

16 May 2018

WM Project Number: 17071

Our Ref: TKD160518 GJ

Asta Chow
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Dear Asta

Re: Cammeraygal High School - Response to Submissions

I have reviewed the submissions from Simon Elsy and Philip Ingevics concerning noise emission from the multi-purpose hall and have the following comments.

Noise Criterion

The same query is expressed in both submissions. The submissions talk of BCA criteria between 30 and 35dBA for bedrooms. Though I understand there has been some talk about introducing this requirement into the BCA, this is not currently the case as it would conflict with the requirements of the New South Wales Infrastructure SEPP (ISEPP). The guidelines from the ISEPP are that noise in bedrooms at night should be no more than 35dBA from transportation noise. There are also recommendations in Australian Standard 2107 concerning appropriate noise levels in bedrooms. These are used to design air-conditioning systems, and 30 to 35dBA would be a typical design goal.

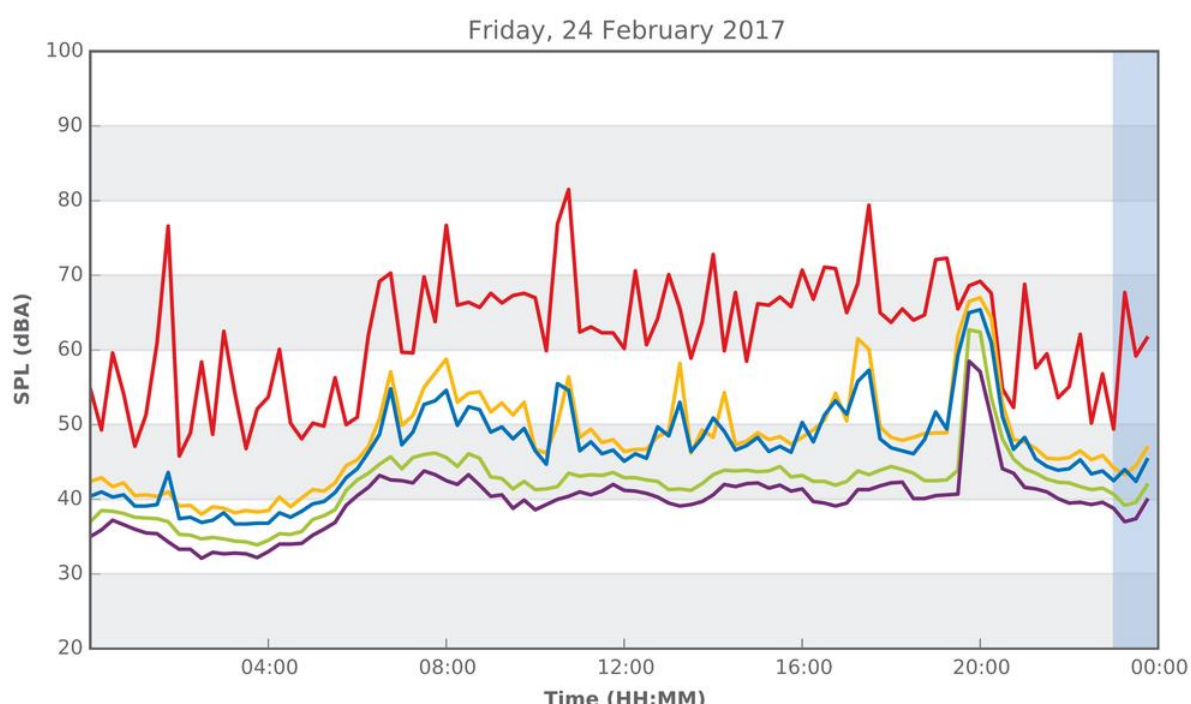
NSW noise policies take a different approach and specify appropriate levels to be achieved on residential boundaries. As described in our report, the appropriate level is based on the existing background noise level as measured at the site. We have predicted levels up to 47dBA from use of the multi-purpose hall. This type of assessment is not usually done to internal areas, but the reduction in noise from outside to inside is typically 10dBA through a facade with open windows. Therefore, the noise level of the multi-purpose hall is expected to be 37dBA inside a room facing the hall.

To help understand what this means, consider the following noise logger chart recorded at the site near the rear boundary. The chart is taken from the appendix to our DA report. The most important line to consider is the blue line which shows the $L_{Aeq,15min}$ minutes throughout the day. During the evening period from 6.00pm to 10.00pm on the example day and other days, the L_{Aeq} is typically 45 to 47dBA. (At this location there were some increases around 8.00pm to 60dBA, but these are excluded from our analysis.) The level recorded over 1 week of evenings was 52dBA as shown in Table 1.

The predicted level from the hall is similar to the existing environmental noise level in the area. So, while noise from the hall may be audible in the rooms facing the school, so will all the existing environmental noises that make up the background be audible – transportation, insects, wind in the trees etcetera. The intention of the noise policy is to reduce the new noise from the school to a level where it is not intrusive when compared to the existing noise environment.

Table 1 **Summary of noise at southern boundary near hall**

	Noise Level at Boundary (over 1 week of monitoring)	Noise Level inside Residence through open window
Background, L_{90} (the green line)	42	32
Current Intrusive Noise L_{Aeq} (the blue line)	52	42
Noise Criterion	47	
Predicted from Hall	47	37

Figure 1 **Example monitoring results (see Report 17071 Appendix A)**

Increase in Louvred Glass

The submission from residents north of the site includes a discussion of noise from the louvres, noting that there is an increase in area of louvred glass on the northern facade in the S96 plans. The increase has been quantified by the architect as from 63m² to 68.5 m². Acoustically, this is an insignificant difference and we have updated our noise model to reflect this area and verified the noise predictions in the report are still valid.

Submission from Phil Ingevics et. al.

This submission includes the previous 2 items discussed and goes into more detail concerning emission from the louvres.

Given that the Section 96 application takes a large section of the southern wall (with a specified acoustic rating of “at least 45Rw”) and replaces it with a large section of louvred glass (with a specified acoustic rating of only “at least 32Rw”), this means that there will be an increase of around 10dBA at the eastern and southern receivers, which is a doubling of the perceived sound level compared with the approved plans.

As discussed above, the increase in louvred glass is only 63m² to 68.5 m². The noise modelling for the hall includes noise emission from every aspect of the facade, including the roof, the ventilators, and the windows. At receivers south of the site where 45dBA is predicted, the noise comprises 42dBA from the southern louvres and a total of 42dBA from the remaining sources (in decibels 42+42=45). So although the louvres increase slightly in the area, their contribution increases by only 0.4dB (and 42.4+42 still equals 45dBA when rounded). This means there is a small increase in overall noise level due to the change in area of the louvres, but the difference is insignificant and inaudible.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

WILKINSON MURRAY

A handwritten signature in black ink, appearing to read 'Geo Jenner', written in a cursive style.

George Jenner

Associate