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Ref: 20311R29bMWrmwpak

Mr. Terry Passfield  
Bowmer & Kirkland Limited  
107 Marsh Road  
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cc. Mr. Stuart Butler, Bowmer & Kirkland Limited.  
cc. Mr. Martin Molloy, Bowmer & Kirkland Limited.  
cc. Mr. Chris Gornall, Bowmer & Kirkland Limited.

Dear Terry,

**Ground Floor Plant Room - The Hoxton Hotel, High Holborn, London.**

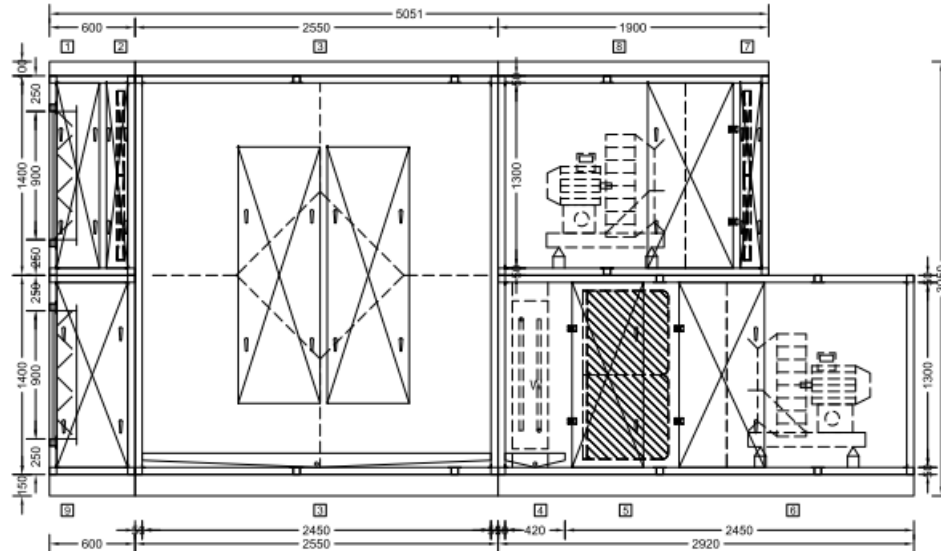
**1.1 Nearest Residential Receptor**

- 1.1.1 The nearest identified residential receptor is the development on the corner of Newton Street and Holborn Road.

## 1.2 Proposed Plant

1.2.1 The proposed Air Handling Unit (AHU) plant for the ground floor plant room is shown in Figure 1.

**Figure 1:** Proposed plant



1.2.2 The components of the AHU are listed below.

1. Inlet Section
2. Panel Filter
3. PHX
4. CW Coil
5. Bag Filter
6. Plenum Fan
7. Panel Filter
8. Plenum Fan
9. Outlet Section

## 1.3 Local Authority Policy

1.3.1 Camden Development Policies forms part of the Council's Local Development Framework (LDF) under Camden Development Policies 2010-2025 Local Development Framework<sup>i</sup>, the group of documents setting out our planning strategy and policies. The lead Local Development Framework document is the Core Strategy, which sets out the key elements of the Council's planning vision and strategy for the borough and contains strategic policies. Part of that strategy is reducing noise pollution.

1.3.2 In relation to plant noise impact the policy gives the following guidance, see their reproduced 'Table E' under Table 1.

**Table 1:** Noise levels from plant and machinery at which planning permission will not be granted.

Noise description and location of measurement	Period	Time	Noise level
Noise at 1 metre external to a sensitive facade	Day, evening and night	0000 - 2400	5dB(A)<L <sub>A90</sub>
Noise that has a distinguishable discrete and continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive facade.	Day, evening and night	0000 - 2400	10dB(A)< L <sub>A90</sub>
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive facade.	Day, evening and night	0000 - 2400	10dB(A)< L <sub>A90</sub>
Noise at 1 metre external to sensitive facade where L <sub>A90</sub> >60dB	Day, evening and night	0000 - 2400	55dB L <sub>Aeq</sub>

## 1.4 BS4142 Guidance

- 1.4.1 Guidance given in Table 1 is based on BS 4142:1997 'Method for Rating Industrial Noise affecting Mixed Residential and Industrial Areas'<sup>iii</sup> provides a method of determining the 'likelihood of complaint' due to industrial noise sources explained in section 1.5.

## 1.5 BS4142 Guidance

- 1.5.1 BS 4142:1997 'Method for Rating Industrial Noise affecting Mixed Residential and Industrial Areas' provides a method of determining the 'likelihood of complaint' due to industrial noise sources.
- 1.5.2 The basis of the BS4142 standard is a comparison between the background noise level (L<sub>A90</sub>) in the vicinity of residential locations and the rating noise level of the industrial noise source under consideration. The Rating Level (L<sub>Aeq,T</sub>) is the specific noise level plus a 5dB penalty added (if the noise is tonal or impulsive in nature).
- BS4142 suggests that a Rating Level excess of up to 5dB(A) above the background noise level at the receptor is '**of marginal significance**'.
  - If the Rating Level due to the noise source exceeds the background noise level by more than 10dB(A) then the indication is that '**complaints are likely**'.
  - If the Rating Level of the noise source is more than 10dB(A) below the background noise level this is a positive indication that '**complaints are unlikely**'.
- 1.5.3 In this instance a Specific Noise Level from external plant to be 5dB below the measured background noise level at the nearest noise sensitive receptor is proposed.

## 1.6 Plant Emission Limits

- 1.6.1 The following noise emission limits have been set based on a previous Aecom report<sup>1</sup>. The limits have been determined to achieve a BS4142 rating level of -5 dB at 1m from the facades of the nearest noise sensitive properties.
- 1.6.2 The noise targets are based on plant noise levels not containing tonal or impulsive characteristics. Alternatively, if plant noise levels vary by 5dB or more between adjacent one-third octave bands then noise limits should be 5dB lower than shown in Table 2 and as per guidance in Table 1. This in turn means that all plant noise levels would need to be 5dB lower than recommended.

**Table 2:** Plant Noise Limits.

	Free-field Noise Emission Limit at 1m from the Facade of the Upper Floors of the Nearest Residential Property.	
	Location 1 (properties overlooking High Holborn and Newton Street)	Location 2 (Properties overlooking the delivery yard)
Night-time (23:00 – 07:00)		
Daytime (07:00hrs – 23:00hrs)	47dBA	40dBA
Night-time (23:00 – 07:00)	45dBA	37dBA

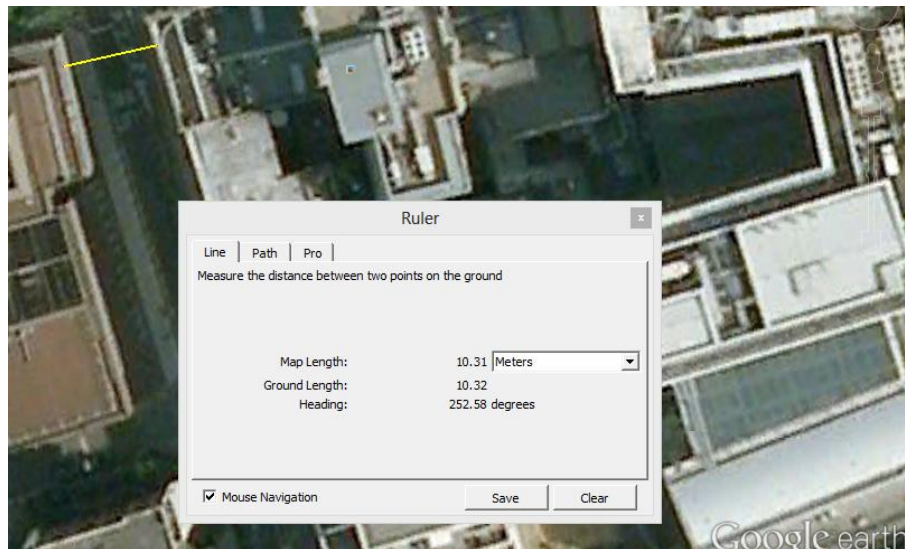
- 1.6.3 The lowest level by the Newton Street receptor is 45dB  $L_{A90}$ . Therefore the noise target by the receptor is 40dB  $L_{Aeq,T}$ .

## 1.7 Assessment

- 1.7.1 The distance of the louvred facade to the ground floor plant room and the Newton Street receptor is 10 metres, see Figure 2.

<sup>1</sup> Aecom Report Job No 60147030/M041 Reference 60147030/Rp1v3 dated August 2011.

**Figure 2: Distances from Proposed Plant to Receptor.**



1.7.2 All sound power level plant data has been supplied<sup>2</sup> but we cannot be held responsible for the accuracy of plant noise data provided. The sound pressure level at the receptor has been calculated as follows:

- $L_p = L_w - 20 \times \log(r) - (11 + D.I.)$ .
- Where  $L_p$  or ( $L_{Aeq,T}$ ) = sound pressure level.
- $r$  = distance of plant from receptor.
- D.I. = Directivity Index or 3dB to account for reflection.

1.7.3 Sound Pressure Level data and calculated sound pressure level at receptor have been calculated as follows:

$$L_{pR} = L_{pr} - (20 \times \log(R/r))$$

where

- $L_{pR}$  = sound pressure level at distance R metres
- $R$  = distance of measurement point from plant.
- $L_{pr}$  = sound pressure level at distance r metres

1.7.4 5dB attenuation has been adopted for non-acoustic louvres and 15dB for acoustic louvres. The calculation is shown in Table 3.

<sup>2</sup> AHU data and silencer sizes supplied by Andy Murray, Facilitas via email to Miles Woolley, Environoise Consulting Limited on 02.04.2014. It was understood too that AHU03 was the one to be assessed.

**Table 3:** Maximum Allowable Plant Noise Levels.

L <sub>w</sub> (dBA) from plant	L <sub>Aeq,T</sub> (dB) at receptor (no treatment)	non-acoustic louvre attenuation	Acoustic louvre attenuation	Maximum L <sub>Aeq,T</sub> (dB) at receptor
73	45	-5dB		40
83	55		-15dB	40

## 1.8 Recommendations

- 1.8.1 Requirements will be met providing that the total sound power level from plant is less than 73dBA L<sub>w</sub> if a standard weather louvre and no door (in facade) or a heavyweight door with good seals is used.
- 1.8.2 Alternatively if the total sound power level from plant is less than 83dBA L<sub>w</sub> an acoustic louvre offering 15dBA attenuation will produce the desired result. The same comments regarding the door apply.

## 1.9 Proposed Silencers

- 1.9.1 Proposed supply and extract silencers will result in noise levels<sup>3</sup> given in Table 4 (figures given are in-duct and include self noise).

**Table 4:** Maximum Allowable Plant Noise Levels.

	Octave centre frequency bands (Hz)								L <sub>w</sub> (dBA)
	63	125	250	500	1000	2000	4000	8000	
Silencer									
Fresh air inlet	52	46	53	40	34	34	32	21	46
Exhaust air outlet	48	45	50	49	37	33	37	32	48
Log addition of levels									50

## 1.10 Conclusions

- 1.10.1 Requirements will be met with the proposed silencers and a non-acoustic louvre.

<sup>3</sup> Calculated levels of noise after insertion loss from proposed silencers with self noise or regenerated noise were calculated and provided by Phil Perry, Nendle Acoustics Company (Southern) Limited to Miles Woolley, Environoise Consulting Limited on 10.04.2014 via email.

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Yours sincerely,



**Miles Woolley MIOA**  
Principal Acoustics Consultant  
For and behalf of Environoise Consulting Limited

## References

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<sup>i</sup> Camden Development Policies 2010-2025 Local Development Framework.

<sup>ii</sup> BS 4142:1997 'Method for rating industrial noise affecting mixed residential and industrial areas'.