

Matthew McGee
PMC Construction and Development Services Ltd
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Date: 7th July 2023
Reference: R9906-3 Rev 0

Dear Matthew

RE: FORMER EASTLEIGH POST OFFICE – SUBSTATION NOISE ASSESSMENT (ADDENDUM)

I am pleased to confirm our response to the following comments received from Eastleigh Environmental Health (email from Jon Pyke dated 4th July 2023).

"Our preference is for the demonstration on the harmonic frequencies of the substation and for the calculation to consider these within the substation building breaking out through the envelope components such as masonry wall and tiled roof - and propagating to habitable rooms of the dwellings. Our experience of tonal or strongly harmonic noise is that it impacts while being lower than an overall averaged noise level. Dwelling occupiers can identify with such over time when audible noise is constant. Masonry is more effective in reducing low frequency noise than roof tiles. It can be straightforward therefore to improve upon the sound reduction of the substation building envelope if there is risk of audible tonal or harmonic noise impact."

A harmonic is a wave with a frequency that is a multiple of the fundamental frequency. The UK power network operates at 50 Hz and harmonics of this fundamental frequency include 100 Hz and 200 Hz.

Table 1 describes the calculated sound pressure levels breaking out from the substation roof at the identified frequencies with no corrections for distance. The results are compared against the threshold of hearing published in ISO 226:2003.

Header	Noise Level, dB at Third-Octave Band Centre Frequency		
	50 Hz	100 Hz	200 Hz
Substation sound pressure level at 0.3m	16	34	29
Sound reduction index of roof tiles	12	17	20
Resulting sound pressure level at 0.3m	4	17	9
ISO 226:2003 Threshold of Hearing	44	27	14

Table 1 - Substation Noise Breakout Calculation

Although audibility is not a measure of noise impact or disturbance, the results demonstrate that there is no risk of noise disturbance from the proposed substation.

I trust the above is in order. Please call if you have any questions.

Yours Sincerely,
For 24 Acoustics Ltd

Neil McLeod BA(Hons) MIOA
Senior Consultant