

Matthew McGee
PMC Construction and Development Services Ltd
80a High Street
Cosham
Hampshire
PO6 3FL

Date: 30th June 2023
Reference: R9906-2 Rev 0

Dear Matthew

RE: FORMER EASTLEIGH POST OFFICE – SUBSTATION NOISE ASSESSMENT

I am pleased to confirm our assessment of noise associated with the proposed substation adjacent to the new residential development at the former Eastleigh Post Office.

It is conventional to locate substations in close proximity to residential properties and 24 Acoustics is not aware of any cases of noise nuisance associated with substations. Since the risk of disturbance has been raised by Eastleigh Environmental Health, however, a formal assessment has been undertaken to accompany the planning application (reference F/23/95228).

The proposed location of the substation is described in Figure 1.

British Standard 4142: 2014

British Standard 4142: 2014 'Methods for Rating Industrial and Commercial Sound', 2014 provides a method for rating the effects of industrial and commercial sound on residential areas.

The standard advocates a comparison between the typical measured L_{A90} background noise level and L_{Aeq} noise level from the source being considered. For rating purposes if the noise source is tonal, intermittent or otherwise distinctive in character, a rating correction should be applied.

The standard states that a difference between the rating level and the background level of around +10 dBA is an indication of a significant adverse impact, depending on the context and a difference of around +5 dBA is likely to be an indication of an adverse impact, also depending on the context. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact (depending upon the context).

Background Noise Levels

The noise measurements undertaken by 24 Acoustics in 2020 are described in report R8762-1 Rev 1 (see Appendix A). The typical background noise levels measured at the rear of the building (near the proposed substation) were 40 dB $L_{A90, 1hr}$ during the daytime (07:00 to 23:00 hours) and 36 dB $L_{A90, 15min}$ during the night-time (23:00 to 07:00 hours).

Plant Noise Assessment

The proposed substation is a 500kVA transformer by Schneider Electric, who quotes a sound pressure level of 31 dBA at 0.3m (see Figure 2). The transformer will be housed in a brick building with a tiled roof that will reduce noise break-out by at least 18 dBA.

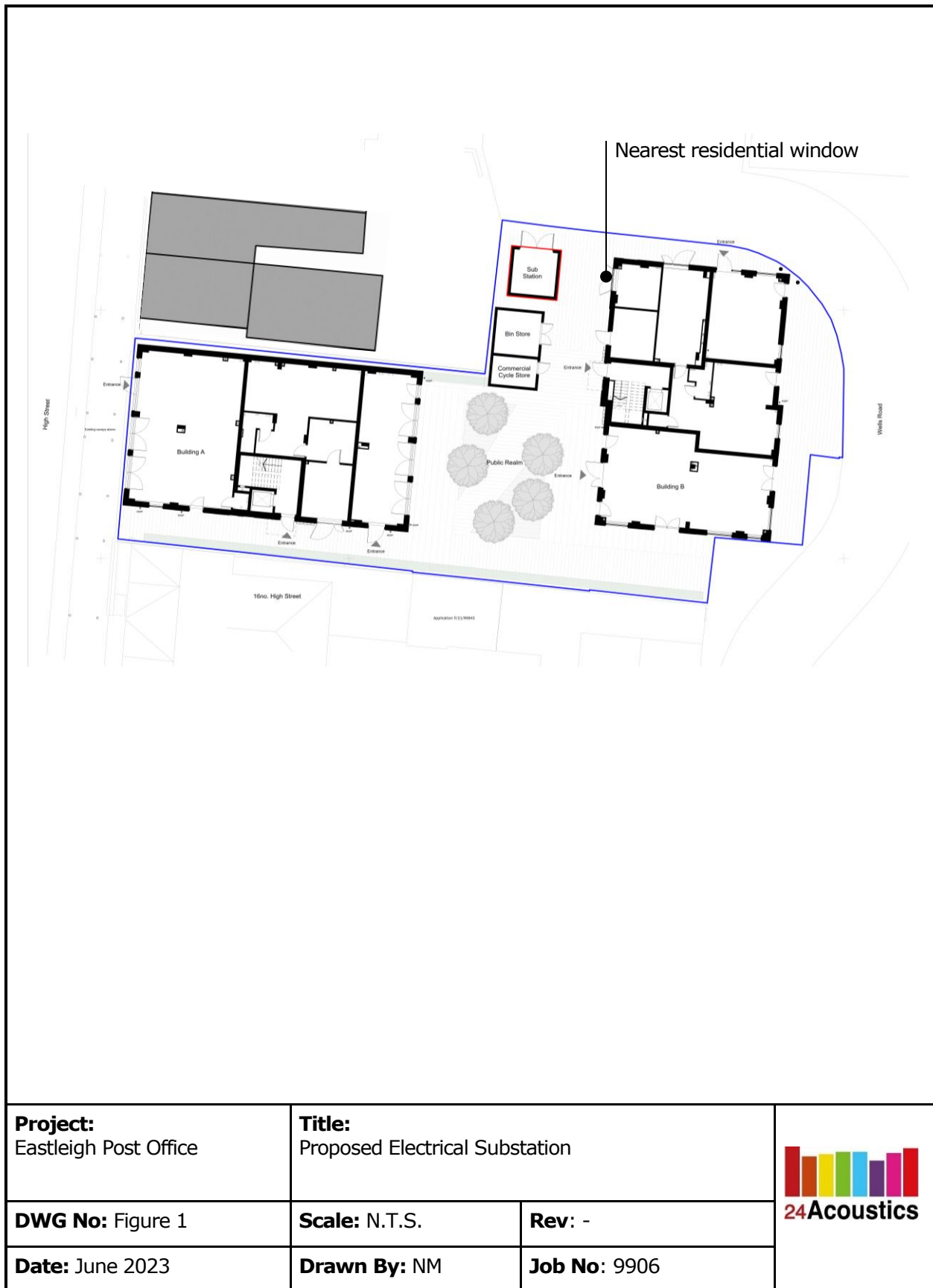
The nearest and most affected window is within the new residential block, 5 metres from the substation. With attenuation from the brick enclosure, distance loss and assuming a 2 dBA correction for tonality, the calculated noise rating level from the electrical substation is less than 10 dB $L_{A,T,r}$ at the nearest window.

