



Reference: R + Reading

Project No: 089803

Technical Note 3

Re: Addendum Note 2 for Planning Condition 14 and BREEAM Pol 05

Introduction

This technical note has been produced by Sharps Redmore Acoustic Consultants (SR) to provide an addendum to the previously issued BREEAM acoustic reports (R1-8.12.14-R+ Reading- 089803-NDD and Technical Note TN2-19.10.15-R+ Reading-089803-NDD) and should be read in conjunction with these documents.

SR has been instructed by Sisk & Son Limited to undertake pre-completion noise measurements to assess the plant noise in relation to the criteria of both Planning Condition 14 (see below) and BREEAM criteria for the Pol 05 credit.

The assessment has been carried out by Sharps Redmore Acoustic Consultants, all of whom are members of the Institute of Acoustics, and would therefore be considered suitably qualified acousticians under the BREEAM description.

Planning Condition 14

The scheme has been designed to comply with the requirements of Pol 05 and also a planning condition attached to the scheme.

In regards to plant noise the Local Authority have attached the following planning condition (number 14 of planning reference 10/00989/FUL):

“No development shall take place until a noise assessment, in respect of the acoustic details of the plant (extraction, air conditioning etc.) to be installed, has been submitted to and approved in writing by the local planning authority. The rating level of the noise emitted from the plant shall not exceed background noise levels when measured at the façade of the nearest residential property (the flats at No.17-19 Valpy Street). Measurements and assessments shall be made in accordance with BS 4142:1997”.

The nearest residential properties are identified specifically in the planning condition as no.17-19 Valpy Street. Other residential properties would be more distant and therefore achieving the plant noise emissions criteria at the nearest properties would meet those at more distant properties with a margin due to distance attenuation.

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Table 1 below shows the criteria related to the plant noise emissions:

Table 1 – Plant noise rating level to comply with Planning Condition 14

Period	Minimum $L_{A90, 5 \text{ minutes}}$ dB	Plant Noise Emissions Criteria Rating Level dB
Day 0700-1900 hours	53	≤ 53
Evening 1900-2300 hours	47	≤ 47
Night 2300-0700 hours	38	≤ 38

This is based on a measurement period of 1 hour daytime and 5 minutes night time, in line with BS 4142 methodology at the nearest critical receptor.

Sharps Redmore attended site on Thursday 3rd March 2016 and measured the operating plant noise levels using a Bruel & Kjaer 2260 Class 1 sound level meter. The meter was calibrated before and after measurements and showed no signs of drift. Weather conditions were calm with low wind speeds.

An assessment was undertaken using the methodology of BS 7445 and BS 4142 for calculating the noise levels at the nearest sensitive receptor.

Measurements of plant noise from the main roof top plant area were measured as 70 dB $L_{Aeq,5 \text{ minutes}}$ at 1m from the Air Handling Units (AHU's) as these were the nearest plant to the sensitive nearest residential receptor on Valpy Street which is at 36 metres horizontally and therefore the relevant noise source for consideration. Appendix A shows the horizontal distance from the plant area to the nearest residential receptor.

To correct for distance the calculation $20 \log (r^1/r^2)$ was used to give a reduction of 31 dB, where $r^1 = 1 \text{ m}$ and $r^2 = 36 \text{ m}$.

By calculation, the noise level will attenuate at 36 metres to 39 dB L_{Aeq} at the nearest residence during daytime and therefore would be significantly below the previously measured background level of 53 dB $L_{A90,5 \text{ minutes}}$ for daytime and 47 dB $L_{A90,5 \text{ minutes}}$ for evening.

The client has confirmed that the base time set for plant operating hours are 0600 to 1800 hours. This indicates that plant operation levels will reduce further at night and would be expected to be below criteria.

The contractor has installed louvres around the perimeter of the plant area to further reduce noise emission and this has not been considered in the calculation.

Pol 05

The planning condition requirements are more onerous than the BREEAM Pol 05 requirements and therefore the credit is achieved by default.

The calculated plant noise at the nearest residence is below the background level of 53 dB $L_{A90,5 \text{ minutes}}$ at all times of operation.

Criteria for the BREEAM:2011 Pol 05 credit is achieved by default due to the planning condition requirements being more onerous.

Conclusions

Sharps Redmore has attended the office development at R+ Reading to undertake plant noise measurements. The plant was commissioned and fully operational. Weather conditions were suitable for undertaking sound level measurements.

The measurements show that the criteria of Planning Condition 14 is met for daytime operating hours.

The client has confirmed that the base time set for plant operating hours are 0600 to 1800 hours therefore criteria for night time plant noise levels is achieved.

The criteria for the BREEAM:2011 Pol 05 credit is achieved.

Appendix A – Plant to sensitive receptor location

