

Ref: AS7531.130715.L1

16 July 2013

Dear Sir

## AS7531 MONKTON PARK SKATEPARK, CHIPPENHAM

### Noise Impact of Proposed Skatepark

Further to our recent conversation and following our receipt of the two separate noise impact assessments undertaken by Mach Acoustics and Hoare Lea Acoustics, we are pleased to provide our comments and observations regarding noise from the site in relation to local receivers.

#### *Mach Acoustics Report*

We have undertaken a review of the report submitted by Mach Acoustics and found several notable concerns regarding the predicted noise impact from the new skatepark.

The report uses CadnaA noise mapping software to predict noise levels across the surrounding area and notes that the 'key advantage of using this type of modelling is its accuracy'. However, the accuracy of the model is determined entirely by the quality of the input data and parameters, which in this instance appear to be strewn with errors.

The source noise levels used for the calculations were based on measurements undertaken at a distance of 5m from the skateboard noise source, and are understood to be  $L_{eq}$  82dB(A) and  $L_{max}$  104dB(A). These have then been calculated back to a sound power level at source ( $L_w$ ) and are summarised in Appendix C of the report. Undertaking this calculation using standard noise propagation theory for a point source would involve adding the distance loss propagation ( $r=5m$ ),  $20\log(r)$ , [14dB] and then adding the hemispherical radiation correction of 8dB. Using the terminology of the report, this would result in a sound power of  $L_{Weq}$  104dB(A) and  $L_{Wmax}$  126dB(A), 10dB greater than those used by Mach Acoustics in the calculations.

This would obviously have a similar effect (10dB higher) on the predicted noise levels at all receivers, with maximum event noise levels at many receivers in the mid-60dB range and are likely to give rise to significant disturbance when assessed under the CIEH guidelines.

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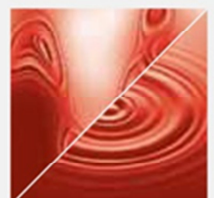
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The BS4142:1997 *Method for rating industrial noise affecting mixed residential and industrial areas* results would initially appear to be less affected. However, the Mach Acoustics report makes one large assumption that we would consider to be incorrect. The minimum background noise level,  $L_{90}$ , used for the assessment is based upon the assumed operational hours of 08:00 and 22:00 hours. However, from our extensive experience of assessing noise from skatepark applications and indeed noise problems leading to their removal, skateparks are often used much later at night than this, and often can be used into the early hours of the morning in the summer months, unless they are actively secured to stop access at the end of every evening. Background noise levels at 8 Sadlers Mead are shown on the time history as falling to 30dB(A) between 00:00 – 00:30.

If the calculations are undertaken using the correct sound power level calculated previously of  $L_w$  104dB(A), this would result rating levels of +10dB at Sadlers Mead (or +17dB if using the lower background noise level measured during the night-time). Both of these would be a positive indication that *'complaints are likely'* when assessed in accordance with BS4142.

Another point to highlight is that on page 20 of the report, it is stated that as the (incorrectly) calculated maximum noise levels are more than -5dB lower than existing measured maxima, then *"this is a positive indication that impulsive noise from activity at the skatepark will not be audible over the existing maximum noise level climate at the residential properties"*. This statement is entirely incorrect, as maximum noise events from skateboarding can still be audible 10-15dB below the existing noise level due to the entirely different noise character of the source.

It should be noted that the noise levels measured by Mach Acoustics are quite a lot higher than measurements undertaken by us [CSA] at several sites.

#### *Hoare Lea Report*

It is understood that HLA were provided with the background noise level of  $L_{90}$  36dB(A) and asked to undertake an additional assessment to support the Mach Acoustics report. To ensure a robust assessment, HLA used 35dB(A) as the background noise level for the assessment. However, as stated earlier, the background noise level could drop to 30dB(A) or less, which would alter the finding of the report dramatically.

Review of noise levels measured by HLA showed average noise levels at 3m of  $L_{eq}$  69dB(A) and  $L_{max}$  88dB(A). These are considerably lower than those measured by Mach Acoustics at a greater distance, and are approximately 7dB less than would be expected from our [CSA] library data at a distance of 3m.

