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02/08/2023

HINCKLEY ACADEMY-EXTERNAL PLAY AREA NOISE – EHO CONSULTEE COMMENT

Dear Nassim,

Thank you for sharing the comments received from the EHO on external play area noise at Hinckley Academy (email from Giles Rawdon dated 20/07/2023).

We note the EHO's concerns that the data measured at LT1 may overestimate the noise levels at ST3, representative of the nearest noise sensitive receptors (NSRs) at Bradgate Gardens. Unfortunately, the data provided by Tetra Tech for ST3 is limited to only two measurements an hour apart and is not sufficient to allow an accurate assessment.

To overcome this, dBx Acoustics carried out additional noise monitoring on Monday 31st July and Tuesday 1st August. Simultaneous monitoring was carried out at LT1, and at the boundary with Bradgate Gardens (LT2), as indicated in Figure 1, below.

Figure 1: Monitoring Locations



Measurements were made continuously from 12:00h on Monday 31st July until 12:00h on Tuesday 1st August, in 15 minute intervals.

It is anticipated that the external play areas typically would be in use between 09:00h and 16:00h to cover the school day. Measurements at LT2 were affected on Tuesday 1st August by vehicle movements within the school boundary; these measurements have been excluded from the assessment to allow an appropriate assessment of the noise climate at the NSRs.

The measurement results are summarised in Table 1, below.

Table 1: Measurement Results (Summary)

Location	Ambient Noise Level, $dBL_{Aeq,T}$	Typical Background Noise Level, $dBL_{A90,T}$
LT1	50	44
LT2 (NSR)	50	41

The data indicates that there is little variation in the noise climate between LT1 and LT2. This would be expected, given the relative distance of both locations from the primary noise sources (the M69 and railway line and, to a lesser extent, the B4668).

The measured ambient noise level is, however, 7dB quieter than that reported by Tetra Tech for location LT1. This is likely due to the decreased vehicular movement in the surrounding area and on main transportation routes due to the school holidays.

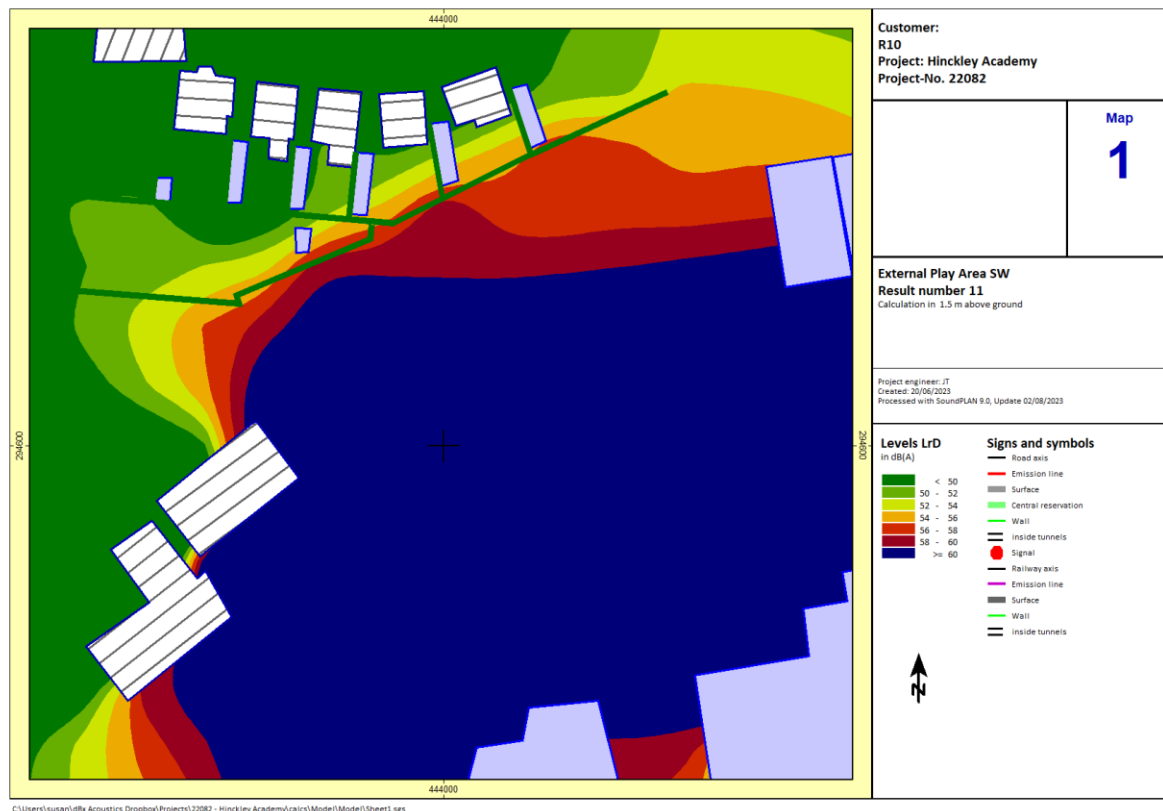
The 16-hour daytime (07:00h-23:00h) ambient noise levels were also recorded for each location, and were found to be $50dBL_{Aeq,16hr}$ at LT1 and $49dBL_{Aeq,16hr}$ at LT2 (again, excluding periods affected by activity within the school grounds).

