

18 January 2021

610.18552-L02-v0.2 RFI Acoustics.docx

Bloompark Consulting Pty Ltd
Suite 2.04/41 McLaren Street,
North Sydney NSW 2060

Attention: Peter Brogan

Dear Peter

Trinity Grammar School Renewal Project DPIE Request for Information - Acoustics

SLR Consulting has been engaged by Trinity Grammar School to provide acoustic design advice for the Renewal Project at Summer Hill Campus (SSD-10371).

This response addresses the acoustic items included in the Request for Information from the NSW Department of Planning, Industry and Environment (DPIE) dated 11 December 2020 as reproduced below:

5. Noise

The updated acoustic assessment provided with the RtS shows that increased student numbers will increase noise impacts of the outdoor playing areas which already exceed the noise criteria. While the increase is small, it is based on an increase from current student numbers, rather than lawful student numbers so is not representative of the actual impacts of the application which would effectively increase permitted students from 1500 to 2100.

Therefore, overall cumulative impacts are considered material given existing use of the site already significantly exceeds the amenity criteria.

According, the Department requests that consideration should be given to measures to reduce the additional noise impacts of the proposal. The Department is not supportive of a further solid construction boundary fence to Seaview Street as it would result in associated streetscape and natural surveillance impacts, noting that a solid fence is already required for part of the frontage due to noise from the loading dock.

This response makes reference to the previously submitted report (610.18552-L01-v0.4 dated 6 November 2020).

SLR provides the following response to the above items.

1 Proposed Operational Noise Increase from Outdoor Play Areas

All outdoor play activities are proposed to maintain the same hours and locations as existing, with some activities proposed to increase in numbers compared to the current maximum attendance.

As identified by DPIE, current maximum attendance in the previous report is based on the current student population of 1655 rather than a baseline student population of 1500. The predicted increase in noise levels for these activities has therefore been reassessed in **Table 1** based on the change in maximum attendance based on an increase in student population of 1500 to 2100.

This assessment considers that for a given number of people involved in a sports activity, at any time the noise generated will be based on the speech noise level from a proportion of the total number speaking or shouting. As the total number of participants increases, so does the speech noise level in accordance with the following relationship:

$$\text{Change in } L_{Aeq} \text{ noise level} = 10 * \log (\text{Proposed no. of sources} / \text{Current no. of sources})$$

Table 1 Operational Noise Increase from Outdoor Play

Activity	Location	Hours	Baseline Maximum Attendance	Proposed Maximum Attendance	Predicted Increase in L_{Aeq} Noise Level
Summer Sport Training	Ovals 1, 2, 3, C0.1, Sports Centre	7am - 8:30am & 1:50pm - 5pm	500	600	0.8 dB
Track & Field Team Training	Ovals, 1, 2, 3 and No. 2 Oval running track, Fitness Centre	3:40pm - 6pm	125	160	1.0 dB
Winter Sport Training	Ovals 1, 2, 3 & Sports Centre	7am - 8:30am & 1:50pm - 5pm	500	600	0.8 dB
Co-curricular (Cadets with Meriden School)	No. 1 Oval, Quad, Classrooms	3:40pm - 5pm	590	700	0.8 dB

The predictions in **Table 1** indicate that in all cases the proposed increase in maximum numbers would result in a noise level increase of ≤ 1 dB, which would not be a noticeable change from the current use.

The “Handbook of Environmental Acoustics”¹ (1994) includes the following thresholds for the perception of change in noise level from noise sources:

- Less than 3 dBA = No perceivable difference
- 3 dBA = Barely perceptible difference
- 5 dBA = Readily perceptible difference
- 10 dBA = ‘Doubling’ (or ‘halving’) of performance

¹ Cowan, James P 1994, Handbook of environmental acoustics, Van Nostrand Reinhold, New York

Irrespective of the proposed increase in attendance numbers, given that the activity location and hours of operation would remain unchanged the predicted change in noise level is not considered acoustically significant.

The baseline maximum attendance numbers from **Table 1** have been divided proportionally amongst the different activity locations and the predicted noise levels at the nearest receiver are indicated in **Table 2** for baseline and proposed student numbers. In addition, estimated student numbers in external areas during lunchtime for both Junior school and Senior school areas has also been assessed.

