

17 Monmouth Street London

ENVIRONMENTAL NOISE SURVEY & PLANT NOISE ASSESSMENT REPORT 21166/PNA1.RevA

For:

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APPENDIX A

Revision No.	Date	Description
A	16/04/2015	Included details of indicative plant and corresponding Acoustic Specification for Acoustic Louvre Screening.

This report has been prepared by Hann Tucker Associates Limited (HTA) with all reasonable skill, care and diligence in accordance with generally accepted acoustic consultancy principles and the purposes and terms agreed between HTA and our Client. Any information provided by third parties and referred to herein may not have been checked or verified by HTA unless expressly stated otherwise. This document contains confidential and commercially sensitive information and shall not be disclosed to third parties. Any third party relies upon this document at their own risk.

1.0 INTRODUCTION

A new item of air conditioning plant is proposed at 17 Monmouth Street. Hann Tucker Associates has therefore been commissioned to undertake an Environmental Noise Survey and Plant Noise Assessment.

This report presents the survey methodology and findings. The survey data has been used as the basis for various acoustic assessment purposes.

2.0 OBJECTIVES

To establish the existing noise levels by means of fully automated noise monitoring over a period of approximately 24 hours at one secure and accessible position.

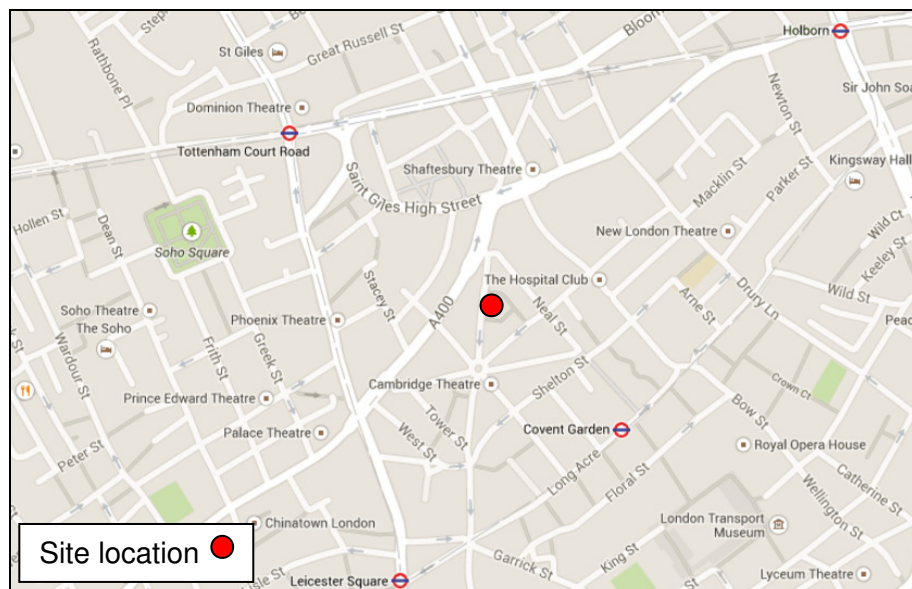
To assess the noise emissions from the proposed plant, based upon data with which we are provided, and comment upon the acceptability.

To advise on noise control measures if required with reference to the requirements of the Local Authority.

3.0 SITE DESCRIPTION

3.1 Location

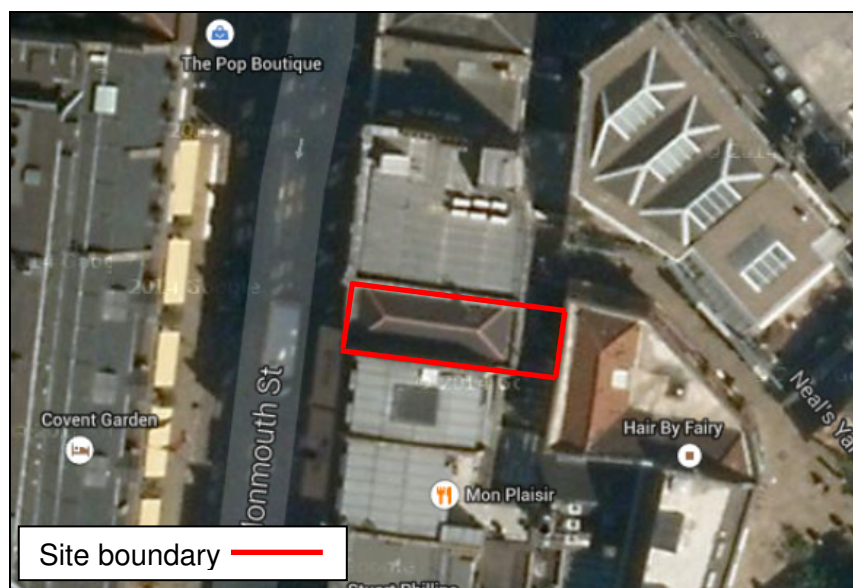
The site is located at 17 Monmouth Street, London, WC2H9DD and falls within London Borough of Camden's jurisdiction. See Location Map below.