If this is the case then the predicted maximum events would increase from  $L_{max}$  52dB(A) at R1 to  $L_{max}$  59dB(A), which has in turn been related to the levels stated for anonymous external average noise levels stated in BS8233, which does not provide guidance for maximum noise events during the daytime. However, if it were to be assessed in accordance with the CIEH guidelines, as in the Mach Acoustics report, it would be viewed as tending towards causing annoyance.

In addition, if the  $L_{Aeq}$  levels due to skateboarders using the park were 7dB greater, the 0dB rating required would be exceeded at many of the residential receptors.

## Conclusions

As previously shown, there are many issues with the input data in both reports that result in an inaccurate assessment of likely noise levels at nearby receivers.

These are summarised below:

### Mach Acoustics

- Calculated power levels for the average and maximum events incorrect;
- Average levels used were  $L_w$  94dB, should be  $L_w$  104dB;
- Maximum levels used were  $L_w$  116dB, should be  $L_w$  126dB;
- No reference made to late night use which would have a much higher noise impact;
- Statement that maximum events will not be audible at houses as they are lower than existing maximum events is incorrect because of different characters of noise.

### Hoare Lea Acoustics

- Source noise levels considerably lower than library data measured by CSA at many sites;
- Average levels used were 69dB(A) @3m;
- Maximum levels used were 88dB(A) @3m;
- Both the above levels would be lower than expected by CSA and considerably less than those measured by Mach Acoustics;
- Maximum levels compared against a criterion for average external anonymous noise sources.

To illustrate the likelihood of complaint for the park in its proposed location, we [CSA] have undertaken our own brief noise impact assessment using library data, the same night-time background noise level of  $L_{90}$  37dB(A) and the distance to the nearest receiver used by HLA of 97m.

The methodology used for the assessment has been accepted by the court in the landmark case in relation to skateboard noise, Richardson vs. Devizes Town Council and have been adopted by a number of local authorities and other acoustic consultants (including Mach acoustics). The results of the noise impact assessment with no mitigation shows a rating level of +14dB in accordance with BS4142, and maximum levels of  $L_{max}$  64dB(A) at nearby receivers (calculations attached ref: AS7531/C1). It should be noted that if the skatepark were to be used later at night, the rating level could increase to +21dB(A).

This shows that noise levels would need to be mitigated by at least 14dB to reach a level at which the 0dB desired by the Council, and at which complaints are not likely, which is considered in practice to be very difficult to be achieved, and hence this location does not appear to be suitable in terms of noise for the proposed skatepark.

We trust the above to be of assistance. Please do not hesitate to contact us with any queries you may have.

Yours sincerely  
for CLARKE SAUNDERS ASSOCIATES

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Project: AS7531

Proposed Skatepark Monkton Park, Chippenham  
Sadlers Mead Impact

Noise Impact Assessment as 'base' design

## BS4142 Assessment

Receptor	Nearest receiver, Sadlers Mead	Distance <b>97 m</b>
L <sub>Aeq,1h</sub> for Skateboarding	54 dB @ 40m	
Distance Loss to 97m	-8 dB	
Acoustic Screening	0 dB	
L <sub>Aeq,1hr</sub> at Receiver (specific noise level)	46 dB	
Character Correction	5 dB	
<b>Rating Level</b>	<b>51 dB</b>	
Background LA90 level	37 dB	
<b>Assessment Level</b>	<b>14 dB</b>	* rounded to nearest dB
<b>Conclusion</b>	<b>Complaints very likely</b>	

## WHO Guidelines Assessment

Worst case continuous

7 hours out of 16hr Daytime

7 hours @ 46 dB(A)

9 hours @ 0 dB(A)

Correction -4 dB

Acoustic Screening 0dB

*Skating for 7 out of  
16 hours*

<b>L<sub>Aeq,16hr</sub></b>	<b>43 dB(A)</b>
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\* rounded to nearest dB

<b>OK for day and evening (40-45dB) no moderate annoyance</b>
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## Clay Target Assessment

L<sub>Amax</sub> for Concrete Skatepark

71dB @ 45m

L<sub>Amax</sub> at Receptor

64dB @ 97m

Acoustic Screening

0dB

L<sub>Amax</sub> at Receptor

64 dB
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Comment L<sub>Amax</sub>(SNL) > 55dB < 65dB

<b>Tending towards 'Complaints being highly likely'</b>
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**Calculation AS7531/C1**