Table 2 Outdoor Play – Noise Levels Predictions for Baseline and Proposed Student Numbers

Event	Outdoor Activity Location	Baseline attendance	Proposed attendance	Offset distance to nearest receiver ¹	Predicted Existing LAeq Receiver level (dB)	Predicted Proposed LAeq Receiver level (dB)	Criteria	Compliance
Summer Sport Training	No. 1 Oval	110	130	75 m	54	54	49	No ²
	No. 2 Oval	110	130	60 m	55	56	49	No ²
	No. 3 Oval	110	130	60 m	55	56	49	No ²
Track & Field Team Training	No. 1 Oval	23	30	75 m	47	48	49	Yes
	No. 2 Oval	45	55	60 m	51	52	49	No ²
	No. 3 Oval	23	30	60 m	48	49	49	Yes
Winter Sport Training	No. 1 Oval	140	165	75 m	55	55	49	No ²
	No. 2 Oval	140	165	60 m	56	57	49	No ²
	No. 3 Oval	140	165	60 m	56	57	49	No ²
Co-curricular (Cadets with Meriden School)	No. 1 Oval	180	220	75 m	56	57	49	No ²
Lunchtime	No. 1 Oval	180	250	75 m	56	57	49	No ²
	No. 2 Oval	180	250	60 m	57	59	49	No ³
	No. 3 Oval	180	250	60 m	57	59	49	No ³

Note 1: The nearest receiver is Victoria St for No.2 and No.3 Oval, Prospect St for No.1 Oval and Seaview St for Junior School Play. No noise monitoring was conducted near No.1 Oval, however the daytime RBL is conservatively assumed to be the same as Victoria St for the purpose of this assessment (likely to be higher due to the proximity to Old Canterbury Road).

Note 2: The predicted baseline and proposed noise contribution both exceed the criteria at the nearest receivers. The increase in noise level is up to 1 dB compared to the baseline attendance, which is not perceptible as a change in noise level as noted above. In addition it is noted that the existing daytime LAeq(15minute) noise levels were generally between 60 and 65 dB at these receiver locations, which suggests a contribution from school activity of less than 60 dB would not be significant.

Note 3: The predicted baseline and proposed noise contribution both exceed the criteria at the nearest receivers. The increase in noise level is 2 dB compared to the baseline attendance, which is not perceptible as a change in noise level as noted above. In addition it is noted that the existing daytime LAeq(15minute) noise levels were generally between 60 and 65 dB at these receiver locations, which suggests a contribution from school activity of less than 60 dB would not be significant.

The noise level predictions in **Table 2** for baseline and proposed student numbers confirm that noise levels are expected to change by up to 1 dB for sports activities and no more than 2 dB for lunchtime activities at any receiver location, which is not considered acoustically significant for the reasons noted below **Table 1**.

Reference to the monitored noise data shows that existing daytime $L_{Aeq(15\text{minute})}$ noise levels during the survey were generally between 60 and 65 dBA along Victoria Street. Although the survey data included noise contributions from existing school activity, daytime $L_{Aeq(15\text{minute})}$ noise levels outside school hours were also noted as generally being 60 to 65 dBA.

The prevailing ambient noise level between 60 dBA and 65 dBA is higher than the predicted levels up to 59 dBA for the proposed outdoor play. Given existing school outdoor activities are a feature of the area, this also suggests that a marginal increase in activity noise of up to 2 dB would be insignificant in the context of existing ambient noise.

2 New Junior School Play Area

The new Junior School play area adjacent to Seaview St has been assessed separately based on the proposed use. Assumptions made for the assessment include:

- Sound power level per 10 students has been taken from the range provided in the AAAC “*Guideline for Child Care Centre Acoustic Assessment*”.
- Activity duration is considered for up to 2 hours per day.

The results of the assessment are included in **Table 3**.

Table 3 New Junior School Outdoor Play – Noise Levels Predictions

Number of students	Play duration	Acoustic screening	Offset distance to nearest receiver	Predicted L_{Aeq} Receiver level (dB)	Noise Goal	Compliance?
80 students	< 2 hours	None	30 m	58	52	No
40 students	< 2 hours	None	30 m	55	52	No

The results in **Table 3** indicate that exceedances of 6 dB and 3 dB above the noise goal are predicted at the nearest receiver with 80 and 40 students, respectively. It is noted that the goals in the AAAC Guideline are not mandatory and where they are not achieved, then it does not necessarily follow that noise levels would result in unacceptable impacts at the surrounding receivers.

Activity noise from children playing is an existing feature of the area which is a positive indication that noise from similar activities is more likely to be considered acceptable in the surrounding area.

Furthermore, reference to the monitored noise data shows that existing daytime $L_{Aeq(15\text{minute})}$ noise levels during the survey were generally between 55 and 65 dBA near Seaview Street, which is comparable to or higher than the worst-case predicted level from the new play area.

Based on the measured existing noise levels and the proposed activity being a feature of the area, the usage assumptions in **Table 3** are considered reasonable and appropriate mitigation measures. No further mitigation measures are considered necessary or reasonable for the reasons discussed above.

Should you have any further queries, please don't hesitate to contact the undersigned.

Yours sincerely



MARK IRISH
Principal - Acoustics & Vibration

Checked/ Authorised by: AMC