Location Map (Map Data ©2014 Google.)

3.2 Description

17 Monmouth Street comprises of ground floor plus 3 storeys with a basement. It is bounded by Monmouth Street to the west, mixed use properties to the north and south, and properties on Neal's Yard to the east.



Site Plan (Imagery © 2014 Bluesky, DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky, Map Data ©2014 Google.)

4.0 ACOUSTIC TERMINOLOGY

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

5.0 METHODOLOGY

The survey was undertaken by Luke Rendell B.A (Hons) AMIOA.

5.1 Procedure

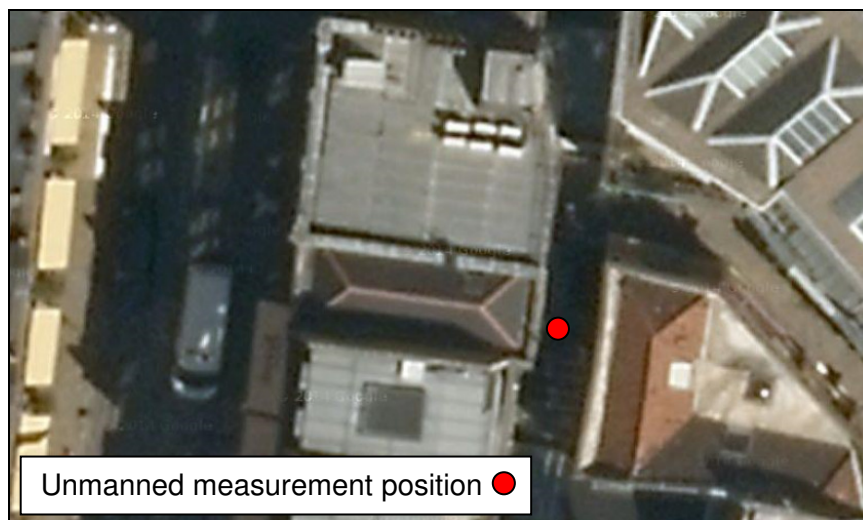
Fully automated environmental noise monitoring was undertaken from approximately 08:45 hours on 2 March 2015 to 08:45 hours on 3 March 2015.

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately comment on the weather conditions throughout the entire survey period. However at the beginning and end of the survey period the wind conditions were light and the sky was overcast. We understand that generally throughout the survey period the weather conditions were similar to the above. These conditions are considered suitable for obtaining representative measurement results.

Measurements were taken continuously of the A-weighted (dBA) L_{10} , L_{90} , L_{eq} and L_{max} sound pressure levels over full 15 minute periods.

5.2 Measurement Position

The noise level measurements were undertaken at position 1. The sound level meter was located by the residential entrance at the rear of 17 Monmouth Street at first floor level. The microphone was mounted on a pole at 1m from the first floor residential window of 17 Monmouth Street, overlooking the rear yard.



Unmanned Measurement Position (Imagery © 2014 Bluesky, DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky, Map Data ©2014 Google.)

5.3 Instrumentation

The instrumentation used during the survey is presented in the Table below:

Description	Manufacturer	Type	Serial Number	Latest Verification
Position Type 1 Data Logging Sound Level Meter	Larson Davis	824	3053	LD calibration on 22/08/2014
Position Type 1 1/2" Condenser Microphone	Larson Davis	2541	51311	LD calibration on 22/08/2014
Type 1 Calibrator	Larson Davis	CAL200	3082	LD calibration on 18/03/2014

The sound level meter, including the extension cable, was calibrated prior to and on completion of the survey. No significant change was found to have occurred (no more than 0.1 dB).

The sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. The microphone was fitted with a Larson Davis windshield.

6.0 RESULTS

The results have been plotted on Time History Graph 21166/TH1.1 enclosed, presenting the 15 minute A-weighted (dBA) L_{90} , L_{eq} and L_{max} levels at each measurement position throughout the duration of the survey.

The lowest day time and night-time L_{A90} background noise during the survey period are presented in the table below.

Period	Sound Pressure Level L_{A90} (dB re 2×10^{-5} Pa)
Day time (07:00 – 23:00)	45.0
Night-time (23:00 – 07:00)	41.5

7.0 DISCUSSION OF NOISE CLIMATE

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However at the beginning and end of the survey period the dominant noise sources were noted to be road traffic noise from Monmouth Street and the nearby A400, and conversation from people walking through Neal's Yard.

8.0 PLANT NOISE EMISSION CRITERIA

The site falls within London Borough of Camden's jurisdiction. Table E from Section 3 of 'Camden Development Policies 2010-2025 Local Development Framework' is presented below.

