels are approximately consistent with or less than the noise levels authorised by the BMUZ zoning. However, the underlying standards in E25 would allow the majority of the facades along Pilkington Road and Apirana Avenue to be acoustically 'untreated' given that the noise levels from the THAB zone (on the opposite side of the same roads) would be low. This could lead to future road traffic noise levels exceeding a reasonable level inside the closest and most exposed habitable rooms. Accordingly, the BMUZ provisions may not adequately mitigate the future road traffic noise levels inside the closest activities sensitive to noise.

Accordingly, we recommend that the precinct standards are amended to ensure buildings are designed and constructed so that road-traffic noise levels do not exceed 40dB $L_{Aeq24hr}$ inside bedrooms and other habitable rooms (to be assessed at the time of building consent). We expect that the internal design level will be achieved, provided that windows and doors facing Pilkington Road and Apirana Avenue can be kept closed. We have recommended precinct standards that required any new noise sensitive space or alteration to an existing noise sensitive space within 60m of Apirana Avenue or Pilkington Road where the road traffic noise level is predicted to exceed 55dB $L_{Aeq24hr}$ to be designed, constructed and maintained with a mechanical ventilation / cooling system that meets the requirements of E25.6.10(3)(b) and (d) to (f). We have recommended that the external road traffic noise level predictions are based on the traffic volumes at the time of the design, with an additional 2dB added to account for possible future traffic growth.

Please contact me if you require any further information.

Yours sincerely,



Jon Styles, MASNZ
Director and Principal