Predicted Noise Levels

It was observed on site that the topography of the site is such that the play areas may typically be at a lower ground level than the houses. The noise model has been updated using terrain elevation data from Google Earth to take this into account. The updated noise model output is shown in Figure 2, below.

It can be seen that the inclusion of more accurate topographical data has reduced the predicted playground noise level at the NSRs to no more than $52dBL_{Aeq,T}$ at the residential facades. The majority of the garden areas would be within the $55dBL_{Aeq,T}$ upper guideline value indicated by WHO and BS8233:2014.

Figure 2: Predicted Noise Levels Due to Playground Activity



Assessment

Based on an ambient noise level of $49\text{dB}_{\text{Aeq,T}}$ at the nearest residential receptors and a resultant noise level from play of $52\text{dB}_{\text{Aeq,T}}$ at the residential facades, if the external play areas were fully occupied (200-300 pupils) for three hours a day, there would be an overall increase of 1dB in the 16-hour ambient noise levels at the residential receptors to $50\text{dB}_{\text{Aeq,16hr}}$. This can be considered a worst case for noise impact assessment.

Based on Table 7-12 of the guidelines, this would be considered a 'not significant' impact and would not be expected to have any adverse effect on the amenity of residents or their quality of life.

Considering the short term impact during a typical hour with the external play areas in use, there would be a short term increase of 4.8dB in noise levels at the residential receptors. Table 7-12 of the guidelines would consider this to be a 'slight' impact.

This is described in Table 7-7 of the guidelines as follows;

Noise impact can be heard, but does not cause any change in behaviour or attitude, e.g. turning up volume of television; speaking more loudly; closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.

Conclusion

Noise levels arising from the anticipated most intensive usage of the external play areas at Hinckley Academy has been modelled using the Soundplan 9.0 software package.

As there is existing fencing to the residential properties which provides some acoustic screening, there is no practical further mitigation which can be incorporated within the scheme.

With reference to the IEMA *Guidelines for Environmental Noise Impact Assessment*, the noise impact arising from use of the external areas would not be considered to have a significant impact or to affect the quality of life of residents.

Other Items

In response to the other issues raised within the EHO's email –

7.13 states that "The hot water ASHP units' operation will be intermittent, which has been accounted for in the assessment" however no acoustic feature correction has been applied in table 5.

An intermittency correction of + 3dB has been included for the hot water ASHPs while calculating cumulative specific noise levels at NSR. The dominant noise source is air source heat pumps (Euroklimar Heera), which are at least 10dB higher than any other noise sources (including hot water ASHPs). Therefore, the +3B for intermittency is not explicitly included for within Table 5.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Susan Witterick'.

Susan Witterick

Director, dBx Acoustics Ltd