Table E: 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 façade	Day, evening and night	0000-2400	5dB(A) <LA90
Noise that has a distinguishable discrete continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade.	Day, evening and night	0000-2400	10dB(A) <LA90
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade.	Day, evening and night	0000-2400	10dB(A) <LA90
Noise at 1 metre external to sensitive façade where LA90>60dB	Day, evening and night	0000-2400	55dB L_{Aeq}

The proposed item of plant is a condenser unit. Although final selection for the proposed unit has not yet been received we would not usually expect this type of unit to emit distinct impulses or distinguishable notes. Therefore the relevant criteria from the table above is 5dB below the lowest LA90 background noise level measured at 1m from the nearest noise sensitive façade.

Therefore the plant noise emission criteria, to be achieved at 1m from the rear first floor residential façade of 17 Monmouth Street are given in the table below

Period	Sound Pressure Level L_{A90} (dB re 2×10^{-5} Pa)
Day time (07:00 – 23:00)	40.0
Night-time (23:00 – 07:00)	36.5

9.0 PLANT NOISE ASSESSMENT

We understand that final plant selection will be made by the tenant. However the indicative selection is based on a Daikin 3MXS68G condenser unit, for which the manufacturer's sound power level noise data is 61dBA.

9.1 Location of Plant

We understand the condenser unit is to be located internally with a louvered door leading out into the rear yard of 17 Monmouth Street, at ground floor level.

9.2 Plant Noise Impact Assessment

We understand that the proposed unit may be operational during both daytime and night-time hours.

Our calculations indicate that in order for the proposed plant to comply with the plant noise emission criteria set out in section 8.0, the sound pressure level at 1m from the louvered doors should be limited to 48dBA.

Based on typical spectral data for units of this type, shifted to meet the manufacturers single figure data, in order for a the indicitive condenser unit to meet this limiting level, the louvered doors would need to be formed from acoustic louvres which meet the attached Acoustic Specification for Acoustic Louvre Screening.

10.0 CONCLUSIONS

A detailed 24 hour daytime and night-time fully automated environmental noise survey has been undertaken in order to establish the currently prevailing environmental noise climate around the site.

Plant noise emission criteria have been recommended based on the results of the noise survey and with reference to the requirements of the Local Authority.

An assessment has been carried out to determine the limiting sound pressure level required at 1m from the new plant area in order for the proposed plant to comply with the Local Authority criteria.

The assessment indicates that with the indicative plant selection, acoustic louvres or acoustic louvre doors will be necessary in order for the proposed plant to be capable of achieving the requirements of the Local Authority at the nearest noise sensitive residential façade.

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17 MONMOUTH STREET

ACOUSTIC SPECIFICATION FOR

ACOUSTIC LOUVRE SCREENING

Acoustic louvre screening or acoustic louvre doors shall extend continuously across the front of the opening to the plant area.

Performance

The acoustic louvres shall be at least 300mm deep and provide, in their as-installed condition, the following minimum combined sound reduction indices (SRI's)/Transmission Losses when tested in accordance with BS EN ISO 10140-2:2010:

Minimum Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
5	7	10	12	13	14	12	9

Construction

The louvre frame shall be constructed from a suitable gauge of galvanised mild steel, or aluminium, supporting louvre blades of like material. The acoustic material in the blades shall be packed to a density of not less than 45kg/m³ and be inert, rot and vermin proof, non-hygroscopic incombustible mineral fibre. This shall be faced with glass fibre cloth, or other approved infill protection membrane, and retained on the lower blade face by perforated galvanised mild steel or aluminium (not "expamet" or similar derivative) having a minimum thickness of 0.5mm fixed at 200mm (max) centres.

All junctions between the acoustic screen and adjacent structures shall be made good and sealed with a heavy grout and/or non-hardening dense mastic.

The supplier shall ensure that the assembled enclosure is designed and constructed to withstand site operating conditions such as wind and snow loads, etc., as appropriate, and is suitably weatherproofed.

The acoustic media shall not comprise materials which are generally composed of mineral fibres, either man made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less or which contain any fibres not sealed or otherwise stabilised to ensure that fibre migration is prevented.

Any deviations from the above specification must be agreed by, and confirmed in writing to, Hann Tucker Associates.

Appendix A

The acoustic terms used in this report are as follows:

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.

dBA : 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 dBA level.

Because of being a logarithmic scale noise levels in dBA do not have a linear relationship to each other. For similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

L₁₀ & L₉₀: 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 L₁₀ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L₉₀ is the average minimum level and is often used to describe the background noise.

It is common practice to use the L₁₀ index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

L_{eq} : The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

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 (e.g. 1 hour).

The use of digital technology in sound level meters now makes the measurement of L_{eq} very straightforward.

L_{max} : L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

17 Monmouth Street

Monday 2 March 2015 - Tuesday 3 March 2015

