

File Ref: AC19255 – 02 – R4

6 July 2020

Ms J. Anderson  
Selwyn District Council  
PO Box 90  
ROLLESTON 7643

Email: Jane.Anderson@selwyn.govt.nz

Dear Jane,

**Re: Selwyn District Council RC195448 – Neighbourhood Centre Development, Lincoln  
Review of noise assessment**

As requested, we have undertaken a peer review with regard to the noise assessment provided in support of an application for Resource Consent for the proposed neighbourhood centre development to be located at 581 Birchs Road, in Lincoln.

Our review is based on the following documentation:

- Assessment of Noise Effects Report titled *Flemington Development*, as prepared by Marshall Day Acoustics, and dated the 29<sup>th</sup> of July 2019.
- Letter titled *Flemington Commercial Centre – RFI Responses*, as prepared by Marshall Day Acoustics, and dated the 6<sup>th</sup> of September 2019.

## 1.0 NOISE PERFORMANCE STANDARDS

Marshall Day Acoustics (MDA) have correctly identified the District Plan noise limits for the Living zones, and noted that the noise limits apply at ‘any point beyond the boundary of the site’.

In regards to noise effects we agree with the following:

- It is in line with good practice to assess the noise in relation to the  $L_{Aeq}$  parameter as opposed to  $L_{A10}$ .
- Based on the existing ambient noise levels and relevant guidance that it would be appropriate to consider the daytime period starting from 0700 hours.
- A night-time noise limit of 45 dB  $L_{Aeq}$  at the boundary of other sites would be appropriate and would not result in sleep disturbance at neighbouring dwellings.

We note that it is suggested that the proposed noise limits will be assessed at the neighbouring Living zone boundaries. However, further discussion within the reports indicates that for 555 Birchs Road MDA have currently assessed the effects at the notional boundary. Based on the current use of the site we agree that this would be appropriate; however, this would need to be carried through to any proposed noise limit condition.

In addition, we note that 555 Birchs Road is zoned Living Z. Therefore, if the site is developed in the future in line with a Living zoning the development may need to implement additional mitigation in order to comply. This may need to be encapsulated in any proposed conditions of consent.

In their response to the RFI, MDA have now included an assessment of compliance with the District Plan noise limits. We note that for this compliance assessment it appears that MDA have considered noise levels received at neighbouring properties (rather than at any point beyond the boundary). However, as above, in terms of effects we consider MDA's approach to be appropriate.

## **2.0 CALCULATION ASSUMPTIONS**

Generally, the assumptions regarding the noise emissions from the activity and the expected noise levels at the neighbouring properties are reasonable and in the general order that we would expect. However, we note the following specific comments:

- MDA have applied a blanket adjustment between  $L_{Aeq}$  and  $L_{A10}$  of +3 dB. While this is likely in the correct order for the noise sources which would be present for the majority of the 15-minute assessment period (i.e. peak activity), it would not be accurate for intermittent sources (such as heavy vehicle movements). In this situation, the  $L_{A10}$  level will be dependent on whether the noise source would be within proximity of the neighbouring sites for more than 90 seconds within a 15-minute period.
- We understand that a total of four B-train deliveries may occur on a daily basis. For the purposes of their assessment MDA have assumed two trucks may enter/exit the site within a worst-case 15-minute period. MDA have considered a truck with a sound power of 88 dB  $L_{AE}$  at 10 metres, and what appears to be a standard height of 1.0 to 1.5 metres. This would be appropriate for most heavy vehicles, where the majority of the noise is generated at a low height. However, in this case, as the development is a supermarket it is realistic that refrigeration trucks would also visit the site to deliver goods. These trucks typically include a refrigeration unit above the truck cab, which generates a significant level of noise. As the noise source for these trucks is elevated, the effectiveness of any acoustic fencing will be reduced.

We have considered the significance of these issues below.

