

COWSHED,  
115-117 REGENTS  
PARK ROAD,  
LONDON NW1

Plant Noise

Assessment

REPORT 6295/PNA  
Prepared: 15 July 2014  
Revision Number: 1

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# Plant Noise Assessment



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LONDON NW1

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Revision	Comment	Date	Prepared By	Approved By
Zero	First issue of report	23 June 2014	Robert Barlow	Torben Andersen
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## Contents

1.0	INTRODUCTION.....	1
2.0	CRITERIA.....	1
3.0	NOISE SURVEY.....	1
4.0	BACKGROUND SURVEY RESULTS.....	2
5.0	PLANT SURVEY RESULTS.....	3
6.0	MITIGATION.....	3
7.0	ASSESSMENT.....	3
8.0	CONCLUSION.....	4

## 1.0 INTRODUCTION

Following occupation of the premises at 115-117 Regents Park Road by the Cowshed spa and shop, installation of air movement plant has been installed.

RBA Acoustics have been commissioned to undertake measurements of the prevailing noise conditions at the site and assess if the atmospheric noise emissions from the unit are capable of achieving the London Borough of Camden's requirements.

This report presents the results of the noise measurements, associated criteria and provides the required assessment.

## 2.0 CRITERIA

The requirements of the London Borough of Camden for noise levels from new plant and machinery (as detailed in Development Policy 28 (DP28) of the Core Strategies document) are repeated below.

Table 6295/T1 – Local Authority Criteria

Noise Description and Location of Measurement	Period	Time	Noise Level
Noise at 1 metre external to a sensitive façade	Day, evening and night	00:00 - 24:00	5dB < L <sub>A90</sub>
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade	Day, evening and night	00:00 - 24:00	10dB < L <sub>A90</sub>
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade	Day, evening and night	00:00 - 24:00	10dB < L <sub>A90</sub>
Noise at 1 metre external to sensitive façade where L <sub>A90</sub> > 60dB	Day, evening and night	00:00 - 24:00	55dB L <sub>Aeq</sub>

## 3.0 NOISE SURVEY

### 3.1 General

The plant noise assessment survey was undertaken on Wednesday 11 June 2014 between the hours of 20:00 and 21:00 so as to represent the worst case (quietest) operation time of the equipment (the unit is timed to cease operation at 20:00).

During this period the weather was favourable for the noise measurement exercise, it being dry and with still wind conditions.

Measurements were taken of the L<sub>A90</sub> and L<sub>Aeq</sub> environmental noise levels over 10 minute sample periods with the plant switched off

### 3.2 Measurement Position

The air movement plant is located internally within the premises and ducted to atmosphere via two vents in the rear wall of the building. In order to determine the impact of noise from the vents measurements were undertaken close to the window of the nearest residential dwelling; which are around 2m directly above and adjacent.

The measurement position is also illustrated on the attached Site Plan 6295/SP1 and on the Photograph 6295/P1.

### 3.3 Instrumentation

The following equipment was used for the measurements.

Table 6295/T2 – Equipment Details

Manufacturer	Model Type	Serial No.	Calibration	
			Certificate No.	Expiry Date
01dB A&V Type 1 Sound Level Meter	Blue Solo 01	60611	U12035	14 September 2014
01dB A&V Pre Amplifier	PRE 21 S	13678		
01dB A&V ½" Microphone	MCE 212	84967		
01dB-Stell Calibrator	Cal 21	50441920	U12033	13 September 2014

The sound level meter was calibrated both prior to and on completion of the survey with no calibration drift observed.

## 4.0 BACKGROUND SURVEY RESULTS

The  $L_{eq}$  and  $L_{90}$  levels measured are detailed in the following Tables 6295/T3-4.

Table 6295/T3 – Measured  $L_{eq}$  Levels

Plant	Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Plant Off	49	50	39	37	34	31	27	19	40

Table 6295/T4 – Measured  $L_{90}$  Levels

Plant	Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Plant Off	45	47	36	34	30	24	17	13	37

## 5.0 PLANT SURVEY RESULTS

In addition to the baseline survey measurements undertaken by ourselves, noise measurements of the plant in operation were undertaken on behalf of the building services engineers, BBP Building Services Ltd. Measurements of the plant operating at Low Speed were undertaken at the same location as the RBA results referred to above.

The  $L_{eq}$  levels measured are detailed in the following Table 6295/T3.

Table 6295/T3 – Measured  $L_{eq}$  Levels

Plant	Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Plant On	54	54	49	45	39	32	25	19	45

Close inspection of the octave band sound pressure levels with the plant in operation also indicates that there are no tonal characteristics exhibited by the operation of the plant.

## 6.0 MITIGATION

In addition to limiting the speed of the air movement plant an acoustically lined plenum and louvre arrangement is proposed and will provide the following attenuation (as advised by BBP Building Services Ltd).

Table 6295/T4 – Attenuation

System	Minimum Insertion Loss (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Lined Plenum / Louvre	5	6	8	13	17	20	15	14

## 7.0 ASSESSMENT

Referring to the Local Authority requirements for noise from plant installations, an operating level of 5dB below the lowest measured background should be targeted. From our measurements this would require a level of 32dB when assessed at the nearest residential receptor.