The noise rating level is at least 26 dBA below the measured background noise levels during daytime and night-time, which is acceptable with reference to BS 4142 and hence acceptable in planning terms.

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



Test Certificate

N° : I760103-01



Type : MINERA	Determination of Sound Level		Page Nr. : 1 of 1 pages
Customer :			
VPD	Fb Nr : 760103	Mach. Nr : 760103-01	
Power (kVA) : 500	Voltage (kV) : 11 / 0.433	Standard	IEC 60076-10

Measurement method :

Sound pressure ☒

Sound intensity ☐

Trf. Coolers with ☐ without ☐

Fans switch on ☐ off ☐

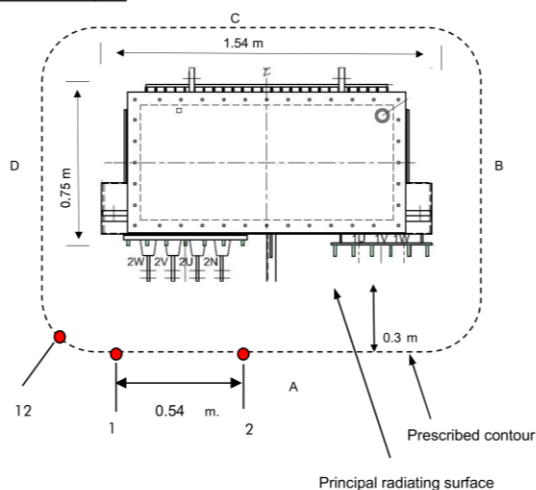
Test conditions :

Test laboratory	MPT
Ambient temperature	29.4(±2) °C
Height of mic. above grd. 1/2 h	0.80 m
Excitation voltage	0.433 kV
Frequency	50 Hz
Tap position	3
Measurement distance	0.3 m
Length of prescribed cont.	6.5 m
Height of test object, h	1.60 m
Area of meas. surface (S)	12.3 m ²
10lg(S/S ₀)	10.9

A-weighted sound pressure levels of the background noise :

Pos.	At start of test	At end of test
A	25.5	25.2
B	26.1	25.9
C	25.3	24.8
D	25.2	25.0
L _{bg}	25.5	25.3 (A)

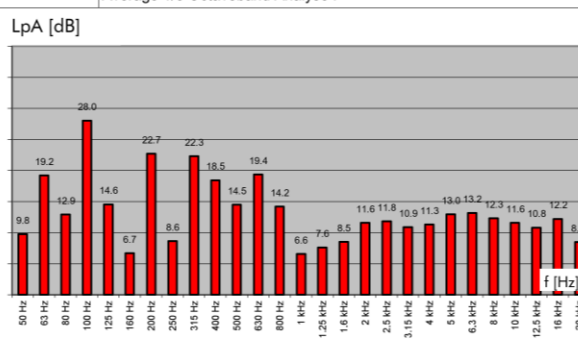
Plan of test object :

A-weighted sound pressure levels L_{pA}

Pos.	1/2 h	-	-	-
1	27.8			
2	34.3			
3	29.4			
4	30.8			
5	30.1			
6	28.9			
7	31.3			
8	30.4			
9	32.4			
10	34.2			
11	33.3			
12	31.2			

L_{pA0} 31.6 dB(A)

Average 1/3 Octaveband Analyse :



L _{pA0} - maximum	L _{bgA}	31.6	-	25.5	=	6.1 dB(A)
Correction for sound reflections by factor	K	=	0.0	dB		
Correction for steady-state background noise	=	1.1	dB			
Corrected average A-weighted sound pressure level	L _{pA}	=	30.5	dB(A)		
Calculated A-weighted sound power level	L _{WA}	=	41.4	dB(A)		

Measuring instrument :

Manuf. : 01dB-Mettravib Meter type : NETdB
 Serial number : LCF026330-262
 Microphone type : MCE 212
 Serial number : 101069
 Power Analyser: Yokogawa WT 3000

Project:
Eastleigh Post Office

Title:
Schneider Datasheet

DWG No: Figure 2

Scale: N.T.S.

Rev: -

Date: June 2023

Drawn By: NM

Job No: 9906



APPENDIX A – 24 ACOUSTICS NOISE ASSESSMENT (REF R9906-1 REV 0)