## **3.0 EXPECTED NOISE LEVELS AND EFFECTS**

Based on the above, we have the following comments in regards to the expected noise levels:

### Heavy vehicle movements

- Two standard heavy vehicles travelling from Birchs Road to the loading bay at the back of the supermarket will likely be generating noise on site for more than 90 seconds within a 15-minute period. Based on the relative distances to the neighbouring sites, we expect that there would be non-compliances at the same sites as those noted in the MDA report – 12 Caulfield Crescent, 26 Caulfield Crescent, 555 Birchs Road, and 560 Birchs Road. There would also be a technical non-compliance at the adjoining Birchs Road boundary.
- In regards to noise effects, we consider the MDA assessment and conclusions for standard heavy vehicles to be appropriate.
- As above, we consider it likely that refrigeration trucks may visit the site to make deliveries. Based on measurements reported by MDA for another supermarket loading area in the Selwyn District, it is possible that the noise levels presented in the MDA report could increase by up to 4 dB, as the fence will not be effective for screening the high-level refrigeration unit. In order to reduce the noise levels in line with those outlined within the MDA report we recommend that the 2.0-metre-high acoustic fencing surrounding the loading bay is increased in height to 2.5 metres. Assuming a

refrigeration unit is located at a height of 2.0 to 2.2 metres high, this should reduce line of sight to the neighbouring properties, and ensure noise levels meet the proposed criteria of 55 dB L<sub>Aeq</sub>.

#### Noise from loading bay

- In the response to the RFI, MDA included an assessment of a forklift within the loading bay and have stated that any forklifts will be fitted with broadband reversing alarms. We recommend that the requirement for broadband alarms is adopted as a condition of consent to ensure both compliance with the District Plan noise limits, and to ensure the associated noise effects are minimal.

#### Noise from mechanical plant

- MDA have proposed that the mechanical plant noise will be reviewed and comply with a night-time noise limit of 35 dB L<sub>Aeq</sub> – that is 10 dB below the proposed noise criteria. We agree that this is appropriate and would ensure there are no significant cumulative noise effects.

#### Noise from café

- MDA have now also considered the noise from the outdoor area of the proposed café when received at the neighbouring site boundaries. MDA have not stated what noise level they have assumed for the people within the outdoor area; however, based on the relative distance to the neighbouring properties the stated values are in line with what we would expect. Based on this assessment we agree that the overall noise effects from the use of the café outdoor area would be minimal if it was to be used within the daytime or the night-time period. An exceedance of up to 1 dB of the District Plan night-time noise limit would be expected at 560 Birchs Road if the outdoor area was to be used between 2000 and 0730 hours.

#### Noise levels at 555 Birchs Road

- As outlined above, we consider it appropriate to assess the noise levels at the notional boundary of the dwelling on 555 Birchs Road based on the current site layout. However, as the site is zoned Living Z there is the potential that the site could be developed in the future in line with a typical Living zone. Noise levels of up to 62 dB L<sub>Aeq</sub> have been predicted at the boundary of this site adjoining the proposed car park during the off-peak time due to the heavy vehicle movements. MDA have recommended that *'The appropriate mitigation in the event of additional residential dwelling developments occurring at 555 Birchs Road would be to extend the proposed 1.8m solid boundary fence along the site's entire northern boundary as and when required.'* We agree that this would be appropriate and recommend that it is encapsulated within the conditions of consent.

Therefore, while non-compliances with the District Plan noise limits are expected at several neighbouring sites, with appropriate mitigation measures in place the noise effects associated with the proposed activity will be minimal.

## **4.0 REVIEW OF SUBMISSIONS**

We have reviewed the 14 opposing submissions which mentioned noise. There appear to be a number of concerns regarding the noise levels associated with the application, several of which have been discussed above. Our key observations with regard to the submissions are as follows:

- There are several comments regarding the quiet residential area that the neighbours currently experience. As discussed above, we expect that a daytime noise limit of 55 dB L<sub>Aeq</sub> and night-time noise limit would 45 dB L<sub>Aeq</sub> would be acceptable for this environment. The main change from the District Plan noise limits to the proposed noise limits is the overall hours assigned to the daytime period, and the night-time limit. However, the proposed noise limits remain in line with the recognised guidance to retain appropriate amenity and to prevent sleep disturbance in residential areas.

- MDA carried out ambient noise measurements during the morning period between 0700 and 0800 hours. Based on these measurements and the number of vehicles expected on Birchs Road during this period, as above we agree that a higher daytime noise limit starting from 0700 hours is acceptable. However, at present MDA have not provided any further justification for the extension of the hours from 2000 hours until 2200 hours. This appears to be a concern of the submitters and therefore I consider it appropriate that the loading bay and delivery vehicles are limited to 0700 and 1900 hours in line with the application. With this restriction in place, during the period from 2000 and 2200 hours the potential noise sources would be limited to customer vehicles associated with the supermarket and the use of the outdoor area of the café (as noise from mechanical plant is managed by another condition). In the absence of further information on the current ambient noise levels expected during this time it would be appropriate for these sources to comply with a noise level of 45 dB  $L_{Aeq}$  from 2000 hours, in line with the onset of the District Plan night-time period. As peak vehicle numbers are not expected during this time, we expect that the activity can comply with this limit.
- The neighbours appear to have concerns regarding the increased noise from traffic, particularly those from heavy vehicles and the use of the loading bay. As above, we agree that this was a valid concern and as such the proposed acoustic fence around the loading bay should be extended to be minimum 2.5 metres in height. All delivery and service vehicles should also be limited to between 0700 and 1900 hours, and all forklifts fitted with a broadband alarm. With these measures in place, we expect that the associated noise levels would be acceptable.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

We have undertaken a peer review with regard to the noise assessments provided in support of the proposed neighbourhood centre development in Lincoln.

Overall, non-compliances with the District Plan noise limits are expected at 12 Caulfield Street, 26 Caulfield Street, 555 Birchs Road and 560 Birchs Road during the daytime period, with a potential exceedance at 560 Birchs Road if the outdoor café area was used between 2000 and 0730 hours.

However, we agree with MDA that the noise effects associated with these non-compliances will be minimal, provided that the mitigation measures outlined in the MDA reports, and recommended in this report are implemented on the site.

We recommend the following:

- *Noise from the activity should be meet the following noise levels when received at the boundary of the neighbouring sites, and the notional boundary of the dwelling at 555 Birchs Road (measured and assessed in accordance with NZS6801:2008 and NZS6802:2008):*

*Daytime (0700 to 2000 hours)                      55 dB  $L_{Aeq}$*

*Night-time (2000 to 0700 hours)                      45 dB  $L_{Aeq}$  / 75 dB  $L_{AFmax}$*

- *Any forklifts on the site are fitted with broadband alarms*
- *2.5 metre high acoustic fence is located around the supermarket loading bay*
- *Service vehicles and deliveries, and use of forklifts, is to only occur between 0700 to 1900 hours*
- *Prior to the issue of a building consent, the applicant will submit a report from a suitably qualified person demonstrating that the mechanical services for the facility will comply with a noise level of 35 dB  $L_{Aeq}$  at all neighbouring site boundaries.*

- *In the event that additional residential dwellings are constructed on the 555 Birchs Road site, 1.8 metre high acoustic fencing will be installed along the northern boundary of the car park, and the noise limits outlined in Condition XX will apply at all site boundaries.*

Please do not hesitate to contact us further as required.

Kind Regards,

A handwritten signature in black ink, appearing to read 'J. Trevathan', with a stylized flourish at the end.

Dr Jeremy Trevathan  
*Ph.D. B.E.(Hons.) Assoc. NZPI®*  
Principal Acoustic Engineer  
**Acoustic Engineering Services**