The following calculation is provided:

Table 6295/T5 – Calculation

Plant	Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Plant On	54	54	49	45	39	32	25	19	45
Attenuation	-5	-6	-8	-13	-17	-20	-15	-14	
Distance Loss	-6	-6	-6	-6	-6	-6	-6	-6	
Total	43	42	35	26	16	6	4	-1	30

The plant operating noise levels are therefore within the target criterion as required by the London Borough of Camden by 2dB.

## 8.0 CONCLUSION

A noise assessment has been undertaken regarding the air movement plant installed at 115-117 Regents Park Road, London NW1. Measurements of noise levels have been undertaken, in order to determine the contribution to background noise by the plant installation.

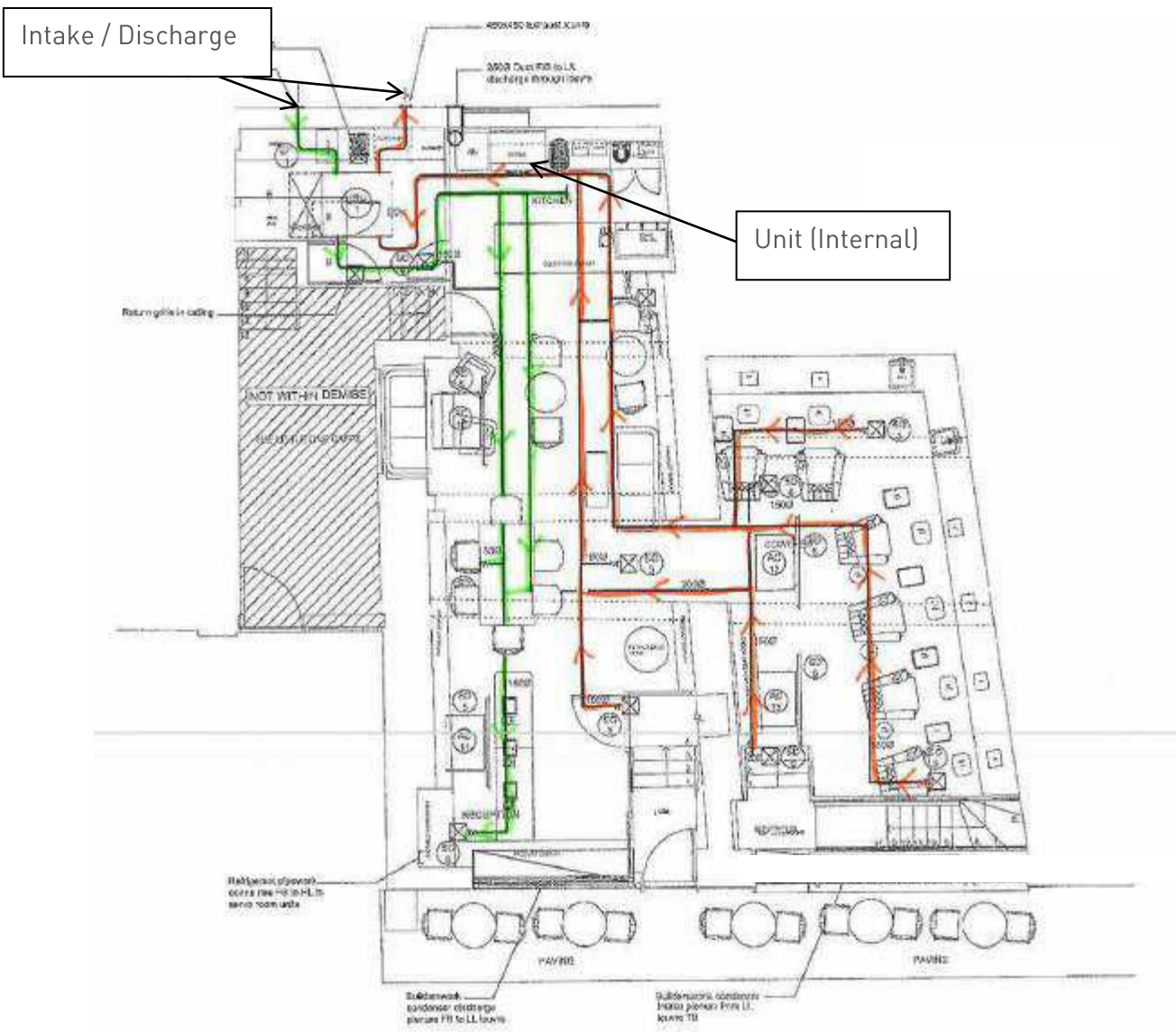
Attenuation has been specified to the air movement plant in order to reduce the noise levels at the residential windows.

The results of the measurements indicate that the attenuated equipment, when operating in Low Speed, is within the standard planning requirements of the London Borough of Camden.

## Appendix A - Acoustic Terminology

dB	Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.
dB(A)	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dB(A) level. Because of being a logarithmic scale noise levels in dB(A) do not have a linear relationship to each other. For similar noises, a change in noise level of 10dB(A) represents a doubling or halving of subjective loudness. A change of 3dB(A) is just perceptible.
$L_{eq}$	$L_{eq}$ is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (1 hour).
$L_{Aeq}$	The level of notional steady sound which, over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measured over that period.
$L_{An}$ (e.g. $L_{A10}$ , $L_{A90}$ )	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The $L_n$ indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence $L_{10}$ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, $L_{90}$ is the average minimum level and is often used to describe the background noise.
$L_{max,T}$	The instantaneous maximum sound pressure level which occurred during the measurement period, T. It is commonly used to measure the effect of very short duration bursts of noise, such as for example sudden bangs, shouts, car horns, emergency sirens etc. which audibly stand out from the general level of, say, traffic noise, but because of their very short duration, maybe only a very small fraction of a second, may not have any effect on the $L_{eq}$ value.

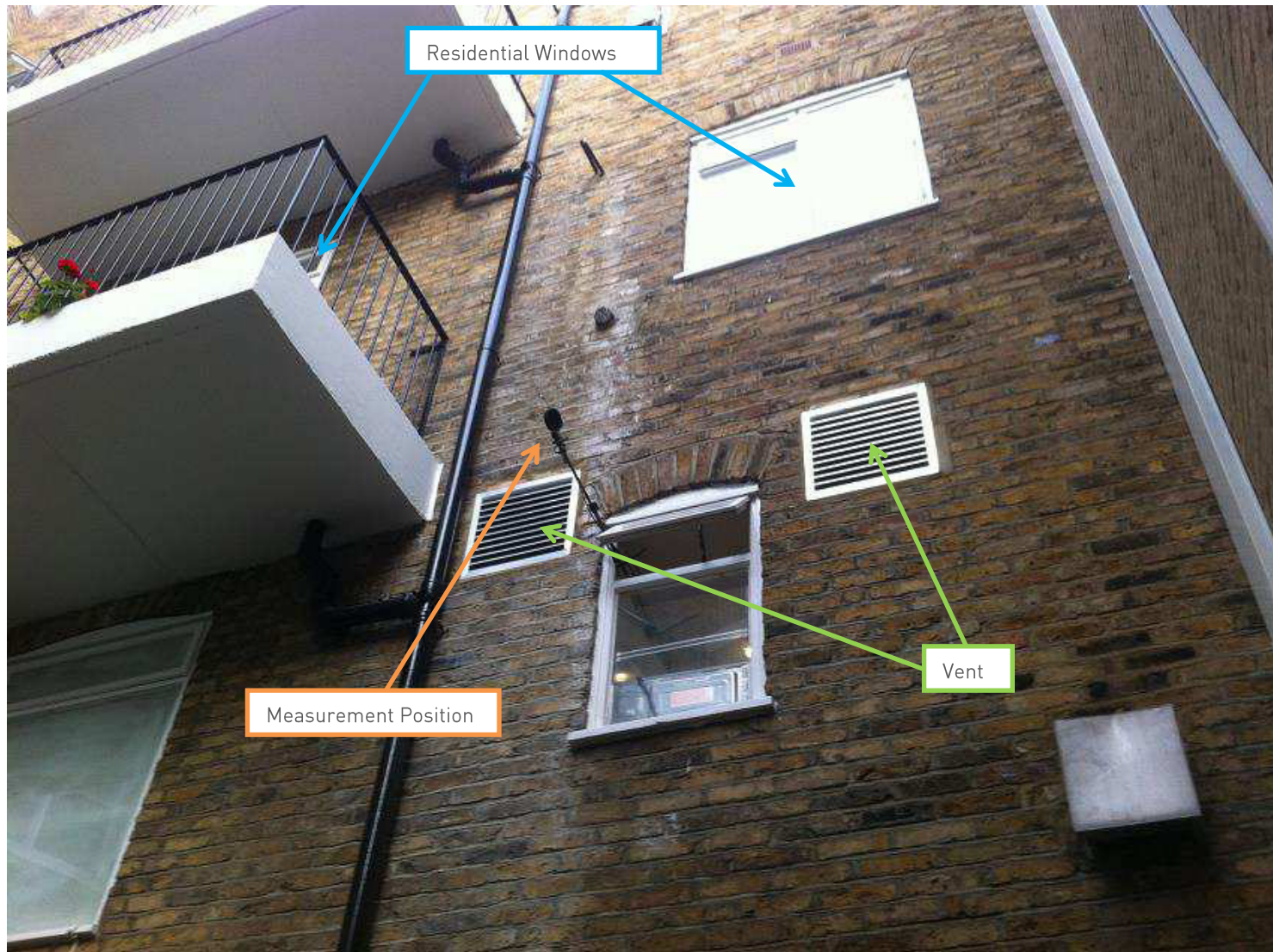




COWSHED, 115-117 REGENTS PARK ROAD, LONDON NW1  
 Site Plan Showing Plant Locations

Site Plan 6295/SP1  
 23 June 2014  
 Not to Scale





COWSHED, 115-117 REGENTS PARK ROAD, LONDON NW1

Photograph of Measurement Position and Site Layout

Site Plan 6295/P1

15 July 2014

Not to